Diab

WE'RE ALWAYS AT THE CORE OF YOUR MARINE SOLUTION

diabgroup.com

ALWAYS AT THE CORE OF YOUR SOLUTION

Diab was founded in Sweden in 1950. Ever since the beginning, and throughout our steady development into a global company, we have been dedicated to constant innovation and promoting a widespread adoption of structural core materials.

Our products and solutions have been used in applications for marine, wind, aerospace, and industry for decades and are qualified according to relevant industry standards. With a complete range of high-performance core materials, numerous finishing options and kit operations in combination with engineering services and expertise, we present probably the widest and most valuable offering in the sandwich composite industry.

LIGHT, FAST AND TOUGH

Whether you manufacture sailing boats, super yachts, fast motorboats, or large commercial vessels, it's all about maximizing performance. Low weight, which is one of the main advantages of structural core materials, increases speed, reduces fuel cost and allows for a higher payload. Core solutions from Diab offer the highest strength-per-weight ratio for all marine applications. Our engineered materials make your boat light, fast and tough, and with the help of our technical expertise, structural engineering services and applications training, you can achieve maximum performance and cost-efficiency.

MORE SUSTAINABLE IN EVERY WAY

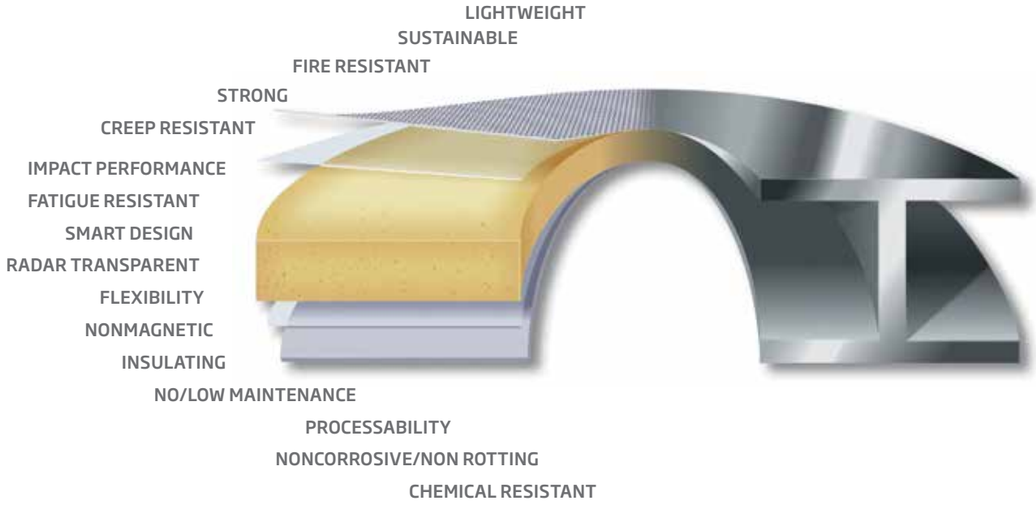
SUSTAINABILITY IS IN OUR CORE
Our products contribute to energy savings and a lower carbon footprint. They will help you boost energy efficiency, reduce emissions, conserve natural resources and create a longer life cycle for your product. Simultaneously, our customers in the marine market are setting increased demands for their suppliers in terms of quality, safety and environmental issues. At Diab we work hard to make a difference when it comes to sustainability. We are strongly committed to making your solution more sustainable in every way.

A PART OF THE RENEWABLE ENERGY SUPPLY CHAIN
Sustainability is one of our top business priorities. We are adopting to the responsible framework of UN Global Compact; our Sustainability report is publicly available, and we have approval of our CO_2-reduction targets from the Science Based Targets Initiative. We strive to be a part of the renewable energy supply chain, and we also believe that this approach drives long-term profitability and competitiveness.

MAKE THE MOST OF YOUR APPLICATION

THE SANDWICH TECHNOLOGY
Composite materials are made from two or more materials with significantly different physical or chemical properties, that when combined, form an overall structure with characteristics different from the individual components.
The basic idea is simple; the execution is a bit more advanced. Two thin, strong and stiff skins, of fiber reinforced plastics or solid material, are attached to a lightweight core by press-bonding or lamination. This allows each element forming the composite panel to be designed to minimize weight and maximize strength and stiffness, or other desired features. The result is a component with a very high stiffness-to-weight and high bending strength-to-weight ratio. A Diab sandwich has all the advantages of conventional materials, such as steel or wood, but none of the disadvantages, such as heavy weight, corrosion, or design limitations.

