How to make Balsaflex.

Heavenly seating.

Revolutionary Quant28 boats are built with Gurit materials.

The Indian market is growing fast. Improving the competitive edge in plug making. Aerospace is ready for future growth.

Carbon fibre prepregs for rotor blades. Soto 40 boats rely on B³ SmartPac.
Dear Reader

Gurit has achieved double-digit sales growth in the first half of 2011 despite a very challenging environment in many of our target markets and we reached an operating EBIT margin of 6%. For the second half of 2011, the sales momentum should continue to accelerate and the raw material cost levels should not increase further, which, in combination, should improve our profitability towards our targeted levels. Gurit has also achieved further important strategic steps in the first half of this year. At the end of March, we successfully closed the last gap in our core materials product offering with the acquisition of Balseurop. I would like to take this opportunity to welcome all the new colleagues in Spain and Ecuador cordially to the Gurit Group. Let me invite all readers to learn more about this new addition to the Gurit product portfolio in one of the feature articles of this edition of SHAPE.

The strategic steps taken over the last years are bearing fruit: Not only has Gurit expanded and largely completed its core product offering but it has also extended its geographic reach and customer base. The sales split by product category and geography is much better balanced today than three years ago and our business model is stronger than ever before. Additionally, we continue to invest in production capacities and service capabilities. The new tooling production campus is now fully up and running and equipped with state of the art tools – such as our huge CNC machining centre to manufacture master plugs for wind energy turbine blade moulds. Gurit also established a dedicated installation team to support our growing mould customer base in India. In Europe, certain aerospace production equipment gained full customer qualification and the automotive facility is being expanded to meet the growing demand.

There are exciting projects going on in all of our target markets, and we expect to see further growth for the remainder of this year and look ahead with confidence.

Yours sincerely
Rudolf Hadorn CEO
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SUCCESSFUL AUDITS AND AUDIT RENEWALS

Gurit is committed to quality, excellence and safety. This is why our work sites regularly undergo audits, which in turn are continuously renewed and updated.

Gurit (Kassel) and Gurit (Zullwil), specialising in aerospace materials, have successfully and jointly concluded the audits to renew their ISO 9001 and 9100 certification. The Lead Auditors congratulated Uwe Jagals, Site Manager Aerospace at Gurit (Kassel) and Gurit (Zullwil), and the rest of the teams on their quality management system. The auditors specifically commended the sites on valuable changes made in the production process since the last audit. In addition, the two sites have recently been awarded the OHSAS 18001 certification for Occupational Health and Safety as well as the environmental ISO 14001 certification. «We have proactively pushed ahead with all the preparatory work for these two important certifications,» says Thomas Croll. He is in charge of environmental aspects while Wilhelm Götzel prepared the OHSAS qualification and manages Occupational Health for the two sites. The audits were made by the German technical services and auditing organisation TÜV Süd in late April. Congratulations to all involved!

Gurit (Canada) Inc was also recently awarded the ISO14001: 2004 certification for its environmental management system. The Magog site comprises two different installations: a plant for the production of structural foam (Corecell™) and a prepreg plant. Gurit (Canada) has now successfully harmonised the environmental requirements to its quality system ISO9001: 2008 already in place. The challenges were due to the fact that both plants have completely different manufacturing processes which in turn will generate distinction in significant environmental impacts, for both plants. There are many projects in progress relating to waste reduction, air emission reduction and energy consumption. Over the years, environmental performance always remained a key management issue and significant investments have been made to ensure that improvements would go beyond mere compliance, even though the site was not officially certified ISO 14001 before. Today, environmental requirements have become fully integrated in the management system and will guarantee the ongoing reduction of the plant’s environmental impact.

Gurit Automotive Ltd has secured Lloyd’s Register Quality Assurance approval for ISO/TS 16949. ISO/TS 16949 is an ISO technical specification, which aligns existing American, German, French and Italian automotive quality systems standards within the global automotive industry, with the aim of eliminating the need for multiple certifications to satisfy customer requirements. ISO/TS 16949 details the management system requirements for the design/development, production, installation and servicing of automotive related products.

A NEW AND CLEVER APPROACH TO TRAINING AT GURIT (CANADA)

In recent years, training has changed a lot at Magog. In the past, colleagues would train newcomers on the job as best they could, transmitting their way of doing things. While this method was hands-on as know-how was passed on from one colleague to the next, it ultimately dilutes the shared competencies and expertise of staff. Additionally, Human Resources had no control over who was trained for what job.

«In order to improve the approach to training, we started to establish formal training guidelines and programs together with the production personnel in November 2009,» Véronique Paquet, HR Manager at Gurit (Canada), recalls. «In a year and a half, we have established 23 of these programs, created a group of 33 trainers and provided 415 formal trainings to colleagues. Internally, we have also developed a software program to monitor who has received training for a specific job or task.» The workers have been involved at every step as they are the ones who really know how to manufacture a product that meets the highest customer expectations.

Gurit (Canada) was very innovative in creating this new software application which is linked to the payroll and document management system. From their own work stations, staff can always check in real time the latest document updates according to their specific competence profile. «This way all our colleagues are always well informed with regard to the latest process, quality and health and safety modifications,» concludes Véronique.

SUCCESSFUL ENERGY SAVING PROJECT AT GURIT (CANADA)

In the manufacturing of rigid foam core, certain processes require the use of water baths to control polymerisation stages of the product (see also SHAPE 8). These water tanks are equipped with small pumps for water recirculation; each motor pump has a nominal capacity of 7.46 kW. By modifying the program set-up and having
SP-HIGH MODULUS UPDATE

New USA Office
SP-High Modulus, the marine business of Gurit, has opened a new office in North America. The office in Bristol, Rhode Island houses SP-High Modulus’ sales, customer service and engineering teams all under the one roof. The engineering team which was formerly based in Gloucester, Massachusetts, has relocated to the new Bristol office. The new 3,600 square feet office houses 12 staff, further enhancing SP-High Modulus’ service to customers. Paul Goddard, Director Marine Asia Pacific and North America commented: «We are pleased to be able to offer our North American customers the benefit of having both our sales and engineering teams located on the one site.»

New UK and Scandinavia Sales Manager
In 2011 Philip Aikenhead joined SP-High Modulus as UK Marine Sales Manager. Philip previously held a sales and marketing role for a UK resins supplier. He has been involved in composite race boat construction as a boat builder for the last fifteen years and his career has involved being on the build teams for five Americas cup class boats and four Volvo/Whitbread round the world yachts. Philip is also responsible for the Scandinavian market alongside UK customers and distributors.

New Italian Sales Manager
SP-High Modulus strengthened the EMEA sales team with the addition of Ferdinando Ollino, who joined the company in late 2010 as Sales Manager for the marine market in Italy. Ferdinando is based in Italy and has more than 11 years’ experience in the Italian marine industry. He is further developing the SP-High Modulus range of high quality composite materials in the Italian market. He is also working closely with SP-High Modulus’ Italian distributor, Resintex Technology S.r.l.

BING CHEN – NEW GENERAL MANAGER TOOLING

As of July 1, 2011, Bing Chen, has joined Gurit as the new General Manager for the Tooling Business. Mr. Chen is a US citizen born in 1961. He grew up in China and complemented his academic education in material sciences from China with a PhD in Ceramic Science and Engineering in the USA. His broad commercial experience and background in business administration and factory management, acquired both in China and the USA, will support Bing Chen in managing the global Tooling Business of Gurit.

