PREON®marine
Foundation system to be tested at new Wind Energy Test Centre

Asian markets
Boom in construction of jack-up rigs

PREON®box
Innovative software for intelligent hall construction

Growth through Innovation
Success strategies in global competition
Peak performance – at a height of 1,776 feet. For a skybound antenna, where top quality, reliability and experience count, only the original is good enough: Vallourec MSH sections. And MSH sections are the first choice not only at dizzying heights but also 2,000 meters (over 6,500 feet) below sea level. We would be delighted to support you in your boldest projects with square, rectangular and circular hollow sections in the widest range of dimensions anywhere.

industry@vallourec.com
Dear Customers, Dear Readers,

I am happy to introduce the first issue of iTube, Vallourec's magazine specifically dedicated to our Industry customers, presenting the latest news and views from the steel construction, mechanical engineering and automotive sectors.

Vallourec teams work every day at tying strong and close relationships with you. Over the last six years, we have built Vallourec into a worldwide industrial group, united under a single brand, with a strong international presence and driven by constant improvement in the fields of Safety and Quality. In an increasingly competitive environment, with fast-evolving trends and worldwide overcapacities, Vallourec continues to demonstrate its ability to meet technological challenges and adapt to market needs thanks to its premium positioning and an ambitious innovation policy. Part of the Group's DNA, Innovation is a way for Vallourec to build true intimacy with its customers and to differentiate from its competitors: it is about generating added value through new solutions, new services and new business models. Our efforts have ultimately one goal: enhancing the success of our customers.

In this first issue of your new magazine, you will discover how Vallourec's fundamentals were instrumental in grasping an important market share in the fast growing sector of jack-up rigs construction. You will also learn, among other topics, about the latest developments in the PREON® products and solutions family.

Enjoy your reading!

Philippe Crouzet
Chairman of the Management Board
Growth through innovation

Andreas Denker, Managing Director of the Industry Division, about success strategies in global competition, tailor-made steels and innovative steel tube solutions.
Mr. Denker, the market for steel tubing is undergoing a dynamic change. As a premium manufacturer, Vallourec is decisive in shaping these market changes. You, in fact, influenced the strategic new alignment of the Industry Division with the leitmotif ‘iTube’. What exactly do you mean by this?

With ‘iTube’, we are describing the innovative and intelligent industry tube. The term recognizes the connection between the new and the old economy, that is, between innovation and tradition. Our conservative industry, in particular, is still somewhat removed from the multitude of new possibilities created by the Internet. At the interfaces between new and old, however, we are convinced that here lies our greatest chances for future growth. And we want to use these opportunities. Our focus lies therefore on new products, that we can produce not only extremely efficiently, but which can, above all, create benefits for our customers. Instead of researching technical ideas in the ‘ivory tower’, which no one really needs on the market, we develop intelligent products that more than ever address the individual needs of our customers. That may sound at first somewhat abstract, but already specific solutions are presented based on this premise.

You’re talking about the products in the PREON® family ... Exactly. PREON® stands for ‘Premium Solution’. With PREON®, we are developing new ideas to offer our customers integrated, industry specific solutions using high quality tubes and MSH sections. At the moment we have initiated over a dozen important innovations in our division and want to use them to generate growth. The projects are currently still in different stages of development. PREON® box, featured at the market launch, is our system solution for industrial hall construction. For this we developed extremely powerful design planning software. The software shortens the planning times for the building design of our customers by up to 50 percent. It is additionally able to significantly reduce the costs of materials necessary for the steel construction of a building by using an iterative calculation. Another product is PREON® marine, our novel foundation system for offshore wind power plants. This environmentally friendly system is currently in development.

Are further developments already being planned? Another project is using the working name of PREON® arctic. Here we are developing a foundation system for the extreme conditions of permafrost. There are even further ideas, for example, combining the PREON® marine foundation system with the PREON® box, the steel construction system to gain land in countries with rising coastlines. The future will decide what eventually makes it to the market. The prerequisite for each new development is, however, as noted, that for each technical idea there is a specific market requirement.

Based on global excess capacity, do you see a threat in the intense price competition? Currently within Europe and worldwide there is a surplus. As it is now, China alone could theoretically cover the entire tube production worldwide. As a world market leader for premium solutions, we are less strongly affected than the commodity manufacturers by this market development. In spite of this, we have reacted appropriately within the context of the industrial associations.

