

POLA[®] SPONGE

Oriented Wire in Soft Elastomer



Customer Value Proposition:

POLA SPONGE is a composite electromagnetic interface (EMI) shielding and environmental sealing gasket material consisting of hundreds of individual fine wires embedded into the z-axis of soft closed cell, silicone sponge elastomer.

Available in various flat seal configurations, including sheets, strips and die-cut parts, POLA SPONGE is easily integrated into existing application assemblies, making the switch from a non-EMI solution possible.

With force requirements for gasket deflection that can be more than half that of alternative solutions that provide both EMI shielding and weather sealing performance, POLA SPONGE provides the opportunity for increased design leniencies such as thinner flange requirements and reduced fastener quantities. The result is the potential for a total cost of ownership reduction in excess of 75% through weight, material and labor savings.



Features and Benefits:

- Low-hardness closed cell silicone sponge allows for reduced gasket load requirements to obtain weather sealing and EMI shielding performance
- Multiple wire alloy options allow for galvanic compatibility to be optimized between the gasketing and mating surfaces
- Cured in place oriented wires will not dislodge, thereby eliminating foreign object debris concerns
- Wire "bite-through" during gasket deflection allows for non-conductive pressure sensitive adhesive to be used rather than the conductive systems more commonly offered with EMI gasketing solutions
- Various form factors are offered including strips, sheets and converted gaskets, thereby allowing for easy application and manufacturing integration
- Lower gasket load requirements allow for broader tolerance schemes, with less fasteners and thinner flange designs, resulting in lower costs associated with the overall system design.
- Galvanic compatibility allows for optimized corrosion mitigation and avoidance of related rework costs.
- Elimination of foreign object debris ensures costly application rework due to electrical shorting can be avoided.
- The elimination of conductive pressure sensitive adhesive results in better adhesion and less galvanic corrosion potential for the overall system.
- Various form factors reduce secondary operations and capital expenditures commonly associated with gasket conversion.

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POLA SPONGE - Product Information

Table 1

MATERIAL SPECIFICATIONS				
Typical Properties	Silicone Closed Cell Sponge	Wire Alloys		
		Aluminum ¹	Monel	Phosphor Bronze ²
Material Specification	AMS-3195	Alloy 5056, AMS-4182	QQ-N-281, AMS-4730	Alloy 30, ASTM B-105
Wire Diameter	-	0.005 in (0.13 mm)	0.0045 in (0.11 mm)	0.002 in (0.05 mm)
Temperature Range	-65 °F to 392 °F (-55 °C to 200 °C)	See Below ³		
Recommended Compression	10% - 40%, (considering LMC & MMC) ⁴			
Recommended Closure Force	10 PSI to 40 PSI			
Pressure Sensitive Adhesive Option	Acrylic, 0.002" thick			
Sponge Density	0.028 lbs/in ³	-		
Wire Population Density	-	650/in ² ±15%		
Recommended Storage Conditions @ 50% Relative Humidity	70° F ± 20 (21° C ± 10)			
Shelf Life, PSA (No PSA)	12 Months ⁵ (Indefinite)			

- Notes**
1. Except maximum tensile strength of 75,000 PSI
 2. Non-standard, please inquire
 3. Composite material is limited by silicone temperature range
 4. LMC: Least Material Condition, MMC: Maximum Material Condition
 5. Shelf life starts at date of shipment. There is no shelf life extension policy for this product.

POLA SPONGE SHEETS:

Sheets are available in standard widths up to 9 inches, created by bonding 3 inch strips. 3 inch wide sheets are the most common. Two bond lines per 9 inch sheet can be expected. Standard sheet lengths are 3 feet. Sheets can be converted with traditional cutting methods including steel rule dies or water jets.

Table 2

STANDARD SHEET TOLERANCES inches (mm)		
Dimensions	Height (H)	Width (W)
0.062 to 0.092 (1.57 to 2.34)	+0.010 (0.25), -0.005 (0.13)	±0.015 (±0.38)
0.093 to 0.125 (3.26 to 3.18)	±0.010 (±0.25)	±0.015 (±0.38)
0.126 to 0.250 (3.20 to 6.35)	±0.010 (±0.25)	±0.031 (±0.79)
0.251 to 0.750 (6.37 to 19.05)	±0.010 (±0.25)	±0.047 (±1.19)
0.751 to 1.000 (19.08 to 25.4)	±0.015 (±0.38)	±0.062 (±1.57)