REFINING A NATURAL MATERIAL INTO BALSAFLEX

With the acquisition of Balseurop, Gurit now offers a complete range of natural and man-made structural core materials. As a natural resource, balsa wood thrives in tropical climates with lots of heavy rain and sunshine. SHAPE found out what it takes to turn this natural material into a uniform and homogeneous core material.

Balsa is grown in altitudes of 70 to 250 meters above sea level, as indicated by the dark green area on the map.

Balsa logs ready for shipment.
Endemic to Ecuador, the vast majority of balsa wood grown today for technical uses still comes from this Latin American country. Balsa trees, however, have also been introduced to other countries such as Papua New Guinea. Balseurop, the most recent addition to Gurit’s industrial portfolio, is headquartered in Fontcoberta, Spain, but is deeply rooted in Ecuador where it operates its own processing factory.

The rapidly growing company expects sales in the area of CHF 30 million for the current year. This makes Balseurop the second largest supplier of balsa wood in the world.

«Balseurop controls the whole value adding process. The only thing we don’t do ourselves is plant and grow the trees,» explains Balseurop’s founder, Xavier Bonet. The company buys raw balsa wood from many different local farmers and collaborating companies in Ecuador. This way we provide Ecuadorian farmers with the means for a better life. «This raw material is then processed by 160 local Ecuadorian staff into a technical material called Balsaflex. Our core material is well-known in the market for its quality,» Xavier Bonet proudly concludes.

SHAPE asked how the wood is processed into a homogeneous core material. «The trees reproduce themselves easily from seeds randomly dispersed into the terrain or from cultivated seedlings in plantations. After five to six years they reach a height of about 18 to 25 meters and grow a trunk diameter of some 30cm. This is the ideal moment to harvest the wood,» explains Hugo Andrade, Balseurop’s Chief Forest Engineer and General Manager of the factory in Ecuador. «Traditionally this light-weight wood

The Balsaflex factory in Ecuador. «Balsa» is also the word for the traditional river rafts or ferries, made of course out of Balsa wood.

Employees qualify blocks for the production of big glued blocks.

STANDARD BALSAFLEX GRADES
Balseurop offers various standard grades of its Balsaflex branded core material:

- **Balsaflex® 110** features a density of 100 to 125kg/m³ and is the ideal natural core material when the final weight of the sandwich construction is important.
- **Balsaflex® 150** features a density of 135 to 175kg/m³ which makes it suitable for standard applications.
- **Balsaflex® 220** features a density of 200 to 240kg/m³. This high-resistance core is ideal for reinforcements in special areas or for extreme resistance requirements.
was used in Ecuador to build rafts to cross streams and rivers. For us, ‘balsa’ also means ferry boat or raft. Some of the farmers transport their harvested logs on the rivers, too.

In the forests or plantations, the harvested trees are cut into straight logs which are then kiln dried to a moisture content of about 8%. This drying process also has a sanitising effect as any phytosanitary risk is eliminated in such dehydrated conditions. The dry logs are then cut into standard size blocks, weighted and visually controlled to avoid any holes, pith or disturbing knots.

HOW IS HOMOGENEOUS CORE MATERIAL CREATED OUT OF NATURALLY GROWN TREES?
The solution to create a Balsaflex panel featuring a homogeneous mechanical resistance is to carefully select and sort standardized blocks into various density classes. These standardised blocks are then glued together to form big blocks with all grain aligned in the same direction.

The blocks are then cut on horizontal saws to obtain end-grain panels. «As we work under tropical conditions, the wood has again absorbed some humidity from the atmosphere,» Hugo Andrade continues. «The panels are again checked for their moisture content and low 12%. Then both surfaces are sanded and squared with precision machinery.»

SURFACE TREATMENT, SCRIM, GROOVES, SLITS AND DRILLS
According to the application, the surface of the panels can be coated with special resins to partially close the smaller capillaries. To obtain a flexible material that can be laid up into almost any kind of spherical shape, a scrim foil is attached to one side and grooves, slits and drills are added according to customer specifications.

The Balsaflex core material family fills Gurit’s last gap in its rapidly built and now completed core material offering. It also allows Gurit to combine Balsa wood with its other core materials to supply the global customer base in the Wind Energy and Marine markets with multi-material structural core kits. With this acquisition, Gurit is now uniquely positioned to supply a full range of glass and carbon fibre prepregs, all relevant core materials and kits, adhesives, as well as turbine blade moulds to the Wind Energy market and— for the most part—to the global Marine market.

Mit der Akquisition von Balseurop hat Gurit die letzte Angebotslücke bei den Strukturkernelementen geschlossen. Der Bericht zeigt, wie aus einem natürlichen Material ein homogener Strukturkerwerkstoff entsteht.
CREATING PRODUCTS WHERE PERFORMANCE IS EVERYTHING

Gurit has signed a commercialisation and supply agreement with 3M for use of 3M™ Matrix Resin in high performance marine applications. 3M’s proprietary resin technology enables the production of stronger, lighter and more durable composites and the development of products that improve the strength to weight ratio of components.

SE 84 Nano, the first product based on this agreement, was launched at the JEC Composites Show in Paris this Spring. It is a high performance prepreg that shows a considerable increase in compressive strength over our comparable prepreg. «We continually strive to develop market-leading, next-generation products for the marine market. The marriage of technology from 3M and SP-High Modulus, the marine business of Gurit, will deliver products for marine applications where performance is everything,» says Joe Summers, Head of Product Management at Gurit.

20% INCREASE IN COMPRESSION STRENGTH

When vacuum bag moulded, SE 84 Nano exhibits a 20% increase in compressive strength compared to SP-High Modulus’ SE 84LV through a combination of SP-High Modulus proprietary formulation technology and 3M™ Matrix Resin. With its very high compressive strength, SE 84 Nano is ideal for use on components with strength-driven designs such as dagger boards, bulkheads, fixing plates and hull inner skin. For stiffness-driven components, SE 84 Nano provides equivalent stiffness properties with the 20% increase in strength for peace of mind. Graham Harvey, General Manager Marine at Gurit comments: «With the launch of SE 84 Nano, SP-High Modulus is able to offer customers a high-performance prepreg that brings a significant increase in compressive strength over our comparable prepregs. We expect that this product will benefit designers, engineers and builders of sailing boats at the cutting edge of performance, who could seek to use SE 84 Nano to achieve lighter parts for the same strength or a strength bonus for stiffness dominated applications.»

A VERSATILE MATERIAL

SE 84 Nano retains a flexible cure envelope with cure as low as 80°C or – for faster moulding of components – at 120°C. It is compatible with vacuum bag, press-moulding, autoclave and other pressure moulding processes. SE 84 Nano can be used in sandwich structures with honeycomb and foam and retains compatibility with the toughened SA 80 Adhesive Film.

Unter Nutzung der 3M Matrix Harze stellt Gurit neue leichtere und weiter optimierte Prepregs her:
SE 84 Nano ist ein erstes Material dieser Klasse.
THE PRIVILEGE AND CHALLENGE OF SUPPLYING TO GLOBAL TOP BRANDS

In its transportation activities, Gurit is supplying some of the most prestigious products and brands of the industrial world. Kees Reijnen, General Manager Transportation, sees this as a privilege and a challenge at the same time – especially in industries with their own specific project cycles and timing.

