

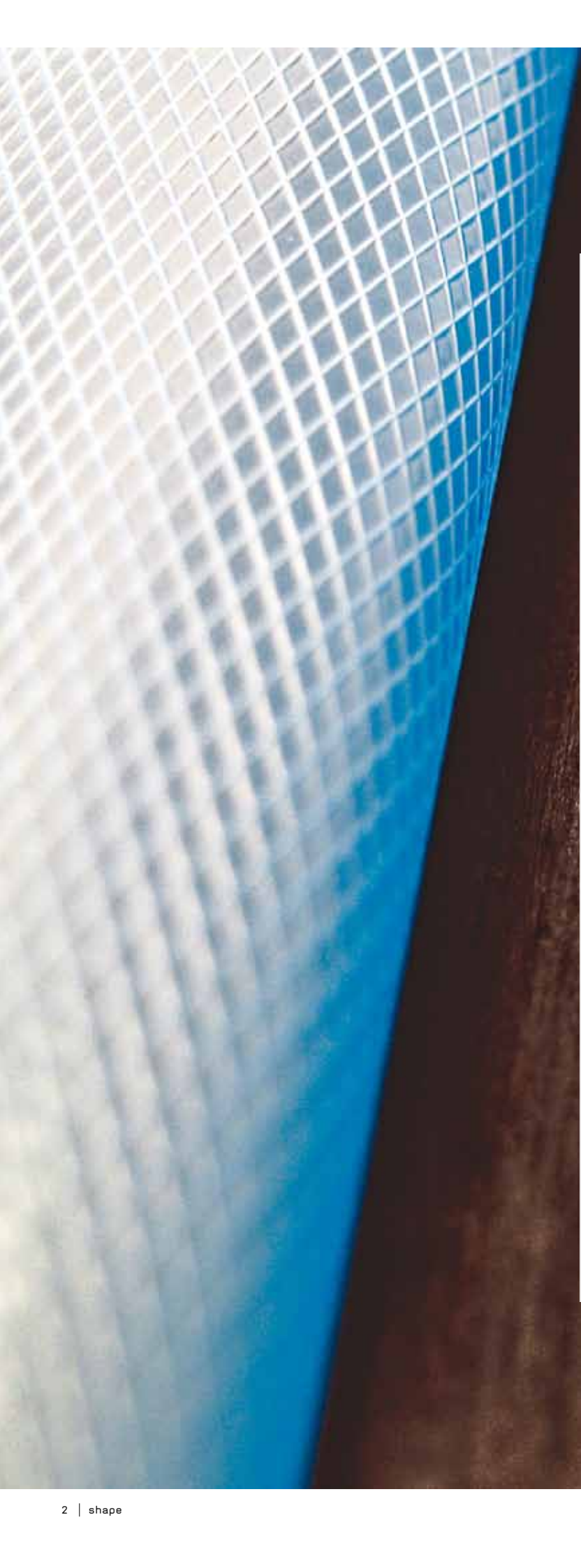


Gurit

shape

The Gurit Magazine
Issue 10, March 2012

Arrival of the first wind turbine blade mould in South Africa.
New world record in circumnavigation. Gurit materials fit for
structural applications. Engineered Structures – a new growth
initiative. Carbon fibre prepreg solutions.



Dear Reader

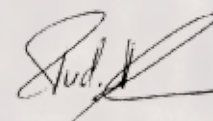
Gurit is firmly back on its profitable growth path. In 2011, we clearly benefitted from our focused strategy execution of the past years. We achieved sales growth of 23%—on an exchange rate adjusted basis—and solid EBIT margin of 9%. These results are a consequence of several years of strategic business model refinements. Instrumental in this respect were the enhancements of our product offering through the rapid build-up of a complete core material range and the addition of our tooling business, our enhanced global market coverage supported by our own distribution network in Wind Energy and Tooling which resulted in the much wider customer base we serve today. Most of our target markets were rather challenging in 2011. We saw recession situations in various markets, a market downturn for renewables in China and financial liquidity issues in many markets. This makes our achievement even more remarkable and gives us confidence that our business model has gained traction and robustness.

The most significant steps forward in 2011 were the acquisition of the balsa core material business which completed our core offering, the rapid global market penetration with blade moulds manufactured at our operations in Taicang/China and the growth achieved in the US market in our carbon fibre prepreg business which supports the build of light-weight blades that will be installed in sites with lower wind speeds.

Gurit has also formed a new Engineered Structures organisation in 2011 to foster new composite applications in order to launch a next growth initiative at Gurit.

The outlook for 2012 is one of optimism and confidence, however, there are two major uncertainties in the wind energy market: The future developments in the Wind Energy markets in China and the United States are hard to forecast. At the same time, there are growth opportunities in the Marine market which is recovering gradually since 2009 in most world areas. Additionally, there are organic growth opportunities in the Transportation business based on the growing aircraft build rates.

Yours sincerely
Rudolf Hadorn CEO



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Imprint: Gurit Holding AG, Group Communications

Editor in Chief: Bernhard Schweizer

Thank you for your feedback at SHAPE@gurit.com

Pictures courtesy of I-WEC (Cover, 14, 15, 16), Airbus (6, 7, 25), Th. Martinec / BPCE (8), B. Stichelbaut / BPCE (9),

Open Hydro Tidal (11), SL-Rasch (12, 13), Swiss International Air Lines AG (21),

Liebherr-Aerospace Toulouse SAS/W. Piekenbrink GmbH (20)

Concept and Design: Gurit Group Communication and Eclat AG, Erlenbach

GURIT AUTOMOTIVE HONOURED WITH THREE BUSINESS AWARDS

Gurit's Automotive business won three awards at the Isle of Wight Chamber of Commerce Business Awards for Excellence ceremony in late November at Cowes Yacht Haven. As a leading manufacturer of carbon composite body panels for the automotive industry, Gurit Automotive was presented with the award for International Business, the Manufacturing and Technology award and the Business of the Year award. Martin Starkey, Managing Director of Gurit Automotive, comments, «I'm hugely proud of the whole Automotive team receiving recognition from the Isle of Wight Chamber of Commerce. Supplying companies like Aston Martin, Porsche and Rolls Royce does not happen by accident, it happens because of hard work, dedication, and attention to detail.»



GURIT (CANADA)'S PROJECTS STAND OUT AT BEST BUSINESS PRACTICES EXHIBITION

Gurit (Canada) put up two presentation booths at the Best Business Practices Exhibition in Montreal last November: On one stand Gurit highlighted its software based training project which we featured in the last issue of SHAPE. The other stand talked about an ongoing improvement project in the area of Corecell™ structural foam production (see SHAPE, Issue 08). Both presentation booths met with great interest. The organisers of the exhibition even included a Gurit stand in the official tour they put together for the visit of Quebec's minister for economic development, innovation and export, Sam Hamad.



The continuous improvement project highlighted at the exhibition focused on the creation of a seamless production process at the Corecell™ structural foam works covering the important manufacturing steps of slicing and final inspection of the Corecell™ blocks. The whole process had been split into various individually analysed «Kaizen» steps. Kaizen is Japanese for improvement.

«We decided to split the whole project between two teams. With this set up, we were able to bring in all the important experience and know-how we collectively share at Magog in operations, maintenance and technology», commented Charles Boudreau, who coordinates the ongoing improvement projects at Gurit (Canada). A so-called SMED project (Single Minute Exchange of Die) was successfully completed by one of the teams. This achievement led to a substantial improvement in terms of uptime of the equipment as it greatly reduced set-up times. The other team managed to significantly reduce internal transport needs by synchronising process steps such as slicing, inspection and packaging physically closer together in one work cell and synchronising these activities better. The optimised process synchronisation finally implemented was the result of testing and evaluating five different layouts: the whole inspection process was split up into various tasks in order to more flexibly address previous process bottlenecks of this production unit. The IT department developed together with the help of staff employees and supervisors a specific software to visualise the process and its results.



The success of these improvement measures helped create a new kind of team spirit on the shop floor and it demonstrated that the whole organisation is committed to further ongoing improvement projects. The participation of two team delegations at the Best Business Practices Exhibition was a great way to underline the importance of the achievements.

