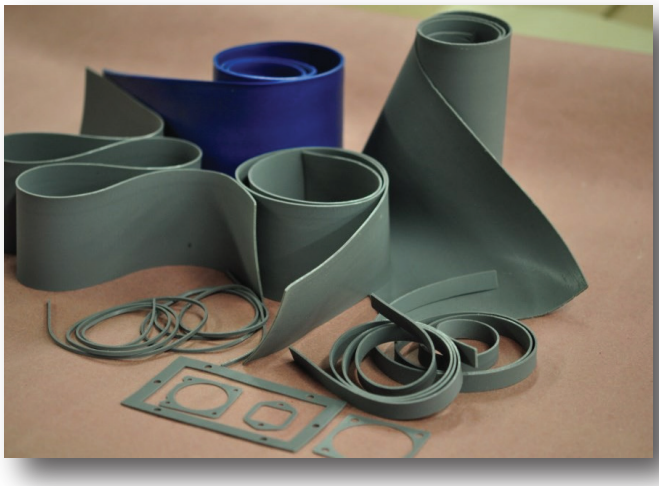
Orientated Wire in Silicone - Solid & Sponge

EverShield EVS4 Oriented Wire in Silicone gasketing material, is a combination EMI shield and environmental pressure seal. Produced on location, this product is processed with individual wires positioned perpendicular to the flange mating surface and is crimped to enhance proper contact. Available in a solid silicone, fluorosilicone or sponge silicone binder, EverShield EVS4 can accommodate any application for a variety of EMI problems where high conductivity and sealing compressibility are critical.

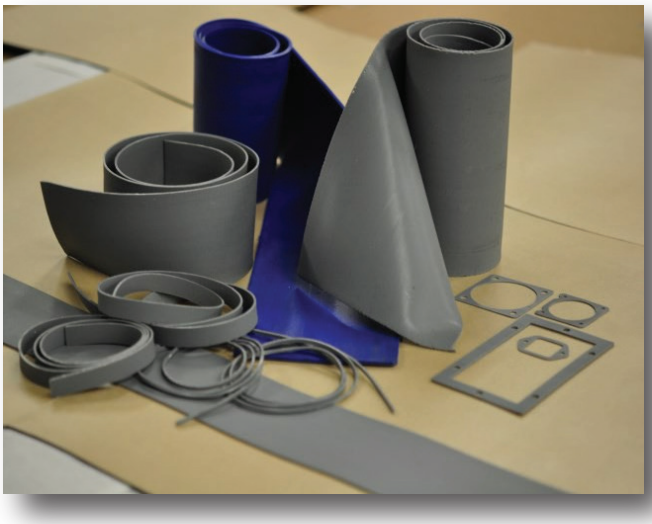
Applications:



EverShield oriented Wire in Silicone EVS4 Series is recommended for communications, military and commercial applications requiring EMI shielding and environmental sealing with a low to moderate closure force. Oriented wire in sponge silicone is designed for applications with severe joint unevenness, requiring low closure force, or has a 5 psi maximum operating pressure or generally requires a greater compressibility than a solid silicone. Oriented wire in solid silicone is designed for applications requiring moderate closure force, high operating pressure and a wider temperature range.

EverShield EVS4 Oriented Wire in Silicone can be fabricated using 0.0045" (0.1144 mm) diameter Monel wire, 0.0045" (0.114 mm) diameter phosphor bronze wire, or 0.005" (0.1271 mm) aluminum wire. The elastomer binder is available in solid silicone, so fluorosilicone or sponge silicone. Pressure sensitive adhesive is available on strips and sheets.

Oriented wire in silicone is available in sheets and strips with height and width listed in the table on the following page. For sponge silicone widths larger 3" the sheets can be vulcanized and also bonded together. For solid silicone widths larger than 9" the sheet can be vulcanized or bonded together. All material can be cut to your specific drawing, shape or mechanical configuration.



