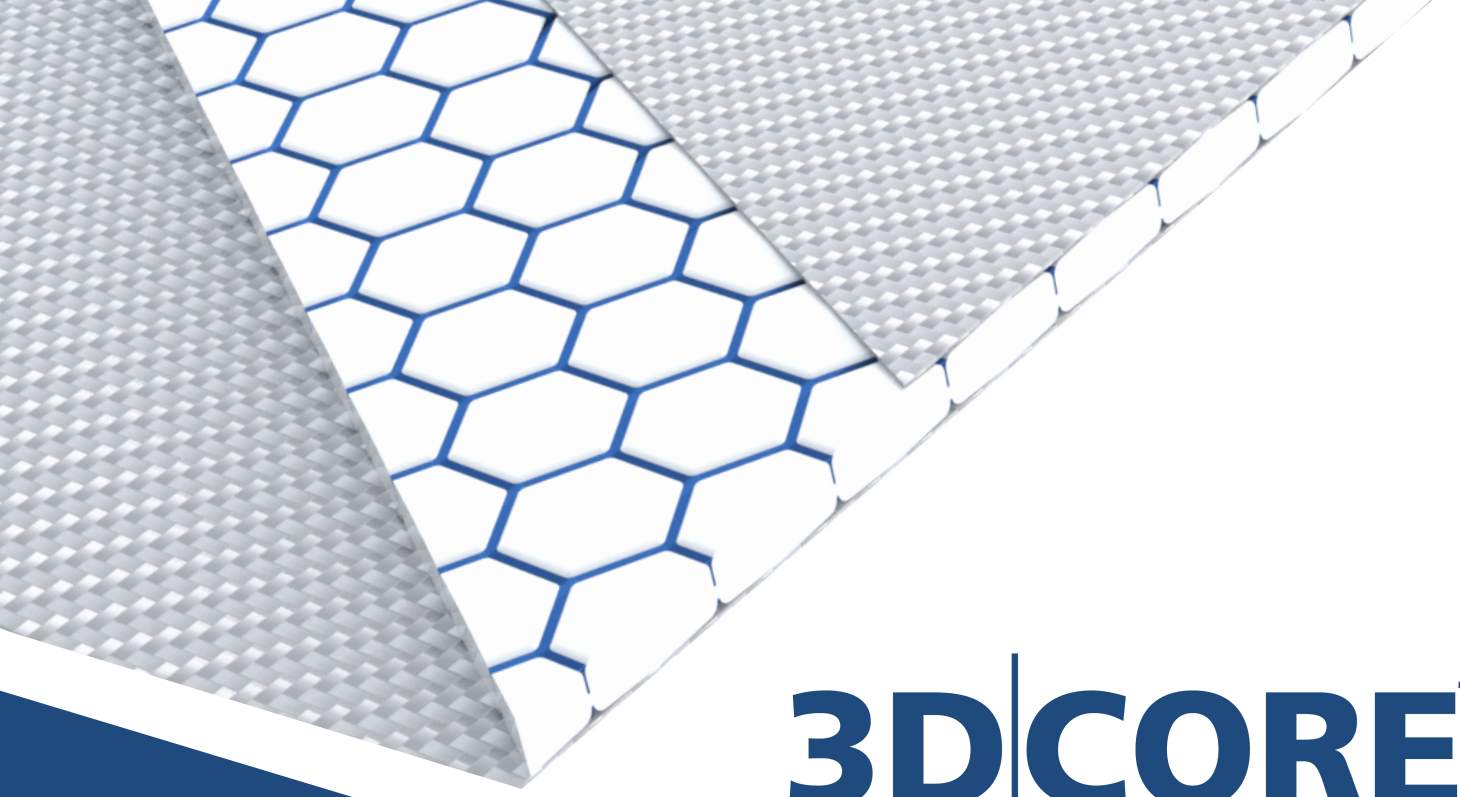


3D|CORE™

all around composites

3D|CORE™ TECHNOLOGY

3D|CORE™
all around composites

WHY LIGHTWEIGHT CONSTRUCTION?

The challenge: physics force us to reduce volume weight. We have to increase performance, range and productivity across a wide range of industries while saving raw materials, costs and energy at the same time. Our experienced engineering team will support you step by step in your search for lightweight, sustainable and durable composite solutions with excellent technical properties. Together we develop ideas and face new challenges to realize the optimal lightweight construction solution for you. We support you with engineering, the material selection, the verification through material testing, the optimization of the fibre composite components and with the production of the individual components. This enables you to produce high quality components in the shortest time possible.

