



Tech-Etch

www.tech-etch.com

EMI/RFI

Shielding Product Guide

- Finger Stock
- Knitted Wire Mesh
- Connector Gaskets
- Metalized Fabric
- Honeycomb Vents
- Conductive Elastomers
- Conductive Foam
- Die Cut Gaskets

Tech-Etch, Inc., 45 Aldrin Road, Plymouth, MA 02360 • TEL 508-747-0300 • FAX 508-746-9639



Beryllium copper finger stock provides maximum spring properties for strength and fatigue resistance and good conductivity. It is available in a variety of finishes and mounting styles including Clip-on, Stick-on, Snap-on, Hook-on, Track and Special Mounting.

"D" connector Gaskets, available in five standard sizes, are offered in both stainless steel and beryllium copper.



Die cut gaskets are available in Weaveshield, Monoshield, Multishield, Supershield, Fabric Over Foam, and Conductive Foam.



Many shielding strips are available in 25-foot continuous coils, such as the Strip Gasket pictured here.



Easy to apply Symmetrical finger stock with snap-on mounting made from beryllium copper.





Shielded Filters combine the functions of RFI shielding and ventilation with efficient dust filtering. 8500 and 8900 Series.

Shielded Honeycomb Vents provide high shielding efficiency with a low resistance to air flow. 8000, 8200 and 8300 Series.

Knitted wire mesh EMI/RFI strips are available in round, round with tail, rectangular and double round with tail. Available with pressure sensitive mounting and with (bottom right) or without environmental seal. 2000 and 3000 Series.

Highly conductive metalized fabric over foam shielding is available in rectangular, "D", flat, domed, C-fold, knife edge, and square configurations. 2400 and 2600 Series.

Tech-Etch

SYMMETRICAL SNAP-ON/TRACK MOUNT

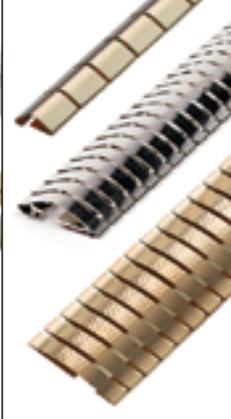
OMNI CONTACTS

SYMMETRICAL VARIABLE GASKETS

ALTERNATE SLOT GASKETS

LOW PROFILE GASKETS

SOFT FINGERS



Mounting

SNAP-ON MOUNTING. Into slots or onto special mounting track designed for easy mechanical installation. Tracks available with double sided pressure sensitive transfer tape.

STICK-ON MOUNTING. Double sided pressure sensitive transfer tape. SPECIAL MOUNTING. Riveting.

SNAP-ON MOUNTING. Into 2 slots (SLOT MOUNT) or 1 slot and 1 edge (EDGE MOUNT) designed for easy mechanical installation.

SNAP-ON MOUNTING. Into slots or onto special mounting track designed for easy mechanical installation. Tracks available with double sided pressure sensitive transfer tape.

STICK-ON MOUNTING. Double sided pressure sensitive transfer tape. CLIP-ON MOUNTING. Flange .03 to .06 in. HOOK-ON MOUNTING. Flange thk. up to .06 in.

STICK-ON MOUNTING. Double sided pressure sensitive transfer tape. CLIP-ON MOUNTING. Flange thickness .06 inches.

Composition

Beryllium Copper (CA 172) Heat Treated. Finishes include Clean & Bright, Gold, Silver, Tin Lead, Bright Tin, Nickel, Zinc/Clear Chromate, & Electroless Nickel.

Track is stainless steel, brass, or nickel silver. Finger stock also available: DiamondBack (dB), Slotless.

Brass Mounting Pad. Also available: DiamondBack (dB).

Also available: DiamondBack (dB).

Also available: DiamondBack (dB).

Also available: DiamondBack (dB), Extended Liner PSA, Slotless, Stainless Steel.

Also available: DiamondBack (dB), Extended Liner PSA, Slotless, Stainless Steel.

Available in multiple thicknesses (compression). Lowest compression version is typically identified by a "TF" prefix on standard products with multiple options.