... in your function as chairperson of the trade association for steel tubing...

Correct. The EU Commission is presently reviewing the existing anti-dumping regulation on certain seamless pipes. We assume that the import duties for products from China will be in place up to the year 2020. There are currently initial indications that Chinese businesses themselves are not growing in this intense competition. Nevertheless, the unfair behavior and threat continue to exist for European businesses. Many manufacturers see themselves as forced to rationalise and cut back on quantities, others intend to maintain their capacities, if possible. We take a different approach. For us, primarily, the quantity in tons that we sell doesn’t count as much as the value that we create for our customers and ourselves. That may, at first, sound like a paradox, as sales of large quantities traditionally also automatically promises higher profits. Yet many of our new solutions are based on intelligent ideas, that instead of requiring more steel, require less. The design planning software from PREON® box reduces the material used for steel construction as compared to conventional hollow section solutions by around 20-40 percent. In this respect, with our strategic alignment we have clearly differentiated ourselves from other market participants. In short, we are inno-

"Instead of researching technical ideas in the ‘ivory tower’ we develop intelligent products that more than ever address the individual needs of our customers.”
In innovative and create added value to the advantage of our customers. And this, by the way, is not only in integrated solutions, but equally so in services.

What can customers specifically expect from Vallourec with respect to these value-added services?

Here is an example. For several years, Vallourec has made complete cylinder course bushings, the cylinder liner used in large diesel engines, for a large customer. In the beginning, one of our high quality tubes was used. We then subsequently developed, in close cooperation with the customer, a high quality component, manufactured in fully automated production lines. We also want to extend this type of vertical integration into other industries.

Vallourec is then moving closer to where the customers are. Does this mean that the steel trade, that traditionally plays an important role, is excluded?

The roles don’t disappear, they just change. In the case of the cylinder liners, we are working with a long standing partner, who as an exclusive steel trader had developed into a fulfilment service provider. Today they offer value-added services and accept responsibility for parts of the supply chain. For the past two years, together, end users have designated us as ‘Supplier of the Year’. That is certainly an example that will set new standards.

What precisely distinguishes Vallourec today, in your opinion, from the classic commodity manufacturer?

Vallourec offers special technology steels that we have developed in individual market segments in design conjunction with our partners and customers. This is where one of our greatest strengths has always been. And this is where we are way ahead compared to manufacturers of commodity products. Indeed, these manufacturers in the meantime have a modern machine park and produce tubing with a surface and geometry that may be acceptable for standard applications. However, the decisive metallurgical know-how is missing from these players in the ability to produce more high quality and, above all, more individual products.

Does not the danger exist for Vallourec that with high end products based on ‘over engineering’ they are missing the target?

No, I don’t see this danger. Precisely because we provide so much know-how, we are also in a position to equip our products with exactly those characteristics that demanding customers require. So in addition to commodity and high performance products, we also offer a whole series of ‘tailor-made steels’ which represent a sensible compromise between our engineering performance and the price. We have increased, for example, the efficiency of manufacturing turned parts with steel grades from our Spirafort® series. For manufacturers of agricultural machinery, we have even developed special materials with high stability, which we offer under the Forterior® brand. Cranes and hydraulic cylinders are products subjected to extreme stress. Especially for these applications, we therefore have FineXcell® in the portfolio, a fine grain steel that demonstrates extreme strength and yield boundaries. We also offer our customers a whole series of modern materials for special industries and applications and consistently continue to develop these.

For us, primarily, the quantity in tons that we sell doesn’t count as much as the value that we create for our customers.

The Vallourec Research Center Germany in Düsseldorf is one of six Research and Development centers worldwide.
Which regional market trends do you see presently in the Industry division?

We are very well placed in Asia with our Oceanfit® grades. We have developed these especially for offshore use with yield boundaries up to 700 MPa. These are used in Asian shipyards for jack-up rigs, windmill installation vessels, and crane set ups. At the moment we are researching completely new types of composite materials with yield boundaries far beyond 1000 MPa. We also see further positive development in the USA. Even now we are growing there in two digits. In the American market, Vallourec is very successful with the Avadur® grades series. For example, we support the manufacturers of accessories in the oil and gas business with it. This segment is booming. In order to satisfy the requests of our customers there, both technological knowledge and industry expertise are required. I think with our know-how from the areas of Industry and OCTG we are set up very well there.

