

Divinycell H

Technical Data

The high performance sandwich core

Divinycell H provides excellent mechanical properties to low weight. The unique IPN chemical structure, yields impressive mechanical performance to a low weight. Divinycell H has been widely used and has a proven track record in virtually every application area where sandwich composites are employed including the marine (leisure, military and commercial), land transportation, wind energy, civil engineering/infrastructure and general industrial markets.

Divinycell H is ideal for applications subject to fatigue, slamming or impact loads. Other key features of Divinycell H include consistent high quality, excellent adhesion/peel strength, excellent chemical resistance, low water absorption and good thermal/acoustic insulation. Divinycell H is compatible with virtually all commonly used resin and manufacturing systems.

Product Characteristics

- Low water absorption
- Superior damage tolerance
- Fast and easy to process
- Good chemical resistance
- Excellent fatigue properties
- Low resin uptake
- Wide range of properties
- Provides excellent mechanical properties to a low weight

Mechanical properties Divinycell® H

Property	Test Procedure	Unit		H35	H45	H60	H80	H100	H130	H160	H200	H250
Compressive Strength ¹	ASTM D 1621	MPa	Nominal	0.5	0.6	0.9	1.4	2.0	3.0	3.4	5.4	7.2
			Minimum	0.3	0.5	0.7	1.15	1.65	2.4	2.8	4.5	6.1
Compressive Modulus ¹	ASTM D1621-B-73	MPa	Nominal	40	50	70	90	135	170	200	310	400
			Minimum	29	45	60	80	115	145	175	265	350
Tensile Strength ¹	ASTM D 1623	MPa	Nominal	1.0	1.4	1.8	2.5	3.5	4.8	5.4	7.1	9.2
			Minimum	0.8	1.1	1.5	2.2	2.5	3.5	4.0	6.3	8.0
Tensile Modulus ¹	ASTM D 1623	MPa	Nominal	49	55	75	95	130	175	205	250	320
			Minimum	37	45	57	85	105	135	160	210	260
Shear Strength	ASTM C 273	MPa	Nominal	0.4	0.56	0.76	1.15	1.6	2.2	2.6	3.5	4.5
			Minimum	0.3	0.46	0.63	0.95	1.4	1.9	2.2	3.2	3.9
Shear Modulus	ASTM C 273	MPa	Nominal	12	15	20	27	35	50	60	73	97
			Minimum	9	12	16	23	28	40	50	65	81
Shear Strain	ASTM C 273	%	Nominal	9	12	20	30	40	40	40	45	45
Density	ISO 845	kg/m ³	Nominal	38	48	60	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

Divinycell H is type approved by:



Technical Characteristics

Technical Characteristics Divynycell® H

Characteristics ¹	Unit	H35	H45	H60	H80	H100	H130	H160	H200	H250	Test method
Density variation	%	-10%/+20%	± 10	± 10	± 10	± 10	± 10	± 10	± 10	± 10	-
Thermal conductivity ²	W/(m-K)	0.028	0.028	0.029	0.031	0.033	0.036	0.040	0.044	0.049	EN 12667
Coeff, linear heat expansion	x10 ⁻⁶ /°C	40	40	40	40	40	40	40	40	40	ISO 4897
Heat Distortion Temperature	°C	+125	+125	+125	+125	+125	+125	+125	+125	+125	DIN 53424
Continuous temp range	°C	-200/+70	-200/+70	-200/+70	-200/+70	-200/+70	-200/+70	-200/+70	-200/+70	-200/+70	-
Max process temp	°C	+90	+90	+90	+90	+110	+110	+110	+110	+110	-
Dissipation factor	-	0.0001	0.0002	0.0003	0.0005	0.0006	0.0009	0.0012	0.0015	0.0019	ASTM D 2520
Dielectric constant	-	1.04	1.05	1.06	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	0.4	0.4	D638-08

1. Typical values
2. Thermal conductivity at +20°C
3. Standard deviation is 0.045

Continuous operating temperature is typically -200°C to +70°C. The foam can be used in sandwich structures, for outdoor exposure, with external skin temperatures up to +85°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.

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

Physical characteristics

Format		Unit	H35	H45	H60	H80	H100	H130	H160	H200	H250
Plain sheets	Length	mm	2650	2440	2440	2440	2160	1960	1860	1730	1640
	Width	mm	1250	1220	1220	1220	1070	970	915	850	800
GS sheet	Length	mm	1250	1220	1220	1220	1080	980	930	865	-
	Width	mm	883	813	813	813	1070	970	915	850	-
GS sheet	Length	mm	1250	1220	1220	1220	-	-	-	-	-
	Width	mm	1250	1220	1220	1220	-	-	-	-	-

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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