



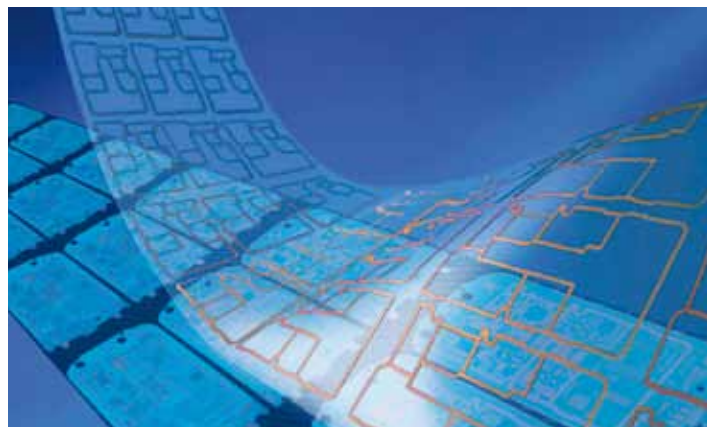
# GORE® EMI Shielding

MATERIALS

**GS8000 SERIES — Gaskets  
and Grounding Pads**

## Increase package design flexibility while maintaining electrical integrity

The GS8000 Series of GORE® EMI Shielding Materials improves package design flexibility without compromising the electrical performance of the device. These highly compressible materials are specifically engineered to maintain consistent conductivity through a wide working range (see Figure 1 and Figure 2). With Gore's strong technology focus in materials, the GS8000 Series was developed with a unique conductive foam. The soft conductive-foam construction accommodates surface variations in covers and printed circuit boards, alleviating the need to specify very tight tolerances. This soft construction also makes the GS8000 Series compatible with plastic housings and snap fasteners. This material maintains excellent shielding performance in a trace width as narrow as 1 mm, providing comparable performance to other EMI shielding materials that are 3 times the width. With the lower compression or closure force, fewer fasteners are needed.



### Benefits of GORE® EMI Shielding Materials — GS8000 Series

- Unsurpassed shielding effectiveness and minimal DC resistance with low compressive force and broad range of tolerance take-up
- Reliable electrical performance over wide range of gap distances from soft foam construction
- Effective shielding performance in trace widths as narrow as 1 mm
- Improved design flexibility because of low closure force

**TABLE 1: ENVIRONMENTAL AND MECHANICAL PROPERTIES**

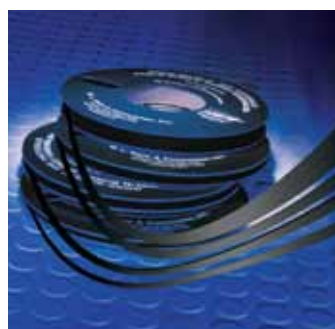
Property	Value
Temperature range	- 45°C to 85°C
RoHS Status (lead, cadmium, hexavalent chromium, mercury, bromine)	Pass
Flammability in accordance with UL 94 horizontal burn method	Pass
Halogen levels (measured per BS EN 14582:2007)	
Chlorine	< 50 ppm
Bromine	< 50 ppm
Fluorine	< 50 ppm
Iodine	< 50 ppm
Typical working range (for grounding pads)	0.15 mm to 2.2 mm (0.006" to 0.087")
Typical working range (for EMI gaskets)	0.15 mm to 1.4 mm (0.006" to 0.055")
Typical pressure to recommended compression stop (RCS)	20 to 50 psi

### TYPICAL APPLICATIONS

- Portable electronic devices, mobile phones, and GPS
- Portable computers
- Hand-held field testing equipment

Available as grounding pads and precision die-cut parts that enable precise, high-volume assembly, the GS8000 Series of GORE® EMI Shielding Materials provide maximum cavity-to-cavity EMI protection in a smaller size for more design flexibility.

*Available as custom die-cut gaskets, strip gaskets, and grounding pads*





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## EXTENDED SERVICE HEIGHTS

The GS8000 Series of GORE® EMI Shielding Materials performs well in both grounding and EMI shielding applications. Gore recommends using each variant within a range of service heights (gap distances). For shielding applications, Gore recommends a smaller service height range than for grounding applications to ensure a robust EMI seal.

