Fillers

Leader Tech Inc. is currently offering six different fillers that can be mixed with the polymers. These fillers are Pure Silver, Silver Plated Copper, Silver Plated Aluminum, Silver Plated Nickel, Silver Plated Glass, and Nickel Graphite particles. When these particles are combined with the polymers they make an excellent gasket that will offer EMI shielding and protect your device against the environment. In order to select the correct filler you must first determine what finish will be on your device. Galvanically some materials will perform much better when mounted against certain types of materials. An example of a material that will work well in almost all situations is Leader Tech's TechSIL LTE-40 material. This is a Fluorosilicone polymer material that is mixed with Silver Plated Aluminum particles. LTE-40 (MIL-DTL-83528 Type D) has excellent conductivity, excellent galvanic compatibility and it works well when exposed to most chemicals and harsh environments. On the other hand, if a device is being used exclusively in an office type environment the lower cost TechSIL LTE-60 material could be used (see Tables #1 and #4).

Most Popular TechSIL Formulations		Elastomer/Filler				
Leader Tech Material Code	LTE-10	LTE-20	LTE-30	LTE-40	LTE-50	LTE-60
MIL-DTL-83528	A	B	C	D	M	---
Chassis Material	Sil Ag/Cu	Sil Ag/Al	F.Sil Ag/Cu	F -Sil Ag/Al	Sil Ag/G	Sil Ni/C
Chromated Al						
Tin Plated Steel						
Zinc Plated Steel						
Stainless Steel						

TABLE 4

Excessive Corrosion Moderate to Excessive Moderate Corrosion Minimal Corrosion

Profiles

Once the material is selected it is time to decide what shape or profile will work best for your application. When using TechSIL Conductive Elastomers the amount of compression or deflection must always be considered. If a gasket is over compressed it will fracture and will no longer offer adequate shielding or environmental protection. There are four basic standard shapes for TechSIL Conductive Elastomers. The shapes are Flat, Round, "D" and "P". The Flat gasket is the only gasket that is not offered in a hollow configuration. The Round, "D" and "P" are all offered in solid and hollow configurations. Due to the make-up of these TechSIL Conductive Elastomers whenever possible it is recommended that a hollow shape be used. This will lower the compression forces required and also will allow for a wider operating range of the gasket (see table #5). The other advantage of the hollow gasket is that less material is used and in most cases the hollow gaskets are less expensive per foot than the solid gaskets.

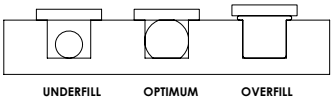
Recommended Deflection/Compression	
Shape	Deflection/Compression
Flat Strip	5-10 Percent
Solid O	20-25 Percent
Solid D	15-20 Percent
Hollow O	20-50 Percent
Hollow D	25-50 Percent
Hollow P	25-50 Percent
Interference Fit	15-25 Percent

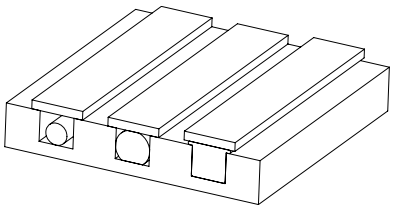
TABLE 5

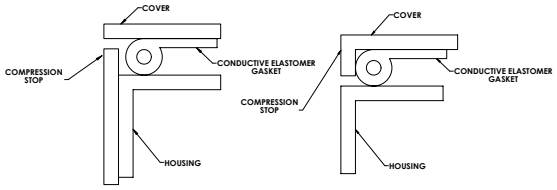
Phone: 866.832.4364 Fax: 813.855.3291 Web: www.leadertechinc.com

Mounting Methods

TechSIL Conductive Elastomers can be mounted using grooves, Pressure Sensitive Adhesives, or mechanically fastening the gasket to the device. Sheets, Flat, "D" and "P" shape can have either Conductive PSA or non-Conductive PSA applied to help hold the gasket in place prior to assembly. When using non-conductive adhesives typically only 50% of the gaskets mounting surface has PSA applied to it. Round gaskets on the other hand can not have PSA applied and are mounted by using grooves that can retain the gasket and prevent excessive compression.







