Pushing the limits at the 2011 Zhik Moth Worlds.
Tooling goes global. RENUVO™ – Twice as fast and easier to apply. Mentoring Sunswift Solar Racing Team.
A closer look at Corecell™. Supplying the aircraft industry in Italy. Making B³ SmartPac even smarter.
Dear Reader

Gurit performed well on an earnings level in 2010. We had already achieved our targeted EBIT margin of 8% of sales at half year and were successful in protecting our margins in the second half of the year. On a sales level, however, the globally rising sales generated with our comprehensive range of structural core materials could not offset the low prepreg demand in the wake of the economic crisis. Yet, the sales development in 2010 confirmed that Gurit had made the right strategic decisions back in 2007 and has since successfully executed them step by step: Traditionally a supplier to the European Wind Energy Industry, we realised that we needed to enforce and expand our position in structural core materials. We have now achieved a solid position in all relevant core material categories which we continue to expand as you can read in this edition of SHAPE. We are confident that Gurit will see growing sales figures in 2011 both in Wind Energy and for the Group as a whole.

Taking Tooling, a business we only acquired at the end of 2009, global was another great achievement of 2010. With a special focus on the potential of our high-quality moulds in the out-of-China export market, we started to talk very early in the year to the global international wind turbine blade manufacturers. Today, we may say that we have solidly established the export business in Red Maple moulds. Find out what it was like to ship our first export mould and meet Red Maple’s dynamic export team in this edition.

Addressing new markets was also a main focus in our Marine and Transportation activities. We have established promising new relationships with manufacturers of regional or business aircraft in Transportation. We continue to widen our marketing reach in Marine with the global roll out of our B+ SmartPac offering – a compelling combination of structural engineering services and an optimised materials package for production boat builders. At the same time we are applying a more targeted approach to the Mediterranean, the Asian and the South American boat building markets.

Yours sincerely
Rudolf Hadorn CEO
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GEARING UP FOR GROWTH IN CHINA

The PVCell™ G-Foam family comprises densities of G45, G60, G80, G100, G130 and G200. Now fully approved by Germanischer Lloyd and Det Norske Veritas, it has been well received in the market. To meet the growing demand, China Techno Foam (CTF), the Gurit production site in Qingdao, China, is working on a plant expansion and an efficiency improvement programme to more than double its original capacity. The site has already grown from 76 to now 112 colleagues. «There are two ways to boost production: Improve efficiency and expand capacity», says Sam Ang, Deputy General Manager at CTF. Many aspects of the plant have already been improved: A new and highly efficient mixer reduces mixing time while improving dispersion of the raw material. A fully automated mould cleaning system was installed to reduce down-time and labour. Fully automated and semi automatic drilling machines increase the capacity and processing flexibility for the perforation of bleeder holes that help infusion resin flow between the top and bottom section of the core. «But the biggest capacity improvement will come in the second half of 2011 in the form of a brand new production line,» explains Sam Ang. The second production line will consist of a mixing system, a mould press line, and an additional expansion and curing unit. The new mould press line, which is the heart of the actual PVCell™ foam production, is already being installed at the manufacturer’s. Once tests are complete, the unit will be dismantled, packed up and reassembled at CTF. In the meantime, foundation work for new buildings and the press line have broken ground. With a view to increasing capacity at CTF, the kitting capacity at Gurit (Tianjin) is also being expanded. The customer specific core material kits consisting of various core material categories including Corecell™, PVC, PET and Balsa wood are produced at Tianjin. «In line with our “In China/for China” strategy for PVC core, the majority of the equipment is also sourced locally. Only equipment that requires specific technologies not available here is imported,» concludes Sam.

CAMPAIGNING FOR CENTRAIDE CANADA

From October to December 2010, Gurit (Canada) campaigned among employees to raise money for United Way Canada – Centraide Canada. United Way Canada – Centraide Canada is a non-profit organisation that gives money to local community organisations in order to help them meet the growing needs of their citizens. For 2010, Gurit aimed to raise USD 19,000. The total contribution from Gurit (Canada) and its employees was USD 19,052. With this generous donation, Gurit (Canada) and its employees are now the organisation’s second largest donors in the region’s manufacturing sector. Congratulations to all!

REGIONAL GOVERNMENT VISITS GURIT (SPAIN)

Two members of the regional government of Castilla La Mancha visited Gurit (Spain) in February: On a site tour, the President of the Regional Courts, Francisco Pardo, and the Regional Delegate of the Ministry of Economy and Finance, Amaya Villanueva, were eager to learn more about the complex manufacture of composites. After visiting production, they met with the management team of Gurit (Spain) to discuss the current economic situation in manufacturing and the regional, national and international trends of the Wind Energy market. They also presented the regional government’s position on renewable energies and confirmed their support for companies which continue to invest in technology and equipment. There was a shared understanding that this is essential to enhance the industrial capabilities, to support the local economy and to continue to provide interesting employment opportunities in the future.

SMALL STEPS INSPIRE BIG IMPROVEMENTS

Gurit (Canada) set out to overhaul the frame assembly process for its batch production of non-expanded structural Corecell™ foam. This was the first project of a broader process of continuous improvement taking place at Gurit (Canada) based on the kaizen method. Japanese for «improvement», kaizen aims to enhance productivity through the continuous improvement of standardised activities. «The kaizen method is successful because it is ongoing and involves the participation of employees at all levels,» says Karine Martin, Gurit (Canada)’s Continuous improvement manager. An interdisciplinary team comprising Corecell™ operators, supervisors, maintenance personnel and technical staff met once a week for a period of three months to carefully examine the manufacturing process, which was divided into two steps, frame assembly and glass pane cleaning. The frame assembly was reviewed for workflow efficiency, ergonomics, and productivity while balancing out
the production process to optimise the manpower involved. Several trials were conducted to improve the glass pane cleaning process, including the construction of two different cleaning machines. The first one included the integration of a brushing device into the existing machine, while the second one entailed a completely new design. «The new machine came out on top because it carries out every part of the process efficiently, from incorporating a brush, integrating a soaking mechanism, immersing the brushes in water and including a motorised traction system,» explains Charles Boudreau, Continuous improvement manager. The new machines were further optimised particularly through the addition of a manipulator arm, which has virtually eliminated any heavy lifting from the manufacturing process. The project’s success has had a leverage effect on other continuous improvement projects underway at Magog. «People are taking a more active part in similar projects. In all, it has significantly improved the team spirit and people are taking a more open minded approach to their work,» says Karine Martin. On November 4, 2010, the team presented the case at the Montreal best practice exhibition for the region’s small businesses.

Successful certifications in China

CTF RECEIVES ISO 14001:2008 CERTIFICATION

Gurit’s Qingdao facility, China Techno Foam, is pleased to announce that the site has been awarded ISO 14001 certification for its Environmental Management System in December, 2010. The Quality and Human Resources/EHS teams coordinated the process for the audit made by Det Norske Veritas.