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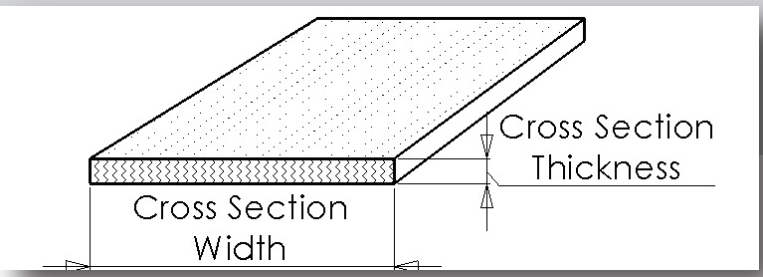

Thickness Inches	Width Inches	Silicone Solid	Silicone Sponge	Thickness Inches	Width Inches	Silicone Solid	Silicone Sponge
0.062	0.093	EVS4-001	EVS4-002	0.032	3″	EVS4-075	EVS4-076
0.062	0.125	EVS4-003	EVS4-004	0.032	4.5″	EVS4-077	EVS4-078
0.062	0.188	EVS4-005	EVS4-006	0.032	6″	EVS4-079	EVS4-080
0.062	0.25	EVS4-007	EVS4-008	0.032	9″	EVS4-081	EVS4-082
0.062	0.312	EVS4-009	EVS4-010	0.045	3″	EVS4-083	EVS4-084
0.062	0.375	EVS4-011	EVS4-012	0.045	4.5″	EVS4-085	EVS4-086
0.062	0.5	EVS4-013	EVS4-014	0.045	6″	EVS4-087	EVS4-088
0.062	0.625	EVS4-015	EVS4-016	0.045	9″	EVS4-089	EVS4-090
0.093	0.093	EVS4-017	EVS4-018	0.055	3″	EVS4-091	EVS4-092
0.093	0.125	EVS4-019	EVS4-020	0.055	4.5″	EVS4-093	EVS4-094
0.093	0.188	EVS4-021	EVS4-022	0.055	6″	EVS4-095	EVS4-096
0.093	0.25	EVS4-023	EVS4-024	0.055	9″	EVS4-097	EVS4-098
0.093	0.312	EVS4-025	EVS4-026	0.062	3″	EVS4-099	EVS4-100
0.093	0.375	EVS4-027	EVS4-028	0.062	4.5″	EVS4-101	EVS4-102
0.093	0.5	EVS4-029	EVS4-030	0.062	6″	EVS4-103	EVS4-104
0.093	0.625	EXS4-031	EVS4-032	0.062	9″	EVS4-105	EVS4-106
0.125	0.125	EVS4-033	EVS4-034	0.093	3″	EVS4-107	EVS4-108
0.125	0.188	EVS4-035	EVS4-036	0.093	4.5″	EVS4-109	EVS4-110
0.125	0.25	EVS4-037	EVS4-038	0.093	6″	EVS4-111	EVS4-112
0.125	0.312	EVS4-039	EVS4-040	0.093	9″	EVS4-113	EVS4-114
0.125	0.375	EVS4-041	EVS4-042	0.125	3″	EVS4-115	EVS4-116
0.125	0.5	EVS4-043	EVS4-044	0.125	4.5″	EVS4-117	EVS4-118
0.125	0.625	EVS4-045	EVS4-046	0.125	6″	EVS4-119	EVS4-120
0.156	0.125	EVS4-047	EVS4-048	0.125	9″	EVS4-121	EVS4-122
0.188	0.125	EVS4-049	EVS4-050	0.156	3″	EVS4-123	EVS4-124
0.188	0.188	EVS4-051	EVS4-052	0.156	4.5″	EVS4-125	EVS4-126
0.188	0.25	EVS4-053	EVS4-054	0.156	6″	EVS4-127	EVS4-128
0.188	0.312	EVS4-055	EVS4-056	0.156	9″	EVS4-129	EVS4-130
0.188	0.375	EVS4-057	EVS4-058	0.188	3″	EVS4-131	EVS4-132
0.188	0.5	EVS4-059	EVS4-060	0.188	4.5″	EVS4-133	EVS4-134
0.188	0.625	EVS4-061	EVS4-062	0.188	6″	EVS4-135	EVS4-136
0.25	0.125	EVS4-063	EVS4-064	0.188	9″	EVS4-137	EVS4-138
0.25	0.188	EVS4-065	EVS4-066	0.25	3″	EVS4-139	EVS4-140
0.25	0.25	EVS4-067	EVS4-068	0.25	4.5″	EVS4-141	EVS4-142
0.25	0.312	EVS4-069	EVS4-070	0.25	6″	EVS4-143	EVS4-144
0.25	0.375	EVS4-071	EVS4-072	0.25	9″	EVS4-145	EVS4-146
0.312	0.5	EVS4-073	EVS4-074				