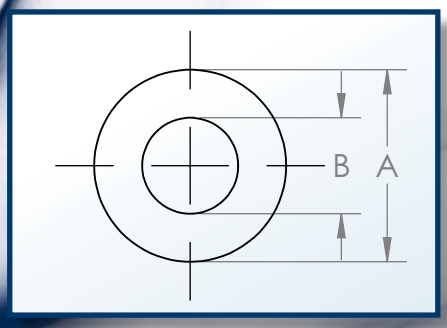
COMPRESSION STOP OPTIONS

Space and Weight Considerations

When using Leader Tech's TechSIL Conductive Elastomers there is a definite advantage over using other materials if there is limited space or if weight is a concern. TechSIL gaskets can be made in very small profiles and will still give significant EMI Shielding and Environmental protection while taking up very little space. The smaller profiles also weigh much less that other types of EMI gaskets.

Cost

Leader Tech's TechSIL Conductive Elastomers come in many different blends. When choosing a compound you should always choose the appropriate compound based on the environment where it will be used. If a harsh environment is expected then the appropriate materials should be selected (see Galvanic Compatibility chart). If however the device is used in a controlled environment the lower cost Nickel Graphite materials may be an option. One of our best materials for harsh environments is the LTE-40 Fluorosilicone Silver Plated Aluminum material (MIL-DTL-83528 Type D). If needed the cost of this material is more than beneficial to insure that there are no failures when your device is used in the field. If however your device is used and stored in a controlled environment using the LTE-60 Silicone Nickel Graphite will reduce the cost of the gasket by almost 50% and will supply the same amount of EMI shielding as the LTE-40 material.



Leader Tech's TechSIL Conductive Elastomers contain over 65% of the conductive fillers needed to make them function as EMI shielding gaskets. In order to keep the cost of TechSIL gaskets as inexpensive as possible it is recommended that the smallest profile possible be used in your application. The controlling factor in the cost of the different compounds is the amount of conductive particles that have to be added. If a .125" hollow round gasket is used (5411-0001-xx, M83528/011X001) instead of a .250" hollow round gasket (5411-0003-xx, M83528/011X003) the amount of conductive material is reduced by almost 70%. This greatly affects the cost of the gasket. When using conductive elastomer gaskets using a smaller gasket can greatly help in reducing the cost of that gasket.

Sheet Material

Sheet Material

Our Most Popular!

Also Available with Conductive Adhesive*

Thickness	10 x 10	10 x 15	12 x 12	10 x 20	20 x 20
.020	5020-1010-XX	5020-1015-XX	5020-1212-XX	5020-1020-XX	5020-2020-XX
.032	5032-1010-XX	5032-1015-XX	5032-1212-XX	5032-1020-XX	5032-2020-XX
.062	5062-1010-XX	5062-1015-XX	5062-1212-XX	5062-1020-XX	5062-2020-XX
.093	5093-1010-XX	5093-1015-XX	5093-1212-XX	5093-1020-XX	5093-2020-XX
.100	5100-1010-XX	5100-1015-XX	5100-1212-XX	5100-1020-XX	5100-2020-XX
.125	5125-1010-XX	5125-1015-XX	5125-1212-XX	5125-1020-XX	5125-2020-XX

Leader Tech's TechSIL Sheet products can be used to die-cut connector gaskets or for custom shapes. They come in many sizes and thicknesses. The most common sizes are 10" x 10", 10" x 15", 12 x 12", 10" x 20", and 20" x 20" and in multiple thicknesses from .020" to .125". Additional sizes and thicknesses are available upon request. Sheets can be made to special sizes to eliminate any waste that could occur during water-jet or die cutting. TechSIL sheets can be molded out of all sixteen compounds and special compounds are available upon request.