New tailor-made steels and innovative premium solutions – what consequences does this development have on the organization of the Industry division?

In an industry comparison for research and development, Vallourec invests above the average. Colleagues in the modern research centres, for example, in Riesa in Saxony and in Düsseldorf are busy every day with increasing demands for our products. Good ideas, however, can only emerge in a company with an innovation-friendly climate in which teams mutually encourage each other to achieve their maximum performance. We want to promote that. For this reason we have significantly reinforced personnel in the areas of technical customer services and application engineering in order to steadily improve products for our customers by cooperatively developing tailor-made steels. We are simultaneously streamlining administrative processes with new information technology.

What do strategic partnerships mean in the development of new products?

In large development projects, it makes sense for several reasons to intelligently link available competencies together. An example is PREON® marine. From altogether ten partners, we formed a network that functions as a virtual business. The project was divided into individual modules and each partner provides input for the success of the entire project. With the development of the new planning software for our PREON® box steel construction solution it was very similar. It was created in close cooperation with a technologically important construction firm. This network approach is very successful, as it allows for greater flexibility and, above all, for a short time to market. So we also use it in other projects. This is very much the case, by the way, in our location. When you require special know-how in Germany, you only have to take a few steps and you find it. Also in this respect we are a few steps ahead of the commodity manufacturers.

Key word: sustainability. Which steps is Vallourec taking to optimize energy efficiency and reduce CO₂?

In terms of energy efficiency we are steadily improving. Since 2008, Vallourec has improved energy performance by around 14 percent, and just in the past year this was by approximately three percent on a like-for-like basis. Moreover, we produce the coke necessary for the Brazilian steel works CO₂-neutral with wood from Vallourec’s own eucalyptus forest. By continuously developing lighter and more stable tubes, we optimize the use of materials and resources. Especially for the Industry Division, our foundation system PREON® marine, for instance, is in many respects designed for sustainability. It can be installed much more quietly, which protects sea creatures who are sensitive to noise, and it supports – in the truest sense of the word – the success of wind power plants. Additionally, 36 percent of the energy that Vallourec requires now comes from renewable sources. In this area, too, we will push for further improvements.

Mr. Denker, we thank you for the conversation.
On the market

Boom in construction of jack-up rigs in Asian markets

Bracings promote the success of Vallourec
The demand for jack-up rigs is increasing worldwide. The reason for this is simple: they can be moved easily from one location to another by tugboats. The rigs are used for exploring and developing oil & gas fields. The newest and biggest jack-up rigs are designed for water depths of more than 200 metres, which significantly increases their scope of application.

Most of these mobile drilling units are being constructed at large shipyards in Singapore, South Korea, and China. According to "rigzone.com", 520 jack-up rigs were in use worldwide at the end of 2013; almost 60 new rigs have begun operating in the past 20 months alone. Whilst Singapore had virtually unchallenged dominance in this market five years ago, in recent years Chinese and South Korean shipyards have entered the market and are receiving orders from Norwegian, American, and British drilling companies.

The primary components made by Vallourec are the bracing pipes in the leg construction of the jack-up rigs. Depending on the type of platform, between 1,300 and 2,500 tons of piping material may be necessary for a single rig. Deeper drilling requires more pipes and increase the requirements for products in terms of quality, wall thickness, and cross section width. Vallourec has gained considerable market share in the current boom. This fact can be attributed by synchronising data, we have incorporated market and customer specifications into Vallourec internal standards. 

"..."
to both the quality of the pipes and the flexible response to the market demands of the offshore sector. The company's portfolio additionally includes products for special offshore applications, such as drilling and wind turbine installation vessels, and wind parks, etc. A niche product in this portfolio is, e.g., the cranes used for offshore platforms, which contain roughly 70 tons of fine grain steel pipes per crane.

Orders for 50,000 tons of bracings in 18 months
Thomas Jost, Area Sales Manager Asian Markets Vallourec Deutschland GmbH, translates this success into actual figures: “Looking at the 50,000 tons of orders received in the last 18 months, we recognize a clear trend, which makes the market even more attractive for Vallourec than previously thought. We are deeply involved in this sector due to the quality of our products and excellent references.”