Die Nachrichten aus den Gruppengesellschaften berichten von Preisen, die Gurit Automotive erhalten hat und von Erfolgen der kanadischen Kolleginnen und Kollegen mit Projekten zur laufenden Prozessverbesserung.

GURIT HONOURS EXCELLENT ATHLETE AND CRICKETER

As featured in the last issue of SHAPE, the Gurit (UK) Award for Excellence scheme has been running for over a decade and is designed to assist those based on the Isle of Wight, who are striving to achieve excellence in a sporting activity, or in the creative or performing arts. An award of GBP 1,000 is issued quarterly to help the recipient with their continued pursuit of excellence. Gurit believes that when people strive for excellence in their field of interest they benefit by gaining skills and confidence. Please meet our latest two winners:

Jessica Andrews won the September 2011 award. She has been involved in middle and long distance running for the past three years and in this short period of time has developed into one of the Isle of Wight's most promising talents. During last summer's track season, Jessica showed her potential to run at the highest level by winning the 800m, 1500m and steeplechase at the County Championships.



Jessica then went on to compete in the UK Junior Women 1500m and was selected for the County Senior team, where she finished 4th in the National Inter County Championships in Bedford. Jessica also qualified for the English Schools Championships and ended the season with an impressive ranking of 7th in the UK.

As a result of her outstanding performances, Jessica was selected to compete alongside the world's top athletes in a 3000m race for elite junior women in the Samsung Diamond League meet, at the Crystal Palace National Sports Centre in London, UK. Jessica will continue to train six days a week and plans to use the award to allow her to join other UK athletes altitude training in Kenya, which will be of huge benefit to her long term development within the sport.



Adam Hose is our December 2011 winner. 19-year-old Adam began his cricketing career at the tender age of six, becoming the youngest player in history to play for the Ventnor Cricket Club on the Isle of Wight. For the past two years he has been batting with the Ventnor Cricket Club in the Southern Electric Premier Cricket League. Adam has recently been offered a contract to join the MCC Young Cricketers Programme

at Lord's, the home of English cricket. This opportunity is a great honour and achievement for Adam, who will benefit from expert coaching, intensive playing programmes and the world-class facilities on offer at Lord's. Many MCC Young Cricketers go on to enjoy successful careers in county or international cricket. Notable graduates include Sir Ian Botham and Phil Tufnell. In addition to the programme, Adam will travel to Adelaide, Australia in January for three months, to receive coaching at the world famous Darren Lehmann Cricket Academy where he hopes to gain even more experience and recognition in the sport.



SPROUTING OF MOUSTACHES TO RAISE AWARENESS FOR MEN'S HEALTH

During November each year, an initiative called MObember is responsible for the sprouting of moustaches on thousands of men's faces in many countries around the world. The aim of MObember is to raise funds and awareness for men's health, specifically prostate cancer and other cancers that affect men. On November 1st, a number of Gurit employees from various sites around the world signed up to take part in this year's MObember campaign. The Gurit «Mo Bro» started off clean shaven into a month of growing and grooming their moustache and advocating issues of men's health. Congratulations to everyone who took part. Gurit's total amount of money raised was GBP 554 from the UK and NZD 1410 from New Zealand. Globally, the campaign was supported by 854,958 registrations who jointly raised GBP 75,763,724.

Gurit UK hat eine Athletin und einen Cricket-Spieler für ihre Leistungen ausgezeichnet und im Rahmen der weltweiten «MObember»-Kampagne Geld gesammelt, um auf Männer-Krankheiten aufmerksam zu machen.

SUITABLE FOR STRUCTURAL APPLICATIONS

Gurit is one of the world's leading suppliers of preregs for aircraft interiors. Apart from being light-weight and offering unique physical and mechanical properties, these materials need to comply with the most stringent of fire, smoke and toxicity standards. The high temperature tolerance of Gurit's prepreg PN900 is a decisive argument for its use in structural applications, too.

Gurit's prepreg material PN900 is widely used in today's large commercial aircrafts. It is the material of choice for airduct applications both at Airbus and Boeing. These channels, which distribute the ambient air into the cabin, need to be made out of a material that is absolutely tight and complies with the most stringent fire, smoke and toxicity(FST) standards.

In addition, PN900 provides a mechanical performance equivalent to aerospace grade epoxy materials. Premium AEROTEC and

Xperion, two German suppliers of Airbus, were screening the market for a composite material that fulfills the required flammability standards. Finally, they opted for Gurit's PN900.

This material not only has a long-standing qualification tradition for aircraft interior applications, but it also clearly provided the required mechanical and temperature performance for a primary aircraft material structure while offering a FST performance currently not found in composite materials for primary aircraft structures.

A WELL-ESTABLISHED SUPPLY CHAIN

The challenge Xperion and Premium AEROTEC faced was to find a material with mechanical and FST performance to build brackets to fix electrical wiring harnesses at the aircraft frames. PN900 was thus selected to manufacture the brackets for the first two Airbus A350 aircrafts and Xperion will use the material for its full 2012 A350 XWB production. Gurit (Zullwil) supplies the prepreg material to Xperion in Immenstaad. This company specialises in transforming



both thermoplastic preregs through continuous compression moulding and thermoset materials through conventional moulding processes. They use PN900 to manufacture long profiles which are then cut and machined by



A finished composite bracket.

Premium AEROTEC located in Augsburg into the final brackets. The close cooperation with Gurit Transportation during the evaluation process was one of the key elements to rapidly find the right material solution leveraging Gurit's FST core competencies into structural applications.

LEVERAGING FIRE, SMOKE, AND TOXICITY CORE COMPETENCIES FOR STRUCTURAL APPLICATIONS

«PN900 is a blended resin. While one component of the resin is key to manufacture

a fire resistant, low smoke and non-toxic composite, another component makes the product more suitable for structural purposes,» explained Dr. Reinhard Kreuder, Head of Aerospace Resin Development at Gurit. While additional shipments of this highly specialised product will be limited to a couple hundred square metres per aircraft, it represents an important step into structural aircraft applications for Gurit.

Gurit Prepregs werden in den A350 Flugzeugen von Airbus neu auch für gewisse Strukturanwendungen eingesetzt.

BANQUE POPULAIRE SETS NEW RECORD FOR JULES VERNE TROPHY

Record

45 days

13 hours

42 minutes

53 seconds



In Jules Vernes Roman brauchte Phileas Fogg 80 Tage für seine Reise um die Welt. Die Crew von Banque Populaire V schaffte es in weniger als 46!



Almost twice as fast as Jules Verne's Phileas Fogg

The Jules Verne trophy is named after the French author who published the novel *Around the World in Eighty Days* in 1873. In the novel, the eccentric Victorian gentleman, Phileas Fogg makes a wager for the staggering amount of £20,000 with the members of London's Reform Club that he can travel around the world in only 80 days. He sets out from London on a fast-paced race around the globe, accompanied by his French servant Passepartout—to win against all odds thanks to his unwavering determination and some luck.

For sailors the race is still on. A new record has been set, and is now fast approaching half of Phileas Fogg's 80 days: On Friday, January 6, 2012, Banque Populaire V, a racing trimaran, crossed the finish line between Lizard Point in Cornwall and Ushant in Northern France. The crew completed the circumnavigation of the globe in just 45 days, 13 hours, 42 mins and 53 seconds. The previous record stood at 48 days, 7 hours, 44 minutes and 52 seconds and was set by the Groupama 3 crew in 2010.

Skipper Loick Peyron recently spoke to The Daily Sail website about the winning boat: «A lot of work has gone into this over the past three years, particularly in terms of sailing and I arrived just after this development had taken place, ready for this world tour. What is impressive is that on this kind of voyage multihulls often start showing cracks, but on this there is no sign of structural weakness.»

SP-High Modulus, the Marine business of Gurit, formed part of the engineering team during the build of Banque Populaire V and have also advised during her refits. Our avid SHAPE readers may recall when we featured this spectacular build back in 2009. The engineers at SP-High Modulus take pride in Banque Populaire's achievement and Loick Peyron's comment. All of us at Gurit would like to congratulate the crew of the Banque Populaire V for their record-breaking achievement in the Jules Verne trophy. The trophy is a prize for the fastest circumnavigation of the world by any type of yacht with no restrictions on the size of the crew, provided the vessel has been registered with the organisation and an entry fee has been paid.