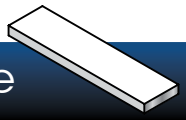
THICKNESS TOLERANCE
.020 +/- .004 (.52 +/- .10)
.032 +/- .005 (.76 +/- .13)
.062 +/- .007 (1.52 +/- .18)
.093 +/- .010 (2.29 +/- .25)
.100 +/- .010 (2.54 +/- .25)
.125 +/- .010 (3.18 +/- .25)

**Simply add a "T" to the end of the sheet material part number. See below.*

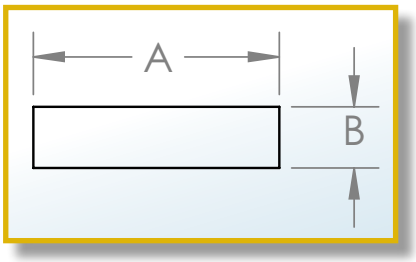
5 0 3 2 - 1 0 1 0 - 5 0 T

Profile Style | Sheet Size | Material Number with Adhesive

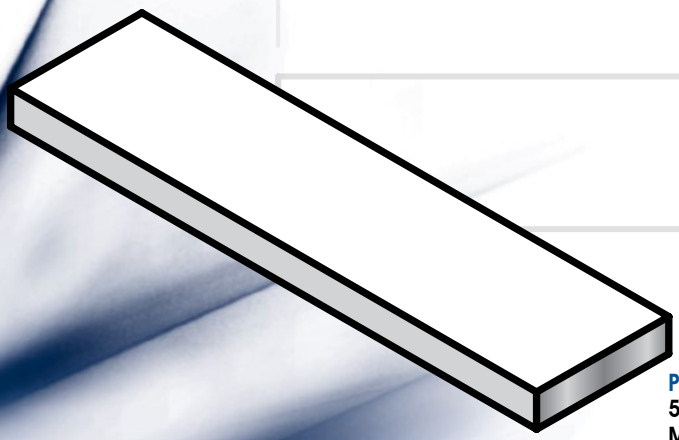
Rectangle



MIL-DTL-83528 Part Number	Leader Tech Part Number	Nominal Dimensions			
		A (width)		B (height)	
M83528/009X001	5409-0001-XX	.063	1.60	.042	1.07
M83528/009X002	5409-0002-XX	.095	2.41	.062	1.57
M83528/009X003	5409-0003-XX	.120	3.05	.075	1.91
M83528/009X004	5409-0004-XX	.125	3.18	.062	1.57
M83528/009X005	5409-0005-XX	.156	3.96	.062	1.57
M83528/009X006	5409-0006-XX	.250	6.35	.062	1.57
M83528/009X007	5409-0007-XX	.500	12.70	.075	1.91
M83528/009X008	5409-0008-XX	.500	12.70	.125	3.18
M83528/009X009	5409-0009-XX	.500	12.70	.188	4.78
M83528/009X010	5409-0010-XX	.750	19.05	.062	1.57
M83528/009X011	5409-0011-XX	.880	22.35	.062	1.57
M83528/009X012	5409-0012-XX	1.000	25.40	.250	6.35
M83528/009X013	5409-0013-XX	1.180	29.97	.062	1.57
N/A	5409-0100-XX	.093	2.36	.093	2.36
N/A	5409-0101-XX	.500	12.70	.250	6.35
N/A	5409-0102-XX	.650	16.51	.032	.81
N/A	5409-0103-XX	.250	6.35	.032	.81
N/A	5409-0104-XX	.063	1.60	.032	.81



TechSIL Rectangular Extrusions come in 18 different sizes with multiple thicknesses and widths to fit your application. Conductive and non-Conductive Pressure Sensitive Adhesives can be applied to the strips for easy assembly if desired. When using a non-Conductive Adhesive only 50% of the mating surface should have PSA applied. Additional widths and thicknesses are available upon request. TechSIL extrusions are available in all sixteen compounds and special formulations are also available.