Profiting from the basic formula: customer standards = corporate standards
Besides product quality, Rainer Bindewalt, Director Export Markets Industry Division, believes that the reason for this strong position is the enhanced technical response recently introduced for market demands in the area of offshore construction. These optimization processes make it much easier for customers to get the products they need. By summarizing the specific offshore requirements in eight data sheets, customers can directly select all the products required, including any technical extras. Bindewalt says, “Basically, this is a reversal of the previous process, which enables us to respond much more quickly now to the technical challenges of project requirements. Today, these specific offshore requirements are applied by using our datasheets at our production sites as a standard for the offshore sector.”

Customers can use our eight data sheets, specifically developed for the offshore sector, to select exactly what they need.

“Customers can use our eight data sheets, specifically developed for the offshore sector, to select exactly what they need.”

Jack-up rigs – a booming market

A jack-up rig or a self-elevating unit is a type of mobile platform that consists of a buoyant hull fitted with a number of movable legs, capable of raising its hull over the surface of the sea. Generally, jack-up rigs are not self-propelled and rely on tugs or heavy lifting ships for transportation. Jack-up rigs can only be placed in relatively shallow water, generally in less than 120 metres (390 ft) of water. However, a specialized class of jack-up rigs, designated as premium or ultra-premium jack-ups, are known to have an operational capability in water depths of more than 150 metres (500 feet). By the end of 2013 there were roughly 540 jack-up rigs in use worldwide.
Vallourec has also profited from the cross-functional exchange between its divisions, resulting in a transfer of knowledge, skills, and capabilities, as many of the quality and certification requirements are the same. The fact that the company is able to supply customers with high quality products API, EN, and DNV certification for the construction of jack-up rigs, has recently resulted in a number of major orders from leading shipyards. The reward for successfully overcoming a number of technical challenges is today’s product mix of 40% high end bracings, e.g. ABS, DNV or other special grades.

**Bundling high quality offshore products**

Thanks to outstanding references in the field of pipe products for rig construction, the company believes it has a tremendous opportunity to grow and expand in this business segment. By continuing to systematically expand its network of partners, Vallourec is positioning itself in the market as more of a solution provider rather than a pure pipe supplier by bundling specific customer requirements needed for new rigs into a package offer. “Moreover, within the context of rig construction, we have the opportunity to establish our offshore specific grade series, Oceanfit®. Due to outstanding notched impact strength, special grade pipes are suitable for use in very low temperatures of -50°C/-60°C and for drilling in Arctic waters,” claims Bindewalt.

With extensive experience, an established reputation, and positive internal synergies, the company will undoubtedly continue to be a market leader, despite fierce and increasing competition, particularly from Chinese suppliers. However, it is extremely difficult to say how long the present boom in jack-up rig construction will last. But whatever happens, the spare parts market will remain of interest, as it currently makes up roughly ten percent of business in new rigs.

> Besides the construction of new rigs, the spare parts business is crucial to success in the global market. The average lifespan of a jack-up rig is 25 years.
Vallozurec the first to benefit from new Wind Energy Test Centre for Support Structures

Vallourec is ready to commence testing its offshore foundation system, PREON® marine. A prototype is planned for 2015.

PREON® marine is the first offshore foundation system which will be tested at the new Test Centre for Support Structures in Hanover. The model demonstrates the technology on a smaller scale.
The success of offshore wind energy depends on two factors: price parity with other energy sources must be achieved and negative environmental impacts must be eliminated. For the structural component of offshore wind technology, Vallourec’s PREON® marine foundation solution resolves both of these concerns. Scaled testing of Vallourec’s seamless offshore pile technology is ready to commence at the Wind Energy Test Centre for Support Structures in Hannover.

With offshore wind power generation set to increase in order to meet 4 percent of the EU’s total electricity demand by 2020, the demand for cost-effective and environmentally-sustainable innovation is higher than ever. Such innovation is essential if price parity with other energy generating technologies is to be achieved, and an acceptable environmental track record is to be established. In particular, offshore developers have voiced a need for cheaper installation procedures to reduce reliance on expensive installation vessels. At the same time, European regulators have called for the halt of the excessive noise generated from hydraulically hammered piles, which causes irreversible damage to marine mammals. Consequently, if offshore wind farms are to become successful, more efficient and environmentally friendly installation methods are required.

