

We are a world leader in the provision of innovative sandwich composite solutions that make our customers products light, strong and competitive.

DIAB's offerings include high performance core materials, cost effective kits and a comprehensive range of engineering and process support services.

We provide composite solutions to a wide range of markets including: wind energy; commercial, military and pleasure marine; transportation; aerospace; industry and construction.

With personnel located throughout the world via 16 sales and technical support operations, we are able to offer worldwide support to our global customer base. We have manufacturing units in China, Ecuador, India, Italy, Lithuania, Sweden and the USA.

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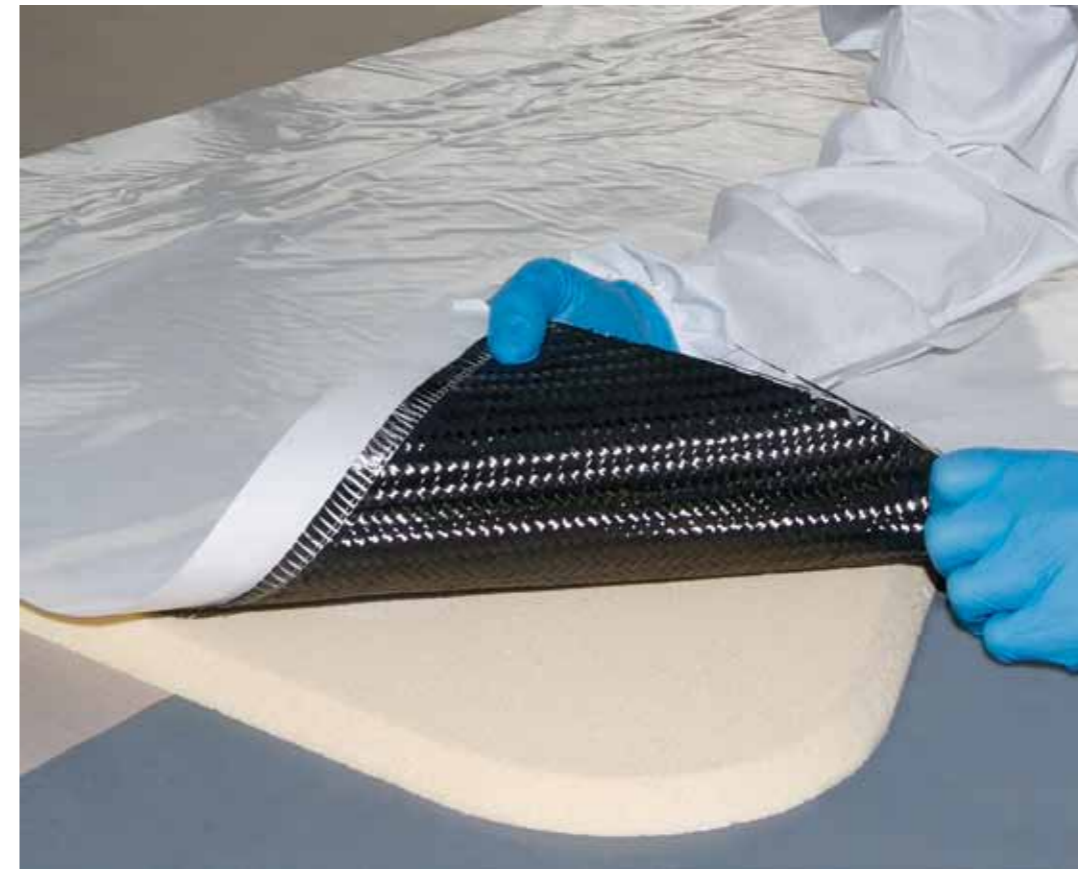
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Divinycell HP SB-Eng-Feb.12-Rev.4.0

# Divinycell HP

The Proven High Performance, Prepreg Compatible Sandwich Core



Compatible with low and medium temperature prepregs

High mechanical properties at elevated temperatures

Good ductility / energy absorption properties

Excellent adhesion/peel strength

Exceptional dimensional stability

Small cell size

Thermoformable

Low water absorption

Good insulation values

Wide density range



# Divinycell HP

## The Proven High Performance Prepreg Compatible Sandwich Core

With its unique combination of features - low weight /high strength, wide processing envelope and high temperature performance - prepreg compatible Divinycell HP is ideal for a wide range of applications in the marine, wind energy, transportation and industrial markets.

### Temperature Performance

With its high processing temperature, Divinycell HP can be processed at a much higher temperature than other polymer core materials in general use, making it suitable for not only low but also medium temperature prepregs.

Its elevated temperature performance is not just beneficial to prepreg users. Its high residual strength and good dimensional stability also make it ideal for vacuum bagging, infusion and RTM (resin transfer molding). HP's elevated temperature performance also extends to the 'in service' life of the component. Divinycell HP will retain a high percentage of its mechanical properties despite long term exposure to high ambient temperatures.