MASTERS OF SANDWICH CORE
In a typical sandwich panel the skins are taking tension and compression loads, and the core carries the shear forces. Our PVC and PET cores are engineered foams that absorb and distribute the loads exposed to the sandwich, static or dynamic . They have a stable closed cell structure resistant to water ingress, corrosion and decay, an important characteristic in harsh environments.
A variety of grades can be used to give the final product additional desired features, such as fatigue and impact resistance, fire resistance, insulation, radar transmittance and many more.
Diab offers the widest range of high-quality sandwich cores, but our true strength goes beyond the material. You can draw from our knowledge when it comes to anything from sandwich design to efficient production methods. With our experience and expertise you can make the most of your application, existing or new.



THE RIGHT CORE MATERIAL FOR YOUR NEEDS

Find the right material with our Core Selection Guide at **www.diabgroup.com**

Every application and manufacturing method has its special demand on the material used. To be able to get the most out of your product, Diab offers the widest range of core materials and grades with unique properties that will suit the needs of your marine applications today and tomorrow.

DIVINYCELL - PVC

The unique composition of our PVC foams yields impressive mechanical performance to a very low weight.

Divinycell HM

Divinycell HM is our ultra-performance core designed for fast marine hulls where extra toughness is required. Divinycell HM combines all the qualities of Divinycell H, plus a very high shear elongation. As a result, Divinycell HM is a very tough product, capable of absorbing high dynamic impacts such as slamming loads.

Divinycell HM's very high elongation (above 40%) exceeds the minimum requirements of ISO12215, GL and ABS rules to allow for reduced safety factors in structural calculations, providing a lighter, yet strong structure. Divinycell HM offers a high operating temperature, reducing the risk of print-through on dark hulls.

Divinycell H

Divinycell H needs no introduction. This closed cell structural core has set standards in the marine industry for decades. With its long-term, proven performance and exceptional mechanical properties it is the product of reference for naval architects and manufacturers

Divinycell H has the highest strength-to-weight properties in the market and excellent fatigue resistance. It has a superior resistance to a wide range of chemical products and because of the fine close cell structure it has a low resin absorption. Furthermore, it is compatible with all polyester, vinylester and epoxy resins used in the marine industry and is totally safe to use, with no release of harmful products when cut or machined.

Divinycell HP

Divinycell HP brings all the advantages of Divinycell H together with high temperature resistance for prepreg processes or temperature critical components such as dark topsides. It can handle processing temperatures as high as 143°C (290°F).

Divinycell Matrix 10-8

Divinycell Matrix is an all-purpose grade with high strength to weight ratio. The unique PVC formulation yields impressive mechanical performance at a low density . Divinycell Matrix delivers relevant mechanical properties and valuable material characteristics and is well integrated in the Diab offering. It is available in various finishing options as well as kits. Divinycell Matrix allows naval architects to tailor their design for superior additional weight and cost savings.
The technology behind Matrix 10.8 has allowed Diab to develop a core with even better mechanical properties than our well respected H60, at the same density.

Divinycell MC

Divinycell MC is the innovative next generation structural core with best in class mechanical properties and low weight. The unique microcell structure renders substantial weight reduction of the laminate, thanks to lower core density in combination with exceptional low level of resin uptake.

Divinycell MC is a premium structural core, suitable for weight critical applications in marine applications. Other key features include excellent adhesion/peel strength, low water absorption and good thermal and acoustic insulation.

DIVINYCELL - PET

Thermoplastic recyclable PET foams suitable for many different marine applications.

Divinycell PN

This structural thermoplastic PET core material is perfectly suited for a variety of sandwich applications to increase performance and reduce weight.
It is easy to machine and has good dimensional stability at elevated temperatures, and is suitable for a variety of processes including infusion, prepreg and press bonding.
The material has a stable closed cell structure and is insensitive to moisture, decay or rot, making it an excellent substitute for organic materials such as balsa and plywood. High density Divinycell PN250 is particularly suited for flooring, decking, local inserts in the way of fittings; either tapped or bolted through and has very good screw retention. Divinycell PN is 100 % recyclable.

Divinycell PY

A recent addition to our offering, PY brings the benefits of traditional PET foam, plus improved mechanical performance and lower resin absorption.

BALSA

Balsa materials are particularly easy to work using conventional woodworking tools. They can be drilled, milled, turned and sawn to close tolerances.

ProBalsa

ProBalsa is an end grain balsa core material suitable for use in areas above the water line. It is produced from high quality balsa wood and offers a cost competitive product with very high compressive strength.

Thanks to our accurate process and quality control during raw material selection, storage and block assembly, we can ensure high quality and consistent properties of our ProBalsa sheets.