GIORGIO VISMARA AT THE HELM OF MARINE AT GURIT

Giorgio Vismara joined Gurit in mid January 2012 as new General Manager Marine. Giorgio follows Graham Harvey in this position who has taken on the lead in Gurit's new target market area Engineered Structures.

Giorgio Vismara is an Italian citizen and well known in the global marine world. His last position before joining Gurit was General Manager with Vismara Marine Srl, a premium yacht designer and boat builder based in Viareggio/Italy. Giorgio holds an MBA as well as a master's degree in Marketing. His professional career includes various positions in marine companies. He is truly familiar with the global marine market and has a profound understanding of the technical issues of this demanding industry.

Giorgio has moved to Newport, Isle of Wight/UK from where he will lead Gurit's marine business, best known under its product and service brand SP-High Modulus.



«ENGINEERED STRUCT A STEPPING STONE TO

In order to more rigorously address rising market opportunities for composite applications, Gurit announced in September 2011 the creation of Engineered Structures. This new business unit combines together Gurit's world-leading composite structural engineering skills, its business development focus and the established resources to build prototypes of almost any nature, providing a design to manufacture capability for our clients.

While Engineered Structures will continue to support the engineering needs of Gurit's traditional strongholds in our existing target markets, the new venture is also addressing the full value chain for new markets, where the benefits of composites haven't yet been fully developed. As more and more industries discover the advantages of composite materials, Gurit positions itself as a technology leader and potential partner with a comprehensive service offering encompassing conceptual design, structural engineering, material selection, rapid prototyping services and component manufacturing. «We are currently witnessing the emergence of many new industries. While we have been supporting innovative composite applications in the context of our business development efforts, we feel it is now time to flag to the markets that we have a truly unique service, competencies and product offering for them,» commented Rudolf Hadorn, CEO of Gurit. «The creation of Engineered Structures is the start of a next growth initiative for Gurit.»

Graham Harvey who has led the Marine Business of Gurit during the past years, is now managing this new venture while Giorgio Vismara has taken over as General Manager Marine (see also article on left). Graham is now leading an international team of around 50 people, predominantly made up of engineers specialising in various fields. The engineering teams are located in Europe, North America and New Zealand. In Europe, they are supported by a highly skilled

URES: NEW GROWTH OPPORTUNITIES»

composite technology specialist team at Gurit's prototyping unit. «Our prototyping team is led by Iain Cranwell who has just returned to Gurit (UK) after having spent two years with Red Maple in China as R&D Manager,» Graham commented. The prototyping capability supports the business development aims of the Engineered Structures unit through producing quality prototypes, effective project management, development of manufacturing concepts and ultimately providing the foundations for an emerging component manufacturing business.

«Engineered Structures is in some ways a business incubator, too, to find and grow new interesting businesses outside of Gurit's existing markets,» Graham Harvey added. One of these first areas is the ocean energy market where Gurit has already gained some important analysis and engineering consultancy as well as prototyping and component building contracts. Another market Gurit focuses on is the use of composites for architectural applications. One high profile example of what composites will increasingly be used for in

architecture is the facade cladding of the Makkah clock tower, in the Kingdom of Saudi Arabia, featured over-leaf in this edition of SHAPE. Such applications are especially interesting from an engineering and a materials supply point of view.

«We believe Gurit has a lot to offer when it comes to help set up new industries where there are no established supply chains yet,» says Graham Harvey. Apart from engineering advice, Gurit can bring in its prototype manufacturing and its kitting capability to allow customers to achieve higher building efficiencies. «Ultimately, we could see a situation where we even assist future customers build large series of innovative composite parts even in higher series numbers. Today, we can offer the latest in prototyping skills and we can handle one-off builds. We don't have an established parts production yet. However, we have important experience when it comes to industrialise projects – as we have shown in our Automotive business,» says Graham Harvey, «and we are committed to leverage our unique capabilities into new markets.»

Mit Engineered Structures hat Gurit eine neue Unternehmenseinheit geschaffen, die neue Anwendungsmöglichkeiten für Verbundwerkstoffe und damit weiteres Wachstum erschliessen wird.



WORLD'S SECOND TALLEST BUILDING FEATURES GURIT COMPOSITES

The recently inaugurated Makkah clock tower, the central tower of the Abraj-al Bait development in Makkah, in the Kingdom of Saudi Arabia, features fibre reinforced composite materials and structural engineering from Gurit.



At 607m tall the building is the second tallest in the world. The top 200 metres of the tower are clad with over 40,000m² of advanced fibre reinforced plastic composite panels. This includes the world's largest clocks: 43m in diameter, with 23m long minute hands. The cladding of the tower top includes intricate calligraphy and ornamental patterning, finished in glass and ceramic tiles. Illumination of the clock hands, clock faces and media wall, called for over two million LEDs to be integrated into the cladding panels.



TOOLING AND FABRICATION MATERIALS

Gurit worked closely with the tower top designers, SL-Rasch (Stuttgart, Germany), to carry out the structural engineering of the composite tower top cladding, clock hands, and the 23m diameter crescent, a self-supportive fibre reinforced plastic composite structure which is located at the very top of the building. Gurit supplied a range of advanced composite materials to Premier Composites Technologies in Dubai, United Arab Emirates, who carried out fabrication and installation of the cladding, clock face, clock hands and crescent. The material shipments included a new fire retardant wet laminating system, called Ampreg 21FR, which was developed for lamination of the facade. Lamination was carried out on direct CNC cut moulds fabricated using T-Paste, Gurit's tooling paste, on a polystyrene blank block. The easy machining, low cure shrinkage and high level of detail achievable with T-Paste, enabled rapid production of accurate direct moulds for the part production.



CARBON FIBRE CLOCK HANDS

The clock hands represented an interesting challenge due to their long slender geometry and the potential for high wind loading. The clock hands were manufactured using Gurit's WE91-2 carbon fibre prepreg material and **Corecell™** T-Foam structural core. Gurit originally developed WE91-2 and **Corecell™** T-Foam for use in modern large wind turbine blades. The excellent stiffness to weight ratio of the carbon WE91-2 prepreg combined with the mechanical properties, toughness and low resin uptake of **Corecell™** structural core enabled the realisation of a lightweight, stiff clock hand.

Dr Mark Hobbs, Senior Engineer at Gurit Engineered Structures commented: «This has been a fascinating project to work on. It has presented numerous challenges, from the sheer scale and complexity of the project, to the integration of finishes and lighting into the cladding panels. It has been a pleasure to work as part of the talented multinational design and production team to find ways to realise the vision of the client and architect using advanced FRP composite materials. This project has made full use of Gurit's wide range of expertise in the technology of advanced fibre reinforced plastic composite structures, including materials development, processing, testing and structural engineering, and I think that we can be proud of our contribution to this landmark project.»

Gurit Materialien kamen für die Fassadenverkleidung und die riesigen Zeiger des Makkah-Glockenturms zum Einsatz.

WINDS OF GOOD HOPE

In October 2011, South Africa witnessed the arrival of Africa's first large turbine blade mould by ship from China. The mould was manufactured at Red Maple, the Tooling business of Gurit, for the South African wind power company Isivunguvungu Wind Energy Converter (I-WEC). I-WEC will use the mould to manufacture Africa's first multi-megawatt turbines locally.



Thomas Schaal watches the mould arrive.

The goals are lofty, indeed. South Africa expects between 1,500 and 2,000 MW of wind power capacity to be installed by 2015. The local South African wind turbine manufacturer Isivunguvungu Wind Energy Converter (I-WEC) has identified this as a big opportunity. I-WEC is the first African company to build large multi-megawatt wind turbines

locally. To achieve this, I-WEC ordered a first state-of-the-art turbine blade mould from Red Maple. With a capacity of 2.5 MW—nearly double of the currently installed 1.3 MW turbines in use in South Africa, the I-WEC turbines will feature 50m long blades. SHAPE spoke with **Thomas Schaal**, financial manager and spokesman at I-WEC.