Lightweight construction is part of our corporate DNA. Therefore we reliably support our customers in all phases of their value chain. As an extended workbench, you benefit from our expertise - from drawing to production.

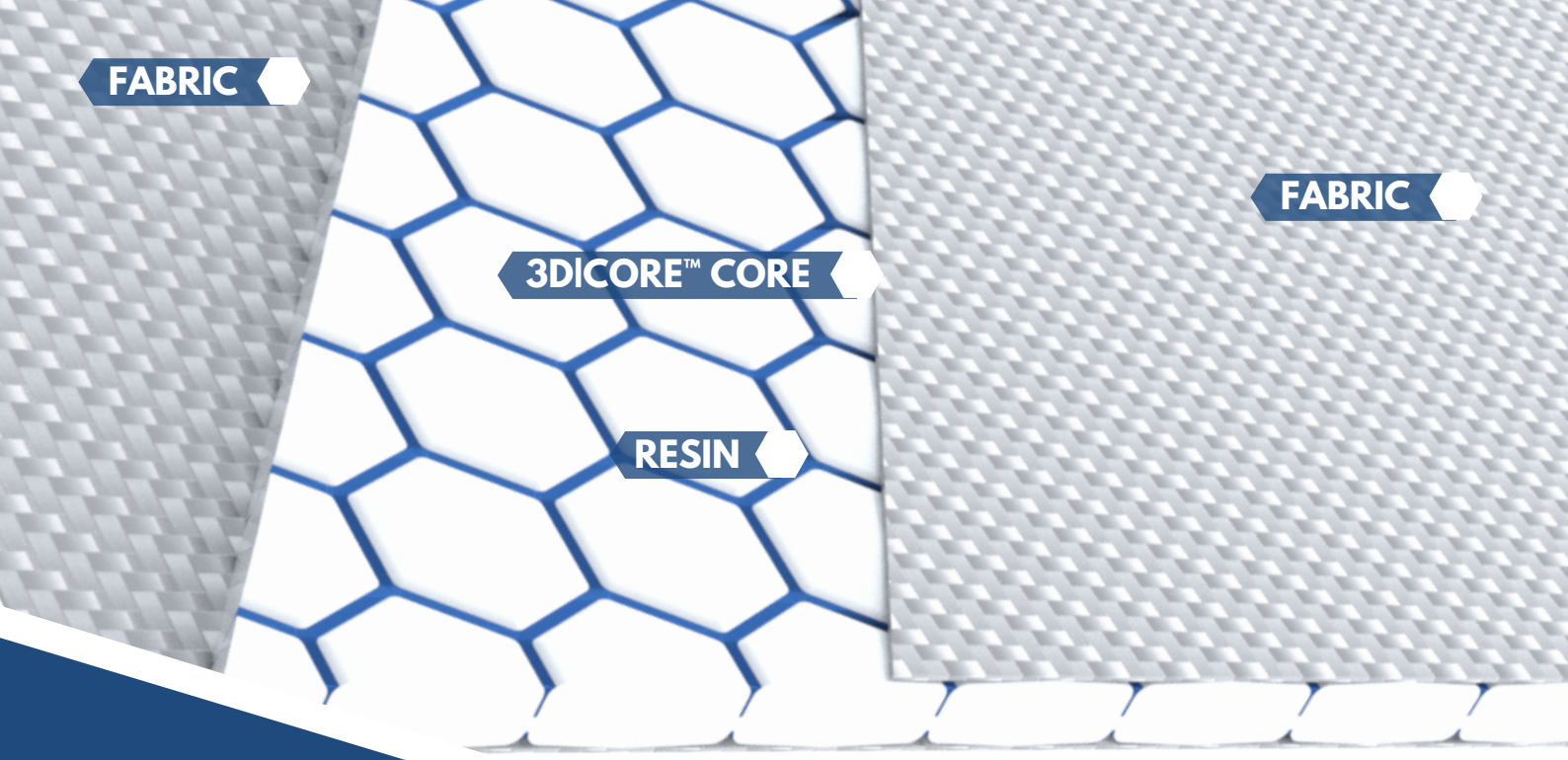
3D|CORE™
all around composites

WHY LIGHTWEIGHT CONSTRUCTION WITH 3D|CORE™?