Vallourec is therefore currently pushing ahead with the development of its offshore foundation system, PREON® marine, which utilises Vallourec’s seamless offshore pile technology. “Our pioneering work is at the forefront of technology in all of world energy markets. This is also planned for the wind energy sector,” explains Andreas Denker, managing director of Vallourec’s Industry Division. Previous conventional anchoring systems for offshore turbines were heavy and expensive. According to Denker, PREON® marine is both lighter and logistically simpler to construct.

**First test customer**

Vallourec will be the first company planning to put PREON® marine through its paces at the new Test Centre for Support Structures at the Leibniz University Hannover (LUH) within a short time. The test facility, inaugurated in September 2014, is an essential resource for the wind energy sector, as it combines a unique blend of expertise. Together with scientists from the Fraunhofer Institute for Wind Energy and Energy System Technology (IWES) and various LUH institutes, private and public sector clients have the opportunity to develop robust support structures with a smaller footprint. Vallourec thus stands as an industry pioneer in its preparation to transform PREON® marine from a conceptual design into a market ready product.

The special feature of the Vallourec seamless pile solution is that it distributes the extreme forces in the environment and from the 200 - 400 tonne wind turbine across the 120 metre diameter base, differently from other foundation systems. A regular monopile foundation consists of a single 1000 tonne large diameter pile being driven up to 60 m deep into the seabed with thousands of blows from a hydraulic hammer. By contrast, the PREON® marine solution relies on a plurality of smaller diameter piles. Each pile has a weight of less than 25 tonnes, and the piles are drilled – instead of hammered – to an installation depth of only 25 m. “PREON® marine allows us to install a foundation with much less force, noise, and materials, and much more quickly,” says Denker. The PREON® marine concept therefore gives hope to the offshore industry, which is burdened by high costs. Offshore wind power at present is a high-cost form of renewable energy and still far from being competitive. According to a 2013 study carried out by Prognos and...
Fichtner, the primary levelized cost of energy (LCOE) for today’s offshore wind farms is calculated to be 12.8 ct/kWh to 14.2 ct/kWh. If the industry takes advantage of the savings potentials, experts predict prime electricity costs to fall by between 32 to 39 percent by the year 2023. The study claims that an improved installation concept will help to lower the cost of offshore wind energy. This is precisely where Vallourec’s PREON® marine comes into play. “We are minimising the time needed for expensive offshore operations,” explains Claas Bruns, project manager for offshore structures from Vallourec’s Industry Division.

Drilling instead of pile hammering

In addition to the economic benefits of PREON® marine, there is also an exciting environmental advantage to the solution. In Germany, the permissible level of piling noise when installing offshore foundations is 160 dB re μPa² ∙ s SEL (decibel sound exposure level) at a distance of 750 m from the installation site. The German Federal Maritime and Hydrographic Agency (BSH) has specified this limit, because harbour porpoises and other marine mammals suffer permanent or lethal injuries at sound levels above 164 dB re μPa² ∙ s SEL. This is a significant problem, as even when using sound mitigation measures, recorded sound emissions from hammering pilings are often significantly above the limits allowed. With the noise emissions from drilled piles significantly below the 140 dB re μPa² from drilled piles, PREON® marine is less noisy to install than conventional methods. The concept is clearly an environmentally superior solution as compared to existing installation methods.

Vallourec’s seamless pile technology is ready to be scale tested at the new Test Centre for Support Structures in Hannover in the

Test Center for Support Structures

The new Test Centre for Support Structures in Hannover underlies Germany’s pioneering role in wind research. The test centre, which opened in September 2014, is a €26 mil. addition to the previously largest wind turbine testing facility in Germany. In Hannover private and public sector clients can simulate offshore conditions for any type of support structure. To this end, the test centre offers two large testing facilities. In the foundation engineering pit, it is possible to test the support and foundation structures and the respective construction technologies on a scale of 1:10 and greater. Support structures on a scale of 1:9 or 1:5 and largescale components can be installed in the stretching field in order to assess their fatigue resistance under special loads. Moreover, special laboratories for steel, concrete, and fibre-reinforced composites, and geotechnical investigations enable preparatory work and the testing. The centre allows developers and manufacturers to develop fast, marketable support structure designs.
The reason for offshore wind energy

