WE’RE ALWAYS AT THE CORE OF YOUR AEROSPACE SOLUTIONS
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 presumably the widest and most valuable offering in the sandwich composite industry.

The aerospace industry has been driven by life cycle cost and weight reduction for decades, but now we also see increasing demands for sustainable applications and production methods to decrease global footprint. Air traffic habits are changing fundamentally, and new applications must serve new trends. We are ready to change with the changing market, replacing traditional materials with multifunctional and innovative core and sandwich materials.

Diab has decades of experience serving the aerospace industry. Our unique insights into products and processes, mixed with an innovative approach, have enabled us to create a wide and valuable offering. Aerospace quality requirements leave no room for error, further increasing the challenge. We combine market needs with high-performance materials, top-level engineering services and applications training to achieve new significant results and invaluable solutions.
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 aerospace market are setting increased demands for 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 gotten approval of our CO2-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 such 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. By doing so each element forming the composite panel can 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 sandwich typically the skins are taking tension and compression loads, and the core shear forces. Our PVC and PET cores are engineered foams fit for the sandwich purpose to absorb and distribute the loads exposed to the sandwich, static or repeating. They have a stable closed cell structure resistant to water ingress, corrosion and decay, an important characteristic in harsh environments. A variety of grades is 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.
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 aerospace applications today and tomorrow.

DIVINYCELL – PES
Recyclable PES foam core material for commercial aircraft interiors.

**Divinycell F**
Divinycell F is the ideal core material for aerospace applications, especially well-suited for commercial aircraft interiors. Divinycell F foam is a recyclable, prepreg compatible sandwich core with excellent Fire, Smoke and Toxicity (FST) properties, good mechanical properties and good processing characteristics. It meets the global regulatory requirements for commercial aircraft interiors. Other key features include exceptional fatigue performance, good aircraft fluid resistance, excellent heat ageing at 180°C and great dielectric performance. Divinycell F also exhibits exceptional hot-wet performance with nearly identical isothermal values in the wet and dry condition.

Divinycell F is one of the few core materials that offer exceptional OSU heat release performance and nearly zero smoke - well below the regulatory and industry requirements. Acoustical and thermal insulation performance is superior to rigid honeycombs. Divinycell F is compatible with most common aerospace composite manufacturing processes and is particularly well suited in crush core press molding as it does not crack. It also performs well in traditional vacuum bag molding up to 205°C/400°F and resin infusion processing. Its smooth surface allows for elimination of film adhesive and reduced use of faying materials.

Use Divinycell F130 for lightweight edge fill and hardpoints. Divinycell F is coldformable, thermoformable or can be shaped with CNC machining. It is particularly suitable for free form parts.

**Application areas:**
- Cabin interiors: Luggage bins, bin doors, ceiling panels, heads, lavatories, galleys, IFE components, crewrest modules, class partitions and seat shells.
- Structural components: Radomes to aerodynamic fairings, antennas, rotor blades, cargo liners, freight containers and engine nacelles and cowlings.

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

**Divinycell HT**
Divinycell HT has all the properties expected of a high-performance, lightweight construction material. It is a closed-cell, thermoformable foam core characterized by high ductility and resilience, giving excellent dynamic behavior under shock and dynamic load. Compatible with a wide range of matrix materials, it has low water absorption and is self-extinguishing. Divinycell HT suits various prepreg systems and is compatible with process temperatures up to 145°C/295°F. With superior impact performance, low susceptibility to hydrocarbons and other aircraft fluids and excellent dielectric properties, Divinycell HT is suitable for a wide range of structural and non-structural applications. It is available in a range of densities, as standard sheets or fabricated to customer specifications. It can also be laminated “out of the box” unlike other aerospace grade core materials.

The impressive performance of Divinycell HT at cryogenic temperatures has also made it a natural choice for space launch applications.

**Application areas:**
- Executive and VIP interiors, commercial radomes, leading edges, fairings and flaps, rotorcraft components, cargo liners, propeller and fan blades, tankage for fuel, water and waste, general aviation primary structures.
- Specific technical information can be found on the Divinycell HT datasheet on the web, in various Diab technical manuals, or by contacting your local Diab sales representative.

**Divinycell H**
This unique PVC formulation yields impressive mechanical performance to a low weight. Divinycell H provides excellent mechanical properties and low weight. It has a proven track record in virtually every application area where sandwich composites are employed.

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

DIVINYCELL – PET
Thermoplastic recyclable PET foams suitable for many different applications.

**Divinycell P**
Divinycell P is a thermoplastic closed-cell PET structural core with good fire, smoke and toxicity (FST) behavior, offering good mechanical properties, high chemical resistance and does not absorb water. This core is ideal but not limited to applications requiring demanding FST properties. Due to its good dimensional stability at elevated temperatures, Divinycell P can be processed with low-medium temperature pre-preg systems and it is compatible with the most commonly used resin and manufacturing systems. It is easy to thermoform, cut or mill.
RESOURCES TO ENHANCE YOUR PRODUCT

WITH THE OPTIMAL FINISHING YOU CAN GET A COMPETITIVE EDGE
Our cores can be finished with a wide selection of perforations, cuts, and grooves. Each finishing option is tailored to specific lamination processes and to formability requirements. The right combination of core material, laminate and finishing allows you to save time, money, and resources, and affects the characteristics of your product. Diab has a long experience in finishing for structural core materials, and together, we can find the optimal solution to fit your needs.