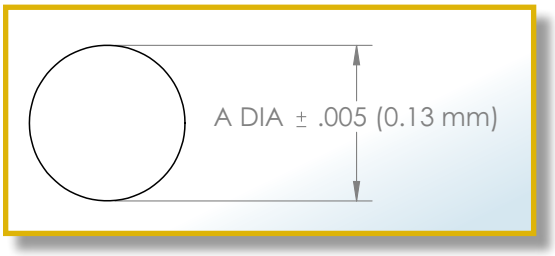


Part Numbering Example
5XXX-XXXX-MM
MM=LTE material code

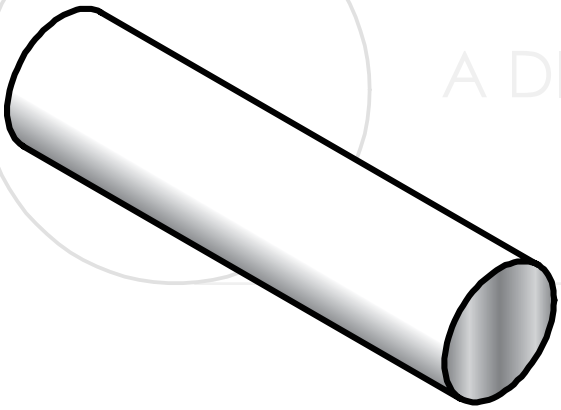
Standard Tolerances for All Profiles Unless Superseded by MIL-DTL-83528	
Dimensions	Tolerance
Under 0.101" (2.6)	+/- 0.005 (0.13)
0.101" - 0.200" (2.6 to 5.1)	+/- 0.008 (0.2)
0.201" - 0.300" (5.1 to 7.6)	+/- 0.010 (0.3)
0.301" - 0.500" (7.6 to 12.7)	+/- 0.015 (0.4)
Over 0.500" (12.7)	+/- 0.020 (0.5)

Round

MIL-DTL-83528 Part Number	Leader Tech Part Number	Dimension A ± .005		Recommended Groove Width		Recommended Groove Height	
M83528/001X001	5401-0001-XX	.040	1.02	.050	1.27	.030	.76
M83528/001X002	5401-0002-XX	.053	1.35	.062	1.57	.040	1.02
M83528/001X003	5401-0003-XX	.062	1.57	.070	1.78	.047	1.19
M83528/001X004	5401-0004-XX	.070	1.78	.083	2.11	.050	1.27
M83528/001X005	5401-0005-XX	.080	2.03	.090	2.29	.060	1.52
M83528/001X006	5401-0006-XX	.093	2.36	.103	2.62	.070	1.78
M83528/001X007	5401-0007-XX	.103	2.62	.118	3.00	.074	1.88
M83528/001X008	5401-0008-XX	.119	3.02	.130	3.30	.090	2.29
M83528/001X009	5401-0009-XX	.125	3.18	.139	3.53	.093	2.36
M83528/001X010	5401-0010-XX	.139	3.53	.157	3.99	.101	2.56
M83528/001X011	5401-0011-XX	.188	4.78	.210	5.33	.141	3.58
M83528/001X012	5401-0012-XX	.216	5.49	.241	6.12	.160	4.06
M83528/001X013	5401-0013-XX	.250	6.35	.275	6.98	.187	4.75
N/A	5401-0100-XX	.157	3.99	.178	4.52	.122	3.10
N/A	5401-0101-XX	.090	2.29	.100	2.54	.070	1.78
N/A	5401-0102-XX	.200	5.08	.224	5.69	.155	3.94
N/A	5401-0103-XX	.258	6.55	.283	7.19	.200	5.08
N/A	5401-0104-XX	.059	1.50	.067	1.70	.045	1.14



TechSIL Round and Hollow Round Extrusions come in over thirty sizes to fit your application. Grooves are recommended in your device to insure that the gasket is not over compressed. Both the Round and Hollow Round profiles can be bonded into O-Rings using an RTV cold bond or a Hot Vulcanized bond. Bonded O-Rings should have an Inside Diameter greater than 2 inches. If a smaller O-Ring is required please contact our Engineering Department. The Hollow Round profile offers a much wider operating range and lower compression forces are required. Neither shape can have Pressure Sensitive Adhesive applied. Additional sizes are available upon request. TechSIL extrusions are available in all sixteen compounds and special formulations are also available.