Size Range

Uncompressed heights .075 to .32 inches for gaps of .03 to .26.

Uncompressed heights .13 to .32 inches for gaps of .06 to .26.

Uncompressed heights .11 to .22 inches for gaps of .04 to .15.

Uncompressed heights .10 to .11 inches for gaps of .04 to .09.

Uncompressed heights .06 to .15 inches for gaps of .02 to .12.

Uncompressed heights .08 to .40 inches for gaps of .03 to .32.

Strip lengths as required. Application-specific cut-to-lengths available for all parts. Certain items available in rolls. Consult Tech-Etch to determine ideal length.

Compression

Effective compression range of 20% to 70% of uncompressed height. Anti-sag feature.

Effective compression range of 20% to 50% of uncompressed height.

Effective compression range of 20% to 70% of uncompressed height. Anti-sag feature.

Effective compression range of 20% to 70% of uncompressed height. Anti-sag feature.

Effective compression range of 20% to 70% of uncompressed height. Anti-sag feature.

Effective compression range of 20% to 70% of uncompressed height. Anti-sag feature.

RF Seal

Continuous sliding contact surface from individual fingers. Bidirectional.

Point contact per finger. Bidirectional.

Continuous sliding contact surface from individual fingers. Bidirectional.

Continuous sliding contact surface from individual fingers. Bidirectional.

Continuous sliding contact surface from individual fingers.

Continuous sliding contact surface from individual fingers. Bidirectional.

Standard Products

93S32, 157S20, 187S30, 187S32, 206W36, 219S60, 250S37, 250S60, 375S60, 375S80.
TR32, TR37X, TR37FX, TR60X, TR60RX, TR80X, TR80RX.

250KS37, 250KS60, 375KS80.

187V32FXx, 187VE32FXx, 250V37FXx, 250VE37FXx, 282V60FXx.

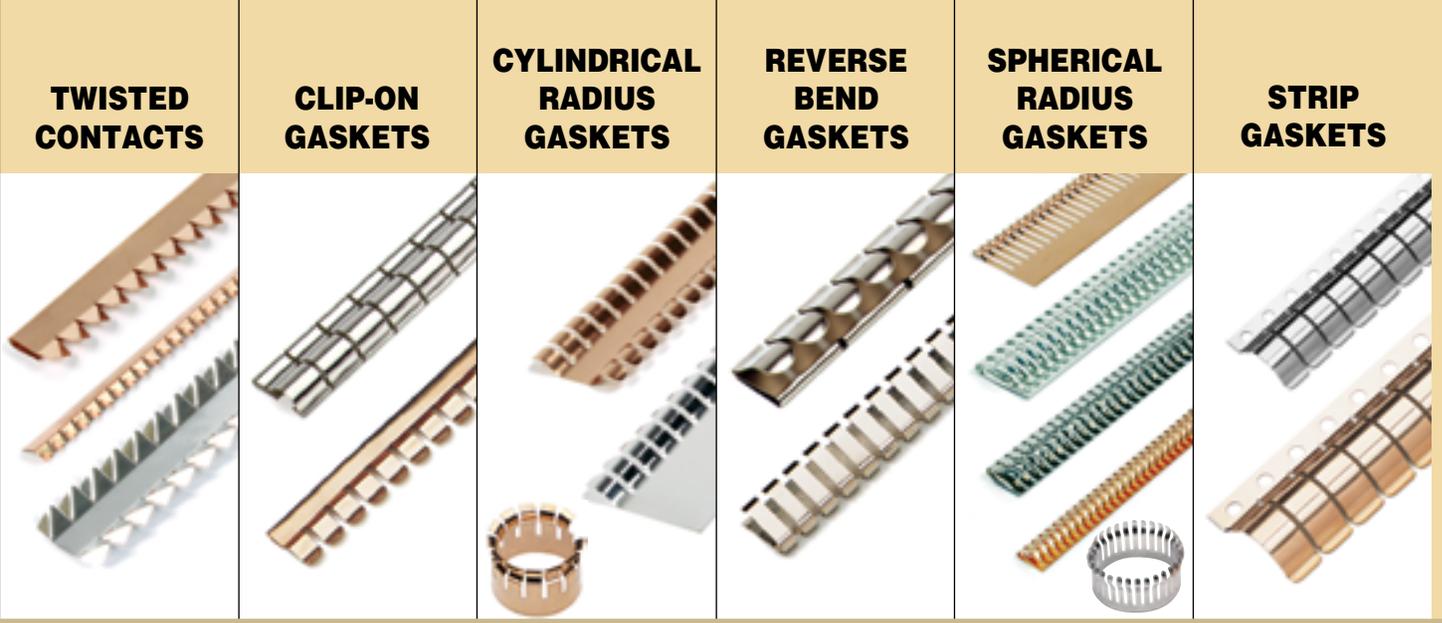
93AS32, 187AS32.