FURTHER CERTIFICATIONS FOR PVCELL™ G-FOAM

The family of PVC structural core materials marketed as PVCell™ G-Series secured further approvals from two global awarding organisations. The core materials produced at Gurit’s Qingdao facility, China Techno Foam, are widely used in the manufacture of wind turbine rotor blades. Det Norske Veritas (DNV) Type Approval was issued for PVCell™ grades G45 through to G200 materials. Germanischer Lloyd (GL) Statement of approval was expanded from G60 to cover now all grades from G45 through to G100.

GURIT LAUNCHES NEW WEBSITE

Gurit.com

March 2011 witnessed the launch of Gurit’s new website, which has been redesigned and rebuilt to reflect a more strategic focus, in line with Gurit’s business and market strategies. The new website has a more corporate look and feel, with enhanced navigational features and search capabilities, resulting in a better user experience. With a clear structure, new content and significant layout updates it is intuitively clear and reflects Gurit’s position as a world-leader in advanced composite solutions.

GURIT (TIANJIN) RECEIVES HEALTH AND SECURITY AWARDS

Gurit (Tianjin) has recently been awarded the OHSAS 18001 certification for Occupational Health and Safety. Amy Gong, Occupational Health and Safety Supervisor, together with Gurit (Tianjin) Operations team, completed all the preparatory work for the certification and now continuously oversee compliance with these stringent standards. Amy and some team members are on the right picture above. OHSAS 18001 completes the series of certifications that Gurit requires for all of its manufacturing sites, including the previously awarded certificates ISO 9001 and ISO 14001. Advanced safety levels at Gurit (Tianjin) were also recognised by the Tianjin Economic Development Area (TEDA) Safety Inspection & Administration Bureau in an appraisal audit made in December 2010. Gurit was the first company in the Yat Sen Park (YSP), where Gurit (Tianjin) is located, to obtain the OHSAS 18001 certificate and to set up a comprehensive safety system. TEDA has acknowledged Gurit as a model company in YSP. This recognition also entitled Gurit to a 25,000 Yuan government reward.

Nachrichten aus den Gruppengesellschaften handeln u.a. vom Ausbau der PVC-Produktion in China, Prozessverbesserungen in Kanada und einem Regierungsbesuch in Spanien.

公司新闻发布, 中国扩大生产聚氯乙烯产品, 加拿大实行工艺改进项目, 西班牙工厂接待了政府访问团。
PUSHING THE LIMITS
AT THE 2011 ZHIK MOTH WORLD CHAMPIONSHIP

When a boat is sailing at full speed whilst barely touching the water, the need for optimised structures and maximum weight reduction is obvious. The foiling Moths – some already with rigid sails – are a great example of extreme boats that push the limits in sailing. SHAPE talked to those who took part in the 2011 world championship.
SP-High Modulus, the marine business of Gurit, was a partner sponsor at the Zhik Moth World Championship 2011 held on Lake Macquarie in Australia. The event drew over 100 entrants from 10 countries, including some of the world’s best sailors from the Olympic and the professional sailing sectors. Some of the craft participating at the event were manufactured using SP-High Modulus Engineering and materials in their hulls and rigs. “We are proud to support the event as a sponsor,” said Niall Kinch Technical Sales Representative. SP-High Modulus was a key sponsor of the Moth Talk videos produced during the event. You can watch amazing videos of the championships here: www.mothworlds.org/belmont/media/gallery/ or on YouTube.

COMMIDTED TO THE MOTh ClASSE ON LAND aND SEA
“We also provided advice and materials for on-the-spot repair,” added Alan Goddard, Design Engineer at SP-High Modulus in Australia who also sailed in the championship. “Alongside the 11-day event, we ran what we called a smash repair shop, giving the competitors all the materials required to repair their boats as the competition reached its final stages.” The strain on the craft is enormous during a tough competition such as a world championship. The conditions on the water were mixed, but winds were predominantly over 15 knots which is hard on both the sailors and gear, especially when contestants go to the limit, and even beyond, in their quest to get the best out of their foiling racing machines. “When you come back after a race and everything worked fine aboard and nothing broke, you can be pretty sure that you could have done better. You were not racing at the very limits,” says Alan who finished the championship 14th in the Silver Fleet or 69th overall out of 109 participants. “I guess that’s true for myself, too. My new boat was only barely finished three weeks before and I did not manage to really tune it before racing. I probably would have done better had I sailed my old boat,” said Alan who ran the SP-High Modulus smash repair shop in between races.

STAYING IN THE RACE THANKS TO SP-HIGH MODULUS PRODUCTS
Alan was quite surprised by how few repairs were needed during the event – a sign that the production boats as well as the home builds are well made. However, there were some spectacular cases, too: “We’ve seen a Moth that split along the hull to deck joint, another broke the mast step and top of the foredeck off, another one collapsed its foredeck and finally had a tube bonded on to finish the regatta. We helped one home build with the repair of a centerboard T-joint and another that had snapped its centerboard vertically in two.” So the range of SP-High Modulus materials was much appreciated with quick-fix Spabond 5-minute Adhesive being probably the most popular item as Alan handed this out several times each day of the regatta. Repairs needed to be fast to keep the boats in the race. Spabond 340LV Fast was also in demand for gluing pieces back together and for adding wear patches of pre-laminated carbon.

MOTh TAKES WiNG
The Moth class is continuously evolving, and events like the Zhik Moth World Championship are all about pushing the envelope by trial and error. American moth sailor Charlie McKee should know as he broke three rigs during the event, after committing himself fairly late to sailing a boat that was new both in concept and in design: He sailed part of the championship using a rigid wing sail. Even so he says in an interview to Moth Talk’s Mark Heeley: “We knew that we would learn a great deal and that’s the way it turned out.” SP-High Modulus was also involved in a series of repairs on the wing sail and its leading edge.

Alan looks ahead with excitement: “The development never stops. I have no doubt that the boats will again be faster at next year’s World Championship in Italy.”
AT HOME ON THE SEVEN SEAS

Graham Harvey, Head of the Marine Business of Gurit, discusses how the acquisition of High Modulus has expanded the scope of activity and how Gurit wants to leverage that in the broader Marine market.

SHAPE: It’s been over a year since Gurit acquired High-Modulus. How has Gurit’s Marine business developed since?

Graham Harvey: We have certainly created one of the strongest teams of marine structural engineers at SP–High Modulus today. This is obviously an asset but at the same time also a challenge. The marine market is only now recovering from the straining effects of the global economic crisis. While three years ago there was minimal competition between marine engineering companies, today we operate in a buyer’s market, so filling this great engineering capability in a depressed market is quite a challenge. We have therefore become a bit more opportunistic if you want and accept engineering jobs which are not strictly marine in nature, but allow us to develop and cross-fertilise ideas from other structural design challenges. Providing these interesting jobs also allows us to maintain and develop the talent we have.