SHAPE: How did you feel when you saw the blade mould arrive?

Thomas Schaal: It was fantastic to see the giant mould arrive, and to realise that we were at the beginning of building up a brand new wind turbine manufacturing industry in Africa with this new technology. Getting the mould off the ship, heaving it onto the truck and into our workshop area was the culmination of more than two years of hard work and intense preparation and meant overcoming a multitude of complicated logistics.

After unwrapping the huge mould, our engineers said birthdays and Christmas will never be the same again! The South African press and our local suppliers were also very excited about the new arrival and have given us wonderful support so far.

Tell us more about your company.

I-WEC was founded by **Dr Michael Kast** and myself in 2009. I have a background in international banking. Dr Kast is a metallurgical engineer by training who has specialised in the manufacture of high pressure piping systems for power stations since the 1980s. He has been involved in the wind turbine industry since 2000, producing components for wind turbine prototypes and facilitating series production. Since 2009 we've recruited six top engineering graduates from South African universities and 15 previously disadvantaged technicians from the economically depressed





Dr Michael Kast sees a grand future for wind energy in Africa.

West Coast of South Africa, who have received specialised training in rotor blade manufacture. We have already created 30 permanent jobs and plan to raise this number significantly over the next few years. The engineering and the design of our wind turbines are based on proven and certified technology provided by one of the leading engineering companies specializing in wind energy converters, Aerodyn Energiesysteme GmbH, which is located in Germany. The I-WEC wind turbines fully comply with the IEC standards. South African heavy engineering company DCD-Dorbyl is a majority stakeholder in I-WEC.

When did you realise that wind energy presents a big opportunity for South Africa? South Africa has always relied on coal and nuclear power sources, but over the past few years the South African government has come to recognise the importance of renewable energy sources. We did our research and found that the Western Cape province in South Africa was an ideal location for wind farms, not only because of the geography and weather conditions, but also because we have all the expertise, manpower and scientific and academic resources here to develop a world-class wind energy

sector. The timing of our launch also worked out well as it came a week before the United Nations Climate Change Conference 2011 (COP17) in Durban, South Africa when the world and South Africa's attention was firmly focused on renewable energy. Our company is perfectly positioned to benefit strongly from recent developments in local energy politics and subsequent changes in demand for wind turbines.

Is this your first mould altogether?

Yes, this is our first mould, so we're writing the book as we go along. We are fortunate to have great engineers and support from

We are at the beginning of building up a brand new wind turbine manufacturing industry in Africa.

local universities and local and international partners. In the initial manufacturing phase we are being assisted by various suppliers and partners, who have vast experience in manufacturing wind turbine moulds of this size and standard. The mould was brought in from Shanghai in China to Table Bay Harbour in Cape Town. Our workshop is also in the Table Bay docks. It was lifted off the ship with a special crane and transported to our workshop by two abnormal load trucks. To get it off the ship and into the workshop was quite a delicate operation and took two full days to complete.

At Gurit, and Red Maple in particular, we are proud of shipping a first 42-ton blade mould to South Africa. Why did you choose Red Maple as supplier?

Our licensor Aerodyn in Germany referred us to Red Maple, saying that Red Maple was the most experienced supplier of rotor blade moulds.

What was it like working with Red Maple?

Red Maple was always very flexible and driven to find solutions in tricky situations, also during the phase of concluding the supply contract. Red Maple gave us good support. A team from Red Maple was on site for three weeks to assist in the implementation and commissioning of the mould. The entire process was superbly engineered. We received our mould without major delay or damage. We are happy and eager to start production now.

Does I-WEC build the whole turbines or just the blades?

I-WEC is now setting up a complete operation, including blade production, assembly shops, as well as erection, service and maintenance facilities, to become a fully operating wind energy converter manufacturer in South Africa. I-WEC manufactures the blades and assembles the turbine while DCD-Dorbyl will build the tower. Some components, like gearboxes, are still being imported, but we are in negotiations with local companies to make gearboxes for us as soon as production picks up and it becomes a viable business for them. I-WEC strives for a high local content and estimates 60–70 percent localisation from the beginning of



operation. We have started to manufacture blades at the end of 2011 after successfully conducting extensive training sessions for key personnel with the support of Aerodyn. We intend to build six wind turbines over the next year and a half: a first unit plus a pre-series of five units. The series production is scheduled to start in early 2013 and we strive to produce 50 units per annum in year 1 and 100 units in year 2 of series production. The ultimate output will be 200 wind turbine units per annum.

Where and when do you hope to erect the first turbine?

Our first turbine will be erected at the steel giant Arcelor Mittal's plant in Saldanha in March 2012. In fact, we are planning to move operations from Table Bay Harbour to Saldanha as well in the next 18 months. Saldanha offers very favourable infrastructure and conditions in this area. Land has already been identified and secured.

What are the current objectives for wind energy in South Africa and in the neighbouring countries?

South Africa is one of the world's 15 worst emitters of CO₂. In 2009, the South African government committed at Copenhagen to bring down emissions by 30 percent by 2020. The South African Department of Energy (DoE) has also set a target for South Africa to

produce 10,000 GWh of energy from renewable energy sources by 2013. This is equivalent to about 5 percent of the present electricity generation in South Africa. 2013, and even 2020, are around the corner, so there is a lot of work to be done. However, South Africa has big problems with unemployment and poverty, and coal powered energy was long considered the most affordable energy option for the country, so the government will only seriously support the renewable

Red Maple was at every time very flexible and driven to find solutions in tricky situations.

energy sector if local jobs and other impactful economic spin-offs are created. It must however be said that electricity prices are soaring and consumers are looking for alternatives. Coal-fired power generation is no longer a sustainable source of primary electricity production due to finite supply of coal deposits and current international trends in carbon emission reductions. Renewable energy generation is also a growing priority in Sub-Saharan Africa, where infrastructure and economic activity are booming in some economies, and clean power will be a strong

draw card for investment. We have an export licence and will be looking to various African markets for the export of our home grown African turbines to cater to their changing energy needs.

What economic spin-offs do you expect to generate?

The wind energy sector has huge job creation potential. South Africa's unemployment rate is estimated to be between 25 and 30 percent and the country is lagging behind other comparable developing economies in terms of participation in the labour force. Manufacturing has always been an important source of jobs in South Africa, but the global recession and other economic factors have put a strain on this sector.

The creation of a local wind energy manufacturing sector is a welcomed project, because our R100-million investment would create between 70 and 100 direct jobs in the Western Cape, in the next two years and at project peak depending on market conditions – about 400 direct jobs in the next five years.

Die Ankunft einer ersten Bauform zur Herstellung von Windrotorblättern in Südafrika bildet den Startpunkt für eine neu entstehende Industrie in Afrika.



RACING AHEAD TO MEET FAST-GROWING AUTOMOTIVE DEMAND

Gurit Automotive recently completed the expansion of its manufacturing facility to meet surging demand for its Class-A carbon body panels. It was the biggest single investment in the facility in five years. This step promises to be more than just a quick spin for Gurit Automotive.



Gurit opened its Tier1 automotive carbon composite part production facility at its UK manufacturing site in Newport/Isle of Wight in 2007. Initially designed to deliver carbon composite, Class-A body panels for one exclusive car model, with an annual build of 400 vehicles, the facility has seen strong demand from its early days.

To date, the facility has produced carbon composite body panels for over 3,000 vehicles, from some of the world's most prestigious OEMs and in total over five vehicle platforms. The success of Gurit's SPRINT® CBS materials technology, which enables the production of Class-A carbon body panels featuring a perfect surface directly from the tool, whilst utilising an out of autoclave moulding process, has driven advances in every area. From quality management systems, such as ISO 9001, through to TS16949, from pre-series engineering, to total composite design capabilities and from simple primer painting, to total colour matched OEM quality paint application, every area of the business has advanced to meet the growing demand of this dynamic market.



