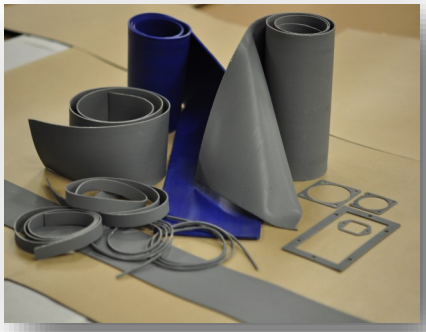
Conduct-o-Seal Oriented Wire in Silicone Gasket Material
ECS4 Series

East Coast Shielding Oriented wire in silicone ECS4 Series gasketing material is a combination EMI shield and environmental pressure seal. Produced on location, this product is fabricated 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, East Coast Shielding can accommodate you with the proper material to make your application successful.

Applications:

East Coast Shielding Oriented Wire in Silicone **ECS4 Series** is recommended for industrial, 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, require low closure force, have a 5 psi maximum operating pressure or generally require 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.

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

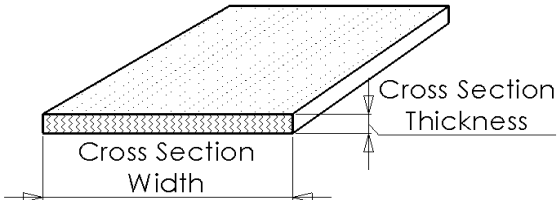


Oriented wire in silicone is available in sheets and strips with the height and width listed in the table on the following page. For sponge silicone widths larger 3" the sheets can be vulcanized or bonded together. For solid silicone widths larger than 9" the sheets can be vulcanized or bonded together also. Also available are die-cut parts or custom fabricated designs to meet your specific requirements.

Conduct-o-Seal Oriented Wire in Silicone Gasket Material

ECS4 Series

Oriented Wire in Silicone
Solid & Sponge Strip P/N's



Thickness Inches	Width Inches	Silicone Solid	Silicone Sponge	Thickness Inches	Width Inches	Silicone Solid	Silicone Sponge
0.062	0.093	ECS4-001	ECS4-002	0.032	3"	ECS4-075	ECS4-076
0.062	0.125	ECS4-003	ECS4-004	0.032	4.5"	ECS4-077	ECS4-078
0.062	0.188	ECS4-005	ECS4-006	0.032	6"	ECS4-079	ECS4-080
0.062	0.25	ECS4-007	ECS4-008	0.032	9"	ECS4-081	ECS4-082
0.062	0.312	ECS4-009	ECS4-010	0.045	3"	ECS4-083	ECS4-084
0.062	0.375	ECS4-011	ECS4-012	0.045	4.5"	ECS4-085	ECS4-086
0.062	0.5	ECS4-013	ECS4-014	0.045	6"	ECS4-087	ECS4-088
0.062	0.625	ECS4-015	ECS4-016	0.045	9"	ECS4-089	ECS4-090
0.093	0.093	ECS4-017	ECS4-018	0.055	3"	ECS4-091	ECS4-092
0.093	0.125	ECS4-019	ECS4-020	0.055	4.5"	ECS4-093	ECS4-094
0.093	0.188	ECS4-021	ECS4-022	0.055	6"	ECS4-095	ECS4-096
0.093	0.25	ECS4-023	ECS4-024	0.055	9"	ECS4-097	ECS4-098
0.093	0.312	ECS4-025	ECS4-026	0.062	3"	ECS4-099	ECS4-100
0.093	0.375	ECS4-027	ECS4-028	0.062	4.5"	ECS4-101	ECS4-102
0.093	0.5	ECS4-029	ECS4-030	0.062	6"	ECS4-103	ECS4-104
0.093	0.625	ECS4-031	ECS4-032	0.062	9"	ECS4-105	ECS4-106
0.125	0.125	ECS4-033	ECS4-034	0.093	3"	ECS4-107	ECS4-108
0.125	0.188	ECS4-035	ECS4-036	0.093	4.5"	ECS4-109	ECS4-110
0.125	0.25	ECS4-037	ECS4-038	0.093	6"	ECS4-111	ECS4-112
0.125	0.312	ECS4-039	ECS4-040	0.093	9"	ECS4-113	ECS4-114
0.125	0.375	ECS4-041	ECS4-042	0.125	3"	ECS4-115	ECS4-116
0.125	0.5	ECS4-043	ECS4-044	0.125	4.5"	ECS4-117	ECS4-118
0.125	0.625	ECS4-045	ECS4-046	0.125	6"	ECS4-119	ECS4-120
0.156	0.125	ECS4-047	ECS4-048	0.125	9"	ECS4-121	ECS4-122
0.188	0.125	ECS4-049	ECS4-050	0.156	3"	ECS4-123	ECS4-124
0.188	0.188	ECS4-051	ECS4-052	0.156	4.5"	ECS4-125	ECS4-126
0.188	0.25	ECS4-053	ECS4-054	0.156	6"	ECS4-127	ECS4-128
0.188	0.312	ECS4-055	ECS4-056	0.156	9"	ECS4-129	ECS4-130
0.188	0.375	ECS4-057	ECS4-058	0.188	3"	ECS4-131	ECS4-132
0.188	0.5	ECS4-059	ECS4-060	0.188	4.5"	ECS4-133	ECS4-134
0.188	0.625	ECS4-061	ECS4-062	0.188	6"	ECS4-135	ECS4-136
0.25	0.125	ECS4-063	ECS4-064	0.188	9"	ECS4-137	ECS4-138
0.25	0.188	ECS4-065	ECS4-066	0.25	3"	ECS4-139	ECS4-140
0.25	0.25	ECS4-067	ECS4-068	0.25	4.5"	ECS4-141	ECS4-142
0.25	0.312	ECS4-069	ECS4-070	0.25	6"	ECS4-143	ECS4-144
0.25	0.375	ECS4-071	ECS4-072	0.25	9"	ECS4-145	ECS4-146
0.312	0.5	ECS4-073	ECS4-074				

