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“Our mission is to empower customer success by being the trusted partner in delivering quality products and innovative solutions for leading electronic manufacturers.”

StenTech 
Innovative Problem Solvers

**The leading Multi-national
SMT Printing Solutions Company**

StenTech™ 25 YEARS

Innovative Problem Solvers

-  **#1**
Largest in North America
-  **Quality Precision Manufacturing**
-  **Local Rapid Turnaround**
-  **Unrivaled Personal Support**

We add value by making sure your lines keep running smoothly and efficiently, mitigate risks and downtime by providing time sensitive precision products and focus on helping your business be profitable and successful.



StenTech sets the industry standard for precision, reliability, and speed in SMT printing solutions, delivering unparalleled quality and support to ensure the success of your business.



Consistency, reliability and ease of doing business.

In the SMT industry, precise stencils and tooling are essential. These components require meticulous design and prompt delivery, with no room for compromise on quality, speed, or reliability. Any issues or delays can lead to significant costs in an environment where timing is crucial and faults are costly. StenTech excels in offering unmatched quality, specialized products, and reliability.

Having a dependable local supplier is invaluable when issues arise. Experienced engineers ensure flawless designs, and we provide industry-best stencils, tooling and parts and swift delivery times to keep production on schedule and drive your business forward.

StenTech is your dedicated partner for success, Our consistent service enables the uptime reliability of our customers

Our Team

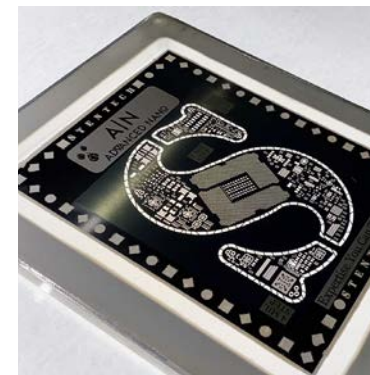
With a team of over 30 CAD designers, we're here to creatively solve your problems. We're all about precision engineering that's backed by extensive production experience, cutting-edge technology, top-notch sales support and fast turnaround times making it easy to do business together and ensuring peace of mind and reliability for all our customers.

- Largest solutions provider in the industry
- 1-stop shop for all your assembly needs
- 20+ locations for local service
- Fastest turnaround times
- Widest range of products
- Highly skilled multi-disciplinary team
- Unparalleled customer service
- 25 years of excellence

We always strive to meet your mission critical deadlines without risking quality and trust.

Stencils

StenTech SMT stencils are the gold standard in the industry, renowned for their precision engineering, unmatched reliability, and our ability to rapidly deliver flawless laser cut and electroform stencils even with the most challenging designs.



Tooling

Our customized advanced tooling and wave solder pallet solutions are uniquely tailored to your specifications and engineered to streamline production processes, enhance quality control, and optimize operational efficiency.



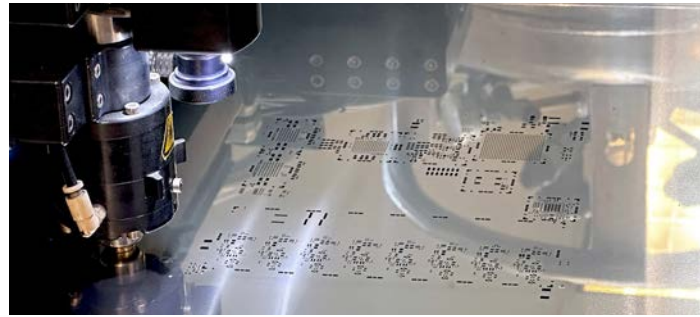
Parts

We specialize in laser-cut and chemically etched precision metal parts. From prototypes to full production, we offer quick quotes, low tooling costs, and fast turnaround.



SMT STENCILS

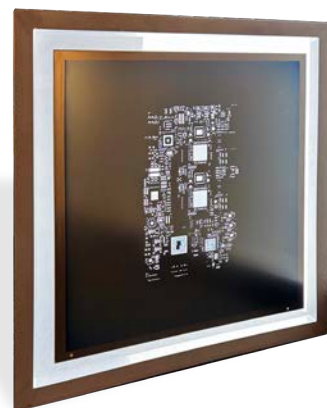
Laser Stencils



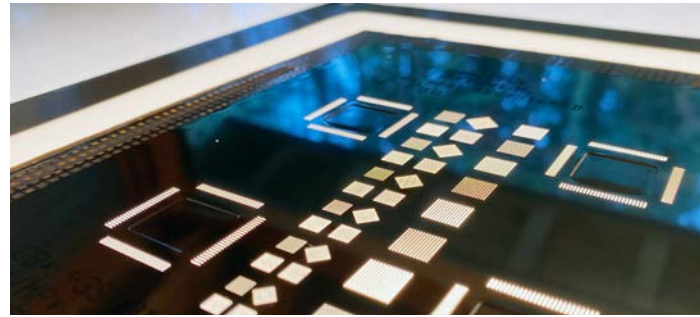
StenTech's Laser Cut SMT Stencils are the epitome of precision and reliability in the realm of surface mount technology. Meticulously crafted with cutting-edge laser technology, these stencils embody excellence, offering unparalleled quality and performance for your PCB assembly needs. With a commitment to innovation and customer satisfaction, StenTech delivers stencils that set the standard for accuracy, ensuring optimal solder paste deposition and impeccable printing results. Whether you're prototyping a new design or ramping up production, StenTech's Laser Cut SMT Stencils are your trusted partner for achieving flawless PCB assemblies.