It seems that structural engineering is the backbone of the marine business. You can say so, yes. Engineered composite structures can provide optimum use of materials to allow us to meet customers’ requirements, such as speed of construction,
toughness, lightweight or a combination of needs. This means that the materials are specifically selected for a build and can be tailor-made to allow for the highest performance, whilst optimising weight. This is particularly true for one-off builds like superyachts and race boats — areas where both SP and High Modulus shared a long history in taking boat design and construction to new horizons.

What about the dual brand strategy?
As I said, both SP and High Modulus have made themselves a great name in their market areas. When Gurit acquired High Modulus, we understood that we share similarities between us but only have limited geographic and product overlap. This is why we opted for a dual brand strategy so that boat builders could continue to feel at home with their longstanding partners.

«We opted for a dual brand strategy so that boat builders could continue to feel at home with their longstanding partners.»

What about geographic reach?
At SP-High Modulus we are now a truly global marine engineering and materials company. The only one, I dare say. We are active in all world areas and that means that someone in our team can literally be called upon 24 hours per day. We are certainly stronger in Australasia than before and we are currently re-enforcing our presence in market areas where we see substantial opportunities for us to grow: In Europe we focus on the Mediterranean market and look also at the Middle East. Overseas, we have started several marketing initiatives to gain share in the American market and last but not least, we also push ahead with our Asian presence, especially based on Gurit’s foothold in China. As the global boat building industry recovers from the economic crisis, we have invested in our presence and sales teams. In Europe we have now a dedicated sales person looking at the Mediterranean market. Ferdinando Ollino is based in Italy and brings with him many years of marine market experience. In North America, we have now set up shop in Gloucester, Massachusetts, and we are offering B³ SmartPac’s now from our local North American production. In addition, we also plan to use the production base we have in China to service the expanding local marine market as well.

You are also expanding into new market segments, aren’t you?
Yes, as a combined entity we have the means to look at new geographic markets and beyond our traditional fields of expertise. B³ Smart Pac, a compelling engineering and materials solution originally developed by High Modulus, is now available on a global scale. B³ SmartPac is a powerful tool to boost the productivity and the profitability of production boat yards. Based on an engineered design, we select, cut and tailor all the various dry materials that are needed for a specific build. Our specialisation and optimised processes allow us to provide this engineered service at a very attractive price. What is more, it sets valuable means free for builders as they no longer need to maintain and finance large stocks of the materials they need for their builds. With SmartPac it’s all there, neatly labeled and packed and ready to be used. So that’s a great way to address the volume-intensive production boat market. We have made interesting inroads at key players here and believe the outlook is very positive. Apart from production boats, we also see significant opportunities for us in new boat segments such as commercial or military boats. We have a lot to offer when it comes to defining structures and providing material packages to meet parameters for weight-optimisation, fuel-efficiency, performance, endurance and so forth. You may recall the patrol boats built at Abu Dhabi Mar featured in the last edition of SHAPE. That was a great example of how marine engineering and our advanced composite materials know-how can contribute to building superior boats.

Does the truly global set up also show in sales terms?
Well, yes. We certainly generate sales with boats that sail on all seven seas. But the sales growth achieved in 2010 over the previous year predominantly shows the effect from the combination of our two businesses. I think it is fair to argue that we did quite well sales-wise given the fact that creating a new global leader in marine engineering naturally sparks new competition, too. I believe we have the right talent, the financial stamina and the enthusiasm for boat building to grow our market in the months ahead. We have identified additional niches, market segments or customer profiles we want to address and we also know where we have to fill some white spots in our organisation to make the seven seas our natural home market.

Graham Harvey erläutert, wie die Akquisition von High Modulus das Marine-Geschäft von Gurit stärkt.
Graham Harvey介绍了高模的收购扩大了海运事业部的业务范围。
INDIA IS FIRST STOP
as Tooling goes global

In its first year with the Group, Red Maple, the Tooling business of Gurit, has successfully established a fast growing export business. India was a natural first target market, with Europe next in line.

Besides supplying the Chinese market with high-quality moulds for the local wind turbine blade industry, Gurit immediately started to develop an international and an export oriented business for its Tooling activities. With the strong international backing of Gurit, Red Maple soon attracted the interest of international players who manufacture wind turbine blades in China. As a next step, halfway between China and Europe, India quickly became the first big export market for Red Maple blade moulds. In developing this new market, Gurit benefitted from well-established contacts to the Indian Wind Energy industry.

BUILDING ON A STRONG BRAND

«Gurit is a long-standing supplier to the Indian wind energy industry and a well-known materials brand in this market,» says Prashant Kshirsagar, Sales Manager Wind Energy in India, who now also works for the Tooling side of the business. «Tooling came as a natural expansion of the product and service portfolio for the Indian wind energy industry. When we started to build and expand the business with the Indian blade manufacturers, we realised at a very early stage that we could easily supply core material packages tailored, shaped and kitted in China.» Therefore, Prashant is in touch daily with local customers in India and his colleagues from the Gurit manufacturing plants in China. «I was thrilled when I learnt that we are looking at opportunities to supply the moulds from Red Maple to India. My country has become a major player in the global wind energy business, and there is an obvious need for attractively priced quality blade moulds. I enthusiastically began talking about our Tooling business to customers.» Prashant and his small team did a great job in this respect and met with growing interest, winning orders for blade moulds from almost all leading blade manufacturers in India by year end. «I dare say that Gurit has rapidly established itself as a leading mould supplier in India,» comments Prashant.
BIG PIECES TO SHIP

Shipping boxes of tailored, shaped and kitted core materials to blade manufacturers and shipping blade moulds are two very different tasks. The logistics involved present a real challenge: One of the first blade moulds shipped from China to India was a tool to manufacture 46 metre long blades. The tooling equipment itself – all in one long piece – weighed over 30 tons. «In order to build an international export business, easy access to deep water ports is key,» says Gabriel Mironov, General Manager Tooling at Gurit. In addition to special trucks that brought the blade mould safely to port in China, Gurit had to hire special cranes and a suitable cargo boat to safely transport the valuable cargo to India. «When I watch the cranes lifting a blade mould off the lorry and over to the ship where they lower it onto the deck meticulously, my heartbeat still accelerates although I know it all is a very well planned and soon-to-be standard everyday procedure,» admits Gabriel. «Mind you – it’s the same when it arrives in India,» reaffirms Prashant.

Even taking the additional cost and time into account that are needed to ship moulds to international customers, the moulds of Red Maple are attractively priced and available at short lead times. As a highly specialised, fully integrated and independent mould maker, Red Maple benefits from significant economies of scale and is well positioned to provide global customers with additional flexibility to overcome the limitations of their in-house tooling capacities.

With mould installations in India happening at a fast and accelerating pace, Gurit (India) has geared up to offer excellent after sales services. Customers can now benefit from specially trained and experienced service engineers who provide on-call technical support and service.

Indien war der erste Exportmarkt für Red Maple Rotorblatt-Bauformen. 印度市场是红枫第一个出口的目标市场。
A GLOBAL TEAM FOR A GROWING EXPORT MARKET

Red Maple, the tooling business of Gurit, is rapidly expanding its export business on a global scale – an expansion that is driven by a powerful and fast-growing project management and sales team.