Lightweight construction is the solution for our future. Saving mass can not only increase material efficiency and reduce resource consumption, but it often also improves products. This saves manufacturing and operating costs and, by using valuable resources sparingly, protects the climate at the same time: a lighter machine or a lighter vehicle requires less energy to operate. Thus, lightweight construction is a key factor for tomorrow's society and industry.

This is where 3D|CORE™ comes in: our high-performance composite materials serve as the basis for outstanding lightweight components. 3D|CORE™ is the key technology for meeting the challenges of energy and material efficiency while increasing the performance and productivity of machines and systems.

We pick up where others leave off: lightweight components, little effort, low costs.

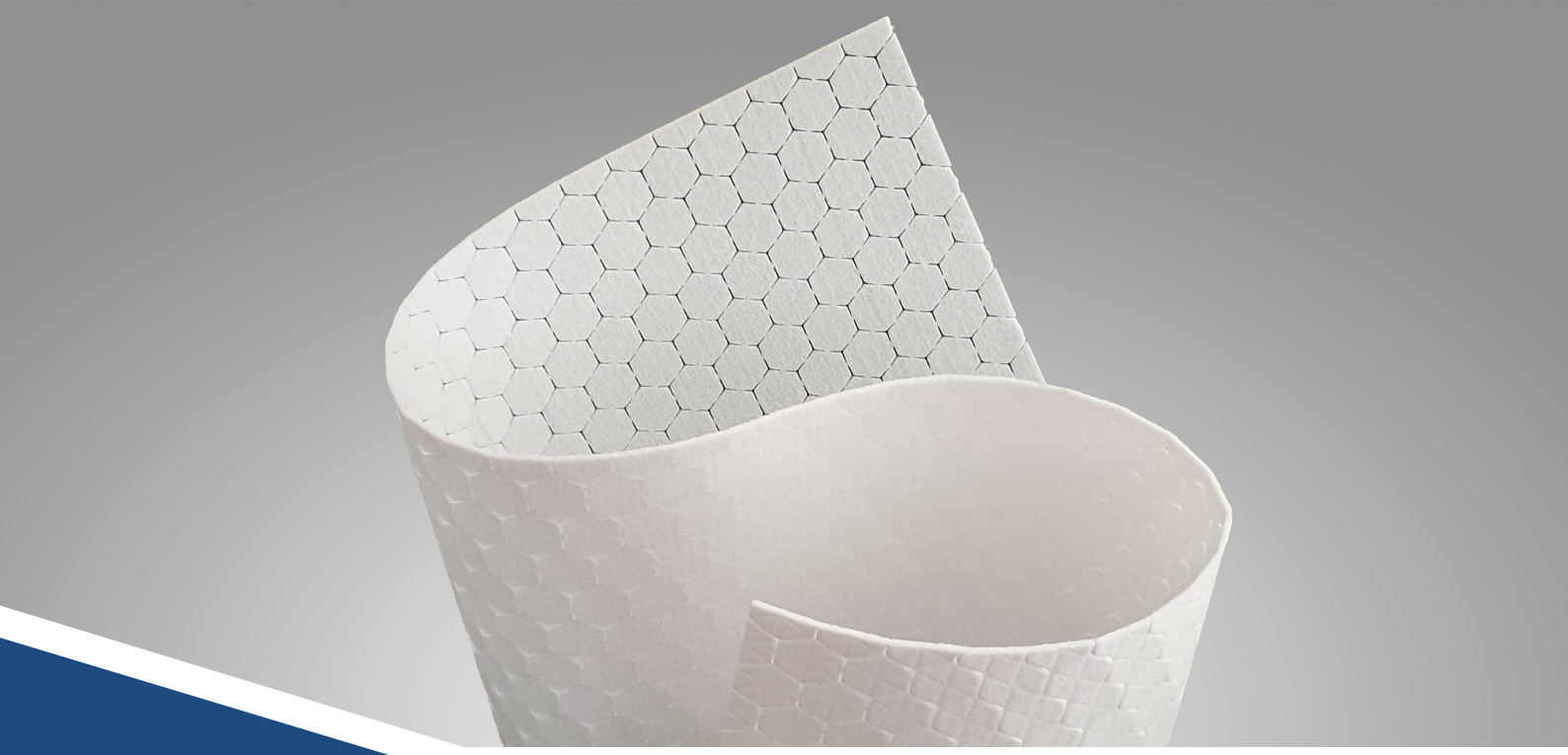


3D|CORE™
all around composites