The growth resulted in a facility that had reached its ultimate capacity. This combined with a significant new contract for 2012 and beyond, resulted in the largest investment in the Gurit Automotive manufacturing facility since 2007. The expansion, which is now completed, brings additional capacity in several key areas, most notably material kit manufacture, mould shop, body panel assembly, paint application and final quality assessment. In turn the investment has increased the available shop floor production area from 1,350m² increasing to 2,530m².

Gurit is fast establishing itself as a leading supplier of Class-A composite body panels to the high-end automotive market, and is now ready to accommodate further growth in 2012.

Gurit (Automotive) hat unlängst erweiterte Produktionsanlagen in Betrieb genommen.

BUILDING WIND TURBINE BLADES WITH CARBON FIBRE SPARPREG™

In the last edition of SHAPE, we discussed the utilisation of high performance carbon fibre in wind turbines from a structural design perspective. We learnt about the design drivers for using carbon fibre. Today we want to talk about the technical hurdles one has to overcome to incorporate carbon into a component such as a spar cap on an industrial scale. Development efforts at Gurit are addressing these challenges.

Carbon is used primarily for its high stiffness. In wind turbine blade manufacturing, this results in a high blade rigidity that enables long and slender blades to be designed. The carbon fibre also has to withstand compression loads and, as a consequence, the fibres need to be kept straight and to be consistently supported by the surrounding resin to prevent buckling. Collimated fibre formats like prepreg provide a good starting point but there are additional challenges to maintain fibre straightness and prevent voiding during the application and cure of thick section spar components.

ALLOWING PLYS TO BREATHE DURING EARLY PROCESSING STAGES

Conventional prepreps are processed using vacuum bag technology to remove the air between the plies prior to consolidation and cure. However, as laminate thickness increases it is difficult to maintain high quality low void content laminates without the use of multiple de-bulking steps and/or the use of high pressure autoclaves to consolidate the plies. However, due to the size of carbon spar caps and the manufacturing cost targets it is not feasible to use multiple process steps or expensive capital equipment. To address this challenge, Gurit has developed specialised prepreg products that enable the manufacture of high quality large structures for the wind energy market. The new product range called SparPreg™ features a modified surface that enables air to breath between the plies during the early stages of processing to enable the removal of inter-ply voids.

AVOIDING WRINKLES IN THE LAMINATE...

Whilst it is important to maintain voiding within the laminates to a low level (2–4%) and to ensure individual voids are small in size (< 1–2mm diameter) what is more critical is to avoid the introduction of wrinkles in the laminate. A wrinkle of even small amplitude can produce an area of laminate that would be more susceptible to buckling under compression loading. The avoidance of wrinkles is a significant challenge in spar cap manufacture due to the geometry of the component. The tooling often has a double curvature profile which requires the prepreg material to have significant drape capability and wrinkling resistance. This can prove to be a challenge for a number of reasons: the prepreg is typically only 500–600 microns thick and therefore is generally susceptible to buckling if not handled carefully; the drape increases with temperature but the removal of inter-ply air decreases rapidly with temperature reducing the process window for good drape characteristics; and the draping of a prepreg is a time dependent viscoelastic process which prevents rapid deposition using automated application techniques.



Laminate Wrinkle



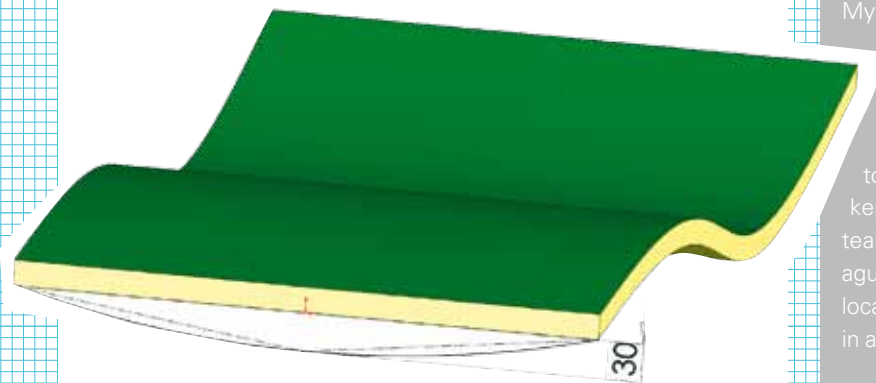
Low void content of 0.35% achieved with Gurit SparPreg™



With standard prepreg voids form between plies. Void content 3.25%

...IN A 2-STEP PROCESS

To overcome the conflicting material characteristics, a 2-step approach can be taken to manufacture spar caps with high quality and cost effectively. In step 1, a consolidated laminate preform is manufactured on a flat tool to remove all of the inter-ply air without requirement of drape (consequently the process can be conducted at lower temperatures to optimise air flow). Step 2 is to transfer the thick, buckling resistant, preform to the spar tool. The preform is then allowed to slowly conform under its own weight to the tool geometry. This can be conducted at higher temperatures to increase draping characteristics.



The 2-step process provides a working solution to the fundamental problems of processing carbon materials and creating a part with the required quality. However, in the longer term it is desirable to create products that can be applied directly to the mould and to eliminate the requirement for strict temperature control during the process. With the additional requirement of high mould utilisation there are a number of technical challenges to overcome. Gurit is thus already in the process of developing a next generation of SparPreg™ materials.

Gurit hat die passenden Lösungen, um die äusserst leichten und sehr stabilen Carbon-Prepregs industriell für die Konstruktion von Rotorblättern von Windkraftanlagen einzusetzen.

Being Gurit

TALKING STATISTICS

Length of service

In the last edition of SHAPE we explored the diversity of Gurit as a global organisation. Reflecting on the recent corporate history of Gurit, we saw that almost 50 percent of our staff joined less than two years ago and that we have very few colleagues who have more than 20 years «under their belt». Today we would like to introduce you to Hans and Lucy. Hans is a long-time Gurit employee with over 30 years of service. Lucy joined Gurit recently. What's their view on Gurit?

Hans Bader, test tool producer at Gurit (Zullwil) in Switzerland, recalls: «I started to work here over 31 years ago, on February 1, 1981. My first job at this site was in prepreg production where I operated one of the big presses. Ten years later, based on the experience gained and additional training, I moved to the testing laboratory where I still work today.» What has kept Hans with Gurit so long? «I enjoy the team work and the well-established relationships with my colleagues in our successful Quality Department. And then, my job is located in the village where I live, in Zullwil, a wonderful small place in a tranquil hilly area, yet close to Basel. What more could I ask for!»



Lucy Charlesworth, joined Gurit in November last year as supply controller at Gurit (UK). «After taking five years out of my career to bring up my young family, now was the right time for me to get back to work. I felt that Gurit, being a dynamic, forward-thinking company, would be a good choice, offering me part-time hours and flexibility. Working part-time enables me to have a good work/home balance. I joined the Operations Planning team on November 7 in the role of Supply Controller. My main responsibilities include procurement, expediting, sundry requisition processing and various reporting activities. This makes my job interesting and diverse.»

MAKING AIR FIT TO BREATHE AT LOFTY HEIGHTS

At cruising altitudes of 10,000 metres, the air outside the aircraft is thin and cold. It needs to be pressurised and temperature regulated to provide a comfortable ambient air condition in the cabin. Gurit supplies materials not only for the airducts that channel the air to the various air nozzles or the individual gaspers over each passenger seat but also high-tech materials with unique physical properties for the so called plenums of the complex environmental control system of an aircraft.

