



# STOCKWELL ELASTOMERICS

HIGH PERFORMANCE ELASTOMERIC COMPONENTS AND MATERIALS

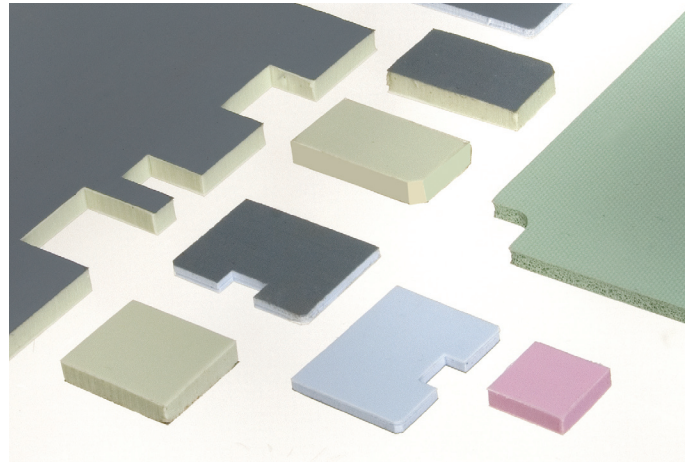
## Thermally Conductive Silicone Rubber Heat Transfer Pads and Gaskets from Gap Filling Compounds

Stockwell Elastomerics, Inc. supplies Thermally Conductive pads and gaskets in standard and made-to-drawing configurations from a variety of Gap Filling products.

This family of conformable silicones is available from .008" thick uncured product to .250" thick closed cell silicone sponge and thermally conductive silicone gap filler.

Air trapped between a heat generating device and a heat spreader or heat sink inhibits the effective transfer of heat away from hot spots to the exterior of a closed system.

Gap filler products seal this space and provide a fast functioning thermal path between the components.



### Comparative Properties of Thermally Conductive Gap Filler Materials Available from Stockwell Elastomerics, Inc.

Stockwell Compound	Color	Hardness Shore A ASTM D2240	Thermal Conductivity W/m K ASTM E1530*	Thermal Impedance °C in <sup>2</sup> / W ASTM E1530*	Dielectric Strength volts / mil ASTM D149	UL 94 Rating	Finished Component Availability		
							Die Cut Parts	Sheets	w/ Adhesive Backing
TC100	Lt. Blue	65	1.3	1.25 (1/16")	450	HB	X	X	X
TC2006	Purple	5-10	1.6	1.2	300	V-0	X	X	
TC3008	Lt. Blue	5-10	3.0	1.2	300	V-0	X	X	
TC3006	Green	< 5	1.1	1.2	300	V-0	X	X	
R10404	Green	13	0.30 - 0.65*	6.0 - 1.0*	100	V-0** (1/8" & up)	X	X	X

TC100 is available in 18" wide rolls, .025", .032", .050" and .062" thicknesses.

TC2000 and 3000 Series is available in sheets .020" to .250" x 24" x 24". Supplied standard with release liners on both sides, light tack surfaces. Also available with thermal fabric or aluminum foil on one side.

R10404 is a unique closed cell silicone sponge that is truly compressible. It is available in sheets or continuous length, .032" to .250" thick.

\* Thermal Conductivity and Thermal Impedance are dependent on the compressed thickness.

R10404 and TC100 can be supplied with thermally conductive acrylic adhesive TR3 (.003") to aid in assembly. TR3 offers solvent resistance, high bond strength and is formulated to enhance flame retardant properties.

\*\* Minimum thickness and condition required



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## Thermally Conductive Silicone Rubber Heat Transfer Pads and Gaskets

### Thermally Conductive Silicone Coated Fiberglass

The TF400 Series offers high temperature resistance and conformability in a low cost heat sink gasket. Fiberglass reinforcement provides dimensional stability and cut-through resistance.

Physical Properties of Thermally Conductive Silicone Coated Fiberglass									
Product	Color	Thickness mils ASTM D374	Thermal Conductivity W/m K ASTM E1530	Thermal Impedance °C in <sup>2</sup> /W ASTM D1530*	Dielectric Strength volts - AC ASTM D149	Volume Resistivity ohm - cm ASTM D257	Break Strength psi ASTM D412	Elongation % ASTM D412	UL 94 Rating
TF407	Gray	7.0	0.9	0.45	3500	1 x 10 <sup>14</sup>	100	<5	V-0
TF409	Gray	9.0	0.9	0.50	4500	1 x 10 <sup>14</sup>	100	<5	V-0
TF412	Gray	12.0	0.9	0.65	6000	1 x 10 <sup>14</sup>	100	<5	V-0
TF1818	Gray	18.0	1.0	0.71	9000	1 x 10 <sup>14</sup>	100	<5	V-0
TF1877	Green	7.0	1.2	0.23	3000	1 x 10 <sup>14</sup>	100	<5	V-0
TF1879	Green	9.0	1.2	0.29	3500	1 x 10 <sup>14</sup>	100	<5	V-0

\*ASTM E1530 @ 300 psi.

TF400 and TF1870 series are available as 36" wide rolls. TF1818 is available as an 18" wide roll.

All styles are available with low tack thermally conductive pressure sensitive adhesive on one or both sides. Thermally conductive adhesive increases thermal impedance by 0.1 °C in<sup>2</sup> / W.

Operating temperature range for all series listed is -80° to 400° F.

### Thermally Conductive Pressure Sensitive Tape Using Kapton® Film

Kapton® (MT) film minimizes thermal resistance while providing excellent cut through and dielectric resistance. K271 and K275 are made using .001" film.

K271 is coated on one side with 2 mils of thermally conductive silicone rubber and 1.5 mils of thermally conductive acrylic pressure sensitive adhesive on the other side. K275 is made with 2 mils of thermally conductive acrylic pressure sensitive adhesive on each side.

Properties of Kapton® Thermally Conductive Tape Products							
Product	Color	Total Thickness mils ASTM D1000	Thermal Conductivity W/m K ASTM E1530	Thermal Impedance °C in <sup>2</sup> /W ASTM E1530 *	Dielectric Strength volts - AC ASTM D149	Adhesion To Steel oz / in ASTM D1000	Operating Temperature °F
K271	Green/White	4.5	0.60	0.30	7000	25	-20 to 300
K275	White	5.0	0.40	0.49	6500	30 / 30	-20 to 300

\* ASTM E1530 @ 10 psi

Thermosetting the adhesive enhances bond strength and solvent resistance, while optimizing thermal performance.

Typical cure cycles are: 15 seconds @ 200°C or 5 seconds at 250°C.

### Non-Electrically Insulating Thermally Conductive Products for Isolated Components

Stockwell Elastomerics offers Graphite Foil products for use in applications that do not require the thermally conductive interface material to be an electrical insulator.

Properties for Non-Electrically Insulating Thermally Conductive Tapes						
Product	Color	Total Thickness mils ASTM D1000	Thermal Conductivity W/m K ASTM E1530	Thermal Impedance °C in <sup>2</sup> /W ASTM E1530 *	Adhesion To Steel oz / in ASTM D1000	Operating Temperature °F
C695	Metallic Black	6.0	2.0	0.12**	30	-20 to 300
C6910	Metallic Black	11.0	2.6	0.16**	30	-20 to 300

\*ASTM E1530 @ 10 psi. \*\* ASTM E1530 @ 100 psi / 100° C.

C695 and C6910 feature 5 mil and 10 mil flexible graphite film backings respectively, with 1 mil of thermally conductive acrylic pressure sensitive adhesive.

