Divinycell HP

Technical Data

The high performance sandwich core

Divinycell HP has been developed to meet demands in high temperature systems, and low temperature prepreg systems. The unique IPN chemical structure, 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	HP200	HP250
Compressive Strength[1]	ASTM D 1621	psi	Nominal	138	217	290	435	783	1,044
			Minimum	123	174	239	348	653	885
Compressive Modulus[1]	ASTM D 1621-B-73	psi	Nominal	11,603	15,225	19,575	24,650	44,965	58,015
			Minimum	8,412	13,050	16,675	21,025	38,435	50,763
Tensile Strength[1]	ASTM D 1623	psi	Nominal	261	406	508	696	1,030	1,334
			Minimum	218	319	362	508	914	1,160
Tensile Modulus[1]	ASTM D 1623	psi	Nominal	10,878	14,500	18,850	25,375	36,250	46,400
			Minimum	8,267	11,600	15,225	19,575	30,450	37,710
Shear Strength	ASTM C 273	psi	Nominal	123	181	232	319	508	653
			Minimum	109	145	203	276	464	566
Shear Modulus	ASTM C 273	psi	Nominal	2,901	4,060	5,075	7,250	10,590	14,070
			Minimum	2,611	3,190	4,060	5,800	9,427	11,748
Shear Strain	ASTM C 273	%	Nominal	23	38	40	40	45	45
Density	ISO 845	lb/ft^3	Nominal	4.1	5.0	6.3	8.1	12.5	15.6

All values measured at +73,4°F

1. Properties measured perpendicular to the plane

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

Divinycell HP is type approved by:

Product Characteristics

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

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Technical Characteristics

Technical Characteristics Divinycell® HP

Characteristics[1]	Unit	HP60	HP80	HP100	HP130	HP200	HP250	Test method
Density variation	%	± 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	0.312	0.333	EN 12667
Coeff, linear heat expansion	x10^{-6}/°F	22.2	22.2	22.2	22.2	22.2	22.2	ISO 4897
Heat Distortion Temperature	°F	+257	+257	+257	+257	+257	+257	DIN 53424
Continous temp range	°F	-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	-
Dissipation factor	-	0.0003	0.0005	0.0006	0.0009	0.0015	0.0019	ASTM D 2520
Dielectric constant	-	1.07	1.09	1.11	1.15	1.23	1.29	ASTM D 2520
Poissons ratio[3]	-	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 -325ºF to +176ºF. The foam can be used in sandwich structures, for outdoor exposure, with external skin temperatures up to +212ºF. 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		Unit	HP60		HP80	HP100	HP130	HP200	HP250
Plain sheets	Length	inch	96.06		81.50	84.06	76.18	67.13	63.58
	Width	inch	48.03		40.16	41.14	37.20	32.48	30.51
GS sheet	Length	inch	48.03	48.03	40.55	42.01	38.07	33.54	-
	Width	inch	32.01	48.03	40.16	41.14	37.20	32.48	-

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