- Positional accuracy of $\pm 2 \mu\text{m}$,
- Dimensional accuracy of $\pm 2 \mu\text{m}$
- Available thickness: 2 mil to 12 mil standards, other thickness is available upon request.
- Available frame size: Standard frame size from 5x5 to 29x71 inch.
- Custom frames are available with limited capabilities.
- Contact your Sales rep or CAD engineers for more information.

StenTech also produces High Definition Print Stencils (HDP) that are manufactured with high tension mesh designed to address the challenges posed by smaller components. With improved snap-off from board to stencil during the print process, we ensure an exceptional paste deposit on the board.



Step Stencils



An SMT Step Stencil, also known as a Step or Multilevel stencil, is designed with varying material thicknesses, providing specialized capabilities for solder paste application. StenTech provides a wide array of Step Stencils tailored to different needs. The selection process considers factors such as production volume, budget, desired precision, and turnaround time. With the increase of mixed technologies on boards, stepped stencils play a key role in acquiring the desired paste volume on certain components which cannot be achieved from a single thickness stencil.

Laser-Welded SMT Step Stencils:

- **Process:** This is an additive process in which a laser is used to achieve the desired metal thickness. Stencils are created with high accuracy and tighter tolerance. Fine grain and phd SS are the common materials for this process.
- **Features:** No surface roughness on the metal, high precision, good squeegee elevation to the step area
- **Advantages:** Faster turn time, tighter tolerance on the thickness since we are using the same standard material from the vendor.
- **Considerations:** Limitation on the step pocket/area and thickness. Contact our CAD engineers for more information.

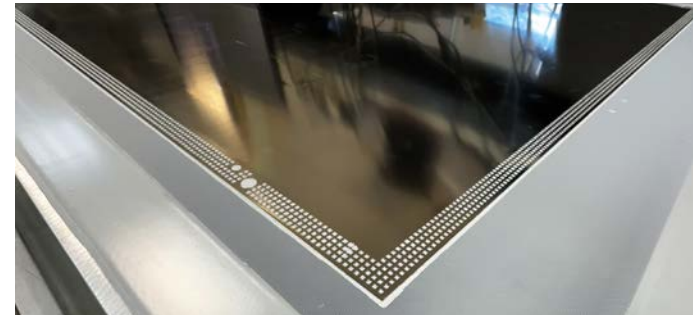
Chemically Etched SMT Step Stencils:

- **Process:** This is a subtractive process in which the stencils are created by chemically etching the metal sheets.
- **Features:** They offer high precision and fine detail on step islands.
- **Advantages:** etched area could be very large or small. Popular for relief etch stencils for gasketing the board with the stencils and many pockets on a stencil.
- **Considerations:** Thicker the metal, higher the tolerance on the step area. Contact our CAD engineers for more information.

Milled SMT Step Stencils:

- **Process:** This is a subtractive process in which the stencils are created by milling away material from a metal sheet,
- **Features:** Low surface roughness results in better paste deposit.
- **Advantages:** Can be used for thicker stencils with high accuracy and tolerances
- **Considerations:** Higher cost compared to chemically etched / Laser Welded step stencils. Contact our CAD engineers for more information

Materials



StenTech manufactures SMT stencils using a variety of materials, including PHD, Fine Grain, and Nickel Base.

PHD

(PHD is the name of this product, not an acronym)

- Grain size is 5-7 microns
- PHD base material is 304 with proprietary rolling method
- This method reduces the relief tension of the material
- The relief tension eliminates the canning/potato chip effect on BGA's or highly populated boards
- The small grain size creates a smoother aperture wall when cutting and increases paste deposit
- Material thickness tolerance plus/minus 2% material thickness

FG

FG stands for Fine Grain

- Grain size is 1-2 microns
 - FG base material is 301 with proprietary rolling method
 - This method reduces the relief tension of the material
 - The relief tension eliminates the canning/potato chip effect on BGA's or highly populated boards
 - The small grain size creates a smoother aperture wall when cutting and increases paste deposit.
 - Ideal for Ultra fine pitch components with lower AR
 - Material thickness tolerance plus/minus 2% material thickness
- Ideal for stencils with miniature apertures

Nickel Blanks

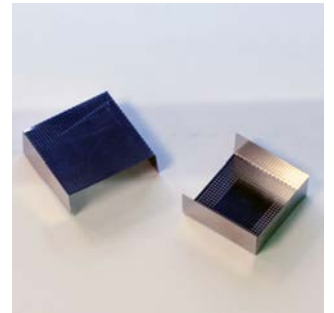
- Grain size Nano microns
- Grown blanks using Electroform process
- Control thicknesses allows for increments of .1 mil therefore sheet thicknesses can be 3, 3.1, 3.2 up-to 7 mil
- Durable
- Material thickness tolerance plus/minus 5% material thickness

SMT Emulsion Screen



StenTech produces SMT Emulsion Screens known for their versatility in printing. This process involves stretching mesh onto a frame, applying emulsion, and imaging the mesh for printing. Emulsion screens are crucial in industries like automotive and microelectronics that require precise deposits and line widths. StenTech ensures its screens meet these specifications. Emulsion screens are widely used in various industries such as display, advertising, aerospace, microelectronics, textiles, ceramics, circuit board production, and glass printing. StenTech offers a range of mesh options including polyester, stainless steel, nickel mesh, and nickel-polyester combinations, each with unique weaves and thread thicknesses.

