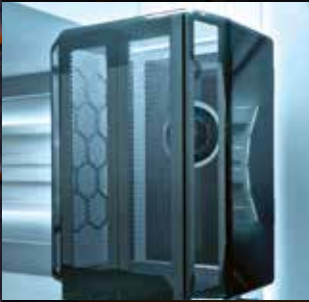




TURNING TECHNOLOGICAL REVOLUTIONS AND VISIONS INTO REALITY.

EXPERTS FOR LIGHTWEIGHT



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VAP®



THE EASE WITH WHICH
WE CREATE COMPOSITE
STRUCTURES WITH PERFECT
MECHANICAL PROPERTIES.

VAP®

**MORE STABILITY,
MORE STIFFNESS,
MORE POSSIBILITIES –
WITH THE PATENTED
VAP®-TECHNIQUE**

COMPOSYST has the license from the patent holder AIRBUS Defence and Space GmbH to offer the complete VAP®-portfolio of products and services. Customers can choose from the full range of licensed VAP®-materials developed for manufacturing of high-strength composites. If buyers need further assistance, COMPOSYST can offer experienced experts for consulting.

VAP® – VACUUM ASSISTED PROCESS

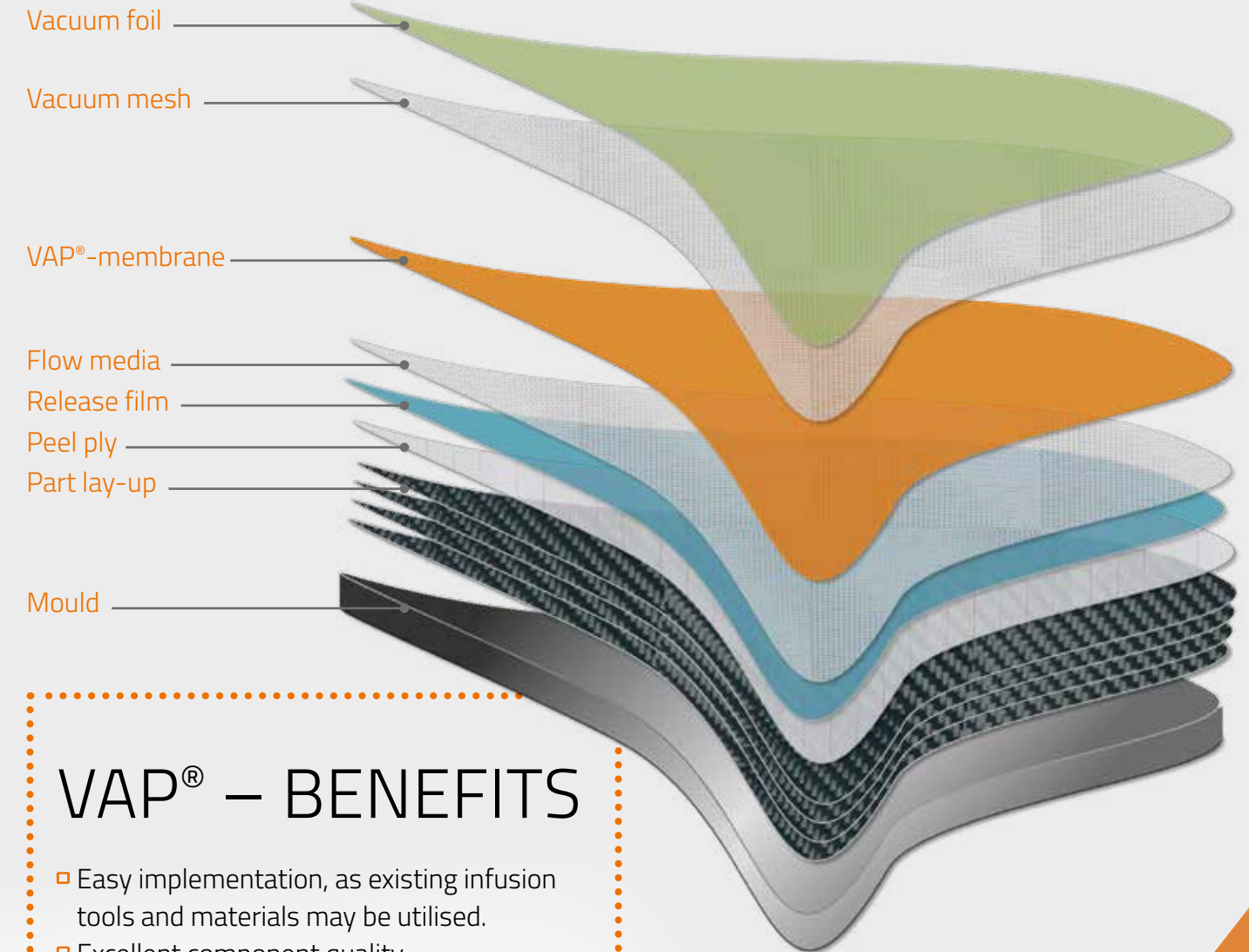
The AIRBUS Defence and Space GmbH (formerly EADS) patented Vacuum Assisted Process (VAP®) uses the properties of modern, semi-permeable membrane systems in highly developed textile composites to apply the effect of a vacuum to the entire surface of a component. This “vacuum assist” ensures that trapped air and gas can be reliably and efficiently removed during resin infusion.

