

ALPHA[®] CUT

Laser Cut Stencils

DESCRIPTION

ALPHA[®] CUT Laser Cut Stencils are designed and manufactured to provide the ultimate stencil printing performance for most surface mount requirements, particularly when used in conjunction with ALPHA[®] Solder Pastes or ALPHA[®] Surface Mount Adhesives. The stencils are manufactured using a CAD/CAM driven high precision XY-laser cutting process. The apertures generated through this technique give a trapezoidal geometry.

FEATURES & BENEFITS

- **High Repeatability:** ALPHA[®] Stencils are made anywhere in the world, anytime, using the exact same manufacturing standard to deliver consistent performance by eliminating the two sources of variation through our Stencil Engineering System, ALPHA DIMENSIONS[™]:
 - Design Inconsistencies
 - Manufacturing Inconsistencies
- **High Accuracy:** Produced directly from the modified CAD/CAM data, positional accuracies of ± 1.0 mil (± 25 micron) can be achieved over a 17" x 17" (432 x 432 mm) area with a process capability indexes (CpK) in excess of 1.33.
- **Ultimate Availability:** Our global manufacturing network provides fast-turnaround lead times when and where required. Our ALPHA DIMENSIONS[™] system can prepare jobs regardless of location.
- **Fine-pitch Printing:** ALPHA[®] CUT Laser Cut technology is targeted for print applications up to 20 mil (0.5 mm) pitch.
- **Predictable Printing Results:** Proprietary internal testing provided us with the science behind the printing. Our database with more than 12 million data points allowed us to quantify the effects of taper, surface finishes, positional accuracy and area ratio. This information is used in our best practice commonality program to ensure consistent and predictable print results.
- **One-Stop-Shop:** Working with Cookson Electronics, gives you also access to in-house manufactured advanced ALPHA[®] FORM Electroform or multi level stepped stencil design without changing supplier. The industry standard, ALPHA TETRA[™] Frame System, is available through all our offices in the world.

AVAILABILITY

- **Order Entry:**
 - Customer Profile Information (not required for repeat orders)
 - Stencil Order Information (specific to the order)
 - Send stencil order information including CAD/CAM-file by e-mail, ftp-site, modem or data storage media
- **Data Management:**
 - All common CAD/CAM file types such as Gerber, DXF, ODB++, etc are accepted.
 - Automatic aperture design modification options:
 - No Design Modifications
 - General Design Modifications
 - Custom Design Modifications
 - Cookson Design Modifications

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- **Stencil Foil Material:**
 - Stainless Steel 302/304 Foils
 - Optional Hard Nickel Electroformed Foils
 - Post manufacturing surface polish treatment available
- **Stencil Foil Thickness:**
 - 4, 5, 6, 7, 8 and 10 mil (100, 125, 150, 175, 200 and 250 μ M)
 - Other thickness available upon request
 - Optional STEP UP and/or STEP DOWN Area's available.
- **Fiducials:**
 - High durable fiducials (laser engraved)
 - High contrast fiducials (through hole + black Epoxy)
 - High contrast & durable fiducials (recess etched + black Epoxy)
 - Industry standard sizes and shapes
- **Stencil Framing Options:**
 - Industry standard 23" x 23" or 29" x 29" Tubular Frames new and/or refurbished
 - ALPHA TETRA foils for 4-sided ALPHA TETRA frame systems
 - MICROMOUNT foils for 2-sided MICROMOUNT frame systems
 - CHEMTECH foils for 4-sided FTS frame system
 - Other frame sizes or types available upon request
- **Lead time:**
 - ALPHA CUT Stencils are manufactured with lead times down to 4 hours if required from our global manufacturing network. Please refer to our Reference Bulletin LEAD TIME DEFINITION for more details.

APPLICATIONS

ALPHA CUT Laser Cut Stencils most common application is printing solder paste for electronics assembly reflow soldering processes, including selective through-hole reflow applications. These stencils are perfect for prototyping to medium volume print runs featuring medium aperture counts. Hard Nickel foils can be used to improve stencil life and aperture finish. Other popular applications for ALPHA CUT Laser Cut Stencils are printing of surface mount adhesives, tacky flux printing, templates for BGA rework, PCB & component inspection templates and various fine mechanical parts.

SAFETY

Attention and care should always be applied when handling stencils. Mishandling can result in personal injury and/or stencil damage.

SHIPPING AND STORAGE

ALPHA Stencils are shipped in specially manufactured cardboard boxes. Inspect the shipping box for damage. Report any exterior damage to the freight carrier.

Always clean stencil down properly after usage. Avoid delays between using the stencil and the cleaning process.

Ensure that the foil is dry and free from any cleaning residues before storing.

Recommended cleaning products to minimize gluebond and mesh deterioration:

- BIOACT SC-10E & SC-10E Plus Solvent Wipes or Cleaners
- HYDREX WS & SP Aqueous Cleaners



CONDITIONAL PRODUCT SPECIFICATIONS

ALPHA CUT Stencils	
Manufacturing Technique:	Laser Cutting
Material:	302/304 Stainless Steel (> 350VH) – Hard Nickel (> 500VH) optional
Minimum Aperture Size:	≥ 50 μM (≥ 2.0 mil)
Minimum Bar Width:	≥ 100 μM (≥ 4.0 mil)
Aperture Size Accuracy*:	± 12.5 μM (± 0.5 mil) ≥ CpK 1.33
Positional Accuracy*:	± 25 μM over 432 mm (± 1.0 mil over 17") ≥ CpK 1.33
Available Thickness:	100 - 125 - 150 - 175 - 200 - 250 - 300 μM (4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 mil)
Stepped Area Capability:	Yes (Squeegee and/or PCB Side)
Tolerance on Thickness:	± 3%
Maximum Frame Size:	760 x 1000 mm (30" x 40") – select availability
Maximum Image Size:	790 x 965 mm (31" x 38") – select availability
Aperture Shape:	Tapered 15 - 25 μM (0.6 – 1.0 mil)
Recommended Pitch:	Pitch ≥ 0.5 mm (≥ 20 mil)
Compatibility with Frame Systems:	Yes

(*) These targets are based on Process Capability Studies and Conditions as described per Cookson Electronics GLB-AMG-0301 Global Audit Procedure.