SHAPE: Transportation proves to be a rather stable business. What’s your vision for this business?
Kees Reijnen: Our vision is to be best-in-class in what we do. We’re working for some of the most prestigious products and brands in the world: the Airbus A380, James Bond’s Aston Martin and other prestigious car makers like Porsche or Rolls Royce, Ariane space rockets, Chinese high-speed trains, Pilatus planes, to name but a few. These customers have a reputation for being top-notch in what they do. Helping to make their products even better, is both a privilege and a challenge for us.

How much growth do you see in your target market?
Quality and excellence certainly remain our prime objective and the basis for growth. But we also want to actively expand our business, for various reasons. Transportation is a good and stable business, hence who wouldn’t want to have more of it? And there is the Group perspective: Gurit is specialising on advanced composite technology for key applications in selected industries. Wind Energy has shown remarkable growth over the past years and is likely to continue to grow in the future. To maintain a certain balance in the portfolio of the Group activities, we are pushing ahead to expand our reach in transportation markets. Growth through innovation is essential in aerospace - e.g. by addressing smart, lower-cost solutions for aircraft interior components and for structural applications in defined market niches. We also want to expand our presence in the global rail market which requires us to bring the key features of aircraft materials e.g. lightweight and fire-proof to a cost level that is acceptable to the rail industry. Standardisation of solutions is critical. Simple in theory, but very demanding to realise with customers requiring individualised optimum solutions. Ultimately however, this may also support our efforts to help aerospace customers to deal with cost pressure. Then we have automotive: we are currently doubling our capacities to accommodate future growth at our Isle of Wight facility, and this may not be the end of our opportunities here. Ultimately, we may reach out beyond the luxury car market that we serve today. In summary, we have good potential to
grow organically in different sub-sectors, and on top of that, we also keep our eyes open for partnerships and/or acquisition opportunities.

What’s the time frame for these steps? As you said before, transportation and especially aerospace are rather stable and long-term oriented businesses. Yet the pace of this industry is picking up. When we look at our potential, there are two sets of key drivers: Build rates and design changes. The aerospace industry as a whole is developing favourably, with our prime customer Airbus leading the way. The strong order intake announced at the Le Bourget air show or recently highlighted with orders from American Airlines will support the trend to higher build-rates in the near future. In an industry with a long-term growth rate of some 5% per annum, we are seeing numbers of 8 to 10% both in 2011 and 2012. This brings additional volume to the entire supply chain, which will be of benefit to Gurit, if we maintain our market shares. For the next four to six years, Airbus and Boeing will continue to dominate the aircraft interior market we’re active in. The number and size of their aircraft fleet represents an order of a magnitude unmatched by all the other aircraft manufacturers.

The big and immediate challenge in the industry is a drive for cost-efficient changes. Innovation today already happens – and is accepted – at a much higher pace than previously in this industry. Airbus’ A320 NEO is the perfect illustration for that: this updated, more fuel-efficient version of an established aircraft will be available within three to four years from being introduced to the market. This is really short-term for this market. The aircraft industry is moving from a «once defined – forever built» concept to a business model that allows room for changes and innovation in existing programs. This offers new opportunities for innovators who truly understand their customers’ requirements. In a partnership approach, the design responsibility moves one or even more levels down in the supply chain, unleashing additional dynamics which will accelerate innovation-driven changes.

How are new market entrants influencing the industry? The changes I just referred to are most obvious at Airbus and Boeing. A longer-term challenge, both for them and the supplying industries, will be the entry and the growth of new players in the important market segment of the 150 to 200 passenger craft. I am talking about companies such as Embraer, Bombardier, Comac from China, Sukhoi in Russia and others. Serving these customers requires, amongst others, also a more global presence. Given the existing global Gurit infrastructure, we are fundamentally well positioned to meet this challenge. Selecting the right locations and the right time will be critical for success, which in turn depends on how good we are in developing our customer relations. Ultimately, the market and the customer requirements will drive our decisions.

What’s the growth potential in Automotive? At Gurit Automotive we produce today composite body panels for cars built in relatively small numbers of up to a few thousand per year. Our technology offers important benefits: It is not only best-in-class, excelling in surface quality, freedom of design and in terms of how rapidly a design can be turned into finished parts. It is also cost competitive against more traditional light-weight materials such as aluminum, as it implies significantly lower upfront tooling cost and limits the cost exposure associated with the introduction of new models. We believe that there is considerable room to grow in this market – by winning new OEM contracts and additional models for existing customers. We are doubling our facility at the moment and will grow our business correspondingly with newly contracted business. This is not expected to be the ceiling for our current market segment, however.

«Growth through innovation is essential in aerospace.»
Interview with Kees Reijnen

Is expansion in this market mainly a question of time, or of innovation?

Thinking ahead, we are looking at innovations and process optimisations that will allow us to drive cost out when series grow bigger. One significant cost reduction for our customers will come from the introduction of new materials that allow on-line painting of the fully assembled cars comprising composite body panels. So far, conventional composite parts require a separate painting process which can lead to color-matching issues. Gurit Automotive expects to introduce a new solution addressing exactly this problem soon. In addition, we strive to reduce process times and automate process steps to gear up for larger volumes. What we do today is a product for high-end cars. Whilst we are not aiming at mass production in general, there is a lot of space in between the high-end niche and the mass-market and we aim to enter that in the next development stage.

How important is the weight aspect in car manufacturing?

The industry’s tendency to go light-weight, to evaluate carbon fibre for mass applications and to produce all-composite chassis for a wide-range of future cars is in a way supporting us, without really threatening us. The attention for light-weight design and for composites in general is helping us to bring the opportunities of our proven technology to people’s attention. The CEO of a high-end Italian car manufacturer and his team visited us for in-depth project discussions at the composite trade show JEC in March and we were invited to attend their key supplier event – even without actually supplying that company, yet. This clearly demonstrates the industry’s interest in composites, including high-quality solutions like ours and other, more mass-oriented applications.

What’s new in Rail – Gurit’s second ground transportation target market?

In the past, we have successfully introduced light-weight prepreg solutions to the rail market - in particular with CRC in Changchun, China for the medium high-speed train programs. Based on this experience, we have searched for partners to start converting the important railway industries in our European home market towards composites. Our light-weight solutions meet with a lot of interest and key players encourage us to submit proposals, manufacture test panels or parts to finally enter the market. Yet, we realise, that prepreg panel technology is not very common in trains so far. Our challenge today is not only proving the viability and the benefits of a new technology, but also to convince the industry to re-think their design processes. We know this will be a time consuming and at times even frustratingly slow process, but we believe in the advantages and benefits of our solutions. Based on key product characteristics such as better fire, smoke and toxicity properties, additional weight reductions and design flexibility, we have together with our partners successfully built an industry track record. We believe rail to be an important growth market – probably growing even faster than air traffic, driven by the global urbanisation, increasing wealth in developing economies, and the need for more environmentally-friendly transport.

«We believe in the advantages and benefits of our solutions.»

Kees Reijnen, General Manager Transportation, erklärt, welche Anforderungen die Belieferung weltweiter Top-Brands stellt und wie sich die einzelnen Transportation-Märkte entwickeln.
HEAVENLY SEATING

Gurit (UK) engineered and supplied materials for a fascinating sculpture that adorns the atrium of the recently completed Angel Building in London.