ADD : -M for Monel / -A for Aluminum / -0 for Plain / -1 For PSA Backing / For Example : EVS4-001-M-1

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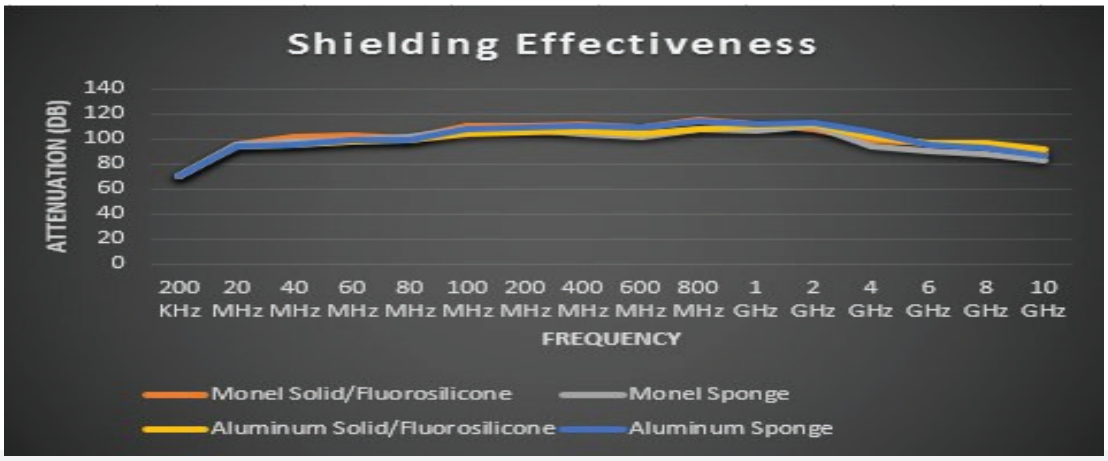
EVS4 Material Specifications

	Solid Silicone/ Monel Wire	Sponge Silicone/ Monel Wire	Solid Silicone/ Aluminum	Sponge Silicone/ Aluminum
Shielding db:				
200 Khz	70	70	70	70
100 Mhz	110	108	101	108
1 Ghz	111	106	110	112
Closing Force (psi)	25-100	25-100	15-75	15-75
Compression Set (@50psi)	2%	5%	2%	5%
EMP Survivability/	yes	yes	yes	yes
Color	Grey	Grey	Grey	Grey

Solid Silicone	A-A-59588, Class II, Grade 40 (Formerly ZZ-R-765)
Temperature Range	-70°C to 205°C
Sponge Silicone	AMS—3195
Temperature Range	-60°C to 205°C
Aluminum Wire	AMS 4182, Alloy 5056
Monel Wire	QQ-N-281 Class A
Wire Density / sq. in.	Wire Density / sq. in.
Silicone Solid	900 +/- 15%
Silicone Sponge	600 +/- 15%
Seal	Waterproof



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EVS4 EMI / RFI Shielding

EverShield **EVS4 Series** oriented wire is available in silicone, fluorosilicone or AMS-3195 spec grade sponge silicone. Available with Monel or Aluminum wire conductors, Series 150 oriented wire in silicone is capable of withstanding temperature extremes of -700 C to +205 C due to the special characteristics of the silicone polymer used. This material is ideal for use in applications that require an environmental seal as well as EMI protection. It is also ideal for use on flanges or irregular shapes where a die cut gasket is required to match the flange contour.

Oriented Wire in Silicone Sponge

Monel or Aluminum wire is processed with and bonded to a high quality silicone elastomer for uniform surface and multiple "spring" effect with each contact point.

Advantages

- Superior protection: Shields from harsh weather and electronic interference, up to 100db in the E- Field, up to 50 db in the H-Field.
- Custom configurations: EVS4 Series is also available in die-cut shapes to match complex flange contours, or strips assembled and bonded into a specific configuration.
- Material can be sliced down to a thickness of .030"
- To provide both EMI shielding and an environ- mental seal on cast or machined surfaces. Bonded frame configurations can be used with pre- cast housings, vent panels, and computer terminal window frames. Die cut wall widths as low as 0.090 (2,27) wide. Some examples would include circular military connectors and sub "D" connectors.

