

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.

Contact Information:

Parker Hannifin Corporation
Chomerics Division
77 Dragon Court
Woburn, MA 01801

phone 781 935 4850
fax 781 933 4318
chomailbox@parker.com

www.chomerics.com
www.parker.com/chomerics



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.

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 | | | |
| Sponge Density | 0.028 lbs/in ³ | - | | |
| Wire Population Density | - | 650/in ² | | |

Notes

1. Except maximum tensile strength of 75,000 PSI
2. Non-standard, please inquire
3. Composite material is limited by sponge silicone temperature range
4. LMC: Least Material Condition, MMC: Maximum Material Condition

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 | 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 | 07-0202-0614 | 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

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



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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

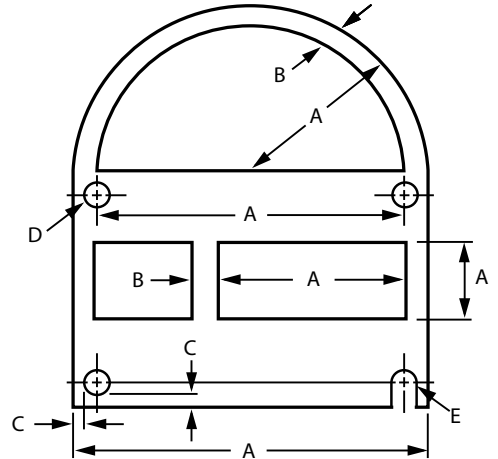


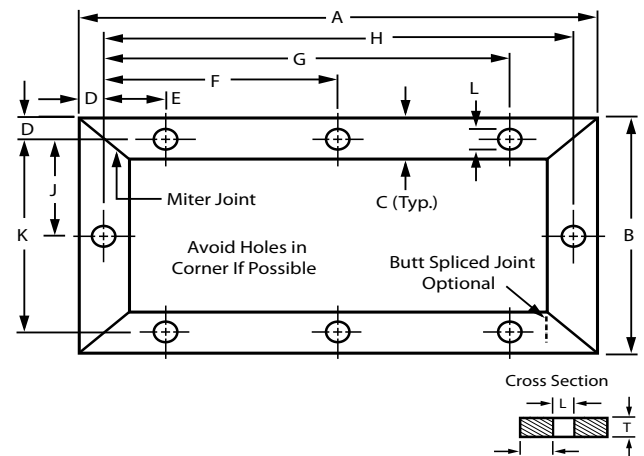
Table 6

| 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



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