The low closure force and broad range of tolerance take-up results in multiple product choices for some gap distances. Selecting the most suitable variant for a given application depends on:

1. Gap distance of the housing that needs to be filled
2. Compression force required to achieve the specified gap distance
3. Required DC resistance for grounding applications (or required shielding effectiveness for shielding applications) at a specified gap distance

Figure 1 and Figure 2 show recommended service heights (gap distances) for each variant.

## PRESSURE AND DC RESISTANCE

Three of the variants among the GS8000 Series provide conductivity when compressed to 0.6 mm (0.24 in); however, the amount of pressure and DC resistance varies for each. Table 2 shows the values for each of these three variants.

**TABLE 2: PRESSURE AND DC RESISTANCE VALUES AT 0.6 MM GAP** (data taken from Figures 3 – 6)

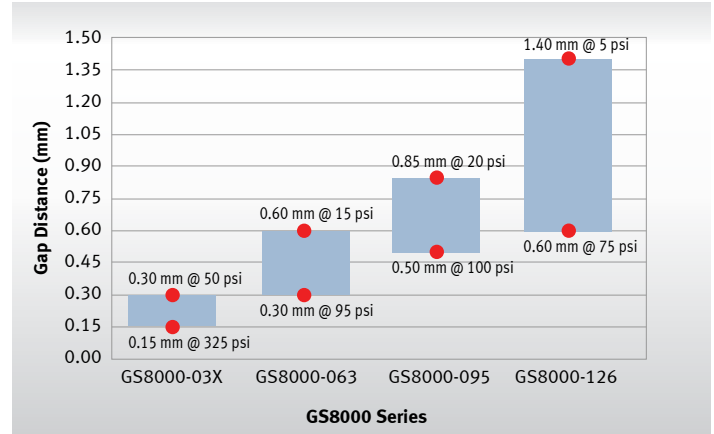
Variants	Pressure Required (psi)	DC Resistance (ohms)
GS8000-063	15	0.03
GS8000-095	55	0.02
GS8000-126	75	0.01

**TABLE 3: PRODUCT SPECIFICATIONS** (measured on 5 x 5 mm grounding pads)

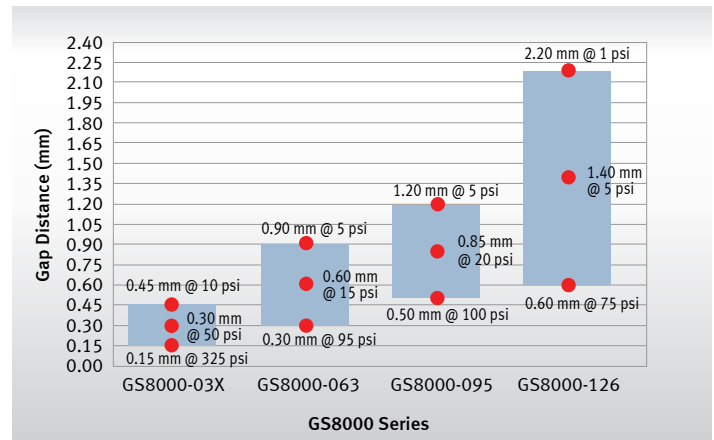
Variants	Weight (g)	Compression Stop mm (in)		Pressure to Achieve Compression (psi)	Initial DC Resistance (ohms)	Recovered Thickness mm (in) <sup>1</sup>
GS8000-03X	0.008	High	0.45 (0.018)	10	0.245	0.56 (0.022)
		Recommended	0.30 (0.012)	50	0.125	0.38 (0.015)
		Low	0.15 (0.006)	325	0.015	0.25 (0.010)
GS8000-063	0.010	High	0.90 (0.035)	5	0.070	1.19 (0.047)
		Recommended	0.60 (0.024)	15	0.025	0.91 (0.036)
		Low	0.30 (0.012)	95	0.007	0.51 (0.020)
GS8000-095	0.011	High	1.20 (0.047)	5	0.115	1.65 (0.065)
		Recommended	0.85 (0.033)	20	0.040	1.24 (0.049)
		Low	0.50 (0.020)	100	0.010	0.74 (0.029)
GS8000-126	0.013	High	2.20 (0.087)	1	0.240	2.62 (0.103)
		Recommended	1.40 (0.055)	5	0.150	1.90 (0.075)
		Low	0.60 (0.024)	75	0.012	0.94 (0.037)

<sup>1</sup> To measure the recovered thickness, samples were compressed to the compression stop. While compressed, the samples were subjected to a 70°C temperature soak for 70 hrs per ASTM D395B. Lastly, the samples were released from compression and allowed to recover for 30 minutes before the recovered thickness was measured.