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Application Design Data

Oriented Wire Gaskets are recommended for applications requiring EMI suppression, grounding and environmental sealing. Presented in this section is a guide to compression stop applications, various splicing techniques and fabricated gasket design.

Compression Stops

The use of disk or washer type compression stops can be provided as part of the gasket assembly in order to avoid over-compression of the gasket and bowing of the cover plate. Compression stops are fabricated from sheets, rod or tubing material using either aluminum or stainless steel.

Typical compression stop assemblies are shown in Figures 1a and 1b.

Figure 1a. Disc type compression stop

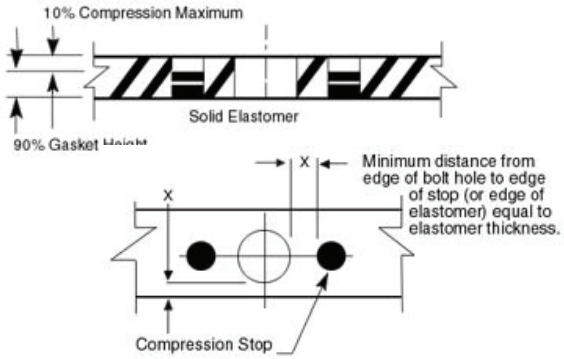
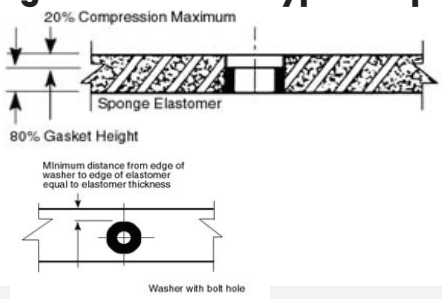


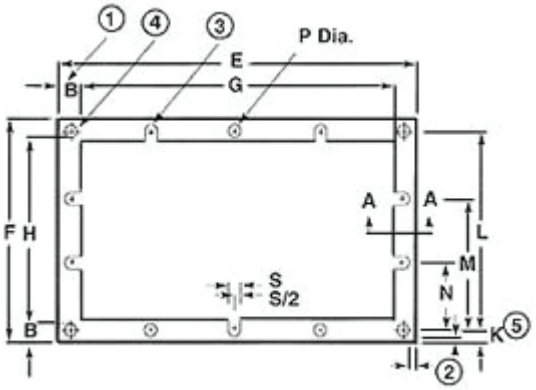
Figure 1b. Washer type compression stop



Fabricated Oriented Wire Gasket

CR Technology can supply fabricated gaskets to fit your enclosure size and mounting criteria. Figure 2 is common oriented wire gasket construction with bolt and/or slotted hole design to meet your specific require- ments.

Figure 2. Oriented Wire Gasket



Dimensional Location		Size Range with Tolerance		
		0-4"	4.1-12.0"	12.1-24.0"
		(0-101,6)	(104,1-	(307,3-
F,H,E,G	Length & Width	+-.020"	+-.031"	+-.040"
		(+-,51)	(+-,79)	(+-1,02)
K,N,M,L	Hole Loca- tion	+-.010"	+-.015"	+-.020"
		(+-,25)	(+-,38)	(+-,51)

Notes:

1. Minimum sealing gasket width is 0.125 in. (3,18 mm) but not less than gasket thickness.

2. Minimum distance from bolt hole or compression stop to edge of sealing gasket is not less than thickness of elastomer material.

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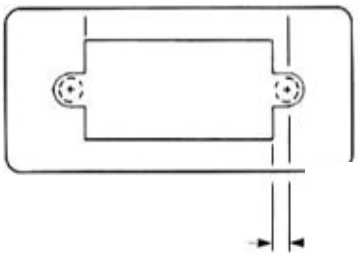
EVS4 Series

Die Cut Gasket

Oriented wire can be supplied as a die cut gasket in various configurations. Gasket sizes are available up to 9.0" (228,6 mm) x 36.0" (914,4 mm).

Several of the most common die cut gaskets are for cable connectors and Sub-D connections shown in Figures 3a and 3b.

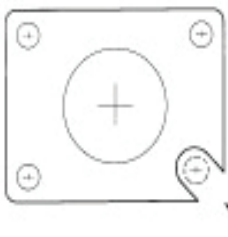
Figure 3a.