Re-Work Mini Stencils



StenTech's BGA Re-Work Mini Stencils are small stencils made for precise solder paste application during BGA rework on PCBs. These stencils match the footprint and aperture sizes of the original production stencil for accuracy. They come with holders and squeegee blades for easy solder paste application. StenTech can create rework stencils for various components using Gerber data or mechanical drawings. The mini stencils are designed for use with dedicated BGA rework systems or for manual printing. They are stable, flat, and designed not to contaminate surrounding areas. Side reinforcements prevent shifting, and front ramps prevent paste spillage. Custom squeegee blades are included for each mini stencil, and flat plates or mounted flat plates are available for use when there is enough space around the components on the board.

For our full range of ELECTROFORM Stencils please see StenTech's PhotoStencil Specialized Products Division section.

[StenTech.com/Stencils](https://www.stentech.com/Stencils)



AdvancedNano
Superior Coating Technology

  
Rapid delivery • Durability • Exclusive



AWARD WINNING COATING

StenTech Advanced Nano™

StenTech's award winning Advanced Nano is an exceptional coating that revolutionizes stencil technology. Unlike traditional stencils, this highly unique coating is applied to the bottom side of the stencil and inside the apertures, leaving the squeegee side uncoated. This advanced coating grants the stencil remarkable anti-adhesion properties, preventing solder / flux from sticking to it. Utilizing a specialized 1-2 um hardened nano coating, Stentech's Advanced Nano stencil boasts a permanent hydrophobic layer that repels solder flux.

Consequently, this innovative feature facilitates enhanced paste transfer during printing processes, leading to improved efficiency and precision in electronic manufacturing. Most of all it allows for **SAME DAY DELIVERY of your stencils where possible.**

Applying A/N to your solder stencil can increase paste release as much as 25%

Quickest lead time of a coated stencil
(A/N is fully cured for use 10 min after coating)
Allows for same day SHIPMENT!

- Coating is cured and ready to use/clean in 10mins
- Higher volume of paste release
- More uniform shape on solder deposits
- Higher transfer efficiency and print yields
- Reduced underside wiping
- Reduced surface energy of the paste contact area
- Better contour definition and lower failure.
- A/N thickness variance is +/- 1 micron across any stencil
- Greater yields on low-area-ratio / miniaturized applications

StenTech.com/advancednano



StenTech  **BluPrint™**
Ultra Vapor Coating



REVOLUTIONARY TECHNOLOGY

StenTech BluPrint™ PVD Stencils.

StenTech BluPrint™ eliminates the need for frequent replacements and ensures a longer lifespan for the stencil, ultimately reducing maintenance and replacement costs associated with traditional coatings while dramatically enhancing overall performance.

We are proud to present our latest innovation in stencil coating technology – the all new **StenTech BluPrint™ PVD (Physical Vapor Deposited) Surface Treatment.** Engineered to elevate the Surface Mount Technology (SMT) processes, this advanced coating offers a comprehensive set of benefits that collectively contribute to improved stencil performance, longevity, and the overall quality of the SMT assembly process streamlining production.



WINNER:
2024 CIRCUITS ASSEMBLY NPI AWARD



The continuous drive to reduce component sizes and circuit boards poses a challenge for solder paste printing with laser-cut stainless-steel stencils. Laser technology advancements align with coating finish improvements for these stencils. StenTech's BluPrint™ PVD is meticulously designed to be the top choice in North America for meeting the evolving requirements of the semiconductor and EMS industry.

StenTech.com/BluPrint



1ST IN THE US NORTH AMERICA MARKET



LIFETIME GUARANTEE OF THE STENCIL*



SUPERIOR TRANSFER EFFICIENCIES



ULTIMATE REPEATABILITY REDUCED COSTS



CONSISTENCY OF CPKS CONTACT ANGLE 105-107 RANGE

TOOLING & PALLETS

Wave Solder Pallets



StenTech offers cutting-edge capabilities in machining and drilling composite materials, allowing for the creation of custom-engineered wave solder pallets tailored to each client's needs. These pallets are designed to enhance overall process efficiency, reducing setup time and enabling the wave soldering of complex, double-sided circuit board assemblies. Additionally, they eliminate the need for expensive and labor-intensive masking, while also shielding heat-sensitive components.

StenTech's wave solder pallets enable the simultaneous processing of multiple boards, reducing issues like bridging and skipping. This not only increases production rates but also enhances automated assembly processes, making them an ideal choice for improving wave soldering operations.