3D|CORE™ TECHNOLOGY

3D|CORETM is a patented honeycomb structure that is inserted into a foam core and runs through the entire foam core. The structure consists of single honeycomb foam bodies that are connected to each other with small bridges and allow a high flexibility of the foam core. Between the individual honeycomb foam bodies are interstices that serve as, already integrated, flow aids and support the filling process with a liquid matrix. Once the 3D|CORETM structure (interstices) is filled with a liquid matrix and cured, the foam core retains its shape and develops excellent technical properties, such as improved shear and compression properties. The face layers, on both sides of the foam core, are bonded together via the honeycomb structure. This prevents delamination, as well as complete failure of the component.

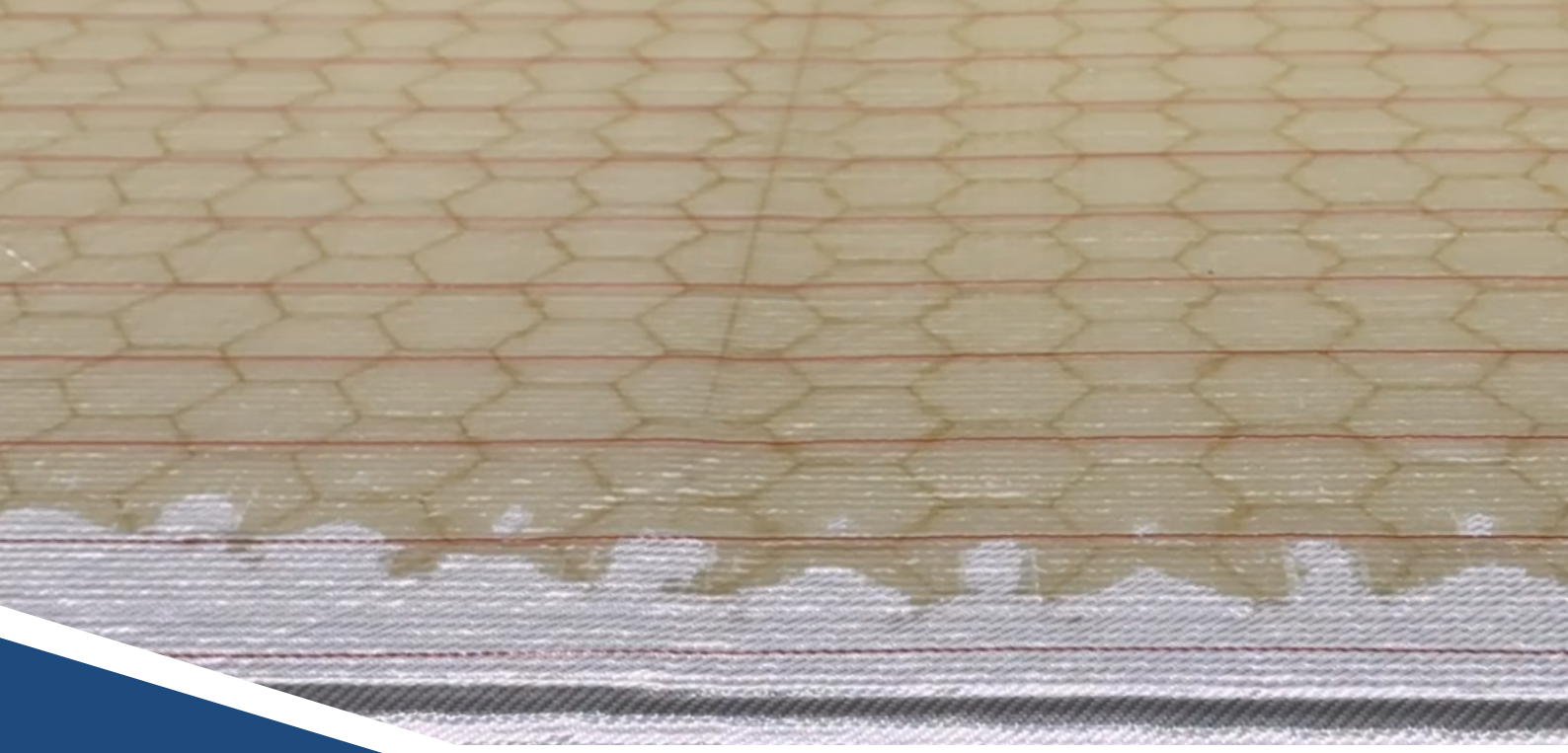
BENEFIT FROM OUR INNOVATIVE HONEYCOMB TECHNOLOGY!