Holes closer to edges than .090" (2,29) may be slots at CRT's option.

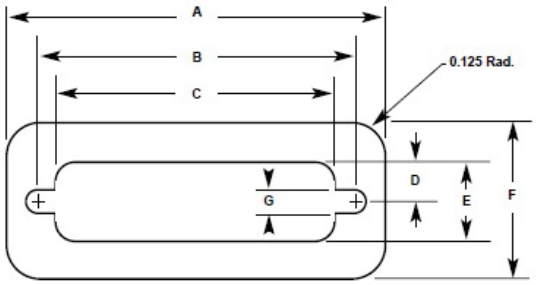
Specialties' option

Figure 3b.



Corner holes may be slots at CRT's option.

Corner holes may be slotted

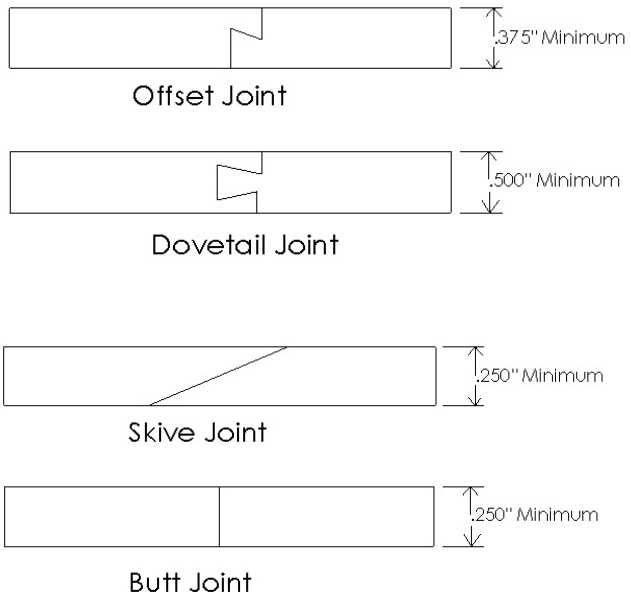


Splicing Techniques

Oriented wire can be supplied as a one piece
joint-less gasket. Gasket sizes are available up to
9.0" (228,6 mm) x 36.0" (914,4 mm).

Larger gaskets are normally spliced using one of the splicing techniques shown in Figure 4. These splicing methods minimize material waste when compared to jointless gasket design. When preparing gasket drawings, indicate the splicing method, if allowed, and desired locations.

Figure 4.



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EverShield™

Oriented Wire in Silicone Gasket Material EVS4 Series

Electrical Wire Oriented Characteristics	
Shielding Effectiveness	
Transfer Impedance (500 MHz)	60 - 100 dB
H-field (200Khz) Mil 285	25 - 70 dB
Plane Wave (3 GHz)	30 - 100 dB
Surface Resistivity	N/A
Volume Resistivity	0.006 ohm/cm
Mechanical	
Available Size Range	0.032 - 0.250 (0,81 - 6,25) Thick
Deflection Operating Range	10 - 20% Deflection
Compression Force (based on shape selection)	25 - 100 PSI (172 - 689 KPa)
Compression Set	2 - 5% @ 50 PSI (344,5 KPa)
Joint Unevenness Accommodation	0.005 - 0.015 (0,13 - 0,38)
Compound/Material Availability	Elastomer: silicone - solid or sponge, fluorosilicone. Wire: Monel, aluminum
Temperature Range	-94 to + 401°F (-70 - 205°C)
Available Profiles	Rectangular, strip, flat sheets, die cut shapes, fabricated gaskets
Mounting Methods	Groove, pressure sensitive adhesive
Custom Shape Available	Complex die cut shapes, bonded or vulcanized
Environmental	
Fluid Seal	Moisture and rain, solvents (fluoro)
Air/Dust	Provides barrier against dust
Galvanic Compatibility	Monel and aluminum wire are compatible with a broad range of mating surfaces.
Applications	
Typical Applications for Shielding Gaskets	To provide both EMI shielding and an environmental seal on cast or machined surfaces. Vulcanized frame configurations can be used with pre-cast housings, vent panels, and computer terminal window frames. Die cut wall widths as low as 0.090 (2,27) wide. Some examples would include circular military connectors and sub "D" connectors.

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