When Red Maple’s global project and marketing team meet at Taicang, there are many nationalities at the table. They represent the key market areas Red Maple is focusing on. «We have dedicated teams for every export market which in turn are supported by internal project teams,» says Todd Okimoto, Project & Engineering Director at Red Maple. The team’s goals are set high as Gurit’s tooling business is positioning itself as a partner for the global wind energy industry. As an independent and fully integrated company that offers all key production steps from one source, Red Maple provides extra flexibility to the wind turbine blade builders globally as they can outsource the tooling needs that exceed their in-house capacities. Taking a formerly local Chinese business global is a great opportunity for Todd and his team. «At Red Maple, we are committed to goals that are about people, quality, velocity, and cost. Performing well in each of these categories is the basis of our business model. The accomplishments to date have been nothing short of phenomenal, and as we enter the next phase in business maturation including the growing focus on global export markets I am very excited about the opportunities that lie ahead,» Todd concluded. Apart from the Chinese home-market, Red Maple’s key export markets for wind turbine blade moulds are India – which has already received a number of finished moulds –, North America, the Latin markets of Europe and the Americas, and Central and Northern Europe.

DEDICATED EXPORT MARKET TEAMS

For the Indian market, Prashant Kshirsagar, the Sales Manager for Wind Industry who helped establish Gurit as a moulding expert in the Indian market, can count on the support from James George as Project Manager, Francis Mamimi as Project Supervisor and Kuldeep Nimbalkar as Project Engineer. «While we are establishing strong links to our Indian customers and really develop an understanding of their specific market needs, we benefit from our internal project management and operations support to meet the high expectations,» commented James.

Idryan Edmund Nangoi and his team cover all Latin markets in Europe and the Americas, while Mathew Muhlenkamp looks after the market needs in North America. «Although the world has become one big global market, it is important to speak your customers’ native language. We have understood that quickly in India. The same is true for the Latin countries,» Idryan said. He and his team are fluent in Spanish and Portuguese. The European market is currently dealt with at the top management level with a view to having a specific team take over soon.

STRONG INTERNAL SUPPORT

Internally at Red Maple, the rapidly growing number of export projects is supported by Eric Muska, Operations Manager, and his operations team as well as by Wolfgang Mohr, Engineering Manager. Eric explains that it makes a big difference to be working both for the Chinese and the global export market, not least for those involved in production: «All of our employees take incredible pride in knowing that Red Maple is succeeding on the international markets.»

Ein internationales Team treibt den Exporterfolg von Red Maple voran.

一支国际团队支持了红枫出口业务的快速增长。
OVERCOMING CHALLENGES - SUSAN’S STORY

Susan joined Gurit (Tianjin) in 2007 as a receptionist after graduating from Tianjin Business University. Susan is just like any other Gurit employee except that she was born with a visual impairment. She needs to wear very thick glasses and it takes her longer to read and write. Not one to complain, she completed the normal full time university curriculum thanks to hard work and determination: «I believe this is a challenge for me, so I try my best in everything I do.» Being selected from the many applicants for the position of receptionist was a big opportunity for Susan. From the start, she was determined to prove that Gurit had made the right choice in hiring her. Recalling how she overcame her disability in the first weeks, she says: «I spent two evenings to commit to memory the extension numbers of the entire plant as well as the Chinese and English names of every employee.» At Gurit (Tianjin), disabled people are treated just like everyone else, with the same training and promotion opportunities. In May 2009, Susan was promoted to the position of HR officer and in May 2010 she became an emergency health and safety (EHS) officer. Susan is grateful for all the support she’s received from her boss. In hiring disabled people, Gurit is supporting China’s efforts to promote the employment of disabled people. As part of these efforts, companies are asked to hire 1.5 disabled persons for every 100 employees. With six disabled people among an average of 300 staff in 2010, Gurit has gone beyond government requirements, a fact which has been recognised both by the government of Tianjin and Tianjin’s Labour Bureau.

SORAYA PEREZ WINS 4 GOLD MEDALS

Soraya Perez, environmental technician in the quality department of Gurit (Spain), has won four gold medals in the XVI CTO. DE ESPAÑA OPEN DE INVIERNO MASTER – the Spanish Masters Open Winter Swimming Competition in January. She competed in four events and finished all of them first! What a result! Soraya is Spanish champion in 200 metre medley, 100 metre freestyle, 200 metre freestyle and 100 metre individual medley. She is a member of the Albacete Masters Swimming Club where she and her 35 team colleagues enjoy great training conditions and excellent support. The next challenges coming up are the XIII European Masters Championships in Yalta/Ukraine, and the 2012 Masters World Championships in Riccione/Italy.

ACCLAIM FOR EMPLOYEE TRAINING EFFORTS

In 2010, Gurit (UK) received two prestigious awards for its training efforts: the Regional National Training Award and The Isle of Wight Chamber of Commerce Business Award. Both awards recognise Gurit (UK) for its learning and development programmes where trainees upon completion qualify at level 2 and 3 in Polymer Processing and Related Operations. Run on behalf of the Department for Business, Innovation and Skills (BIS) by UK Skills, the National Training Awards encourages UK industry to invest in training and development as a route to achieving outstanding organisational and individual success. Winning an award is recognition of best practice and provides a benchmark for standards of excellence in training. The UK is putting increasing emphasis on apprenticeship training as sound professional training is recognised as an important economic asset. Government also supports and co-funds the National Vocational Qualifications Programmes. A typical UK apprenticeship program consists of 80% work-based learning and 20% academic learning at college. The qualifications of the employees are ranked according to the Qualification and Credit Framework, with level 1 marking the basic entry level and level 5 a degree ranking. Employees qualified at level 3 in polymer and composites processing are on the same educational level as their colleagues who continued school and passed their A Levels. With both career schemes people qualify to enter into university to continue their education for a degree in Engineering. Luke Kerr, Training Manager at Gurit (UK) had the honour of accepting both awards on behalf of Gurit.» Bringing these two awards home has been a fantastic achievement for the training team. It shows the impact we have and can continue to have in the local community, in supporting to develop and qualify our employees,» Luke commented. The training team, headed by Luke, primarily supports Operations including areas such as Engineering, Maintenance, Logistics, Quality and Production and works in close collaboration with the Isle of Wight College. The college provides the assessors and trainers along with academic and industry specific support. This mix of on-the-job and academic learning provides a very stimulating and motivating atmosphere for the young professionals. «I very much enjoy creating structures in which teams and people can develop to their full potential,» explains Luke who himself has a rather interesting professional background. Having served in the Army as weapons handling instructor and later as physical training instructor, Luke played high-level sport with the forces and progressed to being trained by FIFA as global soccer instructor and gained a sports education with the UK Football Association and UEFA.
TWICE AS FAST AND EASIER TO APPLY

RENUVO™ – the innovative blade repair system of Gurit – has met with great market response since its launch last September. The RENUVO™ products have all been approved by Germanischer Lloyd for blade repair and are now in the final stages of approval with several of the leading blade OEMs.