3D|CORE™
all around composites

3D|CORE™ FACTS

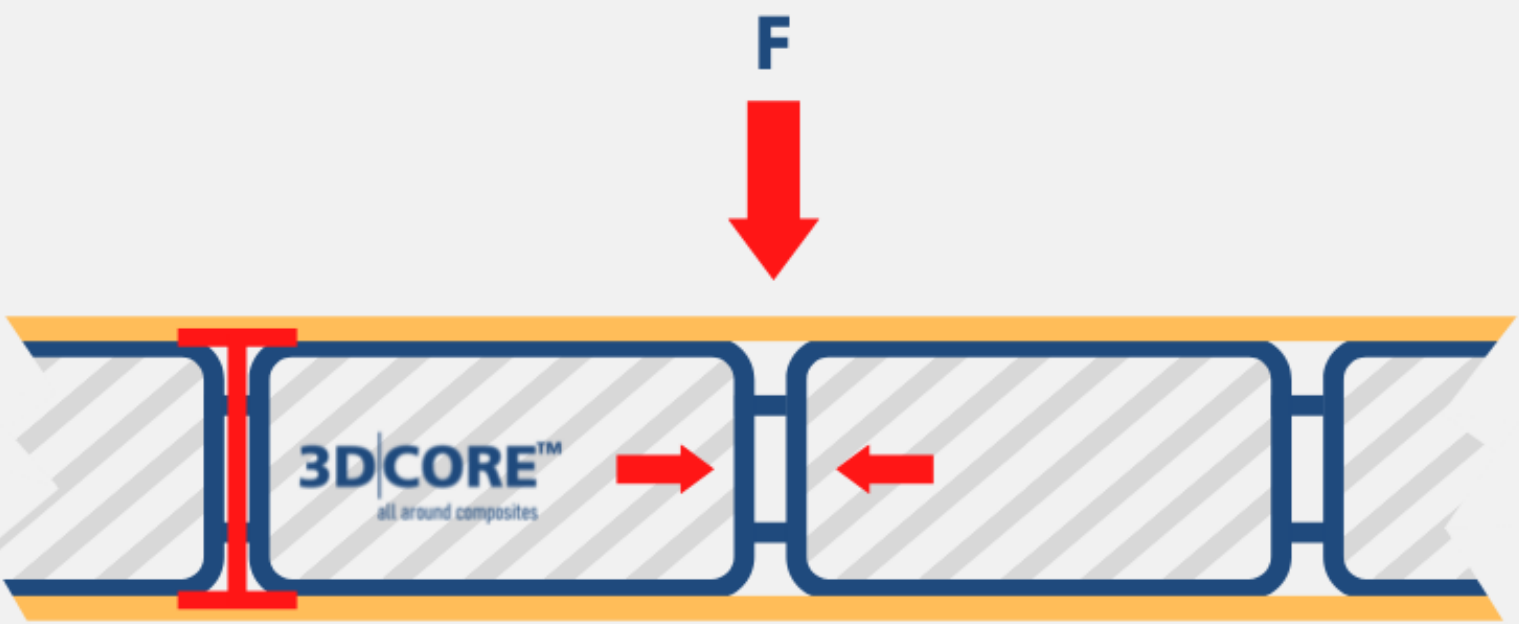
- Flexibility: The 3D|CORE™ honeycomb structure gives technical rigid foam cores enormous flexibility: easy handling without additional processing steps, simple insertion into a mold, adaptation to the mold's shape (increased drapability)
- Processing: The materials can be processed with standard tools and machines
- Processes: 3D|CORE™ can be used in all common processes (vacuum infusion, RTM (VARTM, LRTM and HP-RTM), hand laminate, autoclave, wet pressing, etc.)
- Resin systems: 3D|CORE™ can be processed with all common resin types
- 3D|CORE™ foam cores: We use foam cores with closed-cell structures, there is no water absorption or outgassing. These have excellent resistance, very high chemical resistance and can withstand high processing temperatures of up to 180°C.