ADD : -M for Monel / -A for Aluminum / -0 for Plain / -1 For PSA Backing / For Example : ECS4-001-M-1

East Coast Shielding
EMI SHIELDING PRODUCTS

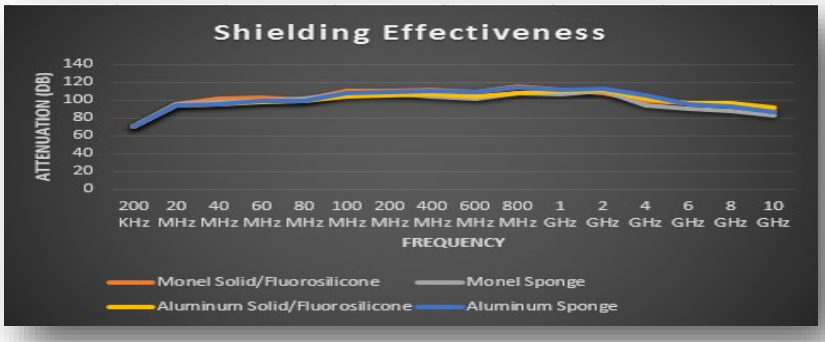
Conduct-o-Seal Oriented Wire in Silicone Gasket Material
ECS4 Series

Material Specifications

	Solid Silicone/ Monel Wire	Sponge Silicone/ Monel Wire	Solid Silicone/ Aluminum	Sponge Silicone/ Aluminum
Shielding db: 200 Khz 100 Mhz 1 Ghz Closing Force (psi)	 70 110 111 25-100	 70 108 106 25-100	 70 101 110 15-75	 70 108 112 15-75
Compression Set (@50psi)	2%	5%	2%	5%
EMP Survivability/ Color	yes Grey	yes Grey	yes Grey	yes 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.	
Silicone Solid	900 +/- 15%
Silicone Sponge	600 +/- 15%
Seal	Waterproof

Strips and Sheets Cross Section Tolerances		
Dimension	**Height**	**Width**
0.032” (0.81)	+/- 0.010” (.25)	+/- 0.015” (..38)
0.126” (3.20)	+/- 0.010” (.25)	+/- 0.032” (.81)
0.251” (6.38)	-	+/- 0.047” (1.19)
3” (76.20)	-	+/- 0.13 (3.30)
4.5” (114.30)	-	+/- 0.19” (4.83)
6” (152.0)	-	+/- 0.25” (6.35)
9” (228.60)	-	+/- 0.38” (9.65)



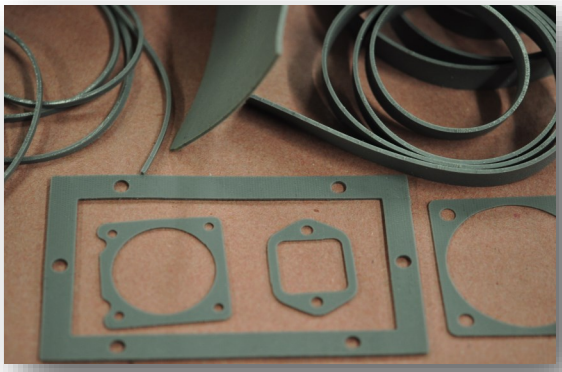
East Coast Shielding
EMI SHIELDING PRODUCTS

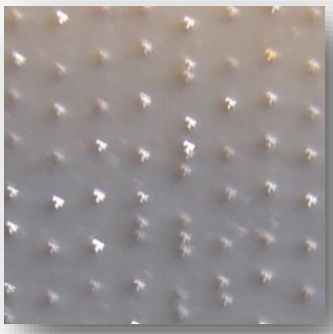
908-852-9160

Conduct-o-Seal Oriented Wire in Silicone Gasket Material
ECS4 Series

EMI/RFI Shielding Material

East Coast Shielding offers **ECS4 Series** oriented wire 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 -70^0C to $+205^0$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 Solid

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: ECS4 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 environmental seal on cast or machined surfaces. Bonded frame configurations can be used with precast 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.