### Strength Performance

Divinycell HP exhibits at both ambient and elevated temperatures impressive compression and shear properties (normally the most important for a sandwich core material) that are better than other commonly used 'elevated temperature' core materials. The figures for shear strain show that HP has good ductility and energy absorption characteristics. Testing has shown that HP also outperforms linear cores in terms of slamming resistance.

### Adhesion

Divinycell HP also excels in adhesion. Peel tests have been performed using commonly used resin systems and prepregs with superior results to other cores used for prepregs.

### Dimensional Stability

The dimensional stability of Divinycell HP is also exceptional. Taking HP 80 as an example, at 60°C (140°F) dimensional changes are hardly measurable, less than 0.1%. Even at 90°C (194°F), the dimensional change for HP 80 is still less than 0.5%.

Other key features of Divinycell HP include excellent chemical resistance (including styrene), low water absorption and good thermal / acoustic insulation.



Full details of the core's properties are contained in the comprehensive Divinycell HP Technical Manual that can be downloaded from the DIAB web site - [www.diabgroup.com](http://www.diabgroup.com).

### Wide Density Range

Divinycell HP is also available in a wide range of densities and thicknesses. Currently HP is available in densities from 60 to 250 kg/m<sup>3</sup> (4.1-15.6 lb/ft<sup>3</sup>) enabling designers and fabricators to optimize their structures.

### Standard & Special Finishing

Divinycell HP sandwich core can be supplied with probably the widest range of finishes available in the industry. The aim is to facilitate and speed core installation, enhance component quality / performance and to meet specific process requirements. Standard finishes include grid-scored, double cut and 'infusion' grooved/perforated forms.

### Ready-Made Kits

For those involved in series production, Divinycell HP can be supplied in ready-made construction kits where each piece is pre-cut, shaped, as necessary, and numbered to fit exactly into its designated place in the mold. This substantially reduces build times, saves labor costs, improves quality and cuts waste.



### Worldwide Supply

Divinycell cores are global materials for today's global market place. DIAB has core manufacturing operations in Sweden, Italy the USA and India.

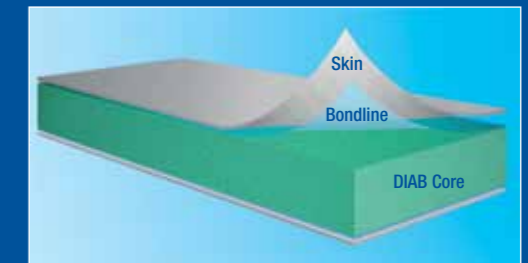
DIAB also has its own finishing / kitting facilities in China, India, Italy, Lithuania, Sweden and the USA plus a global network of 16 sales/technical support operations.

### Global Product & Technology Support

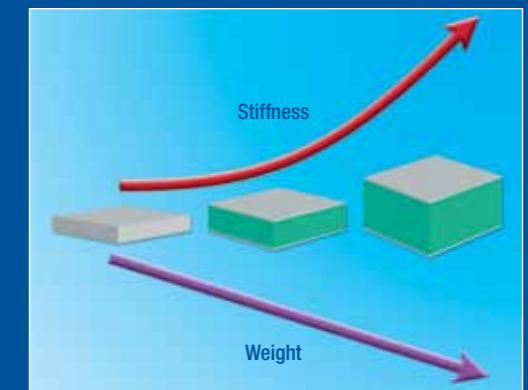
DIAB customers worldwide can take advantage of the company's unrivalled level of product support and the specialist skills offered by the Composites Consulting Group.

The Composites Consulting Group is a DIAB Group affiliate that provides composites engineering services. CCG assists our customers to cost-effectively meet objectives such as: increased service life, decreased environmental impact, higher payloads or reduced energy usage by providing services within design, engineering, testing, tooling, process optimization & training.

## The Sandwich Concept



The DIAB sandwich concept increases structural performance while optimizing weight. A sandwich consists of two high strength skins or facings separated by a core material. The skins take up the bending stresses and give the structure a hard wearing surface. The light DIAB core absorbs the shear stresses and distributes them over a larger area.



Compared to monolithic composite laminates or metals, the sandwich concept significantly reduces weight and increases stiffness while maintaining strength. Even higher strength and stiffness properties can be achieved by increasing the thickness of the core without a weight penalty.

The excellent strength-to-weight ratio of the sandwich concept can be used in a variety of ways - higher speeds, longer range, greater payload capacity or reduced power demand – all of which result in better operating economy. Divinycell sandwich composites require minimum maintenance and should any repairs be necessary, they can be carried out easily without any loss of structural integrity.