3D|CORE™
all around composites

3D|CORE™ FACTS

- Process speed: The 3D|CORE™ honeycomb structure enables the mold to be covered and filled quickly without the use of additional flow aids. The honeycomb structure speeds up the filling of the component with resins and thermoplastics: fast working method and time savings
- Integrated flow aid: The 3D|CORE™ honeycomb structure acts as an integrated flow aid and supports the filling process with a resin matrix. An additional flow aid is not required: saving of costs for the flow aid, the peel ply fabric, the additional resin for both fibers and the working time
- Process security: The 3D|CORE™ structure offers a safe resin flow and guarantees a consistent resin distribution and optimal wetting of the fibers: thus ensures an optimally filled component and offers process reliability
- 3D|CORE™ honeycomb structure: The cured resin around the individual honeycomb foam bodies forms double T-girder around them. Here, the fiber layers are connected to each other: complete delamination is eliminated and prevents complete failure of the component



3D|CORE™ FACTS

- Technical characteristics: The double-T-girder ensure optimal force transmission and excellent shear, compressive and flexural strengths in contrast to other core materials. The structure enables the achievement of technical properties of high-quality high-performance foams.

  - 800% higher pressure modulus

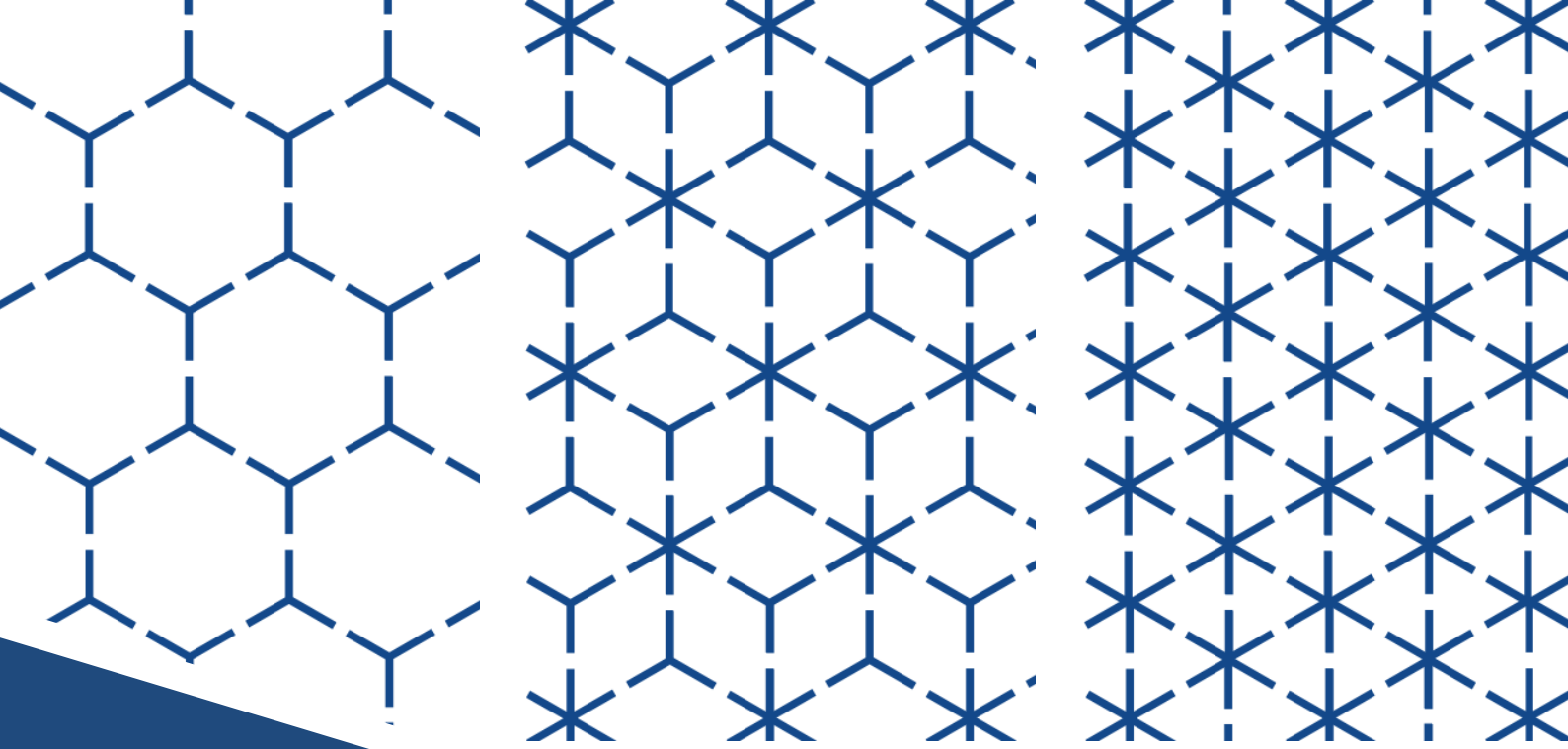
  - 300% higher shear modulus

- Savings potential:

