GRAFTech International | eGRAF®

HITHERM™ Thermal Interface Materials

Technical Data Sheet 318

Product Overview

eGRAF® HITHERM™ thermal interface materials are designed for use in applications requiring low contact resistance and high thermal conductivity. The flexible graphite materials can be die-cut and/or laminated with plastics and adhesives.

Part Designation

Every HITHERM™ part number defines the grade and coating options of the material and is constructed based on the following example:

Thermal Interface Material			Coatings	
HT –	7	10	A	P
Product Name	Series Name	Total Part Thickness (thousands of an inch)	Coating Side 1	Coating Side 2

Product Series Characteristics[1]

Characteristic	Pure Graphite		Polymer Enhanced
	700 Series	1200 Series	2500 Series
Nominal Thermal Conductivity[2] Through-Plane • In-Plane (W/m-K)	6 • 240	10 • 150	16 • 120
Standard Thickness with Tolerance 0.127 mm (0.005") ± 10% 0.25 mm (0.010") ± 5% 0.51 mm (0.020") ± 5%	 HT-705 HT-710 HT-720	 HT-1205 HT-1210 HT-1220	 HT-2505 HT-2510 -
Standard Width mm • inches	610 • 24	610 • 24	305 • 12
Electrical Resistivity[3] In-Plane • Through Thickness (μΩm)	80 • 850	60 • 1230	80 • 1550
Hardness (Shore A)	85		
Coefficient of Thermal Expansion (CTE) In Plane • Through-Plane (ppm/°C)	–0.4 • 27.0		
Flammability Rating (UL)	94V-0		
Operating Temperature (°C)	–40 to +400		–25 to +125
Specific Heat @ 25°C (J/kg-°C)	710		
RoHS Compliant	Yes		

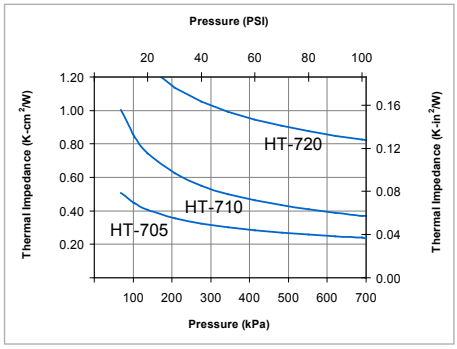
HITHERM™ Coating Options

Characteristic	Adhesive "A" Coating	Plastic "P" Coating
Thickness (mm ● inches)	0.004 ● 0.00015	0.0014 ● 0.000056
Operating Temperature (°C)	-40 to +150	
Thermal Impedance[4] per Side (cm^2 °C/W @ 110 kPa)	0.16	0.32
Thermal Conductivity (W/m-K)	-	0.155
Dielectric Strength (V)	-	210
Adhesive Strength[5] (g/cm^2)	700 Typical 450 Minimum	-

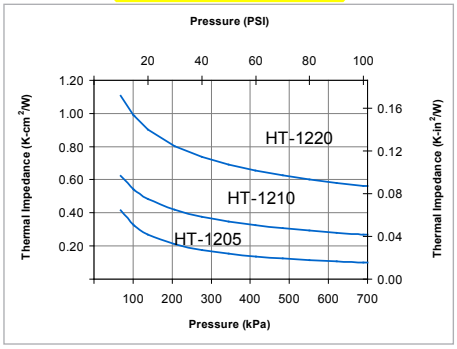
Coatings Designations & Availability	Code	700 Series	1200 Series	2500 Series
No Coatings		✓	✓	✓
Adhesive on single side	A	✓	✓	✓
Plastic on single side	P	✓	✓	
Adhesive Top Plastic Bottom	AP	✓	✓	

Thermal Impedance v. Interface Pressure

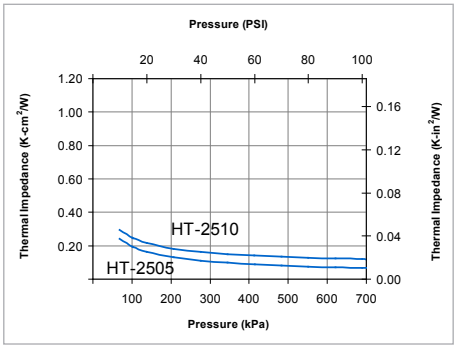
HT-700 Series



HT-1200 Series



HT-2500 Series



Notes:
[1] Properties listed are typical and cannot be used as accept/reject specifications.
[2] In-Plane conductivity at ambient temperature determined using Angstrom's Method.
Through-plane conductivity determined using ASTM D5470 Modified Method.
[3] ASTM C611.4 Point Resistivity Test.
[4] ASTM D5470 Modified (at 110kPa/16 psi/1.1 bar).
Total thermal impedance = thermal impedance of graphite + thermal impedance of coating.
[5] Adhesive Strength is based on a lap shear test (ASTM D3163) with material adhering to a glass plate.

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Redefining limits

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