VAP® – Functional Principle

The Vacuum Assisted Process (VAP®) is a technique to manufacture composite parts using vacuum injection; it applies membrane-assisted low-pressure infiltration.

The surface of the part to be infiltrated with resin is covered with a flexible membrane system. The membrane is permeable to gas but impermeable to resin. When resin is infiltrated into the part inside the membrane, the latter keeps the resin inside the matrix and away from the vacuum duct.

Yet, aided by the low pressure in the vacuum duct, trapped air and gas can still escape through the membrane’s micro-permeability and are purged via the textile layer. The vacuum acts uniformly, so purging takes place across the entire contact surface between part and membrane, during and after infiltration.



VAP® – BENEFITS

- Easy implementation, as existing infusion tools and materials may be utilised.
- Excellent component quality without dry spots.
- Low laminate porosity due to efficient purging of air and gas through the VAP®-membrane during and after infiltration.
- Accurate control of fibre volume content.
- Minimum resin waste, the needed amount of resin can be calculated in advance.
- Homogeneous fibre volume content due to uniform vacuum across entire surface.
- No need for detailed planning of resin flow channels.
- Potential for higher component integration.
- Consistently stable and controlled process, offers high process reliability and reproducibility.
- Minimum investment needed.



HOW WE GAVE THE REVOLUTION IN ELEVATOR TECHNOLOGY A NEW DIRECTION.

“Composyst won us over with innovative solutions and very high commitment, this enabled timely completion of the first functional prototype of the carbon fibre MULTI elevator car while under high time pressure. The staff members’ know-how, their team spirit, their versatility and their dedication made it a pleasure to work with them.”

Team MULTI of Thyssenkrupp Elevator AG



WHEN THE ELEVATOR MOVES WITHOUT A ROPE.

What elevator technology learned from aerospace: the new, rope-free MULTI elevator system by Thyssenkrupp creates a whole new way of mobility in tall buildings. Leveraging stiff and lightweight components from aerospace, multiple elevator cars can now move in a single shaft vertically and horizontally.