  Weight savingsl: no superfluous resin absorption thanks to closed cell foam

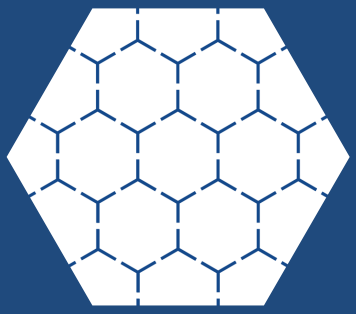
  Material savings: fibers (flow aid, peel ply fabric, fleece, perforated film, etc.), resin

  Cost reductions: resulting from weight savings, material savings and faster processing time



3D|CORE™
all around composites

3D|CORE™ STRUCTURES



HEXAGON STRUCTURE

Improvement of the 3D|CORE™ HX structure compared to standard foam cores:

- Technical properties of the core by 100%, flexibility by 100% and more
- Peel strength of the fiber layers by 100%

Available in the XPS and PET foam.

RHOMBUS STRUCTURE

Improvement of the 3D|CORE™ RB structure compared to standard foam cores:

- Technical properties approx. 200%, flexibility approx. 200% and more
- Peel strength of the fiber layers about 150%

Available in the XPS and PET foam.

DELTA STRUCTURE

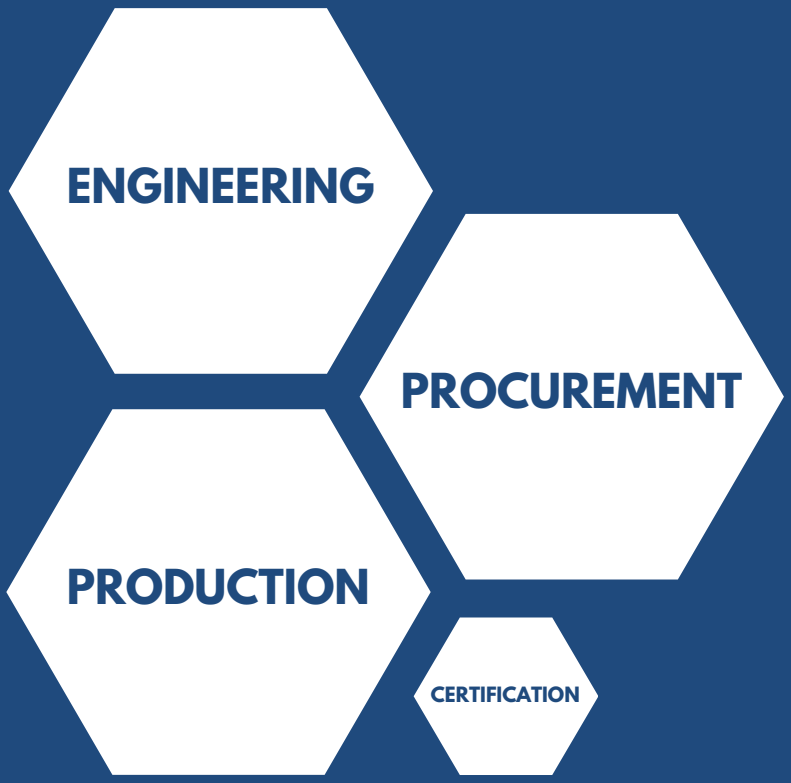
Improvement of the 3D|CORE™ DT structure compared to standard foam cores:

- Flexibility by more than 300%
- Peel strength of the fiber layers about 200%

Available in the XPS and PET foam.

3D|CORE™

all around composites



3DICORE GMBH & CO. KG
OSTSTRASSE 74
32051 HERFORD
GERMANY
WWW.3D-CORE.COM
PHONE: 0049 5221 93 63 90
E-MAIL: SALES@3D-CORE.COM

VISIT US ON: