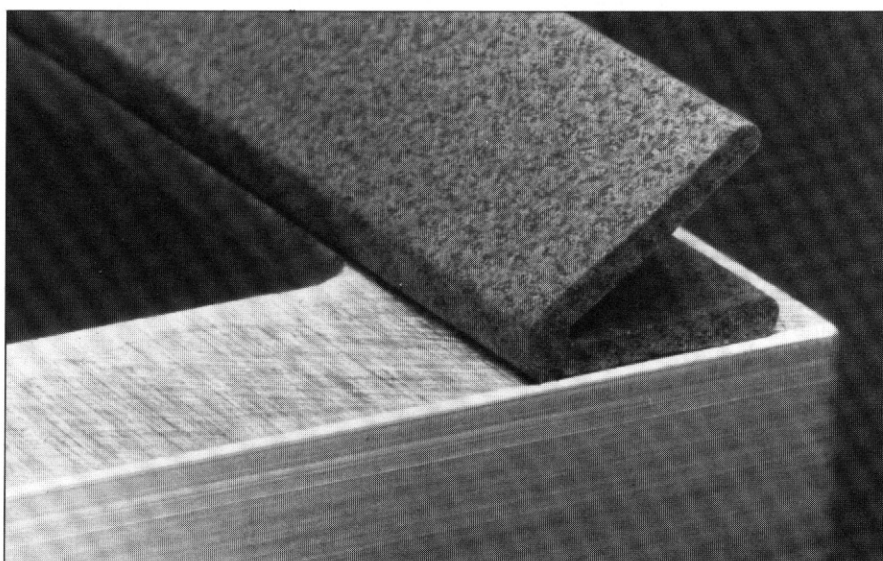


## EMI Shielding Gaskets for Commercial Electronic Enclosures

### KEY FEATURES

- Fills joint gaps between .150" and .350" (3.81mm-8.89mm).
- Less than 1/8 lb/in closure force required (see Figure 4).
- Provides shielding effectiveness of 60-70dB over 200MHz to 10GHz frequency range (see Figure 3).
- Many convenient attachment methods available.
- Low compression set.
- Available in a variety of conductive materials and colors.
- Excellent long term stability.
- Won't break like conventional fingerstock.
- Provides environmental sealing.
- Can be used with CHO-MASK® II conductive flange tape.



### PRODUCT DESCRIPTION

Many commercial electronic enclosures today are designed with low cost as a primary goal. Lightweight molded plastics and thin metal panels do not typically lend themselves to tight dimensional tolerancing. When the enclosure is assembled, the result is the formation of gaps at the mating panel/frame joints. These gaps create EMI leakage paths.

Until now, shielding large gaps with attractive, easy-to-install gaskets has been difficult. Beryllium copper fingerstock cannot fill variable gaps without causing thin enclosure panels to bow excessively. In addition, fingers can break, leaving sharp edges and degrading EMI performance.

Chomerics' new V profile gasket (see Figure 1) allows large joint gaps to be filled with low closure force (less than 1/8 lb/in). The substantial height of the V profile allows for a wide deflection

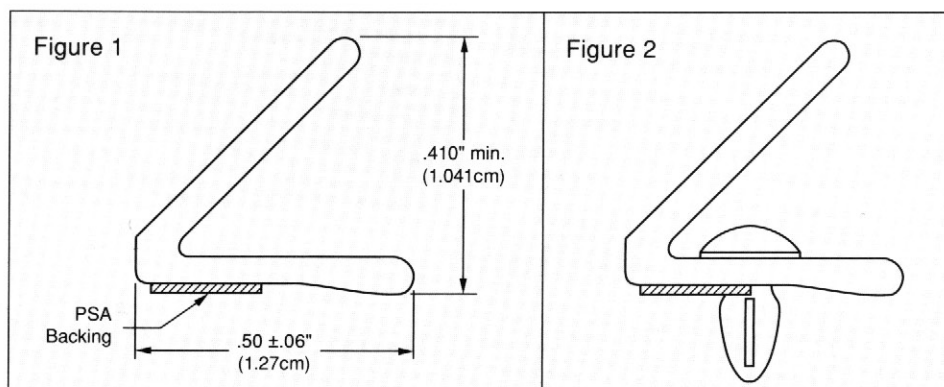
range of .150" to .350", and is ideal for large electronic cabinet doors with moderate shear forces.

This V cross section gasket is continuously extruded in a variety of inexpensive CHO-SEAL® and CHO-SIL® conductive elastomers. It is offered with a variety of attachment methods, including an

innovative plastic push-in pin system detailed in Figure 2. This method offers secure attachment and an installed cost savings over other conventional methods such as metal or plastic clip strips.

CHO-SEAL and CHO-SIL conductive elastomers are silicone based materials

*continued*



**EMI Shielding Gaskets** *continued*

filled with silver-plated particles which provide excellent conductivity and long term stability. In addition to providing 60-70dB of EMI shielding, they form an environmental seal. Specifications are listed in the Table 1.

