

TECHNICAL DATA

Divinycell HP

THE HIGH PERFORMANCE SANDWICH CORE

Divinycell HP has been developed to meet demands in high temperature systems, and low temperature prepreg systems. The unique PVC 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

Property	Test Procedure	Unit		HP60	HP80	HP100	HP130	HP160	HP200	HP250
Compressive Strength ¹	ASTM D 1621	MPa	Nominal	0.95	1.5	2.0	3.0	3.4	5.4	7.2
			Minimum	0.85	1.2	1.65	2.4	2.8	4.5	6.1
Compressive Modulus ¹	ASTM D 1621-B-73	MPa	Nominal	80	105	135	170	200	310	400
			Minimum	58	90	115	145	175	265	350
Tensile Strength ¹	ASTM D 1623	MPa	Nominal	1.8	2.8	3.5	4.8	5.4	7.1	9.2
			Minimum	1.5	2.2	2.5	3.5	4.0	6.3	8.0
Tensile Modulus ¹	ASTM D 1623	MPa	Nominal	75	100	130	175	205	250	320
			Minimum	57	80	105	135	160	210	260
Shear Strength	ASTM C 273	MPa	Nominal	0.85	1.25	1.6	2.2	2.6	3.5	4.5
			Minimum	0.75	1.0	1.4	1.9	2.2	3.2	3.9
Shear Modulus	ASTM C 273	MPa	Nominal	20	28	35	50	73	73	97
			Minimum	18	22	28	40	50	65	81
Shear Strain	ASTM C 273	%	Nominal	23	38	40	40	40	45	45
Density	ISO 845	kg/m ³	Nominal	65	80	100	130	160	200	250

All values measured at +23°C

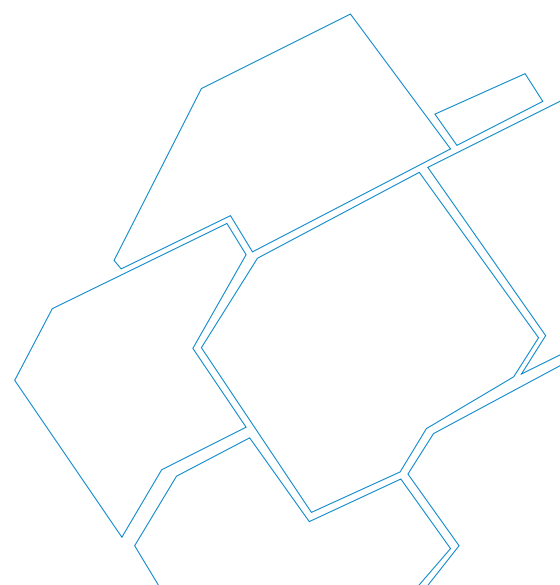
1. Properties measured perpendicular to the plane

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

PRODUCT CHARACTERISTICS

- Low water absorption
- 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



TECHNICAL CHARACTERISTICS

Characteristics ¹	Unit	HP60	HP80	HP100	HP130	HP160	HP200	HP250	Test method
Density variation	%	+15/-5%	+15/-10%	+15/-10%	+15/-10%	+15/-10%	+15/-10%	+16/-10%	-
Thermal conductivity ²	W/(m-K)	0.035	0.037	0.037	0.038	0.040	0.045	0.048	EN 12667
Coeff, linear heat expansion	x10 ⁻⁶ /°C	40	40	40	40	40	40	40	ISO 4897
Heat Distortion Temperature	°C	+125	+125	+125	+125	+125	+125	+125	DIN 53424
Continuous temp range	°C	-200 to +80	-200 to +80	-200 to +80	-200 to +80	-200/+80	-200 to +80	-200 to +80	-
Max process temp	°C	+145	+145	+145	+145	+145	+145	+145	-
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 +10°C
3. Standard deviation is 0.045

Normally Divinycell HP can be processed at up to +145°C with minor dimensional changes. The foam can be used in sandwich structures, for outdoor exposure, with external skin temperatures up to +100°C.

Maximum processing temperature is dependent on time, pressure and process conditions. To confirm that Divinycell HP is compatible with users particular processing parameters, and for optimal design of applications used in high operating temperatures in combination with continuous load, please contact Diab Technical Services.

DIMENSIONS

Format		Unit	HP60	HP80	HP100	HP130	HP160	HP200	HP250
Plain sheets	Length	mm	2440	2070	2135	1935	1835	1705	1615
	Width	mm	1220	1020	1045	945	890	825	775
GS sheet	Length	mm	1220	1220	1030	1067	967	917	852
	Width	mm	813	1220	1020	1045	945	890	825

Tolerances	Unit	Length	Width	Thickness
Plain sheets	mm	-10/+6	-5/+6	-/+ 0.5

STORAGE OF PRODUCT

The shelf life of Divinycell is unlimited when it is stored in its original package on ambient indoor storage conditions and protected against UV exposure.

Divinycell HP is type approved by:



Disclaimer:

This data sheet may be subject to revision and changes due to development and changes of the material. The data is derived from tests and experience. If not stated as minimum values, the data is average data and should be treated as such. Calculations should be verified by actual tests. The data is furnished without liability for the company and does not constitute a warranty or representation in respect of the material or its use. The company reserves the right to release new data sheets in replacement.

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Diab Group

Drottninggatan 7, 5th floor
SE-252 21 Helsingborg, Sweden
Tel +46 (0) 430 163 00
E-mail: info@diabgroup.com