Stockwell Elastomerics, Inc.

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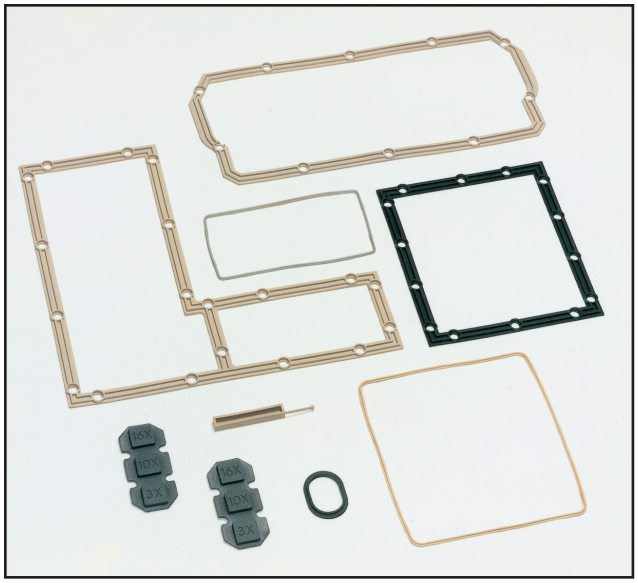
High Performance Elastomeric Components and Materials

NQA NATIONAL QUALITY ASSURANCE, USA 9001:2000 REGISTERED COMPANY

Conductive Silicone Elastomers for EMI Shielding Applications



For Silicone Rubber, Contact Stockwell Elastomerics!

Stockwell Elastomerics *offers a selection of* ***Conductive Silicone Elastomers*** *that are generally lower in hardness, have excellent compression set and tensile properties, and have the same high level of shielding effectiveness as compounds* ***designed to meet MIL-G-83528B.*** *The designer is offered a further selection of softer materials to add to the rather limited range of harder (Higher Durometer, 75 shore A and higher) compounds listed under MIL-G-83528B. These materials offer you the following performance enhancements:*

- ***Lower Durometer EMI Gasketing Compounds Enable Molded or Die Cut Seals that are More Compressible.***
- ***Lower Durometer Materials Can Take Up More Uneveness in Machined Metal Covers and Lids – And May Require Less Bolt or Clamp Pressure to Seal.***
- ***Improved Resilience Allows Gaskets to Fit Into Companion Cover Details, and They Are Less Likely to Tear During Installation of Thin, Compact Cross-Sections.***

Stockwell Elastomerics' *capabilities include* ***Custom Molding*** *of EMI Shielding Gaskets and Sealing Components,* ***Water Jet Cutting, Die Cutting*** *from Steel Rule Dies and* ***applying electrically conductive pressure sensitive adhesives onto conductive silicone sheets. Conductive materials are available in thicknesses ranging from .010" thick to .125" thick.***

Stockwell's in-house sheet molding and water jet cutting capabilities permit prototype fabrications to prove out mechanical features prior to final design and hard tooling of compression molds. E-mail your drawing file to service@stockwell.com to get us started.

Stockwell Compound	Durometer Shore A	Tensile Strength, PSI	Elongation at Break, %	Tear Strength PPI of Width	Volume Resistance Ohm - Cm.	Specific Gravity	Specifications the Compound Meets, or Application Features
Silver Plated Aluminum Filled Conductive Silicone Rubber Compounds							
SCF-444 [1]	45	200	150	20	.004	2.5 - 3.0	Fuel and Aerospace Coolant Resistant
SSE-586	65	250	250	35	.002	2.5 - 3.0	MIL-G-83528B, group B
SCF-447 [1]	70	150	150	30	.004	3.0 - 3.5	MIL-G-83528B, group D
Silver Plated Glass Filled Conductive Silicone Rubber Compounds							
SGE-564	45	200	250	35	.005	1.7 - 2.0	
SGE-565	55	220	220	45	.005	1.7 - 2.0	
SGE-567	65	250	160	70	.005	1.8 - 2.1	MIL-G-83528B, group M
Nickel Graphite Filled Conductive Silicone Rubber Compounds							
SNE-554	45	250	300	30	.050	2.0 - 3.0	Developed for Industrial/Commercial
SNE-555	55	250	300	30	.050	2.5 - 3.0	Needs, Where Cost May Be An Issue.
SNE-556	65	250	300	35	.040	2.5 - 3.0	
SNEF-60 [1]	60	250	300	30	.050	2.5 - 3.0	Fuel & Aerospace Coolant Resistant
Nickel Graphite Filled Conductive Silicone -- Low Durometer Sheet Products							
EC-2130	30	50	50	N / A	0.30	2.0	Softest Conductive Silicone
EC-2040	40	90	60	N / A	0.20	2.0	meets UL94V-1 flame rating
Carbon Filled Semi-Conductive Silicone Rubber Compounds (Available Molded or Die Cut)							
SE65-CON	65	400	100	50	5.00	1.1 - 1.2	ESD (Electro-Static Discharge) and
SE67-CON	60	850	275	100	50.00	1.1 - 1.2	Broadband EMI Shielding.