The eye-catching sculpture which takes centre stage in the atrium of the Angel Building in London, was designed by architect, turned sculptor, Ian McChesney. The form of the piece was generated using a teaspoon to draw treacle from a tin. The title of the piece «Out of the Strong Came Forth Sweetness» is taken from the motto on the Lyles Black Treacle tin, which in turn is a reference to a story in the Old Testament. The unit comprises an oval seating area from which extends a 22m long spar.

The heavenly ottoman has an internal steel structure in the base, and a shell and spar fabricated from resin and carbon fibre, which is both strong and very light and made the incredibly slender spar possible. At the foot of the piece is a seating area upholstered in leather by Bill Amberg.

Gurit were originally approached to see if the concept of a long, thin tapered mast could be realised in carbon fibre. Initial calculations suggested that this would be feasible with only a small increase in the tip diameter to 25mm. The challenge with such a structure is that since it is loaded by self-weight, the weight must be kept as low as possible, and the high stiffness-to-weight ratio of carbon fibre laminates allowed the mast to be very slender.

For the detailed design of the structure an additional challenge was that there was a strict limit on the weight of the composite material in the structure due to fire, safety and toxicity regulations. Gurit created a finite element (FE) model to determine static and buckling strength and deformations under three load cases along with natural frequencies and mass estimates. The FE model was then used to optimise the fibre weights and orientations in the mast tube laminate to ensure that the mast met the performance criteria with the minimum amount of material. The composite components were manufactured by AM Structures, Sandown, Isle of Wight, using Gurit’s Ampreg 21 resin and carbon reinforcements supplied by Gurit.
BRING BACK THAT SURFING FEELING

A highly motivated team, led by two enthusiastic Swiss sailors, is committed to creating the fastest lake racer possible. What Michael Aeppli and Max Schmid have achieved and demonstrated this summer on various Swiss lakes proves that the new Quant 28 – the first lake racer purposely built employing the Dynamic Stability System (DSS) technology – offers an entirely new sailing experience. Built in Cowes on the Isle of Wight, Quant 28 features various SP-High Modulus materials.

Als eines der ersten sogenannten DSS-Boote (Dynamic Stability System) verfügt die Quant 28 über seitliche Flügel, die dem Boot mehr Auftrieb, Stabilität und eine höhere Geschwindigkeit geben.
SHAPE met with Michael Aeppli, initiator and partner of quantboats.com, at the shore of Lake Zurich where his Quant 28 is frequently on the waters and a much discussed sight. «Whenever we can sail on the foil in 9 knots, plus true wind speed, we are currently just unbeatable. Our foil reduces the displacement of our mono-hull incredibly. It lifts her up while creating additional stability and comfort. All together, this leads to a dramatically increased performance compared with conventional yachts.»

THE FASTEST LAKE RACER POSSIBLE

The advantages are most obvious on half- or downwind courses and while two-sail reaching, Michael further explains. Find out for yourself how smoothly and fast the Quant 28 sails in light and medium winds by watching the many videos that have been posted on youtube. «Tacking upwind, the foil of course has less effect (editor’s note: less lift, because of less basic speed), but it helps to even out the overall movements of the boat which leads to more efficiency on the side of aero- and hydrodynamics. Not to forget, the helmsman has less to do: and this means less drag caused by the rudder. Thanks to DSS, the boat runs its course more constantiy. Although going upwind length always remains the main factor in the equation – but that’s physics,» says Michael. Quant 28 is a pre-series prototype boat designed to be the fastest conceivable lake racer in the size of a modern sportsboat. «I want to get that windsurfing feeling back,» says Michael, «and this is just what Quant 28 does. Yes, it is a racer but at the same time also a real ‘fun boat’. It is thought to show its best performance in a wind range of 5 to 15 knots, typical for lakes in central Europe. In about 10 to 12 knots of true wind you easily achieve constant speeds of 14 to 16 knots and in the gusts you see 18 to 19 knots on your GPS quickly while the boat still is totally controllable. You’ve just got to feel that!» Getting there hasn’t been an easy ride. The team started out three years ago, experiencing a setback during the global financial crisis along with the whole marine industry, but finally managed to privately finance the design and build of the first prototype. The world-renowned British boat designer Hugh Welbourn, inventor and patent-holder of the DSS technology, was in charge of the design, while Kevin «Kos» Costin who had gathered a lot of experience previously building a 25 footer DSS boat, was the main project manager liaising with the designer and the wharf. The boat was built in Cowes, Isle of Wight, at Projects by Design. Here, Paul Jennings opted for several SP-High Modulus branded materials such as Corecell™ and certain formulated products. The boat has become a hot topic in Switzerland’s rather conservative sailors’ scene. «We knew that we would meet with a lot of skepticism – even disbelief, as we came up with a completely new lake racer concept. But we also hoped that we could prove the qualities of our ideas and slowly draw the community’s attention to the boat,» Michael says. Quant 28’s first race took place on the Lake of Lucerne and the new boat ended as fastest yacht of the fleet. «In another race we learned, that once planing fully on the foil we were able to pass much bigger boats even on leeward side without even noticing that they were there. That was one of the most remarkable things to explore with this boat and I am still amazed when I start feeling the effect of the foil. That lift, the stability, and the sound are like throwing in an extra turbo engine on a power boat. The bow hardly ever touches the choppy water, and it barely leaves a wake.»

HOT TOPIC IN A FIRST TESTING SEASON

Is Quant 28 the «perfect lake boat?» «We are still improving the concept. She’s no gentle beast and won’t behave yet in just anyone’s hands. In weak conditions behind the starting line you almost go crazy because it takes a certain angle to really ‘take off’ from the start; keel and rudder are very thin. But this is a perfect toy for the experienced sailor, and one that brings back that surfer feeling.»

Riding at 16 knots and quickly pulling away from the whole monohull fleet after the start compensated him for the frustration of a leaking hatch that eventually slowed down his team at this year’s Bol d’Or on the Lake of Geneva - unlike the race on the previous weekend when the Quant 28 came in second overall in a fleet of much bigger lake racers. «Water was entering drop by drop and in the end we had about 300 liters of water in there; but we couldn’t remove it during the race because it was infiltrating the front air compartments of the boat. Still, the boat was one of the main attractions in Geneva’s Port Noir as it offers a new sailing experience to those who’ve had enough of the big lake boats which require a crew the size of a football team.» After a first testing season, a couple of modifications will certainly be made. Based on the existing concept and moulds, quant-boat.com is considering a first small series of up to four semi-custom built boats while Aeppli and his team are already thinking about a next version – maybe a bit more gentle, but at least as fast surfing and just as «quantastic». 

The lateral foil is easy to see on these two pictures.
GURIT CONTINUES SUCCESS STORY IN INDIA

Over the last five years, Gurit has built a strong presence in the Indian wind energy market. Ranking among the leading suppliers of core materials, prepregs, formulated products and wind turbine blade moulds, Gurit continues to grow steadily, now least supported by a new dedicated mould installation team.

Gurit began to supply the Indian wind energy market in 2006 with core material. Corecell™ is now well-established as a core material for wind turbine blades at several leading blade makers in India who use tailored and kitted Corecell™ in most of their blades. «We have just added two new customers for core materials, both for Corecell™ as well as the recently added balsa wood core material Balsaflex,» says Prashant Kshirsagar, Country Manager, Gurit India.

