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.

Mechanical properties Divinycell® H - Imperial units

Property	Test Procedure	Unit		H45	H60	H80	H100	H130	H160	H200	H250
Compressive Strength[1]	ASTM D 1621	psi	Nominal	87	130	203	290	435	493	783	1,044
			Minimum	72	102	167	239	348	406	653	885
Compressive Modulus[1]	ASTM D1621-B-73	psi	Nominal	7,250	10,150	13,050	19,575	24,650	29,008	44,965	58,015
			Minimum	6,525	8,700	11,600	16,675	21,030	25,382	38,435	50,763
Tensile Strength[1]	ASTM D 1623	psi	Nominal	203	261	363	508	696	783	1,030	1,334
			Minimum	160	218	319	362	508	580	914	1,160
Tensile Modulus[1]	ASTM D 1623	psi	Nominal	7,975	10,875	13,775	18,850	25,375	29,733	36,250	46,400
			Minimum	6,525	8,265	12,325	15,225	19,575	23,206	30,450	37,710
Shear Strength	ASTM C 273	psi	Nominal	81	110	167	232	319	377	508	653
			Minimum	67	91	138	203	276	319	464	566
Shear Modulus	ASTM C 273	psi	Nominal	2,175	2,900	3,915	5,075	7,250	8,702	10,590	14,070
			Minimum	1,740	2,320	3,335	4,060	5,800	7,252	9,427	11,748
Shear Strain	ASTM C 273	%	Nominal	12	20	30	40	40	40	45	45
Density	ISO 845	lb/ft^3	Nominal	3.0	3.8	5.0	6.3	8.1	10.0	12.5	15.6

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:

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

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Technical Characteristics

Technical Characteristics Divinycell® H

Characteristics[1]	Unit	H45	H60	H80	H100	H130	H160	H200	H250	Test method
Density variation	%	± 10	± 10	± 10	± 10	± 10	± 10	± 10	± 10	-
Thermal conductivity[2]	Btu x in/(ft^2 x h x °F)	0.194	0.201	0.215	0.229	0.250	0.278	0.305	0.340	EN 12667
Coeff, linear heat expansion	x10^{-6}/°F	22.2	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	+257	DIN 53424
Continous temp range	°F	-325/+160	-325/+160	-325/+160	-325/+160	-325/+160	-325/+160	-325/+160	-325/+160	-
Max process temp	°F	+194	+194	+194	+230	+230	+230	+230	+230	-
Dissipation factor	-	0.0002	0.0003	0.0005	0.0006	0.0009	0.0012	0.0015	0.0019	ASTM D 2520
Dielectric constant	-	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	D638-08

1. Typical values
2. Thermal conductivity at +68°F
3. Standard deviation is 0.045

Continuous operating temperature is typically -325ºF to +160ºF. The foam can be used in sandwich structures, for outdoor exposure, with external skin temperatures up to +185ºF. 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 Divinycell H is compatible with their particular processing parameters.

Physical characteristics

Format		Unit	H45	H60	H80	H100	H130	H160	H200	H250
Plain sheets	Length	inch	96.06	96.06	96.06	85.04	77.17	73.23	68.11	64.57
	Width	inch	48.03	48.03	48.03	42.13	38.19	36.02	33.46	31.50
GS sheet	Length	inch	48.03	48.03	48.03	42.52	38.58	36.61	34.06	-
	Width	inch	32.01	32.01	32.01	42.13	38.19	36.02	33.46	-
GS sheet	Length	inch	48.03	48.03	48.03	-	-	-	-	-
	Width	inch	48.03	48.03	48.03	-	-	-	-	-

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