Part Numbering Example
5XXX-XXXX-MM
MM=LTE material code

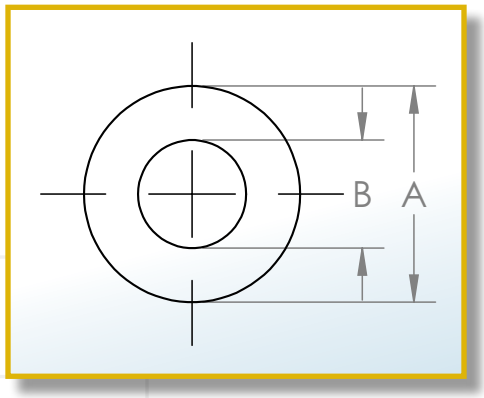
Standard Tolerances for All Profiles Unless Superseded by MIL-DTL-83528

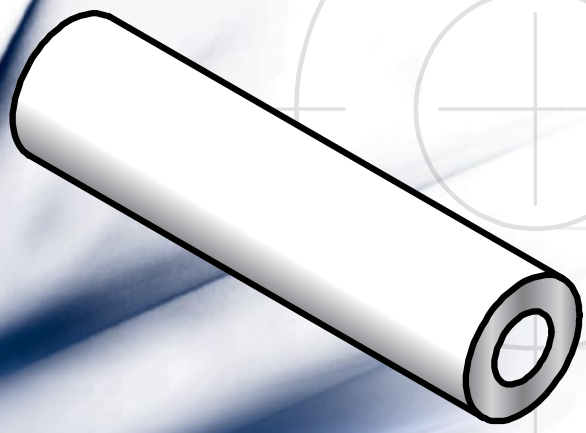
Dimensions	Tolerance
Under 0.101" (2.6)	+/- 0.005 (0.13)
0.101" - 0.200" (2.6 to 5.1)	+/- 0.008 (0.2)
0.201" - 0.300" (5.1 to 7.6)	+/- 0.010 (0.3)
0.301" - 0.500" (7.6 to 12.7)	+/- 0.015 (0.4)
Over 0.500" (12.7)	+/- 0.020 (0.5)

Hollow Round

MIL-DTL-83528 Part Number	Leader Tech Part Number	Dimensions A (OD)		Dimensions B (ID)		Recommended Groove Width		Recommended Groove Height	
M83528/011X001	5411-0001-XX	.125	3.18	.045	1.14	.130	3.30	.088	2.23
M83528/011X002	5411-0002-XX	.156	3.96	.050	1.27	.160	4.06	.109	2.76
M83528/011X003	5411-0003-XX	.250	6.35	.125	3.18	.255	5.71	.150	3.81
M83528/011X004	5411-0004-XX	.312	7.92	.192	4.88	.317	8.05	.156	3.96
M83528/011X005	5411-0005-XX	.375	9.53	.250	6.35	.380	9.65	.177	4.49
M83528/011X006	5411-0006-XX	.125	3.18	.062	1.57	.130	3.30	.077	1.95
M83528/011X007	5411-0007-XX	.103	2.62	.040	1.02	.107	2.72	.073	1.85
M83528/011X008	5411-0008-XX	.177	4.50	.079	2.01	.182	4.62	.120	3.05
N/A	5411-0100-XX	.090	2.29	.050	1.27	.095	2.41	.063	1.60
N/A	5411-0102-XX	.094	2.39	.063	1.60	.099	2.51	.066	1.68
N/A	5411-0103-XX	.060	1.52	.020	.51	.065	1.65	.042	1.07
N/A	5411-0104-XX	.125	3.18	.079	2.01	.130	3.30	.088	2.24
N/A	5411-0105-XX	.156	3.96	.080	2.03	.161	4.09	.109	2.77
N/A	5411-0108-XX	.400	10.16	.240	6.10	.405	10.29	.189	4.80

TechSIL Round and Hollow Round Extrusions come in over thirty sizes to fit your application. Grooves are recommended in your device to insure that the gasket is not over compressed. Both the Round and Hollow Round profiles can be bonded into O-Rings using an RTV cold bond or a Hot Vulcanized bond. Bonded O-Rings should have an Inside Diameter greater than 2 inches. If a smaller O-Ring is required please contact our Engineering Department. The Hollow Round profile offers a much wider operating range and lower compression forces are required. Neither shape can have Pressure Sensitive Adhesive applied. Additional sizes are available upon request. TechSIL extrusions are available in all sixteen compounds and special formulations are also available.





Part Numbering Example
5XXX-XXXX-MM
MM=LTE material code

Standard Tolerances for All Profiles Unless Superseded by MIL-DTL-83528

Dimensions	Tolerance
Under 0.101" (2.6)	+/- 0.005 (0.13)
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Over 0.500" (12.7)	+/- 0.020 (0.5)