Stockwell ELASTOMERICS

TECHNICAL DATA SHEET

Heat Transfer Pads & Gaskets

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

Stockwell Compound	Color	Hardness, Shore A	Thermally Conductive W/m K	Thermal Impedance °C in2/W	Dieletric Strength volts/mil	UL 94 Rating	Finished Component Availability		
							Die Cut Parts	Sheets	Adhesive Backing
TC 100	Light Blue	65	1.3	1.25 (1/16")	450	HB	✓	✓	✓
TC 2006	Purple	5-10	1.6	1.2	300	V-0	✓	✓	
TC 3008	Light Blue	5-10	3.0	1.2	300	V-0	✓	✓	
TC 3006	Green	<5	1.1	1.,2	300	V-0	✓	✓	
R10404	Green	13	0.30-0.65*	6.0-1.0*	100	V-0** (1/8" & up)	✓	✓	✓
Testing Method		ASTM D2240	ASTM E1530*	ASTM E1530*	ASTM D149				

* Thermal Conductivity and Thermal Impedance are dependent on the compressed thickness
** Minimum thickness and condition required

- 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.
- 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.

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MATERIAL DATA SHEET

Heat Transfer Pads & 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.

Stockwell Compound	Color	Thickness mils	Thermally Conductive W/m K	Thermal Impedance °C in²/W	Dieletric Strength volts/mil	Volume Resistivity ohm-cm	Break Strength psi	Elongation %	UL 94 Rating
TF 407	Gray	7.0	0.9	0.45	3500	$1X10^{14}$	100	<5	V-0
TF 409	Gray	9.0	0.9	0.50	4500	$1X10^{14}$	100	<5	V-0
TF 412	Gray	12.0	0.9	0.65	6000	$1X10^{14}$	100	<5	V-0
TF 1818	Gray	18.0	1.0	0.71	9000	$1X10^{14}$	100	<5	V-0
TF 1877	Green	7.0	1.2	0.23	3000	$1X10^{14}$	100	<5	V-0
TF1879	Green	9.0	1.2	0.29	3500	$1X10^{14}$	100	<5	V-0
Testing Method		ASTM D374	ASTM E1530	ASTM D1530*	ASTM D149	ASTM D257	ASTM D412	ASTM D412	

*ASTM E1530 @ 300 psi.
Operating temperature range for all series listed is -80° to 400° F.
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 in2 / W.

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Heat Transfer Pads & Gaskets

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.

Product	Color	Thickness mils	Thermally Conductive W/m K	Thermal Impedance °C in²/W	Dieletric Strength volts-ac	Adhesion to Steel oz/in	Operating Temperature °F
K271	Green/White	4.5	0.60	0.30	7000	25	-20-300
K275	White	5.0	0.40	0.49	6500	30/30	-20-300
Testing Method		ASTM D1000	ASTM E1530	ASTM D1530*	ASTM D149	ASTM D1000	

*ASTM E1530 @ 10 psi.
Typical cure cycles are: 15 seconds @ 200°C or 5 seconds at 250°C.
Thermosetting the adhesive enhances bond strength and solvent resistance, while optimizing thermal performance.

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.

Product	Color	Thickness mils	Thermally Conductive W/m K	Thermal Impedance °C in²/W	Adhesion to Steel oz/in	Operating Temperature °F
C695	Metallic Black	6.0	2.0	0.12**	30	-20-300
C6910	Metallic Black	11.0	2.6	0.16**	30	-20-300
Testing Method		ASTM D1000	ASTM E1530	ASTM E1530*	ASTM D1000	

*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.

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