125G28, 125LP45, 125LP60, 125LP45H060, 125LP60H060, 250C040, 125LP55C070, 125LP75C070, 125G32, 125LP55, 125LP55H060, 125LPS45, 125LPS45H060.

187P21, 187P28, 187P32, 250P37, 250P37E50, 375P60, 375P80, 500P110, 187W35, 375P64C070, 156M32, 250M37, 375M60, 250M42C040/50/60/70, 375M60E78, 60P21.

Interactive PDF Print Available. Visit www.tech-etch.com/shield to create an interactive print.

To obtain application assistance or samples, contact Tech-Etch or our sales representative in your area.



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| <p>TWISTED CONTACTS</p> <p>STICK-ON MOUNTING. Double sided pressure sensitive transfer tape. CLIP-ON MOUNTING. Flange thickness .06 in.</p> | <p>CLIP-ON GASKETS</p> <p>CLIP-ON MOUNTING. Flange thickness .03, .04, .05, .06, .07, .09, and .125 inches.</p> | <p>CYLINDRICAL RADIUS GASKETS</p> <p>SPECIAL MOUNTING. Riveting, spot welding or soldering. CLIP-ON MOUNTING. Flange thickness .03, .04, .05, .06, inches.</p> | <p>REVERSE BEND GASKETS</p> <p>CLIP-ON MOUNTING. Flange thickness .06 and .07 inches. SPECIAL MOUNTING. Riveting, spot welding or soldering.</p> | <p>SPHERICAL RADIUS GASKETS</p> <p>SPECIAL MOUNTING. Riveting, spot welding or soldering.</p> | <p>STRIP GASKETS</p> <p>CLIP-ON MOUNTING. Flange thickness .09 and .12 inches. SPECIAL MOUNTING. Riveting, spot welding or soldering.</p> |
|--|--|---|---|--|--|

Mounting

Beryllium Copper (CA 172) Heat Treated. Finishes include Clean & Bright, Gold, Silver, Tin Lead, Bright Tin, Nickel, Zinc/Clear Chromate, & Electroless Nickel.

| | | | | | |
|--|----------------------------------|--|--|--|---------------------------------------|
| Also available: Extended Liner PSA, Stainless Steel. | Also available: Stainless Steel. | Also available: Conductive PSA, Contact Rings. | Also available: Conductive PSA, Contact Rings. | Also available: Conductive PSA, Contact Rings. | Also available: With rounded corners. |
|--|----------------------------------|--|--|--|---------------------------------------|

Composition

Available in multiple thicknesses (compression). Lowest compression version is typically identified by a "TF" prefix on standard products with multiple options.

| | | | | | |
|--|--|--|--|--|--|
| Uncompressed heights .03 to .21 inches for gaps of .01 to .17. | Uncompressed heights .06 to .26 inches for gaps of .02 to .21. | Uncompressed heights .06 to .22 inches for gaps of .02 to .18. | Uncompressed heights .06 to .44 inches for gaps of .03 to .35. | Uncompressed heights .04 to .12 inches for gaps of .01 to .10. And .09 to .16 for gaps of .05 to .13 for Reverse Bend Spherical. | Uncompressed heights .26 to .41 inches for gaps of .05 to .33. |
|--|--|--|--|--|--|

Size Range

Strip lengths as required. Application-specific cut-to-lengths available for all parts. Certain items available in rolls. Consult Tech-Etch to determine ideal length.

