

Metallized Filled Silicone (5000 Series)

Conductive Metallized Filled Silicone Elastomers

General Descriptions

Metallized Filled Silicone is a molded silicone elastomer filled with conductive inert particles. It provides high electrical conductivity, broadband shielding and moisture sealing. MAJR offers these elastomers filled with:

- Nickel Graphite (52)
- Nickel (60)
- Silver-Plated Glass (61)
- Silver-Plated Copper (62)
- Silver-Plated Aluminum (63)
- Silver-Plated Aluminum FluoroSilicone (64)
- Silver-Plated Nickel (65)
- Silver (66)

Metallized Filled Silicone is designed to provide reliable and cost-effective shielding for a wide range of EMI applications. Metallized Filled Silicone is manufactured in sheets, molded parts, strips and die-cut flat gaskets.

Table 1

Specifications: Material Description

| Metallized Filled Silicone | |
|----------------------------|--|
| Elastomer Binder: | Silicone |
| Conductive Filler: | Nickel Graphite (52) |
| | Nickel (60) |
| | Silver-Plated Glass (61) |
| | Silver-Plated Copper (62) |
| | Silver-Plated Aluminum (63) |
| | Silver-Plated Aluminum FluoroSilicone (64) |
| | Silver-Plated Nickel (65) |
| | Silver (66) |
| Color: | Tan (Other colors available upon request) |
| Form Available: | Molded Sheets & Strips |

Table 2

Specifications: Performance Characteristics

| Data | Typical Values |
|--------------------------|----------------|
| Shore A | 58-72 |
| Tensile psi | 200 |
| Elongation % | 200 |
| Tear "B" ppi | 35 |
| Specific Gravity | 1.7 - 2.2 |
| Volume Resistivity | .005 |
| Compression Set % | 35 |
| Compression/Deflection % | 3.5 |
| Temperature Range °C | -55 + 160 |

Application Information

Metallized Filled Silicone should be used where there is a need for high broadband shielding combined with excellent moisture-sealing properties.

In order to assure electrical conductivity and sealing reliability, recommended design compression is 7% - 15% of original height for sheets and rectangular strips. For "O" and "D" shapes the recommended compression is 12% - 30%.

Adhering and Joining

For splicing, joining and bonding Metallized Filled Silicone gaskets to enclosures, MAJR recommends a two-component, electrically conductive, silver silicone adhesive sealant of medium viscosity. This material provides a flexible bond and a resilient seal. If necessary, MAJR can provide this sealant with your order; ask your representative.

EMI Shielding Performance*

MAJR's Metallized Filled Silicone Shielding Effectiveness has been tested in accordance with MAJR's Test Methods and based upon modified MIL-STD-285. Typical Shielding effectiveness values are based on a 5" square aperture.

MAJR's Metallized Filled Silicone Shielding Effectiveness has been tested in accordance with the test method described in paragraph 4.6.12 of MIL-DTL-83528. Typical values are shown:

Table 3

| H-Field 100 kHz | E-Field 10MHz | Plane Wave | |
|--------------------|------------------|------------|-------|
| | | 1GHz | 10GHz |
| dB | dB | dB | dB |
| 105 | 110 | 120 | 110 |

*Silver Material (66)

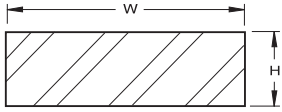
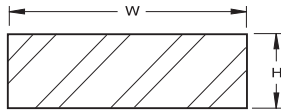


Table 2 - Standard Sheets: (Other Sizes Available)

| Height | Part Number | Standard Size |
|-------------|---------------|----------------------------|
| .020 [0.51] | 5000-02000-xx | 12" Square [305 mm square] |
| .032 [0.76] | 5000-03000-xx | 12" Square [305 mm square] |
| .040 [1.02] | 5000-04000-xx | 12" Square [305 mm square] |
| .062 [1.57] | 5000-06000-xx | 12" Square [305 mm square] |
| .093 [2.36] | 5000-09000-xx | 12" Square [305 mm square] |
| .125 [3.18] | 5000-12000-xx | 12" Square [305 mm square] |

*Other sheet sizes available upon request.