**FIGURE 1: RECOMMENDED SERVICE HEIGHTS FOR USE IN EMI GASKET APPLICATIONS**



**FIGURE 2: RECOMMENDED SERVICE HEIGHTS FOR USE IN GROUNDING PADS**



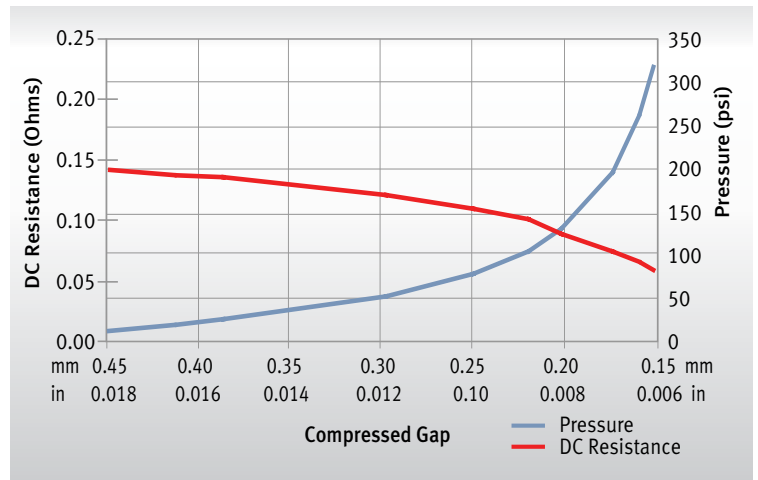
For use as an EMI Gasketing Material, we recommend compressing the GS8000 material to at least the published recommended compression stop to ensure an effective EMI seal (see Table 4).

**TABLE 4: SHIELDING EFFECTIVENESS<sup>1</sup>**

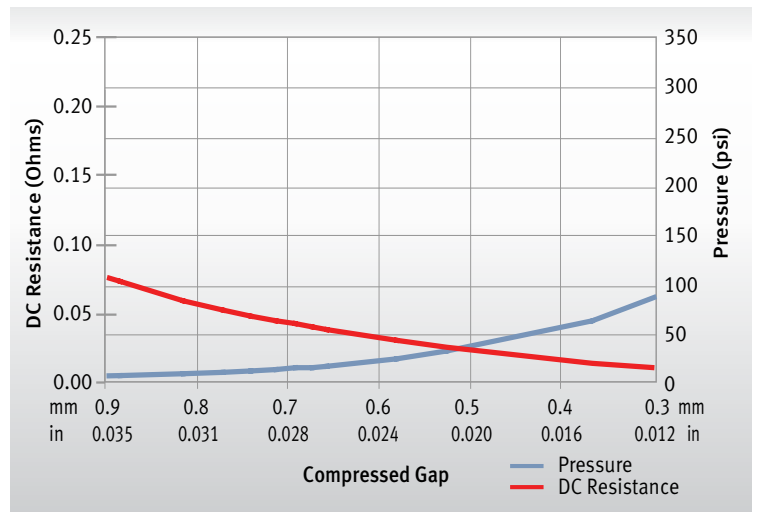
Variants	Recommended Compression Stop mm (in)		Pressure to Achieve Compression (psi)	Shielding Effectiveness <sup>1</sup>
	High	Low		
GS8000-03X	High	0.30 (0.012)	50	> 50 dB
	Low	0.15 (0.006)	325	> 65 dB
GS8000-063	High	0.60 (0.024)	15	> 90 dB
	Low	0.30 (0.012)	95	> 100 dB
GS8000-095	High	0.85 (0.033)	20	> 85 dB
	Low	0.50 (0.020)	100	> 95 dB
GS8000-126	High	1.40 (0.055)	5	> 75 dB
	Low	0.60 (0.024)	75	> 95 dB

<sup>1</sup> All measurements made using ARP-1705 modified test method through 3 GHz on 2 mm trace width