Introducing a new product in a demanding industry like the global Wind Energy market needs to be backed with a sound and targeted marketing programme. «We have to address quite a large and complex customer group,» says David Cripps, Global Account Manager with Gurit Wind Energy. «Some of the blade repairs are carried out by independent blade repair companies on behalf of blade manufacturers or wind farm operators and some by the blade builders, the OEMs themselves. The repair materials used, however, generally need to be approved by the OEMs. So, we speak both to the actual repair teams and the technical departments of the large OEMs.»

FACING MULTIPLE RISKS FOR DAMAGE
To get to the installation site, blades typically travel long distances, often negotiating ports, roads and towns, and being manipulated with fork-lift trucks and cranes. Each of these handling steps creates the opportunity for damage. Once on site, the assembly process and hoisting of the completed rotor up onto the tower is a final opportunity for damage to occur before the rotor has made even one revolution. In operation, the blades then begin to see erosion from rain, dust and other atmospheric contamination, and lightning strikes add to the amount of damage that a blade experiences. With the constant fatigue loading from rotation and wind gusts, any hidden manufacturing flaws may also start to show up in the form of cracks in the blade surface, inside the laminates or between the blade components.

A PERFECT SHAPE FOR MAXIMUM YIELD
Studies show that relatively small amounts of leading edge damage or erosion can affect the aerodynamic profile of the blade, leading easily to a performance drop of 3–4% and consequent loss of revenue. So, keeping the blades in good shape is essential for an optimum energy production. In addition, if erosion of leading edges is left unrepaired, moisture can penetrate. If the temperature drops below freezing the creation of ice can, in some instances, split the blade edges or de-bond a section of a load-bearing beam.

HANDS-ON TRAINING SESSIONS
Gurit has organised four one-day training sessions in Europe and several in America in the first four months since the launch of RENUVO™. Additional training sessions were conducted in February in China. In addition, Gurit also ran several demonstrations and trainings directly at large blade builders’ sites. The sessions have now led on to the materials being used on various in-field blade repairs, as well as initiating a formal qualification process with large blade OEMs.

Each day had ten to fifteen delegates from blade repair companies as well as blade manufacturers. Andrew Passey from Gurit’s Composite Processing Group introduced the participants at these workshops to the new material system. «We opted for a very practical, hands-on approach. Participants can actually repair small and bigger defects themselves on small blade sections. Everyone had a chance to use the materials and equipment themselves,» Andrew explained.

ONE REPAIR SYSTEM – TWO TREATMENT PROCESSES
The RENUVO™ product range consists of two main types of material: For small maintenance repairs such as leading-edge erosion, small holes and other surface defects, the RENUVO™ MPS product can be used on its own. The MPS is a multi-purpose, single-component resin system supplied in a 310 ml cartridge that fits a standard mastic gun. With its grease-like consistency it can be easily applied with small spreading tools and is cured in just 90 seconds with the small, hand-held, RENUVO™ Neollectron lamp.
For larger repairs, where the laminate itself needs to be replaced or reinforced, the RENUVO™ prepreg is used. This consists of a biaxial or unidirectional fabric which is already impregnated with a version of the RENUVO™ resin system. The material, which has a slight tack to it, can be easily cut to the desired patch size and can be used in single or multiple layers. Excellent bonding to the existing blade laminate is achieved through the use of the MPS resin acting as an interface. Full cure is obtained in 90–180 seconds, depending on thickness, using the RENUVO™ LED 400F lamp, with repairs up to 5 mm thick being possible in one cure step. For large areas of repair, this lamp is indexed over the repair area using a specially designed lamp mounting system that ensures that each part of the repair patch receives the correct UV dose. An extra sacrificial layer of MPS resin can also be applied to the top surface of the repair patch prior to cure, so that when the repair area is then sanded prior to painting, no structural reinforcement is abraded away.

CONVINCING ARGUMENTS
«When I first tell participants that they can speed up their repair routine by half, some have a hard time believing me,» Andrew says. Understandably, as up to the RENUVO™ days, rope teams were working long days on their wet laminating repair jobs and were certainly not idling away. RENUVO™ greatly shortens filling and repair times; the biggest time saving element, however, is the on-the-spot UV curing process. The graph below shows RENUVO™s incredible time-saving potential:
EXPANDING THE WEATHER WINDOW

Most blade repairs were typically carried out using wet epoxy or polyester resin systems, usually based on the resins with which the blades were originally built. This was a great limitation in maintenance and repair work as these wet resin systems typically need to be applied at temperatures above 12–15 °C, and – to meet the qualification requirements of Germanischer Lloyd – need to be cured for at least 24 hours or receive an elevated temperature post-cure. This means that not only was there a narrow weather window for repairs, but the turbine is also out of action for a considerable period of time. What is more, wet resin systems which were originally developed to be applied in large scale manufacturing processes need to be accurately mixed. In a repair context, they tend to generate a lot of waste and can be difficult and messy to use. This is especially the case when operating from the ropes or suspended work platforms often used to access the blades, especially when high winds and cold temperatures are added into the equation.

«For the repair teams, it makes a huge difference if they can do their jobs starting at temperatures at 5 °C or only at 15 °C and it makes even more of a difference for the energy companies. Just recall the fact that we have temperatures of below 15 °C for months in many world areas. This translates – in the worst case – in months of losses in energy generation,» David Cripps explains.

Some of the feedback that Gurit received from maintenance specialists included spot-on remarks like the one from Ben Faulkner, Director of Renewable Advice: «Weather conditions in the UK are very challenging, meaning we have had to react quickly to ensure we complete repairs when the temperature is 15 °C or above. We have been looking for a long time for a solution to enable us to offer maintenance and repair services throughout the year.» Jeremy Sheppard, Managing Director of BS Rotor Technic said: «Having to stock many different resin systems, depending on what type of blade is being repaired, is a logistical headache. Applying wet systems when in-field bears the risk of contamination, error in composition and quality control. Compounding this is the waste generated from mixing pots and unused materials.» If you want to learn more about what maintenance experts think of RENUVO™, read the full case studies in the RENUVO™ section of the Gurit website.

Further demonstration and training sessions are being planned for Germany, France and Spain throughout 2011. If you are interested in participating in one of the upcoming events, or if you would like a private introduction to RENUVO™ by our specialists in Newport/Isle of Wight, please contact RENUVO@gurit.com and we will get back to you.
OUR COMMITMENT TO ONGOING EDUCATION AND TRAINING

Gurit has launched a global training model, now generally referred to as Training4Success. The scheme was signed off by the Board of Directors and Management and sets out a common blueprint for the training and development that is available to all employees in line with their function.