THYSSENKRUPP MULTI ELEVATOR SYSTEM – ELEVATOR CAR



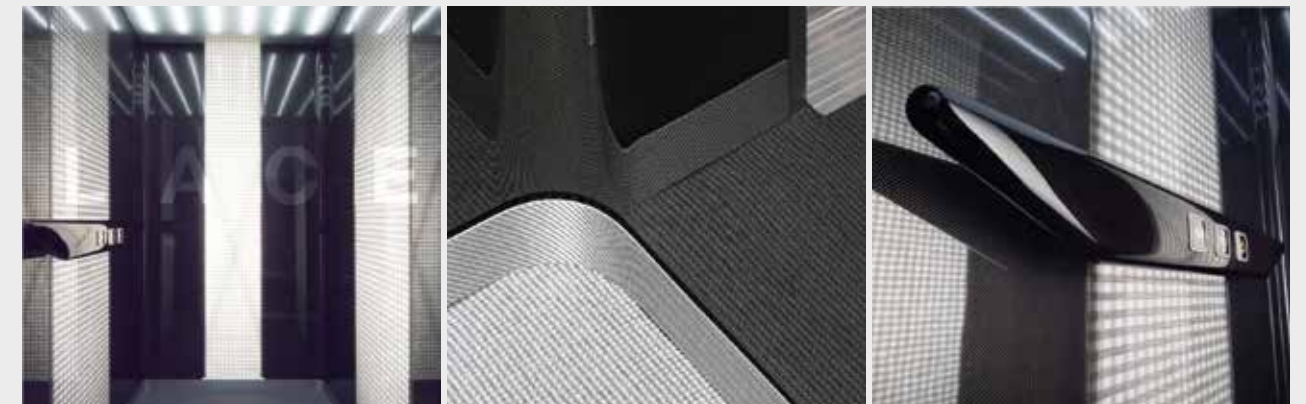
HIGH-TECH ELEVATOR OF THE FUTURE

The future becomes a reality today: the new MULTI elevator car is blazing the trail with its ingenious and award-winning design. Extreme lightweight construction leads to a substantially reduced mass of the elevator car which remains accurate to shape with its very high stiffness.

MULTI frees tall building design from the constraints imposed by conventional elevators. Without any rope mass limiting vertical movement in buildings, MULTI can travel hundreds of storeys without the need for changing elevators. By its ability to move cars horizontally, MULTI opens the door to completely new possibilities, like moving hotel guests directly from the lobby to their room.



WITTUR ELEVATOR SYSTEM



HIGH-TECH ELEVATOR WITH A PERFECT SCORE

Innovative ideas shape our future and open new possibilities. The LACE (lightweight all-composite elevator) car is a good example. Composyst conceived and built the prototype in close cooperation with Wittur Holding GmbH. Combining lightweight structures with mechanical robustness leads to an optimal outcome.

The finished product offers many opportunities for stimulating the creativity of architects and designers alike. At less than a third of the mass of a typical elevator car built from aluminium, glass or steel, design possibilities are virtually endless.



WE ARE THE WIND
UNDER THE WINGS OF
THE AEROSPACE
INDUSTRY – WITH
INNOVATIVE IDEAS AND
SUSTAINABLE SOLUTIONS.



**AIMING HIGH WITH
OUR KNOW-HOW ABOUT
MAXIMUM STIFFNESS
IN LIGHTWEIGHT
STRUCTURES.**

Lightweight structures represent a steadily growing market segment in the booming global aviation industry. Reduced operating costs of lighter structures outweigh their higher acquisition cost. Lower fuel consumption reduces air pollution and environmental impact.

SET SAIL: ALMOST AS GOOD AS FLYING AN AEROPLANE.



OFF TO NEW HORIZONS – STOP FLOATING AND START FLYING.

Speed is nothing without control. Wing-like foils mounted under the hull have transformed sailing. The hull design of the iFLY15 hydrofoil sailboat aims to minimize the speed of lifting the hull up and out of the water. That way, the iFLY15 can achieve speeds exceeding twice the wind speed while retaining maximum stability during manoeuvring. Even with these excellent qualities, the boat's carbon-fibre construction keeps the structural weight at a minimum.

“iFLY15, serial produced hydrofoil catamaran. With our highest requirements concerning lightweight, stiffness and surface quality, Composyst contribute with high-tech building processes as VAP® to the success of the platform, allowing highest performance on a flying boat accessible also for nonprofessional sailors.”

Ernst-Michael Miller, CEO Catamaran Europe Central
Picture: Jairo Trimeloni

WHENEVER WIND
TURBINES DELIVER
RENEWABLE ENERGY,
WE ARE ON TOP OF IT.



**WE GUARANTEE TO MAKE
IT EASIER FOR FUTURE
TECHNOLOGIES.**

Whenever wind and weather conditions threaten to test the physical limits of power generation, lightweight structures come to the rescue. With a currently demonstrated length of up to 90 metres, the latest rotor blades for wind turbines try out the state of the art and maximise energy output.