STRONG ONE-STOP-SHOP PARTNER
As in other markets, the fact that Gurit is a true one-stop-shop partner supplying both wind turbine blade materials as well as turbine blade moulds enables Gurit to service all leading wind turbine blade manufacturers in India.

A HISTORY OF INDUSTRY-FIRSTS
«Gurit was first to introduce prepregs along with UV-resistant gel coats for wind turbine blades and roots in India. We currently supply these products to two blade makers,» explains Prashant. Gurit was also first to introduce power hinge operated moulds for wind turbine blades in India – now a big success story. With more than ten moulds operational and a couple more to be installed in the near future, Gurit has established itself as the preferred supplier for wind blade moulds in India.

Gurit India has recruited a team of experienced engineers and technicians, who combined, share ample experience gained at various positions in the Indian wind energy industry. The team is led by Vikram Patil; his team includes Abhijit Sutar, Ullhas Dakhode and Vilas Janjire. Two additional members will soon join the Indian Tooling Installation Team.

James George, Project Manager for Indian tooling installations at Red Maple in China, is offering valuable training and support to the full team. Vikram has also recently completed extensive technical training on site at Red Maple in China.

India’s new tooling installation team.
From left to right: Abhijit Sutar, Ullhas Dakhode, Vikram Patil, Vilas Janjire
Gurit wächst in Indien, einem wichtigen Windenergie-Markt erfolgreich weiter. Neu steht den Rotorflügelherstellern ein spezielles Installationsteam zur Verfügung, das sie bei der Einrichtung und Wartung der Bauformen unterstützt.

«With the successful installation of a good number of moulds and master plugs under their belt, this team is confident of offering the best possible installation service to the growing Indian Wind Turbine industry.»

With a view to install many more moulds and master plugs, Vikram highlights that his plans for the next nine to twelve months are pretty much cut out and his team will be very busy at customer sites.

China Techno Foam (CTF), the Gurit site specialising in the production of PVC materials, is more than doubling its production capacity.

The launch of Gurit’s PVC core material family is an impressive success story. The first production line was soon running at full capacity while demand continued to increase. «Gurit made the decision last year to invest in additional capacity to accommodate the rising demand,» says Sam Ang, former Site Manager at China Techno Foam, who oversaw the installation of the second PVC press until completion. Sam has now moved to the United States from where he will lead the global execution of Gurit’s Core material strategy in his new function as Program Manager Core Materials. David Song, the new site manager at CTF, proudly points at the purpose built boiler and curing buildings. «Apart from the technical installations and additions, we also had to expand the buildings. The new production line will more than double our output.»
SCALE, PRECISION AND SPEED EXPAND COMPETITIVE EDGE IN PLUG MAKING

Red Maple, the tooling business of Gurit, has established itself as a leader in master plug making. The company benefits from its specialization and a wealth of experience gathered with countless projects. The new CNC machining centre and the advantageous layout of the new production facility considerably cut lead times and enhance customer benefits.

Mit der neuen CNC-Bearbeitungsstation kann Red Maple in China den Bau von Urformen weiter optimieren.

The front white plug shows a tip section which has just been roughly machined before lamination.

ACCURACY OF +/- 0.3 mm ON A LENGTH OF 60 M

Markets: Tooling
The size of Red Maple’s new CNC plug machining centre is enormous. At first sight, it is hard to believe that the equipment which runs all the way through one of the new production halls is just one tool. «With a working envelope of 65m x 8m, our new CNC machining centre is considerably larger than the previous ones. We like to think that this is most likely the largest of its kind in Asia,» says Wolfgang Mohr, Red Maple’s Engineering Manager who was in charge of getting the new system up and running. The size of the new CNC centre is one of its main advantages: As turbine blade moulds become ever longer, the new equipment allows Red Maple to produce the master plugs even for long blades in one piece whereas previously the plugs had to be put together with two or more pieces. «Making the edges of the various pieces match smoothly and seamlessly is no easy task when pieces easily measure over 30 meters. Producing plugs now as one piece for wind turbine blades with a designed capacity of up to 7 megawatts is a great achievement,» Wolfgang adds.

DOUBLING THE OUTPUT RATE

Compared to previous equipment, the new centre easily doubles the output rate of finished plugs. «Faster rigging is key, too! When we were producing large plugs out of several pieces, we obviously had to rig up several pieces. Now we just do that once.»

As the local Chinese wind energy industry matures, the key players rapidly move towards more individual blade designs. Each new design needs a new master plug – the original shape of the finished blade – from which Red Maple will then build the actual production mould. «We see great demand for highly specialised, rapid and accurate plugging services,» says Bing Chen who has recently assumed the position of General Manager Tooling from Gabriel Mironov. With the unified production campus, Red Maple has eliminated complicated, time-consuming and often technically demanding internal logistics. «Just look at one of those finished plugs and you know what it takes to move such a piece around, to clear narrow angles and portals. At our new facilities, all we have to do is to move the plugs next door. That’s why we have these big cranes installed,» Bing says pointing up to the four 20-ton-overhead cranes in the production bay.

PRECISION IS KEY

The CNC centre is controlled by a powerful Siemens NCU 840D sl unit. The operators can easily and precisely program and control the processes from the main operator’s panel or from a remote one. As the NCU has certain built-in functions to automatically generate shapes, the original design times could further be reduced, implementing this functionality into the working instructions. All the colleagues involved with the plugs are proud of the fantastic accuracy which can be achieved with the new tool. Wolfgang Mohr explains: «We have two bridges – one with and one without the linear scale on the Y axis. On both, we operate 5-axis-routers. Using the first bridge with the linear scale, we achieve final contours to true shape, measured on a Y-Z cutting plane by laser tracker of +/-0.30mm, on the other bridge +/-0.40mm. It’s hard to believe that we can attain such precision on a piece that’s easily 60 meters long!»
The aerospace market is growing at solid single digit rates globally. Strategically well positioned with exciting new additions to the product portfolio coupled with timely installed and qualified production capacities, Gurit is ready to seize growth opportunities in aerospace materials production.

Airbus has recently fully qualified additional new production equipment at Gurit (Kassel). This production site specialising in aerospace materials is gearing up its capacities to benefit as much as possible from the underlying market growth, as well as to seize new growth opportunities. «It is important to be able to supply what customers need when they need it. So we have again expanded our capacity, adding the capability to produce another million square meters of highly specialised prepreg a year,» says Christoph Mayer, Head of Aerospace and Rail at Gurit (Transportation). A so called horizontal treater machine installed at Gurit (Kassel) that can run both epoxy and phenolic resins and can handle material widths of up to 1,500mm has recently obtained full qualification and clearance by Airbus for the manufacture of unidirectional (UD) carbon fibre prepreg tapes. Such UD tapes meet with increasing market demand both from Airbus and other key players in the global transportation market. «From a technological point of view, UD tapes are very versatile materials as they go into aircraft interiors as well as structures. Their unique features even make them an ideal light-weight substitute for metals, too,» explains Axel Braun, Head of Aerospace and Rail Product Development. Axel has already investigated various new avenues together with key raw material suppliers and end customers, to tackle new applications, or to meet ever increasing technological and quality requirements. Additional technical features of the new equipment such as an online resin film capability, online cutters as well as optical inspection devices help meet the most demanding customer requirements.