SMT Carriers



StenTech's SMT Carriers are designed to provide precise alignment and secure holding of circuit boards throughout the assembly process. These carriers are constructed from high-temperature semi-conductive composite materials, ensuring durability and reliability. SMT carriers for PCBs provide enhanced support to ensure optimal printing quality, particularly for connectors located near the board edge.

The use of SMT Carriers offers several benefits, including a reduction in setup time and the elimination of unnecessary handling of PCB boards by operators. They also minimize board warping, eliminate the need for expensive hand masking, and reduce labor costs. Standardizing the process with these carriers ensures consistent results and minimizes soldering defects, making them an essential tool for improving surface mount assembly operations.

Pressfit Fixtures



StenTech's Press Fit Fixtures are designed to provide support for circuit boards during the insertion of press fit connectors, which requires significant force. These fixtures are made from materials such as ESD composite, G10, aluminum 6061, or stainless steel, based on the customer's specifications.

Using Press Fit Fixtures offers several advantages, including easy setup, consistent board support for paste deposits, and reduced rework, leading to cost savings. Dedicated tooling like Vacuum Plates is an industry standard for fast and repeatable setup, maintaining process stability, and reducing variation and defects in the screen-print process, crucial for SMT success.

Vacuum Print Support Fixtures



StenTech's Vacuum Support Fixtures are crucial for supporting circuit boards during SMT assembly, especially with increasingly complex board designs. These fixtures prevent warping, sagging, and bending, ensuring proper support for double-sided boards.

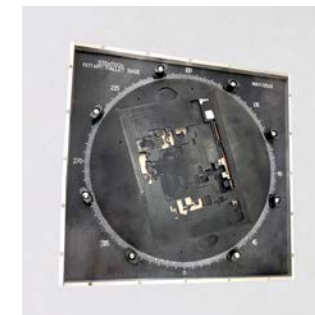
Using Vacuum Plates offers several benefits, including easy setup, consistent board support for paste deposits, and reduced rework, leading to cost savings. Dedicated tooling like Vacuum Plates is an industry standard for fast and repeatable setup, maintaining process stability, and reducing variation and defects in the screen-print process, crucial for SMT success.

Maintaining a flat and stable Z plane of the board is crucial, as variations can cause difficult-to-troubleshoot defects. Dedicated screen-print tooling reduces variation and defects, ensuring stable setup and process consistency in SMT assembly.

Routing (De-Panelizer) Fixture



StenTech routing (de-panelizer) fixtures are a specialized tool used in the PCB (Printed Circuit Board) assembly process. It is designed to securely hold a panel of PCBs while a routing machine cuts the individual boards from the panel. The fixture ensures precise alignment and support for the panel during the routing process, preventing damage to the PCBs and ensuring clean, accurate cuts. Routing fixtures are essential for efficient and reliable PCB assembly, especially in high-volume production environments.



Full Product Range & Code System

RWF	Rework Fixture
UNF	Underfill Fixture
ADP	Adjustable Pallet (Universal)
SKY	Skybar = CANOPY
HDB	Hold Down Bar
MTR	Material
TPL	Trim Plate
MOD	Modification on a Stentech part or job
CPM	Custom Part Modification
EDT	Engineering Design Time
CCF	Conformal Coating Fixture
WSB	Wash Basket
WSF	Wash Fixture
5DX	5DX Fixture
XRY	X-RAY FIXTURE
JDC	JEDEC FIXTURE
AOI	AOI Fixture
AXI	AXI FIXTURE
BPB	Blank PCB Board
RBF	Reballing Fixture
CUF	Custom Fixture, Description needed
CUP	Custom Part, Description needed
FPF	Flying Probe Fixture
GNG	Go/No Go
HSF	Hand Solder Fixture
PFF	Pressfit Fixture
PFI	Pressfit Insert (Cage support)
PFD	Pressfit Die
SMT	SMT Fixture (Printing, P&P, Reflow)
DRF	Depaneling Router Fixture
SSF	Selective Soldering Fixture
PSP	Print Support Plate
WSP	Wave Solder Pallet
ACC	Accessories



StenTech Parts

Innovative Problem Solvers



Easy
Quick quote for 1 to 10,000+ pieces. Expert design support.



On Point
Widest variety of surface finish options and in stock materials.



Fast
Rapid parts turn-around with direct to factory ordering.



Reliable
Precision quality. Knowledgeable, personal, service.



At StenTech we specialize in both laser cut and chemically etched precision parts produced to the exact specs that your project demands. From prototype to full production, with expert manufacturing, engineering and support teams, we provide rapid quoting, low tooling costs and fast turnaround times including quick design changes. Our facilities are equipped with the most advanced state-of-the-art technology that enables us to deliver exceptional, affordable quality parts with trusted repeatability.

Laser Cut Parts

StenTech specializes in laser-cut parts, providing solutions for all applications. We ensure tight tolerances of ± 0.001 " and even tighter, with cutting tolerances starting from ± 0.15 mm. Our capabilities include cutting dimensions up to 1500 x 3000 mm and cutting thicknesses ranging from 0.3 mm to 8 mm.

