

SPREADERSHIELD™ Design Options

Technical Data Sheet 322

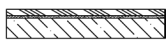
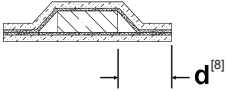
Coatings and Adhesives

eGRAF® SPREADERSHIELD™ heat spreader solutions can be designed with or without coatings and adhesives. The table below contains typical coatings and adhesive options available for sampling along with their typical properties. Each option is representative of a family of materials for the purpose of qualifying the performance of the solution, and may or may not be part of the recommended bill of material for the final solution. For additional product information, please reference Technical Data Sheet 321 - SPREADERSHIELD™ Heat Spreaders.

	Coating Options					Adhesive Options			
	P1	P22	P0	P7	N1	A1	P1A1	P8A8	P0A0
Description	PET Film Coating	PET Film Coating	PET Film Coating ^[1]	Temporary Liner ^[2]	Nylon Coating	Acrylic Adhesive ^[3]	PET Film Adhesive ^[3]	PET Film Adhesive ^[3]	PET Film Adhesive ^[3]
Coating Thickness ^[4] (mm)	0.025	0.010	0.005 - 0.008	N/A	0.138	0.013	0.030 - 0.038	0.010 - 0.012	0.005 - 0.006
Release Liner Thickness (mm) Type	N/A	N/A	N/A	0.05 PET	N/A	0.08 Paper	0.08 Paper	0.05 PET	0.05 PET
Dielectric Strength ^[5] (V)	2,800	600	300	N/A	2,800	-	2,800	900	300
Operating Temperature (°C)	-40 to +150	-40 to +150	-40 to +100	-40 to +150	-40 to +150	-40 to +150	-40 to +150	-40 to +100	-40 to +100
Thermal Contact Impedance ^[6] (°C·cm²/W) per side	1.6	0.95	< 0.5	N/A	N/A	0.16	-	0.42	< 0.5
Thermal Conductivity Through-Thickness (W/m-K)	0.16	0.16	0.16	N/A	N/A	-	0.16	0.16	0.16

Die-Cut Edge Options^[7]

In addition to the coating and adhesive options, SPREADERSHIELD™ products are also available with die-cut edge options, as shown in the table below. Available edge options are dependent upon the coatings selected and may not be available for all material configurations. Please contact GrafTech for additional information.

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Description	Flush Edge Cut	Envelope Seal
Diagram		

- Notes:
- [1] P0 is most often offered in black matte finish.
 - [2] P7 is a temporary liner used exclusively to package sheets of SS1500 into a continuous roll and must be defined as the bottom coating type ("GP7") for SS1500 if no other coating is specified.
 - [3] Adhesive strength of "A1" and "P1A1" are 700 g/cm² and 1100 g/cm² respectively based upon lap shear test ASTM D3163 on a glass plate. Adhesive strength of "P8A8" = 2.64 N/cm per 90° based upon peel adhesion test ASTM D3330 on a glass plate. P0A0 adhesive strength is best represented by a typical 180° peel strength of 5 N/25 mm.
 - [4] Coating thickness specified includes adhesive thickness used to bond coatings to graphite.
 - [5] ASTM D149-09 Method A
 - [6] ASTM D5470 Modified (at 110kPa/16 psi/1.1 bar). Total thermal impedance = impedance of graphite + impedance of coating.
 - [7] Overlay seal (-OV) is no longer an available sealing option.
 - [8] Availability and specified thickness "d" will vary depending upon graphite thickness and coating selected. Please contact GrafTech for additional information.

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