The lighthouse products manufactured on the new machine include the UD tapes used for the flooring products of the huge A380 long-haul planes. Gurit (Kassel) is in a position to supply 100 percent of all materials which are used for A380 floorings manufactured at Elbe Flugzeugwerke in Dresden. They are all based on intermediate modulus carbon fibers and the latest in fire retardant epoxy resins. Apart from flooring applications, the UD tapes also serve to produce multilayer prepregs for interior parts where mechanical or impact performance and a perfect surface quality are key design criteria. «Our PF811-F200 Facesheets are made from cross-plied UD carbon prepreg and feature an additional E-glass fabric surface,» explains Axel. In less technical terms, this is a criss-cross prepreg made out of various layers of UD tapes and a glass fibre surface which is impregnated with Gurit’s most recent, fast-curing phenolic resin PF811 which is renowned for its high quality surface. A special layer of adhesive guarantees perfect bonding characteristics. The combination of these characteristics makes this light-weight facesheet material ideal for fast-curing, high throughput panel manufacturing, which is used for example for overhead storage compartments, emergency exit linings or similar interior design needs. Needless to say, Gurit’s PF811-F200 Facesheets comply with the most demanding international JAR/FAR fire protection regulations regarding flammability, smoke, heat release and toxicity.

Florence Ronat, in charge of strategic business development in Gurit’s Aerospace and Rail markets, likes to point out the production capabilities to the customers: «We are certainly prepared and committed to accommodate our customers’ growth and to support their future aerospace projects – be it flooring or interior parts materials for the new A350 or all those new 70 to 120 seat aircraft coming into production now in China, India and Russia. This extends to structural applications where we see ample opportunity to leverage our strong expertise in fire and safety technology.»

Im Marktbereich Aerospace wurden wichtige Produktionsanlagen von Kunden qualifiziert: Damit ist dieser Bereich für künftiges Wachstum gerüstet.
The team at Gurit (Automotive) Ltd was looking forward to the official launch of Porsche’s 997 GT3 RS 4.0 models in July 2011 with great excitement. This is the second Porsche model for which Gurit (Automotive) is supplying full colour painted fenders. The relationship with Porsche started two years ago. “The first parts we made for Porsche were optional fenders for the 997 Limited Edition GT2 RS,” Greg Aratoon, Gurit Automotive Account Engineering Manager comments. “It’s great to see two Porsche models on the road today with Gurit made parts. The most recent one, fitted as standard.”

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**Partnering with DuPont Performance Coatings to Meet Porsche’s Requirements**

Painting to Full Colour...

Gurit had secured the first contract with Porsche in December 2009. “At this time, we were already supplying Car Body Sheet (CBS) panels, painted in primer, to Aston Martin and Rolls Royce. As a new challenge, Porsche then required the fenders to be painted to full colour in Carrera White, Jet Black, Indian Red and a Metallic GT Silver.”

Gurit Automotive thus needed a coating supplier who was able to provide first-class and durable products, and who would meet the short lead-time imposed by this prestigious project. With a strong business partnership already established, DuPont Performance Coatings (DPC) stepped up to the challenge. Andy Baker, Technical Specialist – specialised OEM, DuPont Performance Coatings, highlights: “Our ethos is all about providing the best possible coating solutions, in a given time frame, regardless of what challenges are involved. We needed to provide a range of DuPont products that were capable of meeting the rigorous testing and quality checks at Porsche.” With many different options to choose from in its broad product range, the DPC team put together the perfect combination of primer, basecoat and clear coat for the project. “We are excited to know that our materials enabled Gurit to produce a first-class paint job for this luxury brand,” Andy concluded.

Greg Aratoon comments: “The fenders provided many technical challenges including aspects such as precise dimensional tolerance, significant weight reduction etc. These were challenges we had already successfully met on several previous projects, however the requirements to provide an exact colour match to several adjacent panels, the bumper, door panels, side sills, and lower A pillar areas was a new one.” What is more, the paint colour has to be right first time, every time. So Gurit Automotive invested in necessary quality tools such as a spectrophotometer – a digital colour matching tool which enables quick and accurate colour matching, whilst being easy to operate. Additionally, Porsche provided paint plaques and boundary samples directly from their paint line in Zuffenhausen, Germany. The Gurit Automotive paint engineers worked closely with DPC and Porsche to produce and develop the Porsche colours.

From Optional Parts to Standard Fittings

Once painted and polished, the fenders were sent directly to the production line at Porsche headquarters and production facility in Stuttgart, Germany, to be fitted to the vehicles. Greg Aratoon concludes: “It was a testing time for all, but with the dedication of those involved in the project it was a great success and one to build on for the future of Gurit Automotive.” The launch of the Porsche 997 GT3 RS 4.0, featuring Gurit manufactured, full colour painted SPRINT® CBS fenders as standard fitting, now shows the confidence by Porsche in Gurit materials, processes and quality combined with the DPC paint technology.

In Partnerschaft mit DuPont kann Gurit Automotive einsatzfertige und präzise lackierte Karosserieteile herstellen.
LENGTHENING THE DESIGN ENVELOPE WITH CARBON FIBRES

The high cost of carbon fibre has been a limiting factor for its use in wind turbine blades. However, the additional cost of using carbon fibre materials is estimated to be recovered by the aerodynamic advantage alone within five years of operation.

Gurit has been supplying materials to the wind energy market since 1995 and has been actively involved in the development of specialised blade materials, as blade designs have increased rapidly in size and complexity. The tendency in recent years is to supply longer blades on existing turbine designs to suit light wind sites, or to install offshore turbines that are multi-megawatt machines requiring larger blades that can withstand higher loading. The main load-bearing structure of a wind turbine blade is the spar component which is either integrated into a structural shell as a spar cap, or constructed in parallel production to the shell as a separate spar structure complete with shear webs.

THE DOWNSIDE OF GLASS SPARCAPS

To show the advantages of carbon in a blade design it is useful to firstly model a traditional glass design and discuss the key design drivers as a function of blade length. An in-house engineering blade design model was used to calculate the amount of unidirectional glass composite required in a spar cap and plotted as a function of length. This is shown in Figure 3 for blades of length 45 to 55m. Blade stiffness to maintain tower clearance and a requirement to maintain a high natural frequency to avoid resonance (caused by the pressure drop as the blade passes the tower – quantified by the tower passing frequency of each blade known as 3P) can drive the design of many large blades. However, above 45m blade length, the design becomes dominated by tip deflection. The obvious solution to increase stiffness is to add more glass UD but this is not ideal as the glass has to be added further and further away from the outer surface and therefore becomes less effective. Furthermore, the addition of extra glass increases the weight of the blade which again increases fatigue loads in the edgewise direction. The edgewise fatigue loads are caused by the weight of the blade creating bending firstly in one direction as it climbs to the highest point above the nacelle and then reversed loading as the blade heads back towards the ground.