For Gurit as an organisation learning is an investment that helps ensure our success. This is why we aim to provide employees with practical knowledge and skills that can be used immediately on the job while delivering tangible results for both employees and the company. «I’ve been connected with Gurit since 2008 and from the start I have always been impressed with the amount of training and development that is made available to staff,» says Linda Tillson, HR Consultant with Gurit. Linda is putting together a training model that can be used throughout the Group globally. «As I developed the model and spoke to my HR colleagues across the world it became apparent that we all pretty much already follow a common model, but Training4Success now brings together best practice guidelines and acts as a common focus point. We have had the opportunity to share ideas and thoughts and it has reminded us of the importance of training and development – a fact fully supported by CEO Rudolf Hadorn.» On numerous occasions, Rudolf has reminded not only the extended management team but each and every employee at Gurit to make time available for training every year. HR and site managers are currently working to ensure that the model is fully integrated in the daily life at Gurit and will advise all employees over the next few months of local training opportunities available to them. A good opportunity to discuss training and development is, of course, at the beginning of the annual appraisal cycle when employees meet with managers to set their objectives for the year. Starting with the next issue, SHAPE will tell you about how Training4Success is being implemented at the various global sites.
MENTORING THE SUNSWIFT RACING TEAM

Sunswift IV won the 2009 World Solar Challenge in Australia and set a new speed record earlier this year for a solar-powered electronic car. Gurit is proud to have been able to provide real world validation of the Sunswift concept and to assist the students with hands-on help and materials.
The Sunswift Solar Racing Team at University of New South Wales in Sydney is a model of a working product development business. With over 40 university students involved, many taking out time from their studies to participate on a full time basis, the Sunswift Team designs, builds and races solar cars. Requiring a variety of engineering disciplines to design and build the car, the team also includes marketing, business management and accounting students to create a dynamic and efficient organisation.

In early 2009 Campbell McLaren, Sunswift's mechanical team leader, sought out the Gurit Sydney office for engineering and material process mentoring, as well as materials support. Campbell and his team worked throughout 2009 and 2010 with Gurit design and process engineers to refine concepts and create the lightest yet most durable car body possible.

The sunswift team visited Gurit at the Sydney office with their car – which was a spectacular sight and true eyecatcher on the parking lot! The Gurit team involved in the project rapidly gathered around the vehicle. In the group photo, not wearing a Sunswift shirt, the Gurit people from the structural engineering office in Australia are from left to right: Alan Goddard, Valerio Corniani, Skip Miller and crouched Nicolas Siohan. The others are from the Sunswift team. Warren «Skip» Miller, Design Engineer, explained: «Our role was to give the Sunswift engineering team real world validation of their concepts. We did this through numerous discussions and sketches. Another role was concerning processes: we helped them to create good moulds for their parts and to properly construct their laminates.»

Valerio Corniani, Engineering Manager, added: «From the material side, we provided the nomex core as well as the Spabond adhesives, vacuum bag materials and many smaller items that were required to build the composite body components.» The outcome speaks for itself: Affecting many components in the car, the monocoque body supports all chassis components as well as protecting the driver and providing an efficient fairing. The solution is a prepreg carbon fibre skin over nomex honeycomb core bonded solely together with Spabond 340 structural adhesive.

The new car named «Sunswift IV», aka «IVy», went on to win its class in the 2009 World Solar Challenge, a 3,000 km race from Darwin to Adelaide in Australia, and there are plans to enter the 2011 edition in October.

In January this year, «IVy» set a new Guinness World Record for World’s fastest solar-powered car with 88.5 km/h at 10.32 am on the Royal Australian Navy base the HMAS Albatross. IVy beat the 22-year-old Guinness World Record by over 10 km/h. This means that IVy, with roughly a quarter less power than its record-holding predecessor was 13½ faster – an astounding feat made possible by the teamwork of Sunswift and its mentors including Gurit.
A CLOSER LOOK AT CORECELL™ – THE VERSATILE STRUCTURAL FOAM

In the last issues of SHAPE, we featured articles on PVC and PET foams – Gurit’s most recent additions to our comprehensive range of structural core materials. Readers told us, they also wished to learn more about the complex process of Corecell™ production.

Gurit (Canada) is the only manufacturer worldwide of structural foams based on SAN chemistry. Marketed globally under the Corecell™ brand, this family of versatile core materials today includes six different types of materials: A-Foam, P-Foam, S-Foam, T-Foam, and as the most recent addition to the range M-Foam. M-Foam was specially developed to offer the global Marine industry a new core material that fits all boat-building needs. T-Foam is typically used in the manufacture of wind energy turbine blades, while A-, P- and S-Foams are most widely used in the Marine industry. The standard densities offered for all types of Corecell™ ranges from 60 to 200 kg/m³ while special products are available with densities as low as 50 and as high as 350 kg/m³.

PROCESS STEPS
The manufacturing process of Corecell™ can largely be divided into the following key steps.

MIXING OF INGREDIENTS
All the ingredients used to produce Corecell™ are carefully mixed in a vessel. Each ingredient is added to the mixing vessel in a pre-defined order and quantity.

MOULD ASSEMBLY AND FILLING THE MOULDS
Mould assembly
Once all ingredients are well mixed, the mixture is ready to be poured into moulds. These moulds are assembled out of various components which are re-used in every new production batch. The moulds can be adjusted to enable the manufacture of a variety of different sized foam blocks.

Filling the moulds
The individual moulds are grouped into a rack and filled with the ready made mixture. The racks are then transferred to the polymerisation tanks.

POLYMERISATION
The polymerisation process for Corecell™ is a so called free radical co-polymerisation of styrene-acrylonitrile-maleic anhydride. Not only is that phrase complicated, but the lengthy process is again divided into three stages. The first polymerisation stage is carried out in a temperature controlled water tank. Most of the polymerisation energy is released during this first stage. Thus, the water temperature is relatively cold to be able to absorb and remove the heat generated. The water temperature profile is different for each type of Corecell™ and mould thickness. After the water tank, the racks are transferred into a large heated room. This step is used to complete the polymerisation. As the material in the moulds is not the final Corecell™ product yet, we refer to it as the «embryo» stage of the structural core material. Therefore, we talk about «embryo aging» when we bring them into the heated room.

The third and final stage is annealing. The racks are now transferred to a low temperature oven to finalise the polymerisation process eliminating any residual monomers. Once the last heat cycle is completed, the «embryos» are released and the moulds are recovered. The mould elements are cleaned before they begin a new process cycle. The embryos are sent to expansion.
The expansion of the structural foam blocks is carried out in expansion ovens. These ovens very much resemble pizza-ovens, with many large flat shelves where the unexpanded foam blocks are slid in. The expansion temperature is different for each type of Corecell®. Once the foam blocks have risen and expanded in all dimensions to the required size, they are removed and cooled in a press. The pressure is essential to stabilise the foam and to make the slabs of structural foam as flat as possible.

After being properly cooled, the skin is removed from the foam blocks with a sander and the blocks are squared to predetermined dimensions. The density of each foam block is measured automatically. The squared and sanded foam blocks are then sent to the finishing area where they are processed, shaped and kitted to client requirements.