Table 3

POLA SPONGE STANDARD SHEET GASKETING inches (mm)			
Thickness	Width +0.500 / - 0.000 (*12.7 / - 0.000)	Part Number	
		Monel Wire	Aluminum Wire
0.062 (1.57)	3.000 (76.2)	07-0801-3006	07-0802-3006
0.062 (1.57)	4.500 (114.3)	07-0801-4506	07-0802-4506
0.062 (1.57)	6.000 (152.4)	07-0801-6006	07-0802-6006
0.062 (1.57)	9.000 (228.6)	07-0801-9006	07-0802-9006
0.093 (2.36)	3.000 (76.2)	07-0801-3009	07-0802-3009
0.093 (2.36)	4.500 (114.3)	07-0801-4509	07-0802-4509
0.093 (2.36)	6.000 (152.4)	07-0801-6009	07-0802-6009
0.093 (2.36)	9.000 (228.6)	07-0801-9009	07-0802-9009
0.125 (3.18)	3.000 (76.2)	07-0801-3012	07-0802-3012
0.125 (3.18)	4.500 (114.3)	07-0801-4512	07-0802-4512
0.125 (3.18)	6.000 (152.4)	07-0801-6012	07-0802-6012
0.125 (3.18)	9.000 (228.6)	07-0801-9012	07-0802-9012
0.156 (3.96)	3.000 (76.2)	07-0801-3015	07-0802-3015
0.156 (3.96)	4.500 (114.3)	07-0801-4515	07-0802-4515
0.156 (3.96)	6.000 (152.4)	07-0801-6015	07-0802-6015
0.156 (3.96)	9.000 (228.6)	07-0801-9015	07-0802-9015
0.188 (4.78)	3.000 (76.2)	07-0801-3018	07-0802-3018
0.188 (4.78)	4.500 (114.3)	07-0801-4518	07-0802-4518
0.188 (4.78)	6.000 (152.4)	07-0801-6018	07-0802-6018
0.188 (4.78)	9.000 (228.6)	07-0801-9018	07-0802-9018
0.250 (6.35)	3.000 (76.2)	07-0801-3025	07-0802-3025
0.250 (6.35)	4.500 (114.3)	07-0801-4525	07-0802-4525
0.250 (6.35)	6.000 (152.4)	07-0801-6025	07-0802-6025
0.250 (6.35)	9.000 (228.6)	07-0801-9025	07-0802-9025

- Notes**
1. To specify pressure sensitive adhesive, add -77 to the end of the part number
 2. Contact Parker Chomerics for part number assistance with parts requiring non-standard phosphor bronze wire
 3. Contact Parker Chomerics regarding questions on part numbers formerly generated by Tecknit
 4. Custom dimensions available upon request

POLA SPONGE - Product Information

POLA SPONGE STRIPS:

Strips are available in standard widths from .093 to 1.000 inches, with a recommend height to width ratio of no greater than 1:1. Standard strip lengths are 11 feet. Bonded continuous lengths are available upon request.

Twin strips are a variation of standard strips in that the oriented wires occupy only a portion of the total strip width. The unoccupied portion of the gasketing provides improved sealing and corrosion resistance for applications requiring optimized seal performance. Strips are available in widths 0.375" and larger, with the wire-occupied portion having a standard width of 0.250".

Table 2

STANDARD STRIP TOLERANCES inches (mm)		
Dimensions	Height (H)	Width (W)
0.062 to 0.092 (1.57 to 2.34)	+0.010 (0.25), -0.005 (0.13)	±0.015 (±0.38)
0.093 to 0.125 (3.26 to 3.18)	±0.010 (±0.25)	±0.015 (±0.38)
0.126 to 0.250 (3.20 to 6.35)	±0.010 (±0.25)	±0.031 (±0.79)
0.251 to 0.750 (6.37 to 19.05)	±0.010 (±0.25)	±0.047 (±1.19)
0.751 to 1.000 (19.08 to 25.4)	±0.015 (±0.38)	±0.062 (±1.57)