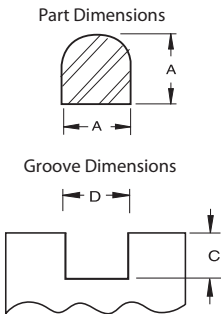
Table 3 -Standard Rectangle:



| Height | .125 [3.18] | .188 [4.78] | .250 [6.35] | .375 [9.53] | .500 [12.70] |
|-------------|---------------|---------------|---------------|---------------|---------------|
| | Part Number | Part Number | Part Number | Part Number | Part Number |
| .032 [0.76] | 5010-03012-xx | 5010-03019-xx | 5010-03025-xx | 5010-03038-xx | 5010-03050-xx |
| .062 [1.57] | 5010-06012-xx | 5010-06019-xx | 5010-06025-xx | 5010-06038-xx | 5010-06050-xx |
| .093 [2.36] | 5010-09012-xx | 5010-09019-xx | 5010-09025-xx | 5010-09038-xx | 5010-09050-xx |
| .125 [3.18] | 5010-12012-xx | 5010-12019-xx | 5010-12025-xx | 5010-12038-xx | 5010-12050-xx |
| .188 [4.78] | 5010-18012-xx | 5010-18019-xx | 5010-18025-xx | 5010-18038-xx | 5010-18050-xx |
| .250 [6.35] | 5010-25012-xx | 5010-25019-xx | 5010-25025-xx | 5010-25038-xx | 5010-25050-xx |

*Other dimensions of this part are available upon request.

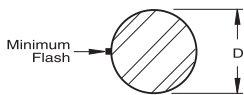
Table 4 -Standard "D" Shapes



| A Dimension* | Part Number | Groove Dimensions | |
|-----------------|----------------|-------------------|-------------------|
| | | C +.006 -0 [0.15] | D +.006 -0 [0.15] |
| .062 [1.57] | 5009-06006-xx | .045 [1.14] | .065 [1.65] |
| .093 [2.36] | 5009-09009-xx | .070 [1.78] | .097 [2.46] |
| .125 [3.18] | 5009-12012-xx | .091 [2.31] | .128 [3.25] |
| .188 [4.78] | 5009-18018-xx | .141 [3.58] | .193 [4.90] |
| .250 [6.35] | 5009-25025-xx | .187 [4.75] | .255 [6.48] |

Table 5 -Standard Round:

| Diameter | Part Number |
|-------------|---------------|
| .062 [1.57] | 5011-06000-xx |
| .093 [2.36] | 5011-09000-xx |
| .125 [3.18] | 5011-12000-xx |
| .188 [4.78] | 5011-18000-xx |
| .250 [6.35] | 5011-25000-xx |



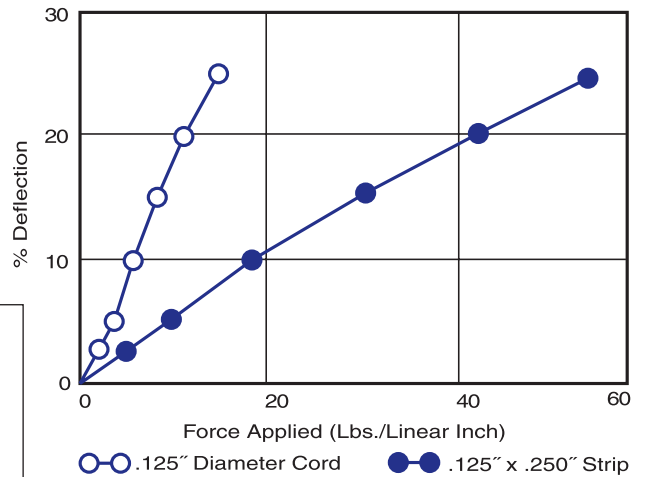
Ordering Information:

Replace xx with the appropriate material code:
 Nickel Graphite (52)
 Nickel (60)
 Silver-Plated Glass (61)
 Silver-Plated Copper (62)
 Silver-Plated Aluminum (63)
 Silver-Plated Aluminum FluoroSilicone (64)
 Silver-Plated Nickel (65)
 Silver (66)

Figure 3

Compression and Deflection Data:

Compression/Deflection Curve



For cross-sections not listed above and custom design applications and molded parts, contact your MAJR representative.