The first Chinese customers are already being supplied following qualifications, and Gurit is now keen to expand production to supply PET to other Asian countries and even world-wide.

PET now complements Gurit’s existing range of core materials. With the addition of PET, we believe Gurit is the only company to be able to manufacture and supply all major core materials locally in China. The Gurit facilities in China now manufacture, process and tailor Corecell®, PVCCell™, PET and Balsa wood to full kits. This comprehensive offering in structural cores in turn complement the range of prepreg materials manufactured in China and the formulated resin products in the Gurit product range. With Red Maple’s capability in mould manufacture, all three Gurit works in China together can now provide a fully comprehensive service to the Wind Energy market.

Gurit has invested several million Swiss francs in a new 2,700 sqm purpose built factory in Tianjin to house a PET core manufacturing line. The construction of the factory was started on 28 April 2010, and the line was commissioned in November 2010. Meeting this aggressive project schedule was a great achievement by the factory construction company, the equipment manufacturers, and all of the Gurit team involved. However, the build was not only about speed. The new line meets all of the latest Chinese and European health, safety and environmental regulations and has been adopted under Gurit (Tianjin)’s OHSAS 18001 control systems. OHSAS 18001, which stands for Occupation Health and Safety Assessment Series, is an internationally recognised management system designed to help companies to manage occupational health and safety risks.

The production line is made up of imported equipment and equipment sourced locally in China. It has a capacity in excess of 2,000 tons per year. As with all PET manufacturing lines it can recycle off-cuts, dust and waste materials produced, thus making the production cycle as environmentally friendly as possible. The PET material can be supplied in plain sheets to any thickness required, or in full kit form using Gurit (Tianjin)’s existing extensive kitting facilities. The PET now complements Gurit’s existing range of core materials. With the addition of PET, we believe Gurit is the only company to be able to manufacture and supply all major core materials locally in China. The Gurit facilities in China now manufacture, process and tailor Corecell®, PVCCell™, PET and Balsa wood to full kits. This comprehensive offering in structural cores in turn complement the range of prepreg materials manufactured in China and the formulated resin products in the Gurit product range. With Red Maple’s capability in mould manufacture, all three Gurit works in China together can now provide a fully comprehensive service to the Wind Energy market.

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As Fast and Competitive as Comfortable and Luxurious

Appearances can be deceptive. The Baltic 112 – “Nilaya” may look like a sleek cruising yacht but she can also compete as a racer. The 34 metre yacht made its premiere at the 2010 Monaco Yacht show. Nilaya’s build incorporated both SP-High Modulus materials and engineering expertise.
The creation of the Baltic 112 – ‘Nilaya’ was a joint effort between the builders, Baltic Yachts, the designers and naval architects, Nauta Design and Reichel & Pugh, the project management, MCM Nigel Ingram, and SP-High Modulus, the marine business of Gurit. The 34 metre yacht made its premiere at the 2010 Monaco Yacht show. The build of ‘Nilaya’ incorporated both SP-High Modulus materials and engineering expertise. The engineering for the project was undertaken by Luke McEwen based in the UK engineering office and David Firth from the SP-High Modulus Australian office, during his time based at Gurit (UK).

**COMPLEX CALCULATIONS LEAD TO EFFICIENT LAMINATES AND STRUCTURES**

David commented on the project: «We engineered all the structural parts of the hull and the deck, apart from the box for the lifting keel. The hull and deck are engineered to support pressure loads defined by the classification society. In addition to these pressure loads we needed to engineer laminates for large point loads from the keel and rigging, for example the keel grounding load applied to the hull is 1782 tonnes or roughly 4 Jumbo jets and the mast compression load is 353 tonnes or just one jumbo jet. With loads this high we had to use some complex calculations combined with extensive use of our experience from previous projects to develop efficient and practical laminates and structures to support these loads. The project enabled us to demonstrate our engineering capabilities and the attributes of our materials to the builders in meeting their brief from the owner. The result has been a yacht that not only is comfortable and spacious but is light enough and strong enough to perform at a high level of racing.»

**LUXURIOUS CRUISING AND COMPETITIVE RACING**

Baltic manufactured the hull, deck and internal structure using SP-High Modulus SE84 prepreg carbon on a Corecell™ foam core. The yacht – which is also featured on the front cover – is notable for being very quiet; it has 3.8 tonnes of sound insulation but only displaces 87 tonnes. The interior is spacious and light with the same principles of weight saving applied to the exterior build but still ensuring a luxury finish. The yacht is primarily a cruiser but can perform as a racer and has been engineered to DNV high speed light craft and naval surface craft classification, class 1A1 LC. The use of SP-High Modulus advanced composite materials and engineering in its construction make it possible for this yacht to be comfortable and luxurious as well as being fast and race competitive.

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Die Baltic 112 Segelyacht ‘Nilaya’ ist eine perfekte Mischung von Renn- und Luxusyacht.波罗的海112 ‘Nilaya’ 是最完美的竞赛和休闲的组合。
On top of the global aircraft industry’s big players, there are a number of very successful aerospace companies that focus on helicopter and 70–100 seat regional aircraft. The long-standing track record in the industry and proven material characteristics helped Gurit establish important new contacts to the Southern European aircraft industry. A series of product qualifications is expected for April 2011.
As a specialist for materials used in aircraft interiors, Gurit can look back on a long tradition of supplying the big players of the global aerospace industry. «This track record and a long-standing tradition in supplying certain helicopter and business aircraft manufacturers north of the Alps has put us in a strong position to approach new potential customers, especially in Italy,» says Christoph Mayer, Head of Aerospace and Rail of Gurit Transportation.

The Italian-based AgustaWestland is one of the leading manufacturers of helicopters. The AgustaWestland helicopter types AW109 and AW139 are familiar sights in the sky all over the world with some 70 to 80 machines built every year. «Obviously first of all we showed our materials for the interiors to AgustaWestland. They especially liked the excellent surface quality, flame retardant and non-toxic behavior of our EP121 epoxy glass prepreg and were keen to initiate their qualification process,» Chris added. He and his colleagues at Gurit (Kassel and Zullwil) recently completed the final product qualification and look forward to commencing material shipments as a new second source supplier to AgustaWestland.

Gurit also initiated talks with aircraft manufacturer Alenia and component supplier Geven in Naples for the regional aircraft ATR 42 and equipment 72. They are manufactured by Avions de Transport Régional, a joint venture between EADS and Air Italia. There are up to one hundred airplanes manufactured per year and ATR is interested in Gurit’s proven materials. «Our low-smoke epoxy EP137 carbon and glass prepregs caught ATR’s interest for their passenger floor panels. They are a perfect choice to meet the stringent fire regulations and the highest mechanical requirements for interior applications. We expect our material to be fully qualified by the end of April this year,» said Laszlo Paradi, Gurit’s Aerospace and Rail representative in Italy.

