

The high performance sandwich core

Divinycell HP has been developed to meet demands in high temperature systems, and low temperature prepreg systems. The unique combination of polyurea and pvc, yields impressive mechanical performance to a low weight. Divinycell HP's elevated temperature performance also extends to its 'in service' life as it will retain a high percentage of its mechanical properties despite exposure to high ambient temperatures.

It offers high properties in all significant areas including mechanical performance, elongation to break, ductility, adhesion/peel strength, fracture toughness and dimensional stability. Other key features of Divinycell HP include excellent chemical resistance, low water absorption and good thermal/acoustic insulation.

Mechanical properties Divinycell® HP - Imperial units

Property	Test Procedure	Unit		HP60	HP80	HP100	HP130	HP160	HP200	HP250
Compressive Strength ¹	ASTM D 1621	psi	Nominal	138	217	290	435	493	783	1,044
			Minimum	123	174	239	348	406	653	885
Compressive Modulus ¹	ASTM D 1621-B-73	psi	Nominal	10,735	15,225	19,575	24,650	29,000	44,965	58,015
			Minimum	8,412	13,050	16,675	21,025	25,382	38,435	50,763
Tensile Strength ¹	ASTM D 1623	psi	Nominal	261	406	508	696	783	1,030	1,334
			Minimum	218	319	362	508	581	914	1,160
Tensile Modulus ¹	ASTM D 1623	psi	Nominal	10,875	14,500	18,850	25,375	29,730	36,250	46,400
			Minimum	8,267	11,600	15,225	19,575	23,206	30,450	37,710
Shear Strength	ASTM C 273	psi	Nominal	123	181	232	319	377	508	653
			Minimum	109	145	203	276	319	464	566
Shear Modulus	ASTM C 273	psi	Nominal	2,900	4,060	5,075	7,250	8,702	10,590	14,070
			Minimum	2,611	3,190	4,060	5,800	7,252	9,427	11,748
Shear Strain	ASTM C 273	%	Nominal	23	38	40	40	40	45	45
			Minimum	20	25	25	30	30	35	35
Density	ISO 845	lb/ft ³	Nominal	4.1	5.0	6.3	8.1	10.0	12.5	15.6

1. Perpendicular to the plane. All values measured at +73,4°F

Nominal value is an average value of a mechanical property at a nominal density.

Minimum value is a minimum guaranteed mechanical property a material has independently of density.

Product Characteristics

- High strength and stiffness to weight ratio
- High temperature resistance
- Low water absorption
- Superior damage tolerance
- Fast and easy to process
- Good chemical resistance
- Non biograduable
- Acoustic and thermal insulation
- Consistent and homogenous material
- Low resin uptake



Technical Characteristics Divinycell® HP

Characteristics ¹	Unit	HP60	HP80	HP100	HP130	HP160	HP200	HP250	Test method
Density variation	%	± 10	± 10	± 10	± 10	± 10	± 10	± 10	-
Thermal conductivity ²	Btu x in/(ft ² x h x °F)	0.243	0.257	0.257	0.264	0.291	0.312	0.333	EN 12667
Coeff, linear heat expansion	x10 ⁻⁶ /°F	22.2	22.2	22.2	22.2	22.2	22.2	22.2	ISO 4897
Heat Distortion Temperature	°F	+257	+257	+257	+257	+257	+257	+257	DIN 53424
Continuous temp range	°F	-325 to +176	-325 to +176	-325 to +176	-325 to +176	-325 to +176	-325 to +176	-325 to +176	-
Max process temp	°F	+293	+293	+293	+293	+293	+293	+293	-
Dissipation factor	-	0.0003	0.0005	0.0006	0.0009	0.0012	0.0015	0.0019	ASTM D 2520
Dielectric constant	-	1.07	1.09	1.11	1.15	1.18	1.23	1.29	ASTM D 2520
Poissons ratio ³	-	0.4	0.4	0.4	0.4	0.4	0.4	0.4	ASTM 638

1. Typical values
2. Thermal conductivity at +50°F
3. Standard deviation is 0.045

Continuous operating temperature is typically -325°F to +176°F. The foam can be used in sandwich structures, for outdoor exposure, with external skin temperatures up to +212°F. For optimal design of applications used in high operating temperatures in combination with continuous load, please contact DIAB Technical Services for detailed design instructions. Normally Divinycell HP can be processed at up to +293°F with minor dimensional changes.

Maximum processing temperature is dependent on time, pressure and process conditions. Therefore users are advised to contact DIAB Technical Services to confirm that Divinycell HP is compatible with their particular processing parameters.

Physical characteristics

Format, color		Unit	HP60	HP80	HP100	HP130	HP160	HP200	HP250
Plain sheets	Length	inch	96.06	81.50	84.06	76.18	72.24	67.13	63.58
	Width	inch	48.03	40.16	41.14	37.20	35.04	32.48	30.51
GS sheet	Length	inch	48.03	40.55	42.01	38.07	36.10	33.54	-
	Width	inch	32.01	40.16	41.14	37.20	35.04	32.48	-
GS sheet	Length	inch	48.03	-	-	-	-	-	-
	Width	inch	48.03	-	-	-	-	-	-
Color			Natural	Natural	Natural	Natural	Natural	Natural	Natural

Disclaimer:

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