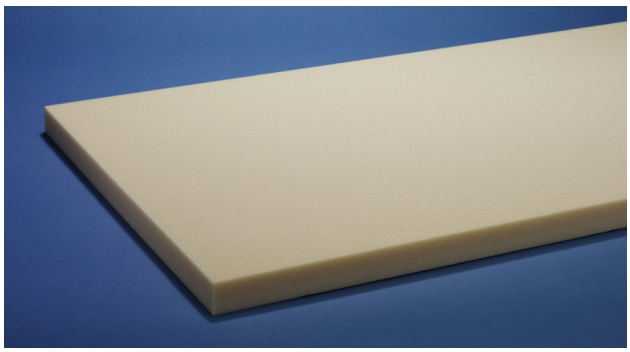


TECHNICAL DATA

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 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

Property	Test Procedure	Unit		HP60	HP80	HP100	HP130	HP200	HP250
Compressive Strength[1]	ASTM D 1621	MPa	Nominal	0.95	1.5	2.0	3.0	5.4	7.2
			Minimum	0.85	1.2	1.65	2.4	4.5	6.1
Compressive Modulus[1]	ASTM D 1621-B-73	MPa	Nominal	80	105	135	170	310	400
			Minimum	58	90	115	145	265	350
Tensile Strength[1]	ASTM D 1623	MPa	Nominal	1.8	2.8	3.5	4.8	7.1	9.2
			Minimum	1.5	2.2	2.5	3.5	6.3	8.0
Tensile Modulus[1]	ASTM D 1623	MPa	Nominal	75	100	130	175	250	320
			Minimum	57	80	105	135	210	260
Shear Strength	ASTM C 273	MPa	Nominal	0.85	1.25	1.6	2.2	3.5	4.5
			Minimum	0.75	1.0	1.4	1.9	3.2	3.9
Shear Modulus	ASTM C 273	MPa	Nominal	20	28	35	50	73	97
			Minimum	18	22	28	40	65	81
Shear Strain	ASTM C 273	%	Nominal	23	38	40	40	45	45
Density	ISO 845	kg/m³	Nominal	65	80	100	130	200	250

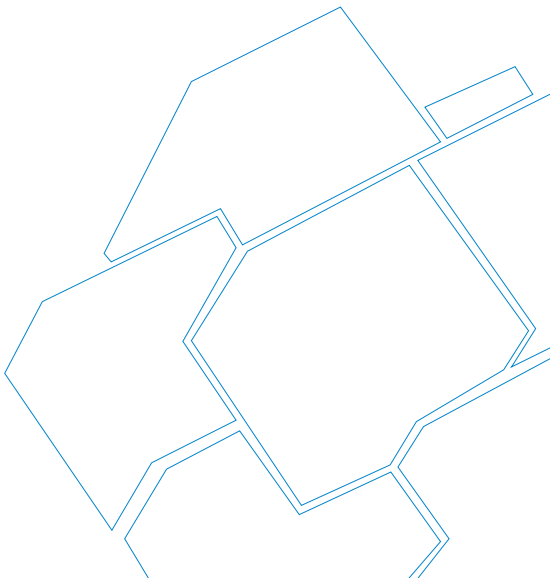
All values measured at +23°C

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

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]	W/(m-K)	0.035	0.037	0.037	0.038	0.045	0.048	EN 12667
Coeff, linear heat expansion	x10^{-6}/°C	40	40	40	40	40	40	ISO 4897
Heat Distortion Temperature	°C	+125	+125	+125	+125	+125	+125	DIN 53424
Continous temp range	°C	-200 to +80	-200 to +80	-200 to +80	-200 to +80	-200 to +80	-200 to +80	-
Max process temp	°C	+145	+145	+145	+145	+145	+145	-
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 +10°C
3. Standard deviation is 0.045

Continuous operating temperature is typically -200°C to +80°C. The foam can be used in sandwich structures, for outdoor exposure, with external skin temperatures up to +100°C. 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 +145°C 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 DIVINYCELL® HP

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

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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