| | | | | | |
|---|---|---|--|--|---|
| Effective compression range of 20% to 80% of uncompressed height. | Effective compression range of 20% to 75% of uncompressed height. | Effective compression range of 20% to 75% of uncompressed height. | Effective compression range of 20% uncompressed height to 50%. | Effective compression range of 20% to 70% of uncompressed height. 20% uncompressed height to 50% for Reverse Bend Spherical. | Effective compression range of 20% to 80% of uncompressed height. |
|---|---|---|--|--|---|

Compression

| | | | | | |
|--|---|---|---|---|---|
| Point contact per finger. Avoid sliding contact. | Continuous contact surface from individual fingers. | Continuous contact surface from individual fingers. | Continuous sliding contact surface from individual fingers. | Point contact per finger. Unidirectional. | Continuous sliding contact surface from individual fingers. |
|--|---|---|---|---|---|

RF Seal

| | | | | | |
|--|---|---|--|--|--|
| <p>95A, 95T, 95T90, 165T, 165T90°, 165T2, 250T, 500T, 165TC070, 165TC060/70M, 95TC040/50/70, 95TC060/70M, 165TW.300.</p>  | <p>125LP55C070, 125LP75C070, 250K4C070, 375P64C070, 250C040, 250M42C040/50/60/70, 250K2C070L, 187KC080, 95TC040/50/70, 95TC060/70M, 165TC070, 165TC070M, 375C100/135. Also see Cylindrical.</p>  | <p>250C040, 375B, 187RGC040/50/60/70, 187RF2C050/60/70, 187RF1C050/70/100, 187RF3C040/50, 187RF4C070, 182RF9C040/50/60/70L, 182RF8C050/70L, 187RA, 187R_A, 187RB, 187RC, 187RJ.</p>  | <p>250KC070L, 250K2C070L, 187KC080, 60D, 127A, 187RD2, 134B, 145A, 134C, 187RD, 187H, 134D, 60RC, 75RC, 93R1D.</p>  | <p>60R, 75RF, 75RE, 187RB1, 60RC, 75RC, 93R1D.</p>  | <p>375C100, 375C135, 375A, 500A.</p>  |
|--|---|---|--|--|--|

Standard Products

Interactive PDF Print Available. Visit www.tech-etch.com/shield to create an interactive print.

Consult Tech-Etch or our web site www.tech-etch.com/shield for more detailed product information and sales representative listing.

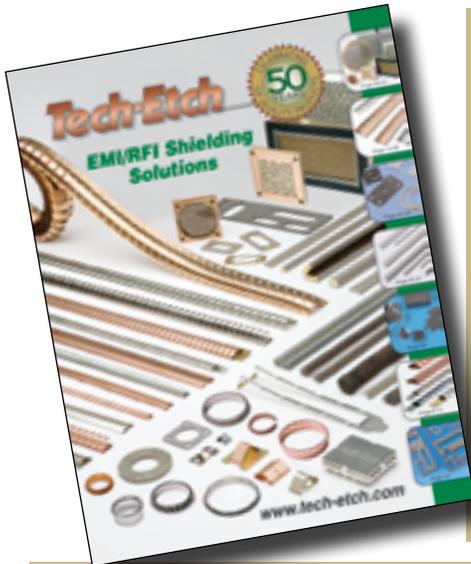
| | CONNECTOR GASKETS | METALIZED FABRIC OVER FOAM CORE GASKETS | CONDUCTIVE FOAM GASKETS | SUPERSHIELD | MULTISHIELD | MONOSHIELD |
|--|--|---|---|--|---|---|
| |  |  |  |  |  |  |
| Mounting | Gasket mounting. | Surface mounted using pressure-sensitive self-adhesive. | As a flat, rule die cut, gasket available with or without pressure-sensitive conductive adhesive on one side. | Flat gasket die cut from sheet form. Picture frame fabricated from strip. Molded gasket to drawing, extruded section as required. | Surface mount bonded using RTV 3195 (or equivalent) or with pressure-sensitive adhesive. Requires relatively high closure pressure. | As a flat, rule die cut, gasket spot bonded in place using a non-conductive silicone to metal adhesive. |
| D Connector, AN Connector and Waveguide Gaskets are offered from the above materials. | | | | | | |
| Composition | Available in Beryllium Copper or Stainless Steel. Standard Tech-Etch finishes available. | Metalized nylon fabric over open-celled polyurethane foam core. | Conductive open cell polyurethane foam with a nickel over copper plated polyester fabric on either side. | Silver-plated inert particles in silicone rubber forming a homogeneous elastomer compound. | Oriented monel or aluminum wires in solid or sponge silicone. | A fine monel or aluminum expanded metal foil filled with a silicone elastomer. |
| Size/Type | Uncompressed height .025 inches for gaps from stock thickness to .02. | Range of Rectangular, Square, D, C-Fold, Knife Edge, Flat, and Domed Shape. | Die cut to customer drawing and supplied in finished gasket form. Alternatively in a range of sheet form or strip form in various thicknesses and widths. | Sheet form and strip form molded to customer drawing. Alternatively can be die cut to customer drawing and supplied in finished gasket form. | Range of sheet form or strip form in various thicknesses and widths. Alternatively can be die cut to customer drawing and supplied in finished gasket form. | Available by the foot length in widths up to 12 inches. Thicknesses are .030 and .020. Alternatively can be die cut and supplied in finished gasket form. |
| Enviro Seal | Does not provide environmental seal. | Under some circumstances, can provide a dust shield, but generally does not provide environmental seal. | Under some circumstances, can provide a dust shield, but generally does not provide environmental seal. | Pressure and moisture seal. | Fluid and pressure seal. | Waterproof and, with some care, can provide a pressure seal. |
| RF Seal | Continuous contact from individual fingers. | Nickel plating over a highly conductive copper-plated substrate. | Nickel over copper plated polyester fabric on both sides of X, Y, & Z axis conductive foam. | Via conductive particles in silicone rubber. | Multi-point contact provides 600 to 900 contact points per sq. inch. Twisted matrix of wires aligned perpendicular to contact force. | The exposed edges of the expanded metal provide 225 contact points per square inch, thus ensuring a good electrical contact. |
| Mechanical Specs | Standard Products: 9D10/12/20/22, 15D10/12/20/22, 25D10/12/20/22, 37D10/12/20/22, 50D10/12/20/22. | Temperature range with foam core -40° to +70°C. Profile tolerances ± .020 on all dimensions. UL 94 V-Rated. 2400 Series 2600 Series | Temperature range -40°C to +70°C. Compression deflection 2-3 psi @ 50% compression. UL 94 V-Rated. 2700 Series | Temperature range -60°C to +200°C. Compression limitation of solid silicone rubber. 1000 Series | Temperature range -60°C to +260°C. Elastomer shore hardness silicone 40. 4000 Series | Temperature range -60°C to +260°C. Tolerance thickness ±.004. Tolerances on rule die cut finished gasket: Width up to 12 ± .030; Hole centers ± .015. 5000 Series |

To obtain application assistance or samples, contact Tech-Etch or our sales representative in your area.

| WEAVESHIELD | KNITTED WIRE MESH WITH ELASTOMER OR WIRE CORE | SILVERSHIELD ELASTOMER CORE STRIPS | TWINSEAL | SHIELDED ALUMINUM HONEYCOMB VENTS | ELECTRONIC FILTER AND DUST SHIELDS | Tech-Etch | | | | |
|--|--|--|---|---|---|------------------|----------|-------------|-----------|-------------|
|  |  |  |  |  |  | | Mounting | | | |
| <p>As a flat, rule die cut, gasket whether loose fitting or spot bonded in place using a non-conductive adhesive compatible with elastomer.</p> <p>Cut gaskets available.</p> | <p>Fitted into a channel or surface mounted using pressure-sensitive self-adhesive.</p> | <p>Fitted into a channel or surface mounted using pressure-sensitive self-adhesive.</p> | <p>Available with optional pressure-sensitive adhesive (PSA) or special mounting per requirements.</p> | <p>According to frame style used, are available for surface mounting or for near-flush mounting within an enclosure wall or panel. Standard Fan Vent available with or without dust filter.</p> | <p>For combined dust and RF seal applications. Ideal for mechanically demanding application.</p> | | | Composition | | |
| <p>A woven mesh of aluminum wire impregnated with either silicone or neoprene elastomer.</p> | <p>One or more layers of monel, aluminum, tin-plated copper-clad steel (T.C.S.), or stainless steel knitted wire mesh with or without solid or hollow elastomer core.</p> | <p>Knitted silver plated nylon thread with a strand of monel wire over solid or hollow elastomer core.</p> | <p>Knitted wire mesh of tin-plated copper-clad steel (T.C.S.), monel, aluminum or stainless steel bonded to a sponge or solid elastomer (silicone or neoprene).</p> | <p>Aluminum honeycomb assembled in frame and pre-drilled or fitted with captive fasteners for mounting onto an enclosure. A conductive gasket provides electrical continuity.</p> | <p>Composite dust and RF filter in aluminum frame.</p> | | | | Size/Type | |
| <p>Available by the foot length in widths up to 12 inches. Thicknesses are .016 and .020. Alternatively can be die cut and supplied in finished gasket form.</p> | <p>Range of rectangular, "D", round, round with tail, and double round with tail.</p> | <p>Range of rectangular, "D", round, round with tail, and double round with tail.</p> | <p>Strip type gasket material available in self-adhesive form. Also in fabricated frame gasket formed to customer drawing.</p> | <p>Standard and custom range of frame styles to suit particular applications with corresponding selection of gasketing. Honeycomb from .125" - .500" thk. Five standard Fan Vent sizes.</p> | <p>Various frame styles available. Expanded metal grille available and gasket type to suit.</p> | | | | | Enviro Seal |
| <p>Moisture seal.</p> | <p>Under some circumstances, can provide a dust shield, but generally does not provide environmental seal.</p> | <p>Under some circumstances, can provide a dust shield, but generally does not provide environmental seal.</p> | <p>Splash and weather seal via neoprene or silicone. Pressure seal from silicone rubber.</p> | <p>Does not provide an environmental seal, but versions available with one sheet of honeycomb slanted to 45° or 60° to deflect rain.</p> | <p>Dust seal only. Via corrugations of aluminum mesh in aluminum frame and gasket. Gasket screen is of mesh type.</p> | | | | | |
| <p>Electrical contact via the exposed surfaces of the woven mesh.</p> | <p>Continuous surface of super-imposed knitted wire mesh.</p> | <p>Continuous surface of super-imposed knitted wire mesh.</p> | <p>Knitted wire mesh strips provide a continuous surface of super-imposed wires.</p> | <p>RF seal via single or multiple layers of honeycomb oriented for optimum shielding.</p> | <p>RF seal via corrugated layers of woven mesh.</p> | Mechanical Specs | | | | |
| <p>Temperature range -54°C to +260°C. Tolerance thickness $\pm .004$. Tolerances on rule die cut finished gasket: Width up to 12 $\pm .030$; Hole centers $\pm .015$.</p> <p>5500 Series</p> | <p>Temperature range with neoprene core -54° to +100°C, with silicone core -60° to +260°C. If all wire limited only by softening point of metal. Tolerances $\pm .030$ on all dimensions. Closer tolerances by special order.</p> <p>2000 Series</p> | <p>Temperature range with neoprene core -54° to +100°C, with silicone core -60° to +260°C. Tolerances $\pm .030$ on all dimensions. Closer tolerances by special order.</p> <p>2200 Series</p> | <p>Depends on elastomer used in construction. Silicone -60°C to +260°C. Neoprene -54°C to +100°C. Tolerances - Linear: Sponge $\pm .030$, Solid $\pm .015$, Hole fixings $\pm .015$.</p> <p>3000 Series</p> | <p>If silicone gasket, -60°C to +260°C. If neoprene gasket, -31°C to +107°C. With dust filter, fitted tolerances on overall dimensions $\pm .030$. On hole and fastener locations $\pm .015$.</p> <p>8000 Series 8200 Series 8300 Series</p>  | <p>Temperature limited only by softening point of metals used.</p> <p>8500 Series 8900 Series</p> | | | | | |

Interactive EMI/RFI Shielding Product Catalog

Full technical information for all of the products listed in this brochure can be found in our 52-page EMI/RFI Shielding Solutions catalog pictured below. It is offered in both printed and interactive PDF versions at www.tech-etch.com/shield. To contact our application engineers call: **508-747-0300 or FAX 508-746-9639.**

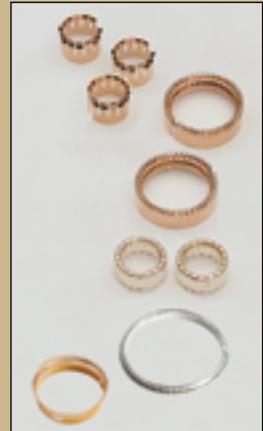


BeCu Contact Rings

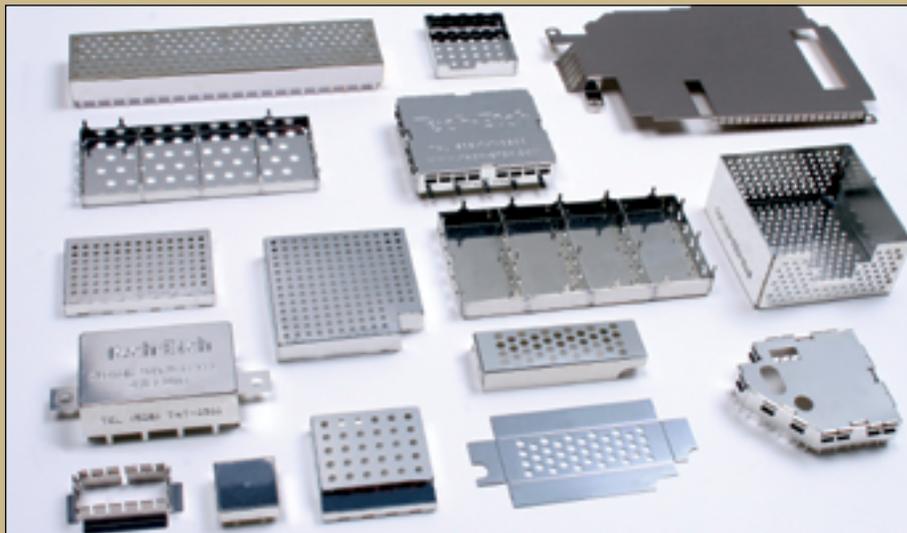
The contact rings shown here are fabricated from finger stock. These rings can be formed in any diameter containing an integral number of fingers, down to the minimum diameter to which that particular strip can be curled.

Available In High Volume

- Wide range of in-house plating options
- Excellent durability
- Superior attenuation
- Offered for both inside or outside plug applications
- Ideal for microwave cavities, tuning, shielding and grounding applications
- Visit web site to see available profiles



Standard and Custom Board Level Shielding



Standard and custom designs are manufactured using a photo chemical etching process making it possible to offer custom single piece and standard two-piece designs with no tooling charges. For more information please visit www.tech-etch.com or contact one of our application engineers at 508-747-0300.

EMI Shielding Free Sample Program

Finger Stock Shielding Samples

Tech-Etch has the most extensive free sample program in the industry. To request samples of our finger stock shielding, visit www.tech-etch.com/shieldlit.html

Honeycomb Vent Prototypes

Tech-Etch offers free prototypes of honeycomb vents in advance of production to qualified programs. To request one visit www.tech-etch.com/shield/ventsample.html

Manufacturing Facilities - Made in USA

Tech-Etch plants located in Plymouth and Fall River, Massachusetts have over 200,000 square feet of manufacturing space providing complete facilities for the production and finishing of EMI/RFI Shielding products.

The data presented in this brochure is based on testing and to our knowledge is accurate and true. Since applications, test measures, and test procedures may vary, we recommend that users of our products perform their own tests to assure the suitability of these products for their specific applications.

Tech-Etch

www.tech-etch.com/shield

ISO 9001
REGISTERED

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