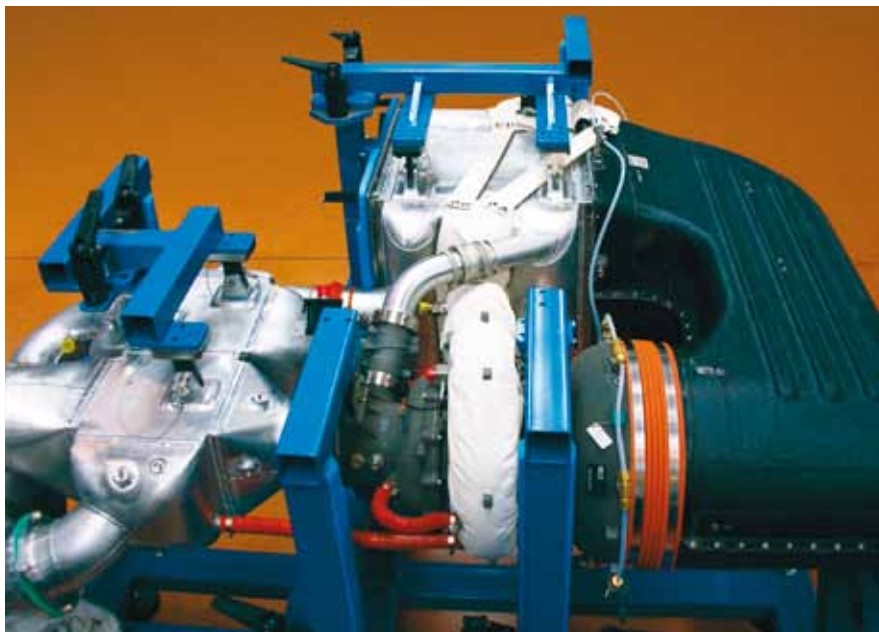


An aircraft's environmental control system (ECS) is key to making travelling comfortable in pressurised aircraft cabins. It provides the supply of pressurised and temperature controlled air into the cabin. On most jetliners, air is supplied to the ECS as so called bleed air from within the engine, after the compressor stages and before the fuel is injected into the burners, i.e. the combustion stage. With typical temperatures of 220–250°C and pressures of around 275 kPa, this air is very valuable for an aircraft. It can be used to de-ice the craft, activate pneumatic devices and to pressurise the cabin. For that purpose, it must however be cooled or even refrigerated by the ECS. Typically, the air-conditioning pack consists of an air cycle machine which operates with a so called ram air heat exchanger.

You may have noticed that most aircraft have little air inlet scoops, generally located on or near the wing-to-body-fairing. This is where the air used for cooling rams into the system. In a first ram air heat exchanger, the hot bleed air is cooled by the cold ram air, a certain expansion of the air or a combination of both. The cold air then enters into a compressor which inevitably reheats the air. So it needs to pass a secondary ram air heat exchanger where the air is again cooled while the high pressure is maintained.

DELIVERING STATE-OF-THE-ART PREPREG MATERIALS

Gurit Transportation produces special prepreg materials which are typically used to manufacture air ducts. These prepreps need to comply with very demanding fire, smoke and toxicity requirements. With peak air temperatures of up to 250°C and continuous temperatures of 220°C as well as high humidity levels the requirements for materials to be used in an ECS are also very demanding. A specially formulated prepreg variant called PN901-G201-45 has been selected for an evaluation by Liebherr-Aerospace Toulouse SAS, a manufacturer of integrated air management systems for commercial and military aircraft. The material is evaluated for the use in so-called plenums, the central air distribution and collection units in an air conditioning unit.



The environmental control system with the black composite plenum on the right.

Liebherr is looking for a material improving the performance of the existing material. The plenums consist of an external housing part made of Gurit composite and an internal diffuser part made of metal. First series deliveries are scheduled for 2012. The plenums are built into the cool air duct between the ram heat exchangers, the air cycle machine and the ram air outlet ducts of the new ECS units of a new aircraft model.

CABIN AIR: HOW IT'S MADE

After passing the ram air heat exchangers, the air runs through a turbine, generating energy to operate the compressor and expanding the air more to cool it further. In the next two air treatment steps, water is flung out of the air in a spiral device and any dirt or oil from the engine bleed air is retained in a water separator coalescer. Now the air is fit to breathe and mixed with the filtered air from the recirculation fans. Cabin air generally consists of 50% outside air treated as described above and 50% filtered cabin air.

Gurit-Materialien werden schon länger für die Lüftungskanäle in Flugzeugen eingesetzt. Neu werden diese feuerfesten Materialien auch in den Klima-Anlagen selber verwendet.

A SUCCESSFUL DEBUT IN THE PET MARKET

The market for structural cores has historically been dominated by end-grain balsa wood, cross-linked PVC foam, and Corecell™/SAN foam. While PET—short for polyethylene terephthalate—is widely used for polyester fibres and beverage bottles, it has only been available in the wind energy market since around 2005.

PET structural cores offer a higher temperature resistance compared with traditional core materials. This initially made it an interesting material for wind turbine blade manufacturers employing the higher-temperature prepreg technology. As a thermoplastic polymer PET is produced in a highly automated, continuous and high-yield extrusion process which allows waste and off-cuts to be recycled. A commercially interesting alternative, PET is now increasingly being used in infusion technology processes for wind energy and marine applications as well as in civil structures and other one-off applications.

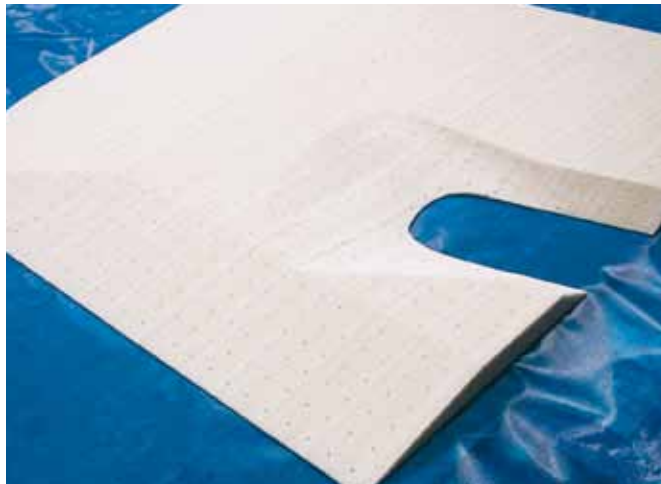
WIDE-EYED AND CONTINUOUS R&D

Bernard Lavoie, PET extrusion line project engineer, recalls: «It took our competitors nearly ten years to develop commercially viable PET foam. At Gurit, we have reached a high level of knowledge in this new field in just two years.» Gurit's G-PET portfolio currently consists of G-PET 80, G-PET 90, G-PET 110 & G-PET 135, all with class-leading toughness, a finer cell structure, and better modulus properties. «Given the young age of this type of foam, there is lots of room for innovation. The reactive extrusion aspect of the process opens up many development possibilities. Our development work also resides in patent reviews, a thorough understanding of mechanical tests, technology watch and the

optimisation of tooling and processes,» says Marie-France Boyaud, a research and development chemical engineer at Gurit.

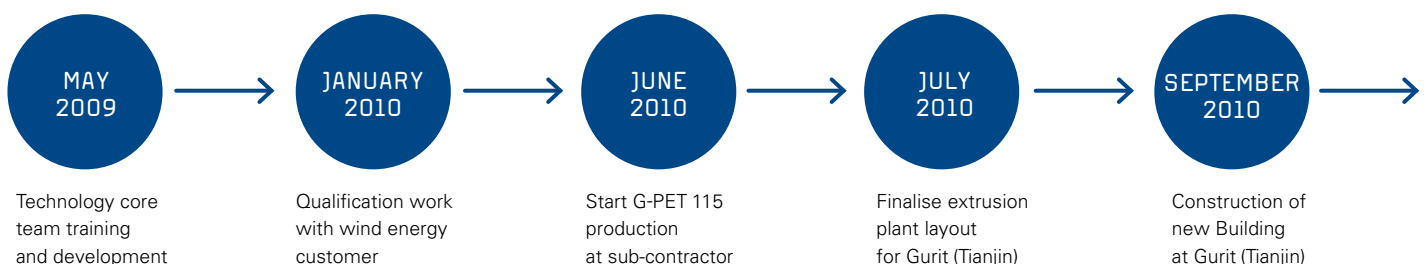
BRINGING TOGETHER GLOBAL R&D AND PROCESS KNOW HOW

«Bringing together Marie-France with her chemical engineering background and Bernard with his mechanical engineering background has led to a broad approach covering all aspects of the development activities,» Alain Leclair says. As development director, Alain was in charge of coordinating this joint development effort.