ProBalsa is available coated or uncoated and is compatible with all resins used in the marine industry.

RESOURCES TO ENHANCE YOUR PRODUCT

Alongside the broadest range of core materials, we also offer you a comprehensive array of added value products, such as kits with pre-cut parts and surface finishing options for form and flow.

WITH THE OPTIMAL FINISHING YOU CAN GET A COMPETITIVE EDGE

The right combination of core material, laminate and finishing affect performance and quality of the final product. Finishing refers to the machining of structural core materials. You can choose from a wide range of cuts, grooves and perforations in different variations each serving a specific purpose for the core to adapt to curvature, or for air evacuation & resin distribution in vacuum assisted manufacturing process. With our long experience in composite design and manufacturing methods, we can recommend the finishing suitable for each purpose.

OUR FINISHING OPTIONS:

Flow
To evacuate air and distribute resin in vacuum assisted processes requires perforations and/or grooves in the core surface.
Proper design of the flow finishing will ensure good wetout of laminate and proper core bonding. Grooved and perforated cores can also remove the need for an additional distribution medium.

Form
Formable finishing options enable the core to conform easily to the surface in complex mould shapes. A number of form finishes are available both with and without scrim backing, and with either one or two direction cuts in the core.

Flow & Form
A combination of both of the above, used where the core needs to adapt to the shape of the mould and also has to distribute the resin as part of the production process.

KITS TO BOOST YOUR PERFORMANCE

A kit consists of pre-cut parts that are shaped as necessary and then numbered to fit exactly into their designated places in the mould. By eliminating the on-site shaping and cutting of sheets, you can reduce build times, save labour and material costs, and reduce waste. Easy assembly and exact fit in the mould mean you can consistently achieve a high quality in less time.
The kit can consist of everything from flat sheets to precise 3D shapes made with CNC routing. The design is based on your requirements for component weight, cost and quality level, as well as the geometry and manufacturing process selected.

OUR KITTING OPTIONS

Industrial kitting
High quality kitting that meets your needs for speed and efficiency. We use a well- defined kit process that enables us to provide the most competitive offering, top service, and quick turn-around times. Depending on the requirement, we can choose from multiple solutions to optimize weight or cost.

Advanced kitting
Diab's innovative advanced kits offer optimized fit in the mould, reduced resin consumption, and improved laminate surface finish. Combining Diab knowledge of kits and infusion and by creating custom software specifically for the task, we can optimize the cuts required in the core to allow it to perfectly fit the local curvature of your mould, while minimizing resin uptake.

KNOWLEDGE THAT OPTIMIZES YOUR SOLUTION

MAKE THE MOST OF YOUR APPLICATION WITH OUR EXPERTISE
Diab Application Center is our powerful team of engineers, product specialists, and process specialists ready to team up with you to realize the total value of composites.

PRODUCT SUPPORT
We are here to support you with selecting the suitable core material for your application, advice on finishing the best fit for purpose, and essential advice on different manufacturing processes. Product support always comes for free with the purchase of our products.

COMPOSITE CONSULTING GROUP (CCG)
Our experience in sandwich core materials and related manufacturing processes is well documented. CCG provides specialized composite technology and engineering services to improve your product further. With broad competence within everything from design and structural engineering to process optimization – including flow modeling for closed molding, tooling design, and infusion training – we ensure that you can realize the total value of composite designs.

KIT ENGINEERING AND PRODUCTION
Diab uses a well-defined kit process that enables us to provide the most competitive offering, top service, and quick turn-around times. Whether the kit consists of flat sheets or 3D machined parts, we look at surface requirements, tolerances, weight limitations, and it all affect the approach we take for each kit design.

COMPOSITE PART & PROTOTYPE PRODUCTION
Prototyping and short production runs have high investment costs and can limit other daily operational activities. Our experienced engineers and fabricators can quickly bring your concepts to reality, whether you are in a start-up or existing business with a lack of resources or equipment.

TESTING
Understanding the material and its behavior in a variety of environmental conditions is key to optimized design. Let us help you characterize your composite solution, core materials, and sandwich structures with our own calibrated testing equipment and network of authorized test labs for exotic test methods.

PROOF OF OUR EXPERIENCE

We are privileged to have participated in product innovation and development for some of the world's leading companies in the marine industry. The advances they have been able to make using sandwich composites and other solutions are truly exciting.

SWEDISH SEA RESCUE SOCIETY
Diab has delivered material for producing life saving boats for more than 25 years. Over 100 boats have been produced by Swede Ship Composite AB. The specific boat is donated from the family Rassy, 1 of 3 boats. 15,7 m long with a top speed of 34 knots.