[1] *Denotes Fluorosilicone Rubber*

All Values are Typical and Not Intended for Writing Specifications.

Please Contact Us For Specific Data on Shielding Properties and Actual Test Data. Prototypes and Molded Sheets For Evaluation and Testing Can Be Provided For A Modest Charge.

Electrically Conductive Pressure Sensitive Adhesive for EMI Shielding

To further complement our Conductive Silicone Elastomer product line, Stockwell has developed processes to ***laminate conductive acrylic adhesives onto conductive silicone rubber materials for adhesive-backed EMI Shielding Gaskets.*** *Certain conductive elastomers have relatively poor tear strength due to the high proportion of metallic fillers.*

3M # 9713 electrically conductive acrylic adhesive *contains conductive fibers for enhanced dimensial stability in a very thin (.003" thick) adhesive layers. Stockwell's proprietary silicone priming technology allows for good anchoring of the adhesive onto silicone rubber, with good conductive grounding through the entire substrate.*

Contact us for a sample of conductive silicone with 3M 9713 for your evaluation.

RTV 60-CON Adhesive Sealant for ESD Grounding

Available in 10.3 Ounce Cartridges.

RTV 60-CON *Adhesive/Sealant is a one part electrically conductive silicone rubber elastomer adhesive for bonding electrically conductive rubber to metal assemblies, typically used to promote ESD protection. It has an estimated shelf life of six months when refrigerated at under approximately 50°F. (10°C)*

It cures rapidly at room temperature when exposed to atmospheric moisture.

The by-products of curing are ***amines, not acetic acid.*** *MSDS is available.*

Typical Performance Characteristics

Application Properties

Color	**Black**
Solids Content, %	**75**
Skin Over Time, Minutes	**7**
Tack Free Time, Minutes	**45**
Extrusion Rate, Grams/Minute 1/8" Nozzle @ 90 psi	**>600**
Specific Gravity @ 25°C	**0.93**

Cured Properties*

Durometer, Shore A	**35**
Tensile Strength, Pounds/Square Inch	**400**
Elongation, %	**300**
Tear, Pound/Inch	**40**
Volume Resistivity, Ohm-cm	**5.0**
Specific Gravity @ 25°C	**1.04**

**** 7 Days at 25% Relative Humidity and 70°F***

Why Use Silicone Rubber?

Silicone rubber has the combined properties of resilience, high temperature stability, and general inertness, unavailable in any other elastomer. Silicones are generally unaffected by extended exposure to temperatures from ***-100° to 500° F,*** *and are also unaffected by aging and degradation from sunlight and ozone.*

We Can Help You!

By ***quickly and expertly producing the silicone rubber components for your existing product designs,*** *and also by helping you* ***develop the best component design for new applications.***

Our In-House Silicone Manufacturing Capabilities Include:

- ***Custom Rubber Molding*** *of Silicone and Other Specialty Elastomers typically used in EMI and ESD applications.*
- ***Die Cutting of Gaskets,*** *Cushioning Pads, and Insulators.*
- ***Application*** *of a Broad Selection of* ***Pressure Sensitive Adhesives.***
- ***Custom Laminations*** *of Films and Solid Silicone onto Sponge.*
- ***Slitting to Width*** *of Roll Materials into Tape and Strip Gasketing.*

New Product Design/Prototype Development Guide

We custom manufacture gaskets, cushioning pads, and insulators from a wide variety of silicone rubber materials, each with varying performance characteristics. Using the points shown below, you can begin to define your new product's expectations. And, you'll help us to determine the best materials and manufacturing processes to meet those expectations.

Typical Component Functions

- *Environmental Gasketing*
- *Heat Sealing/Non-Stick Surface*
- *Cushioning*
- *Electro-Static Discharge*
- *Vibration Damping*
- *Fire and Smoke Blocking*

These points are the most common functional and performance considerations of silicone rubber, and are offered as guidelines only. If your new product calls for other performance factors not shown here, just tell us about your concerns, and let us know how your component will be used. Together, we will determine the best suited materials, and manufacturing processes to provide cost effective components for your product design.

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