WHENEVER MEDICAL
TECHNOLOGY IS TO
SAVE LIVES, WE BRING
FORWARD A WEIGHTY
ARGUMENT.



**OUR COMPOSITE
STRUCTURES PROVIDE
THE FOUNDATION FOR
HEALTHY GROWTH.**

In health care, whenever push comes to shove, a few seconds can make the difference between life and death. There are situations where the necessity to handle a heavy and bulky medical apparatus may have grave consequences. Under such circumstances, it would be much better if doctors and paramedics could use lightweight medical equipment built with composite structures. This would enable hospital staff to handle equipment with more ease and less stress, providing faster and better service to patients.

TO HAVE DESIGNERS
THINK WITHOUT LIMITS,
THEY SHALL KNOW
FIRST THAT NOTHING IS
IMPOSSIBLE.



WHEN FUNCTION CAN BE SHAPED INTO AESTHETIC FORM

It is not only the lightness of composite structures that offers multiple application possibilities – the virtually unlimited mouldability of textile composites and resin gives makers maximum design freedom. Low quantity production batches can easily be customised or personalised, making such products highly attractive for specific target groups.



FROM CONSULTING TO THE FINISHED PRODUCT



Whether customers are looking for some auxiliary supplies or one specific tailor-made part – COMPOSYST's extensive product portfolio will provide the perfect solution. The offered materials are perfectly in line with the processes used by different customers. The interplay of carefully chosen materials and the product development process determines subsequent part quality and increases overall production efficiency. That way, modern composite technologies are at their most impressive, realising their full potential.

At COMPOSYST, customer service comes first. Customer needs and requirements regarding material and product design are analysed thoroughly to find the optimum solution, always considering innovative technologies.

The latest product information and technical data sheets are available under Downloads.

www.composyst.com



SUPPORT

One COMPOSYST core competence is the provision and development of customer-specific manufacturing technologies. It is the goal to grow existing capabilities of customers and to help them win new markets.

This approach relies on extensive corporate expertise from the different disciplines of aerospace, wind energy and marine engineering. Whenever possible, new and innovative developments in materials and processes are incorporated.



(TECHNICAL) CONSULTING

- ▣ Design Engineering Support
- ▣ Concept Development
- ▣ Cost Calculation
- ▣ Manufacturing Support
- ▣ Project Management
- ▣ Prototyping
- ▣ Small Batch Manufacturing
- ▣ Production Engineering

SALES AND DISTRIBUTION

- ▣ VAP®-membranes for Different Resin Systems
- ▣ Supplies for Vacuum Infusion
- ▣ Industrial Textiles (Spiral, Textiles, Curve Textiles, Gussets ...)
- ▣ Preform Profiles (T, LZ, I, C – Built to Customer Specifications)

TOOLMAKING

Tools for Infusion Technology

- ▣ Development Engineering
- ▣ Design
- ▣ Project Management
- ▣ Production Engineering

TRAINING

- ▣ Plastics Technology Fundamentals
- ▣ Introduction to Vacuum Infusion
- ▣ Customer-Specific Training





WE ARE AWARD-WINNING!



Uwe
Tiltmann

Managing Partner
Composyst GmbH



Stefan
Utecht

Managing Partner
Composyst GmbH

Our business has flourished steadily over the last couple of years. With our team of subject matter experts, we have quickly earned a good reputation, be it as consultants, developers, designers, planners or fabricators. We think outside the box and will

continue to do so in the future. This character trait will help us to implement bold ideas and turn vision into reality. That is how it was in the past, how it is in the present, and how it will be in the future.

THE FUTURE AND THE LIGHTNESS OF BEING

Great things already cast their shadows ahead. After continually developing our business over the years, we are looking forward to 2019, as we plan to move into our new corporate headquarter.

The building site has been purchased and we are now moving from planning into implementation. We will have new, modern design and production facilities plus lots of additional space for implementing whatever innovative ideas we can think up in the future. We are full of joy looking forward, curious to see whatever new challenges our customers have in store for us.



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