**APPLICATIONS**

The V profile EMI gasket is designed to shield any commercially available electronic enclosure or cabinet door with large gap sealing problems and low closure force requirements.

**STORAGE & HANDLING**

These elastomer seals contain small amounts of silver. They should be stored in sheet plastic, such as polyester or polyethylene, and kept away from sulfur-cured neoprene or cardboard. Exposure to high sulfur environments can result in an increase in resistivity.

Storage in cool, clean and dry areas is recommended.

**AVAILABILITY**

The "V" profile gasket is continuously extruded and can be provided on rolls or cut to custom lengths. Extrusions are made from the materials listed in Table 1, and can be provided in a variety of other colors.

"V" gaskets can be provided with pressure sensitive adhesive backing. They can also be prepunched with 0.100 in. dia. holes for push-in clip attachment. Plastic push-in clips are provided separately (see Figure 5).

**SPECIFICATIONS (Conductive Elastomers)**

**Table 1.**

Property	Test Procedure**	CHO-SIL 1356	CHO-SIL 1360	CHO-SIL 1376	CHO-SEAL 1350	CHO-SEAL 1273
Elastomer Binder		Silicone	Silicone	Silicone	Silicone	Silicone
Conductive Filler		Ag/Glass	Ag/Glass	Ag/Glass	Ag/Glass	Ag/Cu
Color		Tan	Charcoal	Blue	Tan	Tan
Volume Resistivity (ohm-cm, max.) as supplied (w/o psa)	CEPS-0002* (Q/C)	0.05	0.05	0.05	0.01	0.004
Hardness (Shore A)	ASTM D2240 (Q/C)	55+8	55+8	55+8	65±8	65+8
Specific Gravity (typical)	ASTM D792 (Q/C)	1.70	1.70	1.70	1.80	3.70
Tensile Strength psi, min. (MPa, min.)	ASTM D412 (Q/C)	100 (0.69)	100 (0.69)	100 (0.69)	150 (1.03)	175 (1.21)
Elongation (% , min.)	ASTM D412 (Q/C)	50	50	50	75	75
Tear Strength, lb/in., min. (kN/m)	ASTM D624 (Q/C)	20 (3.5)	20 (3.5)	20 (3.5)	25 (4.375)	25 (4.375)
Compression Set, 70 hrs. @ 100°C (% , max.)	ASTM D395 Method B (Q)	35	35	35	30	32
Low Temperature Flex TR10 (°C, min.)	ASIM D1329 (Q)	-45	-45	-45	-55	-45
Typical Shielding Effectiveness (dB)						
100 MHz (E-field)	Modified MIL-STD-285 (Q)	65	65	65	100	100
500 MHz (E field)		65	65	65	100	100
2 GHz (Plane wave)		70	70	70	90	100
10 GHz (Plane wave)		65	65	65	80	100
Volume Resistivity after heat aging (ohm-cm, max.)	CEPS-0002* (Q)	0.05	0.05	0.05	0.01	0.01
Post Tensile Set Volume Resistivity (ohm-cm, max.)	CEPS-0002* (Q)	0.05	0.05	0.05	0.01	0.01

\* Copies of CEPS-0002 are available from Chomerics.  
 \*\* Q = Qualification C = QC Conformance

**Table 2.**

GASKET TYPE	Percent Gasket Recovery *	
	70 hours @ 140°F (60°C) exposure	70 @ 85% RH, 140°F (60°C) exposure
Chomerics "V" Gasket **	88.0	73.1
Fabric Coated Foam Gasket	72.9	44.5

\* Tested per modified ASTM D395.  
 \*\* CHO SIL 1376 material.

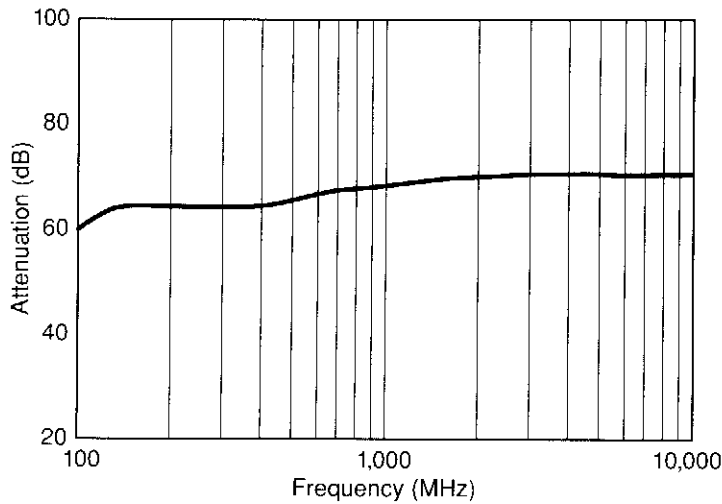
**Table 3.**

Pressure Sensitive Adhesive Long Term Stability *	
Initial Peel Strength lb/in (kN/m)	4.2 (0.74)
Heat aged for 1 week @ 70°C lb/in (kN/m)	4.0 (0.70)
Humidity soak for 1 week @ 80% RH, 70°C lb/in (kN/m)	4.0 (0.70)

\* Tested per ASTM D571 & D2861

Figure 3

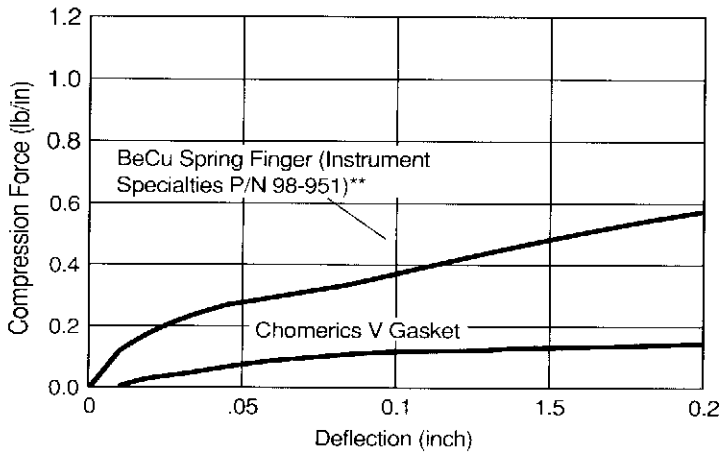
**Shielding Effectiveness  
Chomerics V EMI Gasket\***



\* CHO-SIL 1376 materials @ .150" gap height.  
CHO-MASK II tape applied to mating flange.

Figure 4

**Compression- Deflection  
BeCu Spring Fingers and Chomerics V\* EMI Gasket**

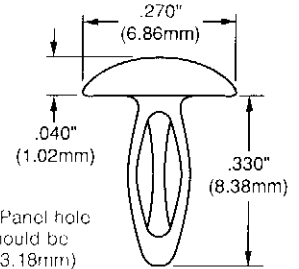


\* CHO-SIL 1376 material.  
\*\* Low compression "ultra-soft" type.

Figure 5

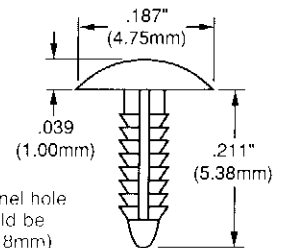
**Standard available  
plastic Push-in Clips**

**P/N: 19-99-X570-0000 (white)**  
(for mounting flanges .080" to .100" thick)



**Note:** Panel hole dia. should be .125" (3.18mm)

**P/N: 19-99-X691-0000 (black)**



**Note:** Panel hole dia. should be .125" (3.18mm)

**ALSO AVAILABLE FROM CHOMERICS  
CHO-MASK II® Conductive Foil Tape  
with Peel-Off Mask.**

CHO-MASK II tape provides a conductive, non-corroding, gasket mounting surface on metal shielded enclosures. It consists of 2 mil nylon film covering a layer of 2 oz. tin-plated copper foil. CHO-MASK II is applied to metal frames, door and panel surfaces where electrical continuity is required. After painting, the peel-off mask is removed from the foil layer. The foil, which is left behind, provides a clean, electrically conductive path from the panel, through an EMI gasket, to the cabinet frame. It also provides grounding points within the enclosure. This method eliminates plating, chromate conversion and/or spray coating operations which can be inconsistent, environmentally unfriendly and difficult to control.

Tests have shown that CHO-MASK II maximizes EMI shielding performance on systems using conductive EMI gaskets and is particularly well suited for mating with low closure force gaskets.

*For more information about this product, please ask for Technical Bulletin #210.*

**ORDERING INFORMATION**

Continuous "V" extrusions in roll form can be ordered using the part numbers in the table below. Please consult the factory for part numbers when ordering custom cut lengths or punched strips for fastener installation.

Part Number	Description
10-09-W949-ZZZZ	Continuous "V" extrusion
10-09-W864-ZZZZ	Continuous "V" extrusion with pressure sensitive adhesive
10-09-X689-ZZZZ	Continuous "V" extrusion with 0.100 in. dia. holes on 1" centers for push-in clips.
10-09-X690-ZZZZ	Continuous "V" extrusion with pressure sensitive adhesive and 0.100 in. dia. holes on 1" centers for push-in clips.

Replace ZZZZ in the above part numbers with the CHO-SEAL or CHO-SIL material of your choice as follows:

- 1356** = CHO-SIL 1356
- 1360** = CHO-SIL 1360
- 1376** = CHO-SIL 1376
- 1350** = CHO-SEAL 1350
- 1273** = CHO-SEAL 1273

**CHOMERICS**



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