Another approach to avoid the blade striking the tower is to design the blade with pre-bend or to increase the angle of the hub. However, as the blades increase in size there are limitations to this solution.
Another option to increase stiffness is to increase the thickness of the blade. The problem with this approach is that by increasing the blade thickness, you reduce the aerodynamic efficiency of the blade. Figure 4 shows the spar cap mass versus blade length and the approximate blade lengths at which the design driver changes from tip deflection to edgewise fatigue loads. The lower line shows the effect of increasing the blade thickness on the spar cap mass which enables the design of longer blades but at the cost of aerodynamic efficiency.

**Figure 4**

Influence of edgewise fatigue loads and aerodynamic compromise on glass spar cap mass

**DESIGNING WITH CARBON**

Even when using thicker blade sections, there comes a point when designing with glass becomes increasing difficult because of high edgewise fatigue loads. The alternative is to use carbon fibre that has inherently more stiffness than glass. Although more expensive, they provide significant design advantages such as 3x modulus, 2x strength, 30% lower density and significantly increased fatigue strength. The net result is you can design significantly lighter and longer spar caps for a given tip deflection and also negate the effects of edgewise fatigue that is inherent in heavy glass blades.

**Figure 5**

Glass and carbon spar cap mass for equivalent blade lengths

The uptake of carbon fibre in the design of wind turbine blades has been restricted due to the high cost and the difficulties in using it in blade manufacturing processes. The point at which carbon becomes the viable alternative to glass is the subject of much debate due to the many factors that need to be considered. The first benefit is the capability to design with small blade thicknesses increasing the aerodynamic efficiency. This has been illustrated by estimating the effect of blade aerodynamic geometry on energy capture for 3.6 MW turbine with 60m blades. Figure 6 shows the effect of wind speed on power for two blade geometries. Although the differences appear small, the effect over 20 years is significant and it is estimated that the additional cost of the carbon fibre is recovered by the aerodynamic advantage alone within five years of operation. With a reduced blade mass, it is also possible to save costs on other elements of the turbine. In particular, the low speed shaft, bearings and hub cost are likely to be reduced. Tower top mass is also reduced facilitating cost savings on the tower and foundations. Figure 7 shows the estimated payback time in years for the use of carbon spar caps as a function of blade length for the improvements in aerodynamic performance. The additional benefits associated which reduced blade mass will reduce the payback time and reducing the blade length at which carbon becomes a viable option in blade manufacture.

**Figure 6a**

Effect of wind speed on power generation for glass (red) and carbon (blue) sparcaps

**Figure 6b**

**Figure 6c**

**Figure 7**

Calculated the benefit of carbon fibre
FASTER AND BETTER WITH B³ SMARTPAC

From the drawing board of naval architects Soto Acebal, via the M-Boats boatyard in Argentina, to the Audi MedCup, the Soto 40 race yacht has become the yacht of choice among the match racing community. With 26 of these one-design boats built to date, they have been sold to sailboat racers around the world. B³ SmartPac improves production efficiencies for the second generation builds.

After establishing the Soto 40 as a popular South American class, the selection of the design for the Audi MedCup, and more recently the Asia Cup One Design Circuit, has significantly boosted the demand for these yachts. The directors of M-Boats needed to find a way to maintain the high quality of build, and cut production time to meet the owners’ and event’s delivery requirements.

«As the director responsible for production, I started to look at every aspect of the build to see how we could streamline our processes,» says Lucas Dittrich. «This included the composite construction. The first generation of Soto 40s was hand-laid, yet I recognised that a move to infusion technology would allow us to reduce our build time and maintain a consistent quality. We needed to change the way we approached the build, but we also had to maintain the performance of the boats, so both generations could be equals on the water.»

HIGHER PRODUCTION EFFICIENCY

To help M-Boats achieve these two requirements – improved production efficiency and maintenance of the performance and weight properties of the hand laid boats – Dittrich consulted SP-High Modulus. As a company with a broad portfolio of composite products and an unparalleled depth of experience in the marine sector, SP-High Modulus was well placed to offer advice and guidance on the infusion process, materials selection and their successful application at the yard. One of the solutions offered was the B³ SmartPac.

B³ SmartPac is a composite construction solution that offers improved efficiencies to boatyards around the world. The B³ SmartPac comprises of dry reinforcement and core materials, pre cut on CNC machines to the exact shape and size required for the mould. Each piece is uniquely labeled, and corresponds to a schematic instruction manual, which assists the shop floor team in laying up the mould, and ensures that the materials are correctly located.
SIGNIFICANT REDUCTION OF PRODUCTION HOURS PER BOAT

«Whilst I was familiar with the kitting concept,» continues Dittrich, «the B³ SmartPac was the only offering on the market that really met all our requirements. I assessed all the benefits the system offered, and decided to give it a try. We have been thrilled with the results.»

In terms of improving production efficiency, M-Boats have seen a sharp reduction in production hours per boat. This was mainly due to three key factors:

- the introduction of the infusion process;
- the B³ SmartPac and
- the onsite support provided by SP-High Modulus to assist the M-Boats team with the implementation of both new technologies.

When M-Boats introduced infusion they also opted for B³ SmartPac. SP-High Modulus’ Engineering Team provided an infusion-suitable materials specification to match the performance of the original specification developed by Soto Acebal, which was critical to maintaining the integrity of the one-design class. This infusion-friendly specification was then supplied as a SmartPac for the yacht’s hull, deck and liner composite components.

GAINING CONFIDENCE WITH HANDS-ON ONSITE SUPPORT

SP-High Modulus provided onsite support for the composite construction of the first hull and deck, to give the team confidence in using the SmartPac and also in undertaking the infusion process. A few modifications were fed back to the SmartPac Design Team after the prototype fit-out, which were applied to subsequent SmartPacs. The competitiveness of both first and second generation Soto 40s has been proven on the racing circuit, as they race side by side. The M-Boats team no longer needs to spend time cutting the reinforcement and core materials, including the small areas of local patching and high density core, as all of these are supplied pre-cut as part of the SmartPac. Having all of the dry material pre-cut also offers quality benefits – the infusion process is smoother due to the highly accurate fit of the materials in the mould, and the CNC-cut reinforcement pieces hold their shape far better than when cut by hand. The shop-floor space previously required for cutting tables is now used for other tasks, and the build team no longer has to search through stock for the different materials required – they simply need to have the SmartPac boxes close to hand. The schematic instructions that accompany every SmartPac lead to quicker and more accurate loading of materials, and accommodate non-English speakers, such as the Spanish-speaking team at M-Boats.

STREAMLINING THE PROCUREMENT PROCESS

On top of the more obvious direct production benefits, M-Boats are experiencing streamlining in other areas of the business thanks to the B³ SmartPac. «Our procurement process is far easier now as we do not have to order, ship and track different materials from around the world. We simply order complete SmartPacs for the Soto 40 hulls, decks and liners from SP-High Modulus. We have one point of contact for logistics, and one shipment to track,» says Dittrich. «In addition, we have found that our clients appreciate the fact that we have invested in the use of the B³ SmartPac. The system reassures them that each boat is built the same as the next, so they will be true equals on the race circuit; and that they are purchasing a boat built to the high quality standards that M-Boats are known for.» To date, ten Soto 40s have been built with the B³ SmartPac solution, with many more currently in progress.

