

Matrix material characteristics

High strength-to-weight ratio

DIAB's continuous development of the Matrix series ensures you have outstanding properties at the lowest weight for your needs.

Exceptional peel strength

The Matrix series' material composition, mechanical properties and cell structure enable excellent chemical and mechanical adhesion properties.

Compatibility

The Matrix series grades are compatible with all main resin types.

High thermal stability

Good heat resistance makes the Matrix series a valuable material selection also at elevated temperatures.

Low resin uptake

Due to small cell size and a closed cell structure, the Matrix series provides low resin absorption.

Good insulation properties

The Matrix series' composition provides excellent thermal and insulating properties.

Easy to process

Matrix materials are very easy to machine and process into any shape or form, and can be used without the need of special consideration or machinery.

Excellent fatigue strength

Matrix materials' excellent performance over time in dynamic loadings provides durability and long life for applications.

And sustainability, too

An application's environmental impact is related to two main criteria: its lifetime and weight. Matrix core materials' outstanding performance over time, in combination with excellent strength-to-weight performance, not only provides durability and long life, but also decreases weight. The raw material also has a low carbon footprint, as well as lower energy consumption in manufacturing compared to other raw materials used in foam cores. These characteristics, along with available recyclable and reusable alternatives, make the Matrix series a good environmental selection.



For more information and technical datasheets visit www.diabgroup.com

Focused performance

Choosing the ideal core is one factor in achieving optimum performance and value. We understand your need to improve quality and decrease cost and weight every step of the way. That is why we take a holistic view when adding products to our range. With top-level competence in all areas of the composite

value chain, DIAB brings you total benefits far superior to splitting the value creation over multiple suppliers – saving you time and money while ensuring optimum results. Working with DIAB enables you to focus on performance.



Making you more competitive



DIAB is a world-leading supplier of sandwich composite solutions that make our customers' products stronger, lighter and more competitive. Our extensive experience in providing sandwich composite solutions to customers has made DIAB a leading partner in the sandwich composite industry. DIAB's solutions combine high-performance core materials, value-added kits, engineering and process services.

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Focused performance

Divinycell® Matrix



The Divinycell Matrix series

High-performance core materials

The Divinycell Matrix series from DIAB enables you to focus the performance of your composite application in terms of weight, cost and quality. Based on the idea that you should be able to closely match the core material to your requirements – and thereby avoid over-engineering your applications – the Matrix series grades are positioned based on mechanical property to as low density as possible. This enables us to offer products relevant to industry requirements and in right relationship to each other – invaluable for designing applications for optimum weight, cost and quality.

Now, with the addition of Divinycell Matrix 10-8, you can experience the benefits of our best product ever – and, together with our other products and services, probably the highest performing line of core materials available on the market.

High Performance

High mechanical properties at lower weight bring many crucial benefits: lower fuel consumption, higher application efficiency, decreased environmental impact and decreased lifetime cost.

Right Performance

Based on our deep customer insight, the Matrix range provides strategic mechanical properties that fit your needs at the lowest possible weight – so there's no need to compromise.

Optimized Performance

Well integrated into the full DIAB offering, the Matrix series enables our customers' to create more effective designs according to their specific needs and requirements. The series is strategically developed to optimize the top items on the agenda for sandwich application manufacturers – namely weight, cost and quality.

Divinycell Matrix 10-8

Matrix 10-8 provides excellent mechanical properties at low weight, and with improved temperature resistance, allowing tougher process conditions.

The exceptional performance relative to weight enables Matrix 10-8 to meet a number of wind blade specifications as well as other structural applications.

Divinycell Matrix 11-9

With its unique mechanical properties, Matrix 11-9 is an excellent complement to DIAB's range of foams – enabling structurally optimized designs.

Compression range 7,2 MPa

Shear range 4,5 MPa

Please note these values are nominal

Divinycell Matrix 7-7

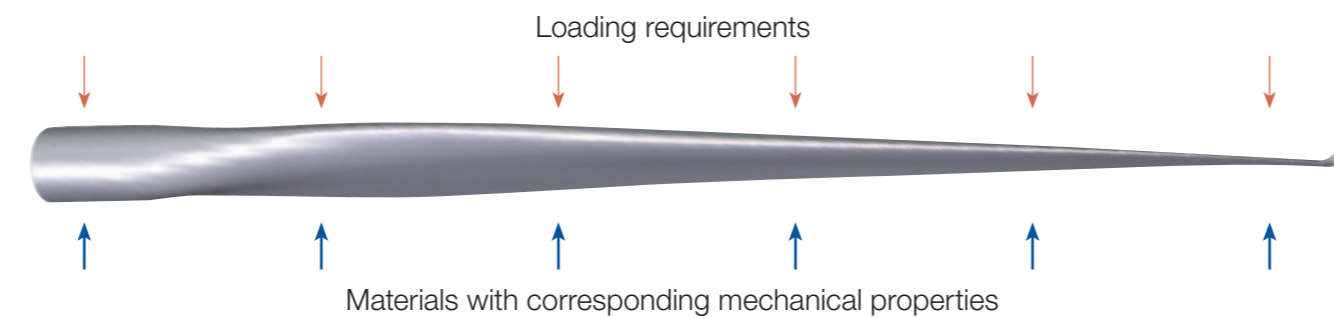
Matrix 7-7 meets the DNV requirements for decks in marine leisure craft at probably the lowest weight in the industry, as well as a wide range of wind blade specifications.