OUR FINISHING OPTIONS:

Flow
Using a plain sheet is the most effective way to utilize a core. It can be perforated, grooved, or slitted through machining to make it as functional as possible for the application. To distribute resin, there are several options. Perforations avoid air from being trapped under the core, ensuring proper wet-out and bonding to the laminate. Grooved and perforated cores remove the need for additional distribution medium within the laminate or above it.

Form
To create curves, you have formable finishing options. Grid-scored finish makes the core conform easily to the mold for complex shapes. One-direction cut finish is similar to Grid-scored finish but with cuts in one direction only, creating strips of core. Double-cut finish allows curvature into panels without applying a scrim.

Flow & Form
A combination of above where you have a need for both adapting to the shape of your product as well as distribute resin in your production process.

KITS TO BOOST YOUR PERFORMANCE
You can significantly improve the manufacturing process and quality of composite components with pre-cut core parts (kitting). A Diab kit is a tailor-shaped set of core elements. By eliminating the on-site cutting of sheets, you can reduce manufacturing time, save labor and material cost. In addition, with the easy assembly and exact fit, you can consistently achieve high quality in less time.

OUR KITTING OPTIONS

Industrial kitting
A rational, high quality kitting that meets your needs of 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 among 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 cosmetics for infusion and high-end applications. Combining Diab knowledge of kits and infusion and creating a custom software specifically created 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 the resin uptake.
KNOWLEDGE THAT OPTIMIZES YOUR SOLUTION

MAKE THE MOST OF YOUR APPLICATION WITH OUR EXPERTISE.
Diab Technical Services have thorough knowledge of sandwich design, finishing and kitting and our skills cover everything from hand lay-up to resin infusion. We help you choose the most appropriate design procedure for each case and when necessary, validate the findings with in-house testing. We can also provide both theoretical and practical training of personnel and then directly assist your team with prototyping and infusion trials.

SPECIALIZED ENGINEERING SERVICES TO FURTHER IMPROVE YOUR PRODUCT.
Our Composite Consulting Group provide specialized composite technology services. With broad competence including everything from design and engineering to testing, tooling, process optimization and training, we ensure that you can realize the full value of composite designs. Contact our consultants in CCG for more information.
We are privileged to have participated in product innovation and development for some of the world’s leading companies in the aerospace industry. The advances they’ve been able to make using sandwich composites and other solutions are truly exciting.

**DIVINYCELL-CORED CIRRUS SF50 PIONEERS THE PERSONAL JET**

Cirrus Aircraft, based in Duluth, Minnesota, USA, was the first company to utilize foam sandwich composites in series production of civil aircrafts. The company continues the successful implementation of composite solutions in its newest jet. Announced in June 2008, the Cirrus SF50 features an all-composites airframe and a sandwich construction based on polymer cores.

**DIAB CORE KIT SOLUTION FOR PREMIER CLASS SEATING PODS**

B/E Aerospace, Inc. is the world leader in the manufacture of aircraft passenger cabin interior products for the commercial and business jet aircraft markets. Its products are used by virtually all aircraft manufacturers and in service with almost all airlines.

**ENATA AND DIAB HELP THE UA V LARUS TAKE FLIGHT**

When constructing a robotic bird for surveillance purposes for the Robird® company, aviation expert ENATA turned to DIAB for a lightweight material.

**ADVANCED COMPOSITES CREATES AWARD-WINNING AEROSPACE DESIGN**

Do you get seasick on a boat and have a fear of flying? Worry no more. In the future, we may all be travelling in so called WIGs (Wing In Ground), or flying boats. By harnessing the lift generated by flying close to the water surface, WIGs are able to travel at 200–210 km/h and up to 150 m above the sea level with only a third of the fuel consumption associated with modern planes.

**DIVINYCELL-CORED FLYING BOATS TO REVOLUTIONIZE MARITIME TRANSPORTATION**

Do you get seasick on a boat and have a fear of flying? Worry no more. In the future, we may all be travelling in so called WIGs (Wing In Ground), or flying boats. By harnessing the lift generated by flying close to the water surface, WIGs are able to travel at 200–210 km/h and up to 150 m above the sea level with only a third of the fuel consumption associated with modern planes. After two decades of product development by different nations, these oddities are starting to be considered for commercial flights (or should we say cruises?). One of the pioneers is CSIC (Hainan) Wig Craft Development in China that builds state-of-the-art WIGs using DIAB core material.

**DIVINYCELL F – FOR NEW INNOVATIVE INTERIOR AIRCRAFT APPLICATIONS**

An ideal solution for Canadian manufacturer FDC Composites, Divinycell F fulfills all regulations for interior applications of commercial airlines.
DIAB
AT A GLANCE

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.

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.

FOUNDED 1950
IN SWEDEN

1 300
EMPLOYEES

14
SALES COMPANIES

7
MANUFACTURING SITES

40
DISTRIBUTORS

40
DISTRIBUTORS

OUR FOCUS AREAS:
MARINE
WIND
INDUSTRY
AEROSPACE

Member of UN Global Compact
Approved CO2-reduction targets from the Science Based Targets Initiative
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.
Diab Aerospace brochure - May 2021