The timeline of Gurit's entry into the PET market is impressive: «It's only been a year since we completed the installation of our PET foam facility in a purpose-built extension to the Tianjin factory,» explains Phil Harnett, general manager of Gurit (Tianjin). «There

were a few teething problems in the beginning as with any large-scale process equipment, but these were soon sorted out thanks to the combined dedication of our Core Technology, Production, Process Engineering and Maintenance teams.» The production line now runs very stably, a fact not least attributable to the thorough training of the staff.



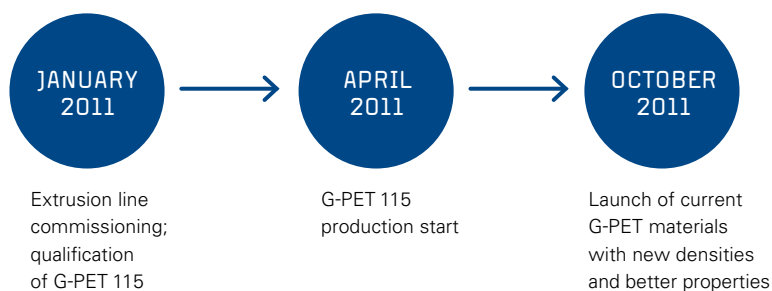


TAKING A CLOSER LOOK AT THE PROCESS

Production of G-PET begins with raw material in the form of virgin and recycled PET pellets, additive master batches and nucleating agents that are mixed and fed into an extruder. The extruder is the heart of G-PET production, generating continuous planks which are trimmed shorter and sanded to remove skins. In a series of proprietary steps, the trimmed boards are then converted into sheets and finally into blocks roughly 3m³ in size. These blocks can then be sliced into sheets with dimensions of 2,440 mm x 1,005 mm in various thicknesses. Some customers prefer to take plain sheets and some prefer contour scrim, drilled, grooved finishes and kitted pieces. The offcuts and the sawdust from each process are pelleted and recycled into the extrusion process thus reducing cost and waste handling.

Over the last year Gurit has been successful in attracting both Chinese and international customers from the wind energy and marine industries. As G-PET complements our offering of **Corecell™**, **PVCcell®**, and **Balsaflex** core materials, we can also offer custom-tailored hybrid kits combining the various materials to meet specific requirements.

In äusserst kurzer Zeit hat sich Gurit erfolgreich als Hersteller von PET-Strukturschaumstoffen etabliert.



HOW TO CRUSH A SANDWICH INTO SHAPE

The demand for fibre reinforced plastic has skyrocketed in recent years. Its use has spread widely and today hardly a plane, car, or ship is manufactured without it. What makes fibre reinforced plastic so popular? Not only does it offer superior mechanical properties at very low weight. It also allows the manufacture of complex designs at an attractive price. Thanks to production methods such as the crushed core sandwich technology more and more industries are taking a serious look at converting to composites.

If weight were the only criteria in making components, then carbon would be the material of choice. But carbon is often too expensive for general use applications such as aircraft interior parts. In addition, the stiff carbon laminates hardly dampen sounds which can cause acoustic reflection issues. So glass fibre reinforced plastic is used. While this material offers additional design freedom, components solidly built of glass fibre reinforced plastics hardly offer any weight benefits compared to aluminum parts.

Material	Process	Density	Thick-ness	Weight of part	Relative Weight
		g/cm ³	mm	kg	Index
Steel	Stamped	7.8	0.8	3.7	100
Aluminum	Stamped	2.7	1.1	1.8	50
SMC FS (Fire Safe)	Pressed	1.9	2.2	2.8	75
SMC	Pressed	1.9	1.8	2.3	62
Prepreg Solid Laminate	Vacuum-bag	1.9	1.6	2.0	54
Prepreg Sandwich Laminate*	Pressed or Vacuum-bag	0.6	1.8	0.7	20

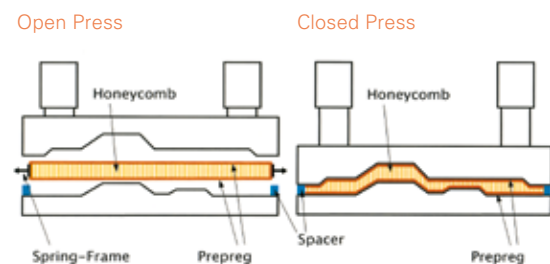
* Foam 130kg/m³, 3 times thickness of laminate

This table shows weight savings compared to stamped steel parts (100%) for various technologies including aluminium parts, sheet moulding compounds, solid prepreg laminates and sandwich structures.

HAVING IT ALL IN A FAST INDUSTRIAL PROCESS

So called sandwich constructions, a combination of fibre reinforced plastic layers on top and below light-weight core materials, are a perfect answer to this challenge as they result in components featuring a high bending stiffness at low weights. Sandwich parts can be produced using various technologies including autoclave-,

vacuum bag-, or press-technology for mid-size series up to 10,000 parts per year. The crushed core technology presented here is a variant of the hot press process and refers to the fact that the core material may be crushed or deformed in defined areas to achieve specific shapes.



This technology was introduced in Europe by one of Gurit's main customers in Transportation: Diehl Aircabin, formerly known as Airbus Aircabin, started to widely apply this process for the launch of the A320 aircraft in the late 1980s. Boeing suppliers had already produced parts using a similar technology some years earlier. The crushed core technology allows the manufacture of complex shapes in a relatively short and isothermal press process of 12 to 15 minutes. Schematically, the process depicted in the graph above looks quite simple: In a press, a flat sheet of sandwich material is «crushed» into shape.

But technology is rarely that simple. The development of this fast «hot in / hot out» process was only made possible by using a special Nomex honeycomb with reinforced cell connections and glass prepreps from Gurit, which was especially developed for this purpose. Gurit's crushed core prepreps feature specifically formulated phenolic resin systems with a significantly reduced content of volatile organic compounds.



UNDERSTANDING PHENOLIC CHEMISTRY

When phenolic resins cure or, chemically speaking, condensate, water is separated from the resin. A chemical reaction producing water is a highly critical aspect in a process where temperatures exceed the boiling point of water as this creates steam and builds up pressure inside the cells of the sandwich construction. Using standard phenolic prepregs in a hot de-moulding process would typically result in laminate layers exploding off the core – a challenge that was addressed with the development of special resin formulations. Another critical aspect is the surface quality of the finished part. The cooling of the air inside the core material cells decreases the pressure. This can create a deflection of a thin top layer in the middle of the cell geometry. To prevent this effect typically referred to as «telegraphing», the need was to enable higher air permeability of the material system without creating porous material. Finally, the crushed core prepregs also need to comply with stringent fire, smoke and toxicity standards – which always present important aspects in aircraft interior applications.

Gurit addressed these issues with the development of a very successful resin family specially developed for isothermal «hot in / hot out» processes. Many crushed core parts such as window walls, ceiling panels and other sections of today's Airbus interiors are made with Gurit prepregs, including materials such as PH860, PH831 and PF811.



Die so genannte Crushed-Core-Technologie bietet sich nicht nur für die Herstellung von Teilen für den Innenausbau von Flugzeugen, sondern auch für weitere Transportanwendungen an.

A CLOSER LOOK AT THE PARTS PRODUCTION PROCESS

Let's look at the manufacture of a typical side wall panel: As we have learnt, a sandwich panel exists of prepreg layers and a honeycomb core. These materials are all tailored to size and stacked for further use. The actual production process comprises of two distinct steps that run in parallel. While one final component is already curing for some 12 minutes in the press, an operator manually lays up the various pre-cut prepreg and honeycomb sections according to the instructions of the specific component. Mounted onto a frame for automated transportation the whole sandwich stack is kept in the correct position by springs and is now ready to be moved under the press once the previously cured finished part is de-moulded and the tool is cleaned. The operator can now start to assemble the materials for the next component into the frame.

Upon leaving the press, the parts which are now «crushed into shape» will be contour milled on a CNC machine. Certain components receive additional surface treatments and touch-ups with filler agents and sanding before a decorative surface film or painting is applied. The last step then includes the addition of insulation material and the final assembly of the wall panel including additional parts such as the window blinds.