OVER 5,000 HULLS & DECKS PRODUCED AT NORCO USING DIAB MATERIALS
NORCO, a leading manufacturer of composite structures and GRP tooling, have been working in partnership with Diab for over 2 decades. One of the longest running projects which NORCO and Diab have collaborated is the production of all the PVC core kits for the production of Williams Jet Tender Ribs (Hulls, decks & parts). This project has seen over 5,000 hulls and decks produced since 2002 using Diab materials.

SANLORENZO: THE ITALIAN FASHION AND THE SEA
The SanLorenzo yard is one of the biggest Italian yards and it is going to leave a permanent fashionable trace in the marine market. Its design, lines, interiors as well as the advanced technical choices are highlighting it as one of the most important in the world. Diab is a long term technical partner and supplier, able to address the whole range of grp structures towards a radical kitting choice. Kits are allowing the yard to have the highest quality of surfaces as well as fast layout and production cycle, reduced overall costs and optimization of the warehouse stocks.

NEW CARBON FIBER CATAMARAN FROM BRØDRENE AA
Closely following the award-winning "Vision of the Fjords" and its sister-ship Future of the Fjords, Brødrene AA's new carbon fiber catamaran is called "Rygerdronningen", constructed for Rødne Fjord Cruise to take tourists on sustainable sightseeing tours through the famed Lysefjord in Rogaland, Norway.

ADVANCED COMPOSITE KITS FROM DIAB HELP THE SHOGUN 50 FROM ROSÄTTRA BOATYARD SET SAIL
With an Advanced Kit from Diab together with carbon fiber laminates, and support from CCG, Rosattra Boatyard has created an impressively light boat. Rosattra Boatyard knows what it takes to make a fast sailing boat that is also comfortable enough to use as a second home for summer holidays. When the request came for a fast and easy-to-handle sailing boat, the experienced boat-builders chose to design it using an Advanced Kit from Diab together with carbon fiber laminates, and with support from CCG.

FISHING BOAT SEINGEN FOR THE FISHERY OF THE FUTURE
Fishing company Fjordbakk AS in Norway has this year acquired an exciting new fishing vessel Seingen from boat builder Mundal Båt. Mundal Båt has previously supplied larger fishing boats and commercial vessels in composite material.

25 years cooperation with Swedish Sea Rescue society

Over 5,000 hulls & decks produced using Diab materials

The San Lorenzo Yard

New carbon fiber catamaran from Brødrene AA.

Advanced composite kits from Diab help the Shogun 50 from Rosättra Boatyard set sail.

Fishing boat Seingen for the fishery of the future.

DIAB AT A GLANCE

- SALES UNITS
- DIAB'S MANUFACTURING PLANTS
- MANUFACTURING PARTNER
- HEAD OFFICE

1 000
COWORKERS

WORLDWIDE SUPPLY AND SUPPORT
Ensuring security of supply, cost efficiency, flexibility, and local support, Diab combines a global manufacturing, sales, and engineering presence with local know-how. We follow our customers and anticipate their needs, positioning ourselves in locations to best support them. Our seven manufacturing sites and fourteen sales companies in strategic locations around the world offer our full range of materials and services.

FOUNDED 1950 IN SWEDEN

8
MANUFACTURING SITES

14
SALES COMPANIES

40
DISTRIBUTORS

OUR FOCUS AREAS:

MARINE
WIND
INDUSTRY
AEROSPACE

Take advantage of our knowledge!
At www.diabgroup.com you can get exclusive access to our expertise via MyDiab. And with our interactive Core Selection Guide it's easy to find the best core for your application.

Member of UN Global Compact
Approved CO_2-reduction targets from the Science Based Targets Initiative

Diab Group **(HEAD OFFICE)**
Drottninggatan 7, 5th floor
SE-252 21 Helsingborg, Sweden

Tel +46 (0) 430 163 00
E-mail: info@diabgroup.com

ROMANIA
BEST TOOLS SRL
Str. Dr. Victor Babes Nr. 36. Et. 1, Office 9
Phone: +40 (0)368. 412. 413 / +40 (0)368. 88.44.44
info@btools.ro | www.btools.ro

Diab Segment brochure Marine Jan 2022

Diab is a world leader in sandwich composite solutions that make customers' products stronger, lighter and smarter. Diab provides a range of core materials, cost-effective kits and finishings, along with in-depth knowledge on composites. Diab also provides engineering services for composite technology through Composites Consulting Group (CCG). Diab is a participant in the UN Global Compact.

Subject to possible printing errors and changes.