0,45 MPa
0,4 MPa

The Matrix series complements DIAB's Divinycell H range perfectly. The wide range of mechanical properties enables designers to optimize their applications by selecting the most precise core materials for their needs – resulting in decreased weight and increased competitiveness.

Core

Designing with core materials that fit your needs, rather than over-engineering, gives you a significant advantage. DIAB's range allows you to choose the ideal core based on your mechanical requirements corresponding to the different loadings in your application.



Performance without compromise

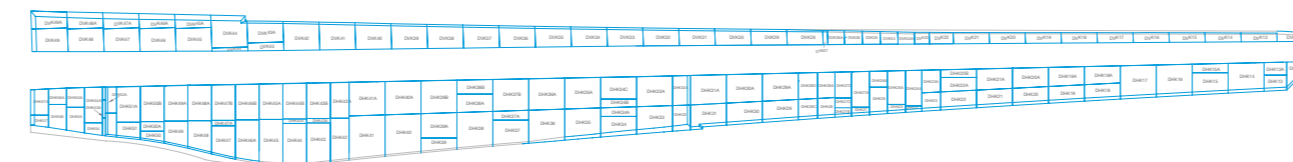
Mechanical requirements often differ throughout an application. The mechanical properties of the Matrix series grades are evenly distributed and complement each other. This enables designers to use a core that fits the requirement in a particular part of your application – maintaining the same safety factors and avoiding over-engineering. Not only can you decrease weight while preserving strength, but you can also achieve significant cost savings.



Core
Kits
Finishing
Engineering

Kits

To realize the full benefits for your application, all of DIAB's materials can be delivered in ready-made engineered kits to significantly reduce cost and optimize efficiency throughout your manufacturing cycle.



Core
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Engineering

With DIAB's kit concept, each piece is pre-cut, shaped and formed as necessary and numbered to fit exactly into its designated place in the mold. The kit can consist of sheets only or 3-D shapes made with CNC machining. By eliminating the on-site shaping and cutting of flat sheets, you can substantially reduce build times and save labor and material cost. In addition, with the easy assembly and exact fit, you can achieve a consistently high quality in less time.

Each kit is designed based on the customer's drawing using materials with different mechanical properties based on loading requirements.

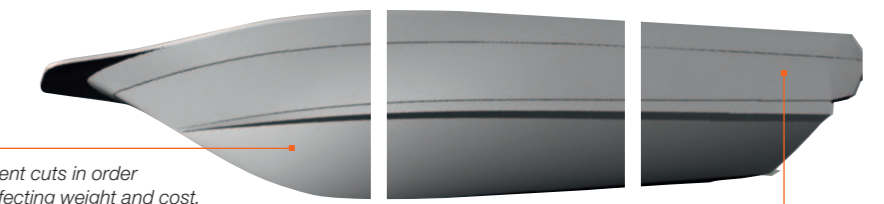
Kits are delivered in pre-cut, numbered parts – avoiding scrap and significantly improving the layout time.

In addition to the savings you have in time, cost, and scrap, DIAB's kits ensure perfect fit for each part to yield the highest-quality finished products.



Finishing

Selecting the optimal finishing has a distinct and profound impact on your application's success – directly influencing weight, cost and quality. DIAB helps you choose from a wide range of cuts, grooves, perforations, kerfs, etc. in different patterns, each serving a specific purpose to optimize your application.



Different geometries require different cuts in order to keep resin consumption low, affecting weight and cost. In this example, finishing selection for this section is based on two needs: production efficiency and impregnation quality.

Finishing in this area is chosen for cosmetic appearance and flow behavior, which are important criteria.

Your design objectives, manufacturing process, and the geometry of your application all play important roles in determining which finishing options to use. For example, as geometry often differs throughout an application, DIAB uses different finishing when making kits to optimize flow and fitness. With our wide range of finishing options in combination with our broad competence in core materials, composites design and manufacturing, we help ensure you get an optimal selection.

Finishing impacts:

- Resin consumption
- Manufacturing efficiency
- Weight
- Consumables
- Quality
- Surface finish

Get a competitive edge
Select the optimal finishing

Download the DIAB Finishing Guide at www.diabgroup.com or contact us for a printed copy.



Engineering

With our integrated range of solutions and services, DIAB can serve you in every facet of the composite design and manufacturing process. Take advantage of our engineering expertise to ensure each element fits together for optimal performance.



Our Technical Service team along with the Composites Consulting Group (CCG) make sure our customers get the most out of their composite solutions, providing professional guidance and help every step of the way. They are experienced in structural calculations, supervising in manufacturing methods and prototyping, and have unique, cross-linked experience between different segments.

Discover how combining the right DIAB core with ideal finishing, convenient kits, and expert engineering consultation bring you stronger, lighter, more competitive products.

DIAB Technical Services and Composites Consulting Group provide assistance and services from initial design to process and manufacturing support.

Matrix