Things are moving fast in the regional aircraft segment. There are many new industrial initiatives underway globally in this segment. Apart from the emerging Chinese aircraft industry that is now launching its medium haul COMAC919, the new Sukhoi Superjet SSJ100 seating between 75 and 100 passengers is the industry’s latest hot topic. The new plane was developed by Sukhoi Civil Aircraft Corp. (SCAC) in partnership with the Italian Alenia Aeronautica, a Finmeccanica company. Its type certificate was presented in February by the Russian Certification Authority IAC AR and confirms compliance of the SSJ100 with airworthiness regulations and authorises the commercial operation of the airplane. The EASA certification is expected to follow in 2011, and 2012 should see the SSJ100s enter into commercial service with some 35 craft per year. To assist the international sales for the Sukhoi Superjet 100, the company will leverage the know-how and experience gathered by Alenia Aeronautica through ATR.

Gurit is confident to gain certification to supply a number of materials for the SSJ100 including Cyanate Ester prepregs (PN900) for airducts. These tubes are an essential part of the environmental conditioning system of the aircraft cabin and PN900 already has a long-standing track record of being the material of choice for this application. Again, qualification is expected to be completed in April 2011. SHAPE will stay tuned and keep you posted.
The B³ SmartPac has been a part of Gurit’s offering to marine customers since the acquisition of High Modulus in December 2009. Over the past year a number of changes have been made to allow supply to a wider customer base that we now have access to through Gurit’s in-market sales teams, and to ensure continued evolution of a solution valued by customers.

Part of this development has been a review of the B³ SmartPac Design Process. This is where a composite component’s structural design, laminate specification and 3D model are converted into a practical and cost-effective package of pre-cut materials, delivered straight to the builder.

The design process links the engineers (whether Gurit’s, the builder’s in-house team, or a third party) with the yard, balancing a need for structural integrity with efficient production processes. But developing a solution that offers this balance, as well as improved quality assurance, is not something to be undertaken lightly. It can be challenging to ensure that requirements are fully understood and the information is interpreted correctly, whilst meeting often demanding deadlines.

The review has resulted in the creation of a Development Team, whose primary focus is to develop the proprietary B³ SmartPac design automation software to both shorten the overall design time and improve the accuracy of the design output. Significant gains will be made in the coming months, which will have a direct positive impact on the customers’ experience of using a SmartPac, and will enable Gurit to continue to offer an increasingly competitive solution.

The Development Team sits side by side with the Design Team, ensuring an open exchange of input and feedback throughout the development loop. The work of these two teams is overseen by SmartPac Technical Manager, Susan Lake, and SmartPac Development Manager, Sierk Bosman, who have 15 years experience at the company between them.

Susan Lake joined High Modulus in 2001, after working as a Naval Architect at the renowned Sparkman and Stephens yacht design office in New York. She joined the SmartPac team towards the end of 2010, having held a number of roles at the company, including Design Engineer, where amongst other projects she worked on two yachts that participated in the single handed round the world race (now the Velux 5 Oceans Race), and a 30 m Maxi yacht, and Technical Services Manager, where she ran the mechanical testing laboratory and undertook internal and external testing. As well as managing the SmartPac design team, she remains active in this side of the business, ensuring that all work continues to comply with the IANZ accreditation that she achieved for the Gurit Asia Pacific office in late 2009.

“My current role as SmartPac Technical Manager enables me to combine both my engineering and practical knowledge of composites, as we are continually balancing the two disciplines to find the right solution for the customer,” says Lake, a Chartered Engineer and RINA NZ Council member. “As the SmartPac business grows, I am faced with new challenges..."
daily. At the moment, there are three key areas that I am focused on – the first is ensuring good communications between all parties – the SmartPac designers, the engineers, the manufacturing sites, the sales teams and the builders. The second is keeping in touch with our four engineering offices and to ensure we receive the level of detail required for the SmartPac design to commence. We have to know things like locations of high density inserts and allowable laps to ensure the SmartPac fits accurately when it reaches the customer’s site, but often this level of detailing is left to the yard to decide. Thirdly, I spend a lot of time juggling schedules. It is critical right now as lots of new projects are coming our way due to our expanded global sales team, and my team supplies the designs for all of our production sites. Running a design team of eight, as well as liaising between our global SmartPac manufacturing facilities, certainly keeps me busy!

Sierk Bosman joined High Modulus in 2006 after six years at Intercad, where he honed his knowledge of product development software, including 3D design tools and product data management systems, advising customers how to leverage the capabilities of the tools to improve their design processes. This, alongside his experience in a precision manufacturing environment, where he implemented ISO9001 and ISO9002 quality systems, has resulted in a focus on exploitation of software to improve the design for manufacture process, with a particular drive on improved quality.

Quality is key to the SmartPac. It’s one of the advantages that the solution can offer the customer – a package of pre-cut materials that fits accurately, and an identical bill of materials for each unit produced. No matter which shop floor team is on rota, the SmartPac offers consistency and repeatability. Achieving this quality starts when we open discussions with the builder and understand fully his requirements. It continues through the design process and into the manufacture of the SmartPac. As SmartPac Development Manager, Bosman has continuous improvement of quality as one of his top aims for the SmartPac design software development programme.

«As a custom solution for a specific builder and a specific boat model, the SmartPac is driven by a complex matrix of requirements,» says Bosman. «The SmartPac designer needs to consider and find a balance between the lamination process, the builder’s skill level, the materials and our manufacturing capabilities, the laminate specification, as well as the budget and schedule. The first step is defining a well considered process that helps the designer analyse and find a solution, and then we develop the tools to help him to do this more efficiently and accurately. That’s our main aim in the Development Team.»

As well as the continued development of the SmartPac design automation software, Bosman and team develop any other software tools required for the SmartPac division and provide training to new design team members, contributing to the overall improvement of the design and manufacturing process.

«I have worked in the SmartPac side of the business since I joined the company in 2006, leading the design team for much of that time,» says Bosman, a qualified engineer and keen sailor. «And it is fantastic to see the opportunities for its application grow now that it is part of a bigger product portfolio at Gurit. Whilst the marine industry isn’t seeing the highs of a few years ago, the opportunities for SmartPacs are there, and I know there is still much more we can do to deliver them faster, better and smarter, and ultimately offering the customer even greater efficiency, improved cost-effectiveness and an overall higher quality component. It’s an exciting place to be right now!»
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:

- **JEC 2011, Paris, France**
  - 29 – 31 March
- **Aircraft Interiors, Hamburg, Germany**
  - 5 – 7 April
- **All Energy, Aberdeen, Scotland**
  - 18 – 19 May
- **Sanctuary Cove, Sanctuary Cove, Australia**
  - 19 – 22 May
- **SAMPE 2011, Long Beach, USA**
  - 23 – 26 May
- **Wind Power 2011, Anaheim, USA**
  - 22 – 25 May
- **Auckland International Boat Show, Auckland, New Zealand**
  - 15 – 18 September
- **Monaco Yacht Show, Monaco**
  - 21 – 24 September
- **China Wind Power 2011, Beijing, China**
  - 19 – 21 October
- **METS, Amsterdam, NL**
  - 15 – 17 November