Conduct-o-Seal Oriented Wire in Silicone Gasket Material

ECS4 Series

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

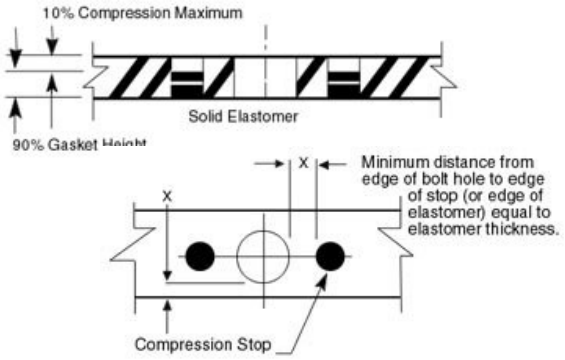
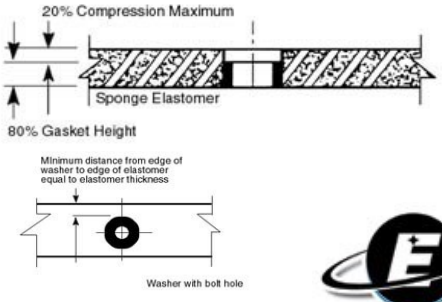


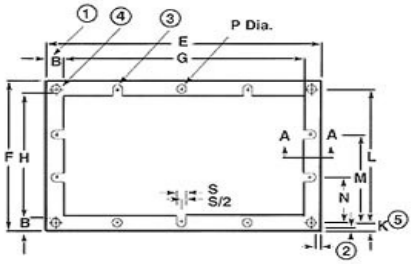
Figure 1b. Washer type compression stop



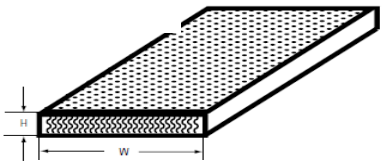
Fabricated Oriented Wire Gasket

East Coast Shielding 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 requirements.

Figure 2. Oriented Wire Gasket



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

Conduct-o-Seal Oriented Wire in Silicone Gasket Material
ECS4 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.

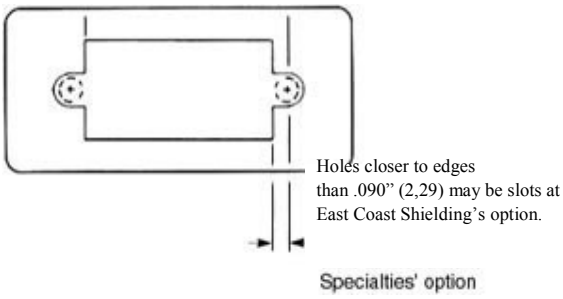
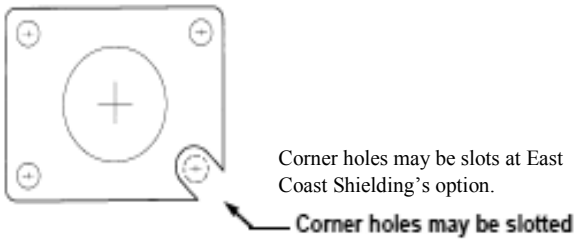
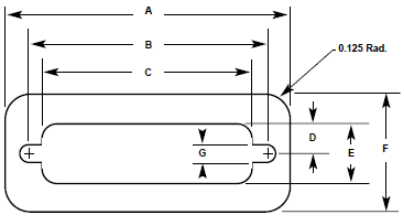


Figure 3b.



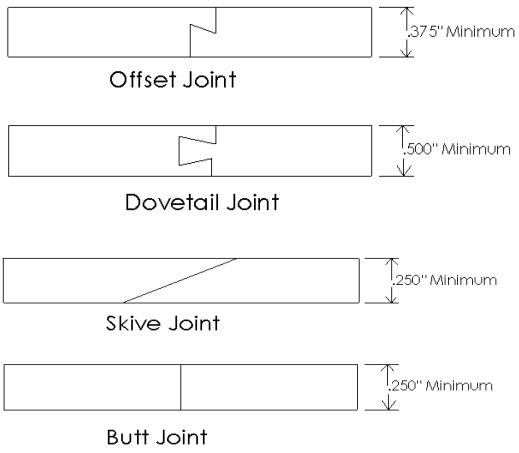


Splicing Techniques

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 joint-less gasket design. When preparing gasket drawings, indicate the splicing method, if allowed, and desired locations.

Figure 4.



East Coast Shielding
EMI SHIELDING PRODUCTS

Conduct-o-Seal Oriented Wire in Silicone Gasket Material
ECS4 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.