Chemically Etched Parts

Chemical etching is a process that shapes metal sheets by using etchants. At StenTech, we use this method to create precise components from various metals. It's a cost-effective way to profile and shape parts for precision applications, providing accuracy, speed, and unique properties. Unlike stamping and CNC machining, which can compromise metal integrity, chemical etching preserves it.

- Wide variety of metals & finishes
- CAD / CAM in-house
- Rapid prototyping
- Low tooling costs
- Precision engineered
- Large volumes
- Tight tolerances
- Tabbed in or individual pieces
- Burr free
- Long production life

Exceptional, affordable quality parts with trusted repeatability.

[StenTech.com/Parts](https://www.stentech.com/Parts)



SERVICE & SUPPORT



Online Customer Portal

Our new Online Customer Portal makes managing your orders and account easy. You can LOGIN anytime to place new orders, reorder quickly, approve quotes, track your order status, and manage invoices—all from one user-friendly portal. You'll also find how-to videos and resources for navigating the portal, along with videos showcasing our latest products and updates. Experience the seamless convenience of our powerful tool.



At StenTech, we pride ourselves on our expertise, speed, and reliability. We always aim to make doing business with us easy and our account managers are always here to help.

Step One

ORDERS & ACCOUNT SET-UP

New customers can request a quote on StenTech.com by submitting specifications and files. Our team will assign an account manager and engineer to review the job details and swiftly send back a quote. Upon approval, an account is set up, and your order begins.

- We understand the importance of time, so we prioritize fast quote turnaround and order processing for production.

Step Two

PRODUCTION

Your order is quickly put into production. We manufacture prototypes to full finished production pieces, and the turnaround time depends on the order's complexity. Each job undergoes rigorous inspection before shipping.

- We always strive to meet your mission critical deadlines without risking quality and trust.

Step Three

FULFILLMENT

We are committed to on-time delivery and ensure timely and accurate delivery of your jobs, consistently striving to provide exceptional service throughout the entire process.

- Your satisfaction and peace of mind are our top priorities.

StenTech

PHOTOSTENCIL
Specialized Products Division



With more than 25 years of industry experience, we are recognized as the foremost provider of advanced solutions for complex paste, flux, epoxy, and specialized materials printing requirements.



We're problem solvers

Photo Stencil's Applications Engineering Team comprises world-leading experts in stencil printing. Whether you're dealing with challenges like poor paste release or tiny aperture requirements down to micron wafer levels, our team is here to help. We see ourselves as an extension of your R&D team, ready to solve your printing challenges.

Photo Stencil's diverse product technologies require our inspection teams to have the expertise necessary to ensure your products meet the highest standards of quality and functionality.



Equipped to deliver

Our recently updated 35,000 sq. ft. factory in Golden, Colorado, houses state-of-the-art chemical plating production lines, R&D labs, clean rooms and precision fabrication equipment with end-to-end technology, including LED direct imaging (LDI) and AOI inspection, Advanced Nano coating and the revolutionary new StenTech BluPrint™ CVD (Chemical Vapor Deposited) Surface Treatment.

In addition to a comprehensive selection of SMT Stencils, we manufacture specialized tooling and custom wave solder pallet solutions that are meticulously crafted to match your specific requirements.



Teamwork & timing is everything

When issues arise, having a dependable supplier who can promptly address them is invaluable. It requires an experienced team with technical expertise to ensure flawless designs from the start, solid production, and effective communication, all leading to a guarantee of 100% reliability.

Delivery times typically range from two to fourteen days depending upon the complexity of the job and the volumes required.

Our goal is to offer customers unmatched service and technical expertise, providing great value, exceptional quality, and on-time delivery.

Photo Stencil

StenTech's Specialized Products Division

The foremost authority in electroform stencils.

Photo Stencil, is the leading provider of the most complex electroforming precision paste, flux, ball-drop, wafer bump and 3d stencils and screens in North America.

Photo Stencil, StenTech's specialized products division, is a global leader in electroform stencil technology for the semiconductor and EMS industry. We offer cutting-edge products with micron-level precision and a wide range of specialized solutions, techniques, and materials not available elsewhere in North America.

- Exclusive and unique specialized solutions
- Expertise in electroform stencil technology
- Highly trained CAD engineers
- Prototypes to high-volume manufacturing
- Advanced metrology capabilities
- Revolutionary StenTech BluPrint™ VDC
- Unrivaled customer service
- Unmatched quality and reliability

[StenTech.com/Photostencil](https://www.stentech.com/Photostencil)



SPECIALTY SOLUTIONS

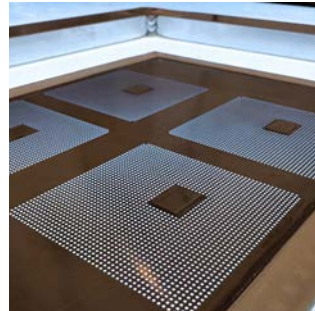
AMTX™ Standard Electroformed Stencils



Photo Stencil holds the exclusive manufacturing rights for the patented AMTX electroformed stencil the meticulous process for crafting metal stencils and parts, accomplished by depositing atoms one by one. This method yields an exceptionally precise duplicate from an initial mandrel or master surface. AMTX Electroforming provides exceptional repeatability and capacity to handle intricate designs. The nickel growth, atom by atom, around photo resist pillars during the Electroform Stencil process results in mirror-like aperture walls. These walls excel in facilitating the effortless release of solder paste compared to the walls of laser-cut apertures.