Table 4

POLA SPONGE STANDARD STRIP GASKETING inches (mm)				
Thickness	Width	Part Number		
		Monel Wire	Aluminum Wire	Twin Monel Wire
0.062 (1.57)	0.093 (2.36)	07-0201-11049	07-0202-11050	N/A
0.062 (1.57)	0.125 (3.18)	07-0201-0358	07-0202-10640	N/A
0.062 (1.57)	0.187 (4.78)	07-0201-0394	07-0202-11051	N/A
0.062 (1.57)	0.250 (6.35)	07-0201-0356	07-0202-9005	N/A
0.062 (1.57)	0.312 (7.92)	07-0201-11098	07-0202-11099	N/A
0.062 (1.57)	0.375 (9.53)	07-0201-0876	07-0202-11052	07-0201-0264
0.062 (1.57)	0.500 (12.70)	07-0201-0875	07-0202-11053	07-0201-0261
0.062 (1.57)	0.625 (15.88)	07-0201-0507	07-0202-11929	07-0201-0262
0.062 (1.57)	0.750 (19.05)	07-0201-0263	07-0202-11054	07-0201-0263
0.062 (1.57)	1.000 (25.4)	07-0201-9127	07-0202-11055	07-0201-11075
0.093 (2.36)	0.093 (2.36)	07-0201-0285	07-0202-0609	N/A
0.093 (2.36)	0.125 (3.18)	07-0201-0427	07-0202-0610	N/A
0.093 (2.36)	0.187 (4.78)	07-0201-0311	07-0202-0611	N/A
0.093 (2.36)	0.250 (6.35)	07-0201-0508	07-0202-0236	N/A
0.093 (2.36)	0.312 (7.92)	07-0201-0607	07-0202-0612	N/A
0.093 (2.36)	0.375 (9.53)	07-0201-0608	07-0202-0613	07-0201-0548
0.093 (2.36)	0.500 (12.70)	07-0201-0237	07-0202-0488	07-0201-0552
0.093 (2.36)	0.625 (15.88)	07-0201-0243	07-0202-0614	07-0201-0553
0.093 (2.36)	0.750 (19.05)	07-0201-0290	07-0202-11056	07-0201-0555
0.093 (2.36)	1.000 (25.4)	07-0201-0581	07-0202-11057	07-0201-11076
0.125 (3.18)	0.125 (3.18)	07-0201-0032	07-0202-0068	N/A
0.125 (3.18)	0.187 (4.78)	07-0201-0034	07-0202-0070	N/A
0.125 (3.18)	0.250 (6.35)	07-0201-0013	07-0202-0074	N/A
0.125 (3.18)	0.312 (7.92)	07-0201-0040	07-0202-0079	N/A
0.125 (3.18)	0.375 (9.53)	07-0201-0044	07-0202-0083	07-0201-0187
0.125 (3.18)	0.500 (12.70)	07-0201-0090	07-0202-0094	07-0201-0188
0.125 (3.18)	0.625 (15.88)	07-0201-0158	07-0202-0170	07-0201-0189
0.125 (3.18)	0.750 (19.05)	07-0201-0288	07-0202-0478	07-0201-0190
0.125 (3.18)	1.000 (25.4)	07-0201-0266	07-0202-11058	07-0201-11077
0.156 (3.96)	0.156 (3.96)	07-0201-11059	07-0202-11060	N/A
0.156 (3.96)	0.187 (4.78)	07-0201-0406	07-0202-0271	N/A
0.156 (3.96)	0.250 (6.35)	07-0201-0397	07-0202-11061	N/A
0.156 (3.96)	0.312 (7.92)	07-0201-11062	07-0202-11063	N/A
0.156 (3.96)	0.375 (9.53)	07-0201-11064	07-0202-11065	07-0201-11078
0.156 (3.96)	0.500 (12.70)	07-0201-0467	07-0202-0369	07-0201-11079
0.156 (3.96)	0.625 (15.88)	07-0201-9849	07-0202-11066	07-0201-11080
0.156 (3.96)	0.750 (19.05)	07-0201-11067	07-0202-11068	07-0201-11081
0.156 (3.96)	1.000 (25.4)	07-0201-0619	07-0202-11069	07-0201-11082

Table 4 continued

POLA SPONGE STANDARD STRIP GASKETING inches (mm)				
Thickness	Width	Part Number		
		Monel Wire	Aluminum Wire	Twin Monel Wire
0.187 (4.78)	0.187 (4.78)	07-0201-0014	07-0202-0071	N/A
0.187 (4.78)	0.250 (6.35)	07-0201-0037	07-0202-0075	N/A
0.187 (4.78)	0.312 (7.92)	07-0201-0041	07-0202-0080	N/A
0.187 (4.78)	0.375 (9.53)	07-0201-0121	07-0202-0123	07-0201-0191
0.187 (4.78)	0.500 (12.70)	07-0201-0091	07-0202-0095	07-0201-0192
0.187 (4.78)	0.625 (15.88)	07-0201-0159	07-0202-0171	07-0201-0193
0.187 (4.78)	0.750 (19.05)	07-0201-0218	07-0202-0218	07-0201-0194
0.187 (4.78)	1.000 (25.4)	07-0201-0587	07-0202-0587	07-0201-11083
0.250 (6.35)	0.250 (6.35)	07-0201-0012	07-0202-0076	N/A
0.250 (6.35)	0.312 (7.92)	07-0201-0042	07-0202-0081	N/A
0.250 (6.35)	0.375 (9.53)	07-0201-0045	07-0202-0084	07-0201-0549
0.250 (6.35)	0.500 (12.70)	07-0201-0015	07-0202-0086	07-0201-0195
0.250 (6.35)	0.625 (15.88)	07-0201-0160	07-0202-0172	07-0201-0196
0.250 (6.35)	0.750 (19.05)	07-0201-0444	07-0202-0533	07-0201-0197
0.250 (6.35)	1.000 (25.4)	07-0201-0445	07-0202-11070	07-0201-11084
0.312 (7.92)	0.312 (7.92)	07-0201-0043	07-0202-0082	N/A
0.312 (7.92)	0.375 (9.53)	07-0201-0125	07-0202-0127	07-0201-11196
0.312 (7.92)	0.500 (12.70)	07-0201-0137	07-0202-0139	07-0201-11197
0.312 (7.92)	0.625 (15.88)	07-0201-11094	07-0202-11095	07-0201-11096
0.312 (7.92)	0.750 (19.05)	07-0201-0402	07-0202-11071	07-0201-11085
0.312 (7.92)	1.000 (25.4)	07-0202-11072	07-0202-11073	07-0201-11086
0.375 (9.53)	0.375 (9.53)	07-0201-0046	07-0202-0085	07-0201-11087
0.375 (9.53)	0.500 (12.70)	07-0201-0141	07-0202-0143	07-0201-0283
0.375 (9.53)	0.625 (15.88)	07-0201-0161	07-0202-0173	07-0201-0284
0.375 (9.53)	0.750 (19.05)	07-0201-0219	07-0202-0534	07-0201-11088
0.375 (9.53)	1.000 (25.4)	07-0201-0523	07-0202-11074	07-0201-11089
0.500 (12.70)	0.500 (12.70)	07-0201-0047	07-0202-0087	07-0201-11090
0.500 (12.70)	0.625 (15.88)	07-0201-0162	07-0202-0174	07-0201-11091
0.500 (12.70)	0.750 (19.05)	07-0201-0374	07-0202-0535	07-0201-11092
0.500 (12.70)	1.000 (25.4)	07-0201-0524	07-0202-0586	07-0201-11093