Gurit is committed to stay at the forefront of the development of crushed core materials. Gurit's PB1000 prepreg resin is a novel modified benzoxazine resin that complies with the most recent environmental standards such as AIRBUS AP2091. It features a non-volatile rapid cure, generating a perfect void and porous free surface. PB1000 fully complies with demanding international fire protection regulations and is designed to replace existing phenolic systems. Due to the excellent mechanical and fire properties, the low toxicological impact of its formulation, PB1000 is an ideal prepreg for virtually all interiors applications – be it in large aircrafts or railway cars.

COMMITTED TO CONTINUOUS EDUCATION AND TRAINING

The Training4Success model of Gurit serves as a blueprint for local Human Resource managers to review and structure their training offers and programmes.

At Red Maple, HR Manager Kathy Shen organised numerous training opportunities in the context of Gurit's group-wide Training4Success initiative. The highlights for 2011 included regular Induction Training events for new colleagues, Technical Skills Training in welding and aluminium welding as key skills in mould making, Corporate Training including introduction lectures to composites, Six Sigma Green Belt trainings, HR training for Managers and Gurit Finance workshops for Managers. In addition, Red Maple offered Mandarin courses in the context of personal development efforts. At a recent Management team building event where the picture below was taken, the Managers at Red Maple agreed that training should be a high priority in 2012. «To further upgrade training at Red Maple in 2012 we will identify the most important training demands which will benefit both the employee and the company. We will also strengthen on-the-job training and cross-training to build a more flexible work force to meet our operations requirements and to continuously improve the quality of our products,» says Kathy.



From left to right: Manufacturing Engineering Manager, Aaron Zhu, Material Manager, Hunter Jia, HR Manager, Kathy Shen, Financial Controller, Amy Gong, Project&Engineer Director, Todd Okimoto, Sales Manager, Allen Hu, Team Leader of Accessories Design, Lu Jialin, EHS Manager/ Production Training Manager, Kelvin Yao, Commodity Manager, Kevin Li, Quality Manager, Hill Zhao, Production Manager, Wu Hao, Project Manager, James George

At Gurit (Canada), HR Manager Véronique Paquet calls The Training4Success programme a great success: «Before the implementation of the programme, we already had induction training, technical based training and management training in place. Our main focus



for the Training4Success programme has thus been on the required Individual Personal Development. In 2011, seven courses took place in our own training room. They were provided through our local University. The courses were selected by the employees so that they would meet their needs.

Each employee had to register to at least one course this year but the demand was such that some employees took three courses and the participation rate was 90%.»

At Gurit (Spain), HR Manager Encarna Lopez sees training as an important tool to empower people to make the right decisions. Success through people is one of Gurit's core values. The Training4Success initiative is thus perfectly linked to Gurit's Values4Success. Encarna commented: «Two workshops have already taken place in our facilities: Making Decisions and Negotiation Techniques. A next workshop focusing on Change Management will be taking place soon.» Staff evaluated the courses as good or excellent. «The most satisfying thing for the HR department is that the evaluation shows that the main objectives were achieved. The objectives were to provide personal development which allowed staff to acquire or improve skills they are now able to apply in their jobs or simply to extend their knowledge in order to progress in their professional careers.»



At Gurit (Tianjin), HR Manager Christina Yin reports that the Training4Success model even reaches out beyond Gurit. Having personally provided training for Managers of Gurit (Tianjin) and China Techno Foam on subjects such as motivation, communication, learning skills and conflict management, General Manager Phil Harnett provided three four-hour courses on these subjects also for local government officials of Yat Sen Park, the business area where Gurit (Tianjin) is located. Christina commented: «Phil always thinks about how to motivate the employees to dedicate their knowledge, ideas and talents to the company. In addition, he is enthusiastic in establishing good relationships with the Tianjin local government.» So he offered free training to YSP Government officer who help inward investments, look after the local infrastructure, work in the local government tax, labour and EH&S bureaus. Over 30 people participated in these training events, one commented: «I found the training very helpful as it provided us with new hands-on experiences we can use and share in our daily work. I hope Mr. Harnett will provide more training opportunities in the future and we would like to thank Gurit for this training opportunity.»



DEVELOPING THE EYE OF A PHOTOGRAPHER

One of Gurit's «values4success» reads «success through people». Phil Harnett, General Manager of Gurit (Tianjin), is someone who persistently puts this core value into practice. He not only helps staff in daily work, but also arranges diverse and interesting activities for them to enrich their lives and leisure activities. Phil is a passionate photographer and decided to share his skills with staff. The course was in high demand among colleagues from different departments of Gurit (Tianjin). In his lectures, Phil explained the five basic principles of photography: film speed, light, lens aperture, shutter speed and depth of field, and showed how they worked together to influence the effect of a photograph. The avid participants learned how to combine these basic principles in a perfect shot. Of course, they could hardly wait for an opportunity to show off their newly-acquired skills.



The timing of the course was perfect. Soon after the lecture, the European Chamber launched a photo contest with the theme «European Style in Tianjin». When the Gurit staff heard about this contest, they walked through the streets of Tianjin in search of a good shot that would capture the motto, and submitted a variety of extraordinary photos. Some featured European style architecture such as Italian style buildings. Others focused on nature or people. After evaluation, the European Chamber conferred the «excellent» award to Gurit colleague Christina Yin for her photo «Barber on Street». Christina spotted an older Chinese barber servicing a client out in the street – something very typical for China – next to a modern white European style building. The jury found that Christina's photo was a superb blend of the Western and the Eastern cultures in Tianjin.

PUTTING IN WEEKEND HOURS FOR A GREENER TIANJIN

Gurit (Tianjin) is located in TEDA, the Tianjin Economic Development Area. The TEDA Chamber of commerce launched last Autumn a tree planting initiative and invited employees of companies located in TEDA to participate. Susan Zhou from the HR department and Jack Li from the Finance department of Gurit (Tianjin) teamed up to represent Gurit.



The trees were to be planted in the Hangu district of TEDA over a weekend. Both Susan and Jack went there early in the morning and met with other volunteers who were all very excited. For everyone it was the first time to plant a tree. The 50 volunteers split up in teams. Each team was instructed by a tutor on how to dig holes, place saplings into the holes and fill in the holes with soil so that the tree has the best chances to root and grow. «After some practice, we rapidly became familiar with the process,» said Susan. «Our team successfully planted ten trees that morning,» Jack added. «Everybody showed great enthusiasm for this activity. Even though it was hard, tough and difficult work, all of us were very happy when we saw the trees in place. No pain, no gain!»

Overall there were 500 government sponsored trees planted that weekend. They will now be looked after by the Bureau of Parks and Woods of the Tianjin Urban Council, so that they take root and grow into healthy plants for the benefit of the environment, the air, the people and the grand future of Tianjin.

Die Personalverantwortlichen berichten über die laufenden Weiterbildungen in verschiedenen Gurit-Werken. Kolleginnen und Kollegen in Tianjin haben erfolgreich an einem Fotowettbewerb teilgenommen und ihr Wochenende für eine Baumpflanzaktion genutzt.

GURIT AGENDA 2012

Gurit will showcase its wide range of material packages, solutions and technologies at a trade show near you.

The Gurit teams look forward to meeting you and introducing you to the latest in advanced composites at the following shows:

2012

» **JEC Europe 2012, Paris/France**

27–29 March

» **Aircraft Interiors Expo 2012, Hamburg/Germany**

27–29 March

» **All Energy, Aberdeen/United Kingdom**

23–24 May

» **Sanctuary Cove International Boat Show, Queensland/Australia**

24–27 May

» **Wind Power AWEA, Atlanta/USA**

3–6 June

» **HUSUM WindEnergy, Husum/Germany**

18–22 September

» **Monaco Yacht Show, Monaco**

19–22 September

» **Auckland International Boat Show, Auckland/New Zealand**

27–30 September

» **IBEX, Louisville/USA**

2–4 October

» **China Wind Power, Beijing/China**

16–18 October

» **Composites Engineering Show, Birmingham/United Kingdom**

7–8 November

» **METS, Amsterdam/The Netherlands**

13–15 November

» **Tidal Energy Summit, London/United Kingdom**

28–29 November



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