- Quick turn for large aperture count.
- Smooth aperture walls promote excellent paste transfer.
- Lower area ratios of the order of 0.43.
- Improved under screen cleaning (USC) performance and reduced cleaning frequency.
- Excellent tensile strength and hardness:
- Increases stencil life.

AccuScreen Electroform Mesh Stencils

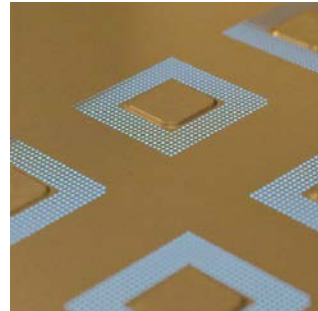


AccuScreen provides a high performance metal mask/screen fabricated using an additive process (Ni). Each large area is printed by mesh of apertures to control print volume. Primarily used for printing on flexible electronics, to print varieties of pastes and inks. Various mesh sizes and wire thicknesses are available with the standard sizes. Additional thickness and screen variation are also possible.

Reservoir Stencils are a special case of single thickness 3D electroform stencil used to print into a recessed pocket of the board. Stencil grown using the electroform process followed by – laser cutting of apertures (optional).

- Tailor different mesh patterns can be used, as per paste/flux properties. Eg: hexagonal, oval, rectangles, squares, circles
- Mesh shape can be adjusted to material flow properties and viscosity
- Greater print deposit uniformity and higher printing yields.
- Less pattern distortion since flat electroformed mesh does not stretch like screen wire mesh

NiEX™ Hard Nickel Electroformed Stencils

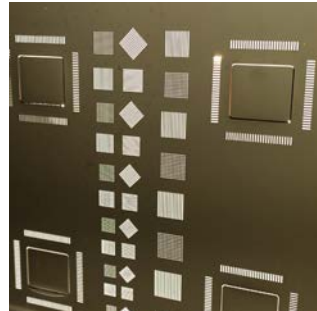


NiEX™ electroformed stencils use the same proprietary process as our market leading AMTX™ stencils. The NiEX™ stencil has a higher Knoop Hardness (HK) than our standard AMTX product for those very thin less than .003 applications such as wafer bumping or flux printing. Available in 1 to 3 mil thicknesses.

Ideal for applications with high density and mixed components, NiEX™ is ideal for fine pitch components including BGAs, QFNs and resistor networks

- Quick turn for large aperture count.
- Smooth aperture walls promote excellent paste transfer.
- Lower area ratios of the order of 0.43.
- Improved under screen cleaning (USC) performance and reduced cleaning frequency.
- Excellent tensile strength and hardness:
- Increases stencil life.

NiCut™ Electroformed Stencils w/ Laser Apertures



NiCut™ stencils are our standard Electroform (AMTX) Nickel Stencils with Laser Cut Apertures. Beginning life as an electroform stencil, followed by a secondary process utilizing Photo Stencil's own proprietary technology, which further extends the capabilities. These stencils utilize our electroform blank foil material to obtain the smoothest cut from our fiber optic laser system.

- Ideal for applications with high density and mixed components.
- NiCut is ideal for fine pitch components including BGAs, QFNs and resistor networks.
- This stencil is surpassed only by our electroformed stencils.

Step Stencils Electroformed, Laser Cut & Chemical

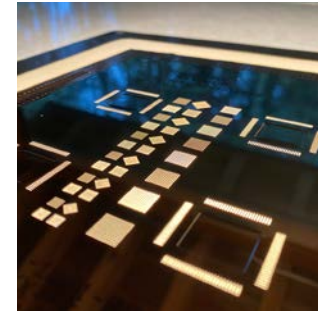
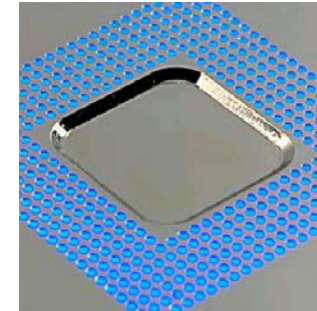


Photo Stencil's step stencils offer significant flexibility in achieving the proper solder paste height and solder paste volume for the overall paste printing process. Photo Stencil is pioneer in the field of Step Stencil technology with all processes contained in house for the most comprehensive service available in the industry.

- Available as 'step up' and 'step down' squeegee side, 'step up' PCB side or on both sides.
- Ideal for providing bar code relief and thus maintaining the maximum gasket.
- Matched Slit squeegee blades allow for flexure over the raised pocket areas.
- Multi-thickness steps available.