Notes

1. To specify pressure sensitive adhesive, add -77 to the end of the part number
2. Contact Parker Chomerics for part number assistance with parts requiring non-standard phosphor bronze wire
3. Contact Parker Chomerics regarding questions on part numbers formerly generated by Technit
4. Custom dimensions available upon request

POLA SPONGE - Product Information

FABRICATED GASKETS:

Parker Chomerics can provide finished gaskets utilizing a variety of cutting and bonding techniques. Compression stop integration is available upon request. Please contact Parker Chomerics directly for design assistance.

Table 5

DIE-CUT GASKET DESIGN PARAMETERS inches (mm)	
A Dimensional Tolerances <10 (<254) 10 to 15 (254 to 381) >15 (>381)	± 0.010 (0.25) ± 0.020 (0.51) $\pm 0.20\%$ of Nom. Dim
B Min. Width	0.125 (3.18)
C Min. Wall Thickness	0.080 (2.03)
D Min. Hole Diameter	0.060 (1.52)
E Slot	if min. wall thickness C cannot be accommodated, holes should be changed to slots.

Notes:

- Die-cut gaskets should be inspected for dimensional compliance in a restrained condition.

Figure 1 DIE-CUT GASKET

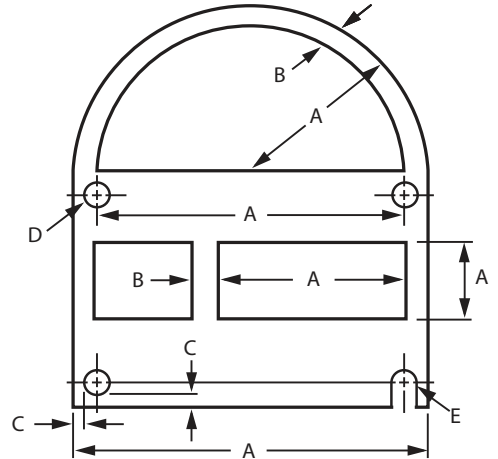


Table 6

SPliced/DIE-CUT GASKET DESIGN PARAMETERS inches (mm)			
Dimensions	0-12.0 (0-30 cm)	12.1-24.0 (31-61 cm)	24.1-36.0 (61-91 cm)
A,B	± 0.03 (± 0.76)	± 0.06 (± 1.52)	± 0.12 (± 3.05)
C	(Width) See Table 2		
D	± 0.02 (± 0.51)	± 0.02 (± 0.51)	± 0.02 (± 0.51)
E, F, G, H, J, K	± 0.02 (± 0.51)	± 0.04 (± 1.02)	± 0.06 (± 1.52)
L	± 0.02 (± 0.51)	± 0.02 (± 0.51)	± 0.02 (± 0.51)
T	(Height) See Table 2		

Notes:

- Joint bonded with RTV silicone adhesive.
- When B dim. is less than 4.5 inches (113 mm), POLASHEET, rather than POLASTRIP, may be used.
- Die-cut gaskets should be inspected for dimensional compliance in a restrained condition.

Figure 2 SPLICED GASKET