Die Soto 40 Rennyachten können werden neu mit optimierten SmartPacs in kürzerer Zeit hergestellt.
98 COURSES SCHEDULED OVER THE NEXT THREE YEARS

Through its Training4Success scheme introduced earlier this year, Gurit is fully committed to ongoing education and training. Gurit in the UK has established a three-year schedule of on-site training opportunities. "Our HR team was really excited when we first became involved with the Training4Success model. This group-wide blueprint for training and development along with the substantial financial investment the Group has provided really helps to expand our technical and skills based training," says Peni Harman, HR and Development Manager at Gurit (UK).

Specifically tailored training sessions
With a majority of the UK employees based on one site, Gurit (UK) had the resources available to appoint an external training company to specifically tailor courses to Gurit’s objectives and to deliver most of them. "This provides much better value for money than sending individuals to the mainland on generic public courses," Peni added. There are now 98 courses scheduled over the next three years in a vast range of subjects to cover individual, corporate and management development. All of them have been designed specifically to support Gurit’s corporate values. While most of the courses are being delivered by the external partner, in-house experts chair subjects such as completing effective investigations, health and safety, an introduction to composites, financial training, and employment law. "Delivering a course is as great a learning experience as taking one. In preparing the materials for these sessions, a presenter typically learns a great deal about him or herself by establishing a well-structured approach to the subject. The colleagues who volunteered to lecture, all did a wonderful job and HR would like to take this opportunity to thank them again," says Linda Tillson, HR Consultant with Gurit.

Ongoing education needs personal commitment
HR at Gurit in the UK is pleased with the established training offering, yet slightly disappointed by the lack of initial commitment from some areas of the business. "As is the norm, some managers were quick to see the benefits and have proactively scheduled themselves and their teams to take advantage of the courses. Others have needed a little more encouragement" but we are confident that everyone will come on board as the positive feedback we have received from participants starts to filter around the Company," Peni added. Participants commented that the training really improved their skills and confidence and that they hope everyone will attend, helping to create a shared view and understanding of key subjects. So far Gurit has run workshops in the UK in Customer Relationship Management, Presentation Skills and Negotiations Skills. In addition there have been two Managers4Success courses with another one scheduled for November which is already fully booked.

More Training4Success news
In March 2011 The Sales & Customer Service Department at Red Maple held a workshop for staff on Customer Information & Customer Care. As part of the Corporate Training element of the Training4Success model, Patrick Sparer, Group Controller, has put together an introduction to Gurit Group Finance. We are now arranging for this workshop to be delivered to staff at all sites by the local Finance team.

A DECADE OF SUPPORTING EXCELLENCE ON THE ISLE OF WIGHT

Gurit constantly strives for excellence in the highly competitive marketplace in which the company operates. We can only achieve excellence with every member of Gurit continuously pushing themselves to reach ever higher standards. This pursuit of excellence is apparent in everything we do. Gurit believes that when people strive for excellence in their field of interest they benefit themselves by gaining skills and confidence. With its «Awards for Excellence», Gurit wants to motivate people, teams or organisation on the Isle of Wight to reach out that bit higher and to stretch out that bit further. The Gurit (UK) Award for Excellence scheme consists of a sum of £1,000 issued quarterly, designed to assist those who are striving to achieve excellence in a sporting activity, or in the creative or performing arts. The scheme has now been supporting excellence within the local community for over 10 years and has awarded Island achievers in excess of £50,000. If you’ve achieved excellence in a specific field, live on the Isle of Wight and want to further this pursuit, we invite you to apply for the next Award for Excellence at gurit@gurit.com providing details of your specific activity and your ambitions in the field. The next quarterly deadline is December 2, 2011. The winner will also be announced in the next edition of Shape. We look forward to hearing from you!

Aufgrund der gruppenweiten Ausbildungsinitiative Training4Success wurden allein bei Gurit (UK) 98 Kurse während der nächsten drei Jahre angeboten.
GURIT (UK) HELP ISLANDERS TO THE PODIUM

In Summer, the Isle of Wight played host to the 14th biannual NatWest International Island Games. The Games were first held on the Isle of Man in 1985 and today include 25 member islands from around the world, competing in 14 different sports. The event has quickly grown in stature to become one of the largest international multi-sport events in the world behind the Commonwealth Games and Olympics, with many Commonwealth and Olympic standard sportsmen and women taking part. Many people from Gurit (UK) volunteered their time to ensure the Games ran smoothly from assisting as sporting officials and marshals, to sourcing and selling merchandise. Gurit (UK) also gave support in the form of design and printing of leaflets and posters for merchandise, as well as certificates for finalists in the swimming events.

Gurit (UK) also had various employees involved directly in the sports. Andy Sampson, Prepreg Shift Leader, was awarded a Gold medal as the Manager of the men’s Football team, who in an thrilling final triumphed 4 - 2 over Guernsey in extra time. Garry Newton, Acting UK Operations Manager & Global Process Engineering Coordinator, competed in the shot put and discus events and was unlucky to finish 4th in both events behind renowned international athletes. Design Engineer, Richard Evans, competed in the men’s individual mountain bike criterium and cross-country events, finishing in a creditable 24th place. Dave Russell, Design Executive, was Assistant Coach to the swimming team who won 2 gold, 1 silver and 1 bronze medal. Both of the swimming gold medals went to Commonwealth Record Holder, Darren Mew whose father Alan also works for Gurit (UK) and officiated at the swimming event.

Darren struck gold in both the 100m and 50m breaststroke, in which former Award for Excellence winner, Mikael Popov (featured in Shape 1) stormed through to take the silver, making it a memorable 1st and 2nd on the podium for the Isle of Wight.

HOW DIVERSE IS GURIT?

Gurit is a global organization. SHAPE wanted to know how this reflects in our staff.

While it came as no surprise that we have more male (83%) than female (17%) colleagues, it is interesting to note that we are not far off the average: A recent European study indicates that the typical percentage of women employed in a manufacturing group is around 20%. With almost 30%, Gurit (Tianjin) in China features the highest percentage of women employed. 91% of our colleagues work full-time for Gurit.

Age
- under 20: 2.5%
- 21-30: 37.3%
- 31-40: 37.8%
- 41-50: 15%
- 51-60: 6.6%
- 61-70: 0.8%

Length of Service
- under 2: 2.5%
- 2 to 5: 16.1%
- 5 to 10: 37.3%
- 11 to 15: 37.8%
- 16 to 20: 15%
- over 20: 6.6%

Geographics
- UK: 16.1%
- Switzerland: 2.0%
- Canada: 3.9%
- China: 54.1%
- USA: 6.6%
- Sweden: 3.9%
- Japan: 2.0%
- Spain: 5.8%
- France: 2.0%
- Germany: 2.7%
- Italy: 2.0%
- Australia: 2.3%

Target Markets and Functions
- Wind Energy: 50.7%
- New Businesses: 0.6%
- Tooling: 30.1%
- Transportation: 6.1%
- Corporate/Support Functions: 5.2%
GURIT AGENDA 2011/2012

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:

2011
» Auckland International Boat Show, Auckland, NZ
   15 – 18 September
» Monaco Yacht Show, Monaco
   21 – 24 September
» China Wind Power 2011, Beijing, China
   19 – 21 October
» The Composites Engineering Show, Birmingham, UK
   9 – 10 November
» METS, Amsterdam, NL
   15 – 17 November
» The Tidal Energy Summit, London, UK
   28 – 29 November

2012
» JEC Europe 2012, Paris, France
   27 – 29 March
» Aircraft Interiors 2012, Hamburg, Germany
   27 – 29 March