3-D Electroformed Stencils

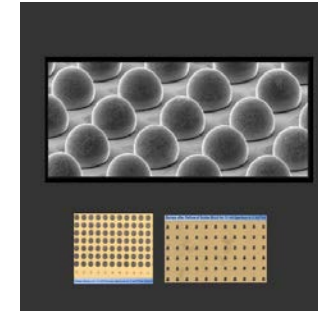


Our 3-D Electroform stencils are ideal for printing on substrate surfaces that have protrusions rising above the print surface. An example of this type protrusion might be a flip-chip device already mounted on the PCB prior to solder paste printing. This is a single thickness electroform stencil, with relief areas not to damage the protruded sections on the board or unit.

A single thickness Electroform Stencil is formed with a raised relief pocket positioned over the protrusion. A squeegee blade with a 25micron slit is ideal for allowing the squeegee blade to raise up over the raised pocket but still be able to print in front of and behind the raised pocket.

- Successful solder paste or flux printing
- Simplified process for multi level printing.
- Single stencil requirement – multi function design.
- Higher assembly yields from successful solder paste printing.

Wafer Bump Stencils

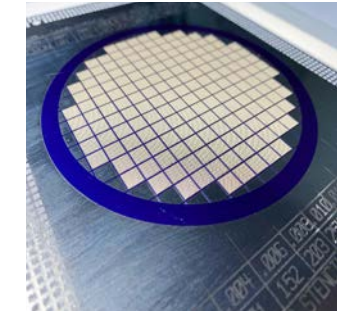


Wafer bumping stencils are electroform stencils used to obtain bumps on wafer pads. The stencil usually has from 25,000 apertures up to 500,000 apertures.

Photo Stencil produces two different sets of stencil to achieve this (a) Paste Print stencils: A print process where solder paste is printed on die pad on the wafer, the wafer is then re-flowed, melting the solder paste to form truncated spheres (bumps) on the wafer die

- Useful for bumping of wafers of various sizes and bump count and bump size (<200um).
- Typically used when pitch is at least more than 2 times the bump diameter. (b) Flux print +Ball Drop Stencils: Set of two stencils.

Wafer Ball Drop Stencils



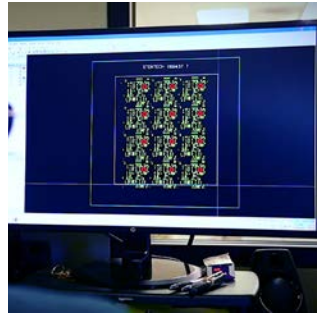
This is the second stencil from the set of Flux and ball-drop process used in wafer bumping. Flux is printed on to wafer pads using 1st stencil followed by using a wafer ball drop stencil to drop solder balls directly onto the connection pads of a wafer. Since flux is printed onto the wafer pads before the ball is dropped, it has optional relief or standoffs placed on contact side.

Stand off on wafer Ball drop stencil can be obtained by:
1. Laminating a mask (photo resist) on the wafer side of the stencil to keep the stencil from contacting the flux.
2. E-form Nickel rib layer is grown on wafer side.

- Ball drop stencils are used for different wafer sizes, sphere size and pad pitch.
- Easy to use, regular solder paste printer can be used for manual ball drop.
- Ball drop process is also preferred when the wafer pad is larger or pitch is tighter to use paste printing application.
- Used instead of wafer bumping using paste printing

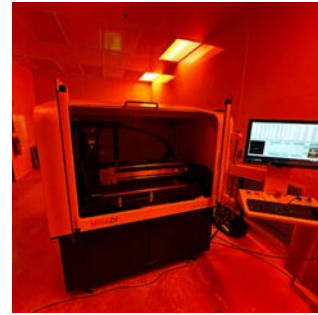
PRODUCTION

CAD ENGINEERING



Our team of CAD design experts provide customers with a comprehensive design service. This service includes using our exclusive front-end software tool StenCAD, which automatically examines each assembly's design by filtering the Gerber file's D-codes. It ensures that the proposed design achieves the necessary area ratio (AR) for a successful paste deposit.

IMAGING



We've recently integrated a cutting-edge Niva Tech LED Imager, which has replaced traditional analog film plotting. This advancement has significantly improved the imaging process, aligning the output with a remarkable precision of 3-4 microns.

DEVELOPING



We have recently upgraded to state-of-the-art IPS Developer/Dryer equipment, which has been specially customized for Photo Stencil. This advanced system significantly streamlines and enhances the development process, thanks to its vertical track-fed configuration, resulting in improved consistency, superior quality, and faster processing.

CHEMISTRY LABORATORY



Our laboratory technicians have expertise in regularly testing all the chemical solutions within the production flow, verifying the accuracy of the chemicals in the processing tanks on a daily basis. This practice stabilizes the electrochemical reaction, leading to the creation of electroform stencils that exhibit exceptional precision and intricate features.

CHEMICAL PLATING



Our chemical plating production center has undergone a redesign aimed at optimizing production processes and achieving notable advancements in stencil thickness and quality control. This facility boasts the most cutting-edge equipment for chemical-etched stencils, establishing us as the unmatched leader in capability throughout North America.

LASER CUTTING



Our facility is equipped with numerous cutting-edge LPKF 6080 High-speed laser systems that feature ultra-light carbon fiber axis construction. Additionally, we utilize the lightning-fast Tannlin TII laser, a highly integrated stencil cutting machine, to provide large-format, high-volume output, exceptional speed, and consistent precision stencil production.