**FIGURE 3: GS8000-03X FORCE DISPLACEMENT RESISTANCE**  
(testing with 5 x 5 mm grounding pads)



**FIGURE 4: GS8000-063 FORCE DISPLACEMENT RESISTANCE**  
(testing with 5 x 5 mm grounding pads)



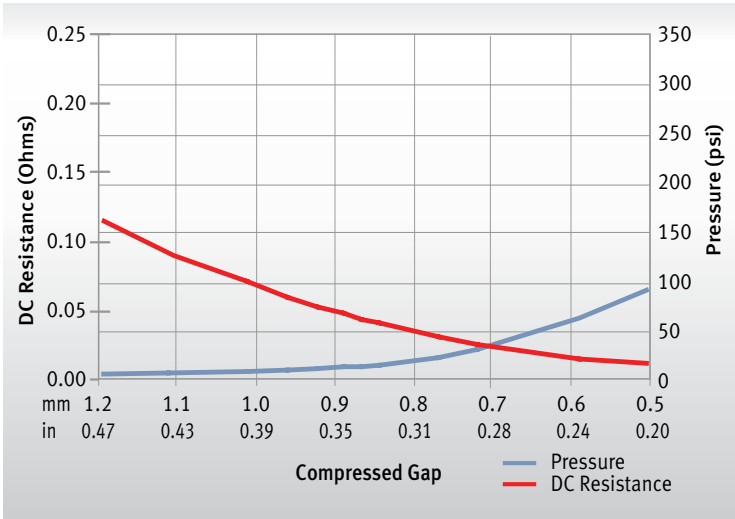


# GORE® EMI Shielding

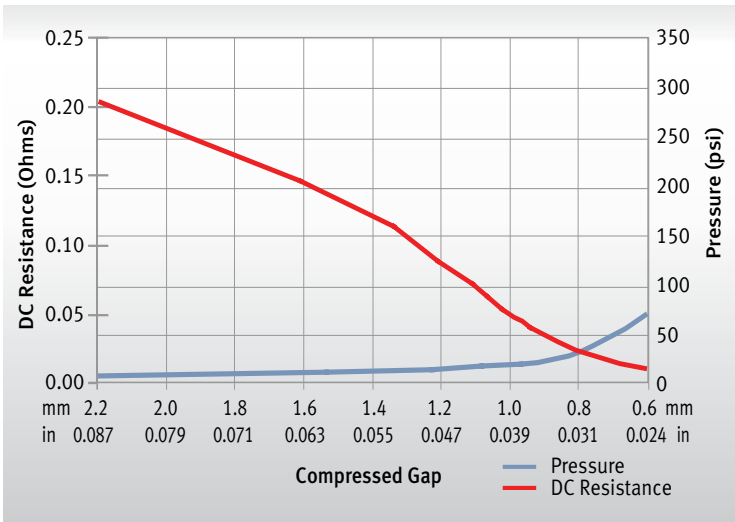
MATERIALS

## GS8000 SERIES — Gaskets and Grounding Pads

**FIGURE 5: GS8000-095 FORCE DISPLACEMENT RESISTANCE**  
(testing with 5 x 5 mm grounding pads)



**FIGURE 6: GS8000-126 FORCE DISPLACEMENT RESISTANCE**  
(testing with 5 x 5 mm grounding pads)



### ORDERING INFORMATION

The GS8000 Series of GORE® EMI Shielding Materials are available as custom die-cut gaskets, strip gaskets, and grounding pads. To order or specify GS8000 grounding pads and custom die-cut gaskets, contact Gore for assistance.

Standard strip gaskets (as seen in Table 5) are available through several distributors. Go to [gore.com/emidistributors](http://gore.com/emidistributors) for the list. These strip gaskets are packaged on 15 meter rolls. For other available strip gasket configurations, contact Gore for assistance.

**TABLE 5: STRIP GASKET ORDERING INFORMATION**

Part Number	Variants	Width
EDR-80-03X-0500-SC	GS8000-03X	0.500"
EDR-80-03X-0250-SC	GS8000-03X	0.250"
EDR-80-03X-0125-SC	GS8000-03X	0.125"
EDR-80-063-0500-SC	GS8000-063	0.500"
EDR-80-063-0250-SC	GS8000-063	0.250"
EDR-80-063-0125-SC	GS8000-063	0.125"
EDR-80-095-0500-SC	GS8000-095	0.500"
EDR-80-095-0250-SC	GS8000-095	0.250"
EDR-80-095-0125-SC	GS8000-095	0.125"
EDR-80-126-0500-SC	GS8000-126	0.500"
EDR-80-126-0250-SC	GS8000-126	0.250"
EDR-80-126-0125-SC	GS8000-126	0.125"

### NOTICE — USE RESTRICTIONS APPLY

Not for use in food, drug, cosmetic or medical device manufacturing, processing, or packaging operations.