ADVANCED NANO COATING



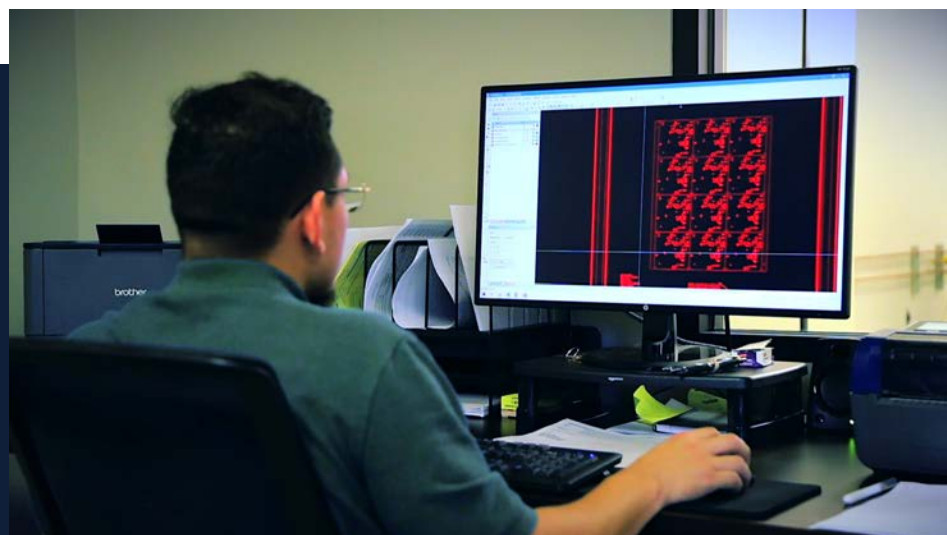
Our exclusive Advanced Nano coating grants the stencil top anti-adhesion properties, preventing solder flux / paste from sticking to it. Utilizing a specialized 1-2 um hardened nano coating, Stentech's Advanced Nano stencils boasts a permanent hydrophobic layer that repels solder flux / paste.

CHEMICAL VAPOR COATING



StenTech BluPrint™ CVD (Chemical Vapor Deposited) Surface Treatment for Stencils stands as a North American exclusive, offering the market's most premium stencil coating. This revolutionary process ensures increased durability, enhanced accuracy, superior performance, and a longer stencil lifespan.

ENGINEERING & DESIGN



StenTech also offers you the opportunity to take advantage of our design service, which includes a front-end software tool called StenCAD that automatically checks the design for each individual assembly by filtering each D-code of the Gerber file and validating that the AR achieved by the proposed design delivers a successful paste deposit.

Golden, Colorado, USA



QUALITY INSPECTION

OUR LOCATIONS

[StenTech.com/Locations](https://www.stentech.com/locations)

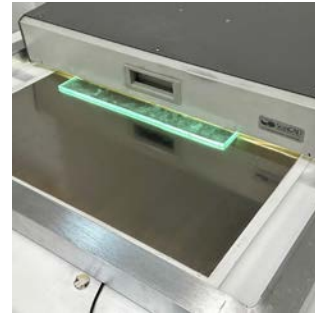
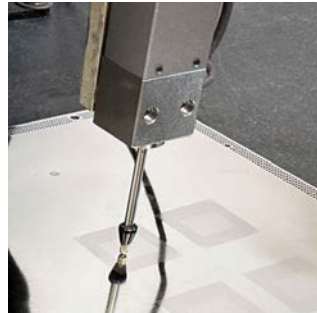


METROLOGY

APERTURE SCAN

VERIFICATION

HAND CRAFTED FINISHING



We have Lupine measurement equipment enabling us to employ high precision metrology. From measuring nanometers of thin film, to AI inspections of micro defects, our team combines a multitude of advanced inspection, assembly, and measurement technologies.

Our Scan Cad / Automated Optical Inspection (AOI) equipment facilitates automated detection and identification of defects and anomalies. It possesses the ability to precisely record the configuration, compatibility, and operation of all layers, including those with concealed vias. This technology provides a range of analytical options, both destructive and non-destructive.

Our new Micro View non-contact and multi-sensor measurement machine is furnished with cutting-edge metrology software. It can measure parts as long as 2.5 meters and weighing up to 100 kilograms. The high-resolution digital camera is equipped with programmable optical and digital zoom features to ensure precise inspection.

Our production and inspection team is exceptionally skilled and knowledgeable, committed to ensuring that every SMT stencil and tooling device meets perfect specifications. Through their meticulous craftsmanship, they guarantee quality, precision, and utmost care in the manufacturing process.



“Great things in business are never done by one person; they’re done by a team of people.” – Steve Jobs



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StenTech

Innovative Problem Solvers

As the largest SMT printing solutions partner in North America, StenTech delivers precision stencils, tooling, and parts with unparalleled quality and rapid turnaround times. Our extensive engineering capabilities and unwavering commitment to service ensure supply chain stability, guaranteeing the uptime reliability and business success of our customers.