Offshore wind turbines are crucial to the success of the German energy transition. Germany plans to have 15GW of offshore capacity installed by 2030. Offshore wind farms can, due to the higher and more reliable wind speeds at sea, produce twice as much power as comparable systems on land. Therefore, 15GW of offshore capacity would be sufficient to supply 15 million German households with green electricity. Furthermore, offshore turbines have a utilisation rate of over 90 percent. In contrast to other renewable generation technologies, this means that offshore wind generation is a reliable base load provider. Offshore power generation is not only complimentary to traditional energy sources, but also represents a path towards achieving a future of sustainable energy.
Vallourec is setting another milestone in civil engineering with its latest design software for PREON© box, the modular construction system for industrial halls. Using PREON© box design software significantly reduces the time needed for planning the construction of industrial halls and simplifies the creation of lighter steel construction designs that are thus more cost efficient and can be constructed rapidly. The software also makes subsequent modifications quick and easy.

Planning for perfection

Whether it is the construction of a new distribution centre, a state-of-the-art production facility or an airport hangar, in addition to competition, the most urgent constraint is the amount of time available for planning. The calculation of structural loads and stresses is a fundamental stage in industrial hall construction, which until now has been nearly impossible to complete quickly. Factors influencing the structural integrity of an industrial hall are numerous, such as determining the distance between the columns, the type of crane runways needed, the roof pitch, and the estimated wind and snow loads.

“Nowadays large halls are individually planned and each design for a big hall is created with a lot of attention to details. The result is well engineered steel construction, but sometimes takes much too long to realise because there are no standards,” explains Nico Genge, Marketing Director of Vallourec’s Industry Division. The large amount of time required for structural design calculations means the procedure is not always in line with the
The new planning software represents a milestone in civil engineering.

Setting new standards

Vallourec has already set standards with PREON® box, the modular construction system for industrial halls. Based on standardised components made of structural hollow sections (MSH sections), the hot-finished tubes are ideal for constructing industrial halls. In contrast to open sections, connections are much easier to construct, more cost efficient, and have a higher load bearing capacity. “With PREON® box it is possible to construct large unsupported spans of over 100 metres,” says Genge. “PREON® box is therefore particularly suitable for aircraft hangars and other large halls in which columns would be a hindrance”. The decisive argument in favour of PREON® box is the combination of the ability to construct wide spans, the flexibility, the speed with which the design can be created, and the clear and structured appearance. “For spans greater than 35 metres, the PREON® box is the perfect solution for your project,” claims Genge. The system is available to customers worldwide. “Thanks to our global partner...”
network, we are able to realise projects in every country around the world. We recommend the exclusive use of our MSH sections, but if the final end user insists on locally produced steel products, for whatever reason, we are also flexible in allowing other products, even open sections, which we must license.

More flexible planning process

The new planning software from Vallourec represents a milestone in civil engineering. It reduces the amount of time needed for planning significantly and the process is more flexible. Nico Genge uses an example project to demonstrate how the software works. With just a few mouse clicks, he designs a brand new industrial hall on his laptop. Each span in the double span building measures 40 metres in width and 150 metres in length, with a 15 metres ridge height. No sooner has he entered the basic data, then the software displays the support structure as a 3-D image on the screen. He can then specify details about the load on the roof structure, such as wind or snow loads. “As a bonus”, he adds, “the software automatically calculates verifiable structural loading. At the same time, it determines the required and most favourable materials to meet the specific needs,” explains Genge. This is possible using special algorithms that utilise an iterative process to harmonise the factors of structural stability and financial costs.

The design planning software for PREON® box optimises this iterative process with impressive results. “Compared to conventional methodology, the software cuts material costs by up to 20 percent,” says Genge. The software also provides customers with a precise estimate of costs for steel construction in the shortest time possible. Overall, the tool reduces the time required for planning by up to one third. “This means that a hall can be operational much more quickly, resulting in more revenue and less cost. When it comes to subsequent modifications, the software is similarly efficient. A new calculation for structural parameters is ready in a very short time.

Meeting the highest demands

Vallourec commissioned the engineering firm of Feldmann + Weynand in Aachen to roll out the program. Roughly 2,000 days went into developing the software. Complex mathematical equations for calculating...
structural loads and stresses, as well as standards, materials, weights, and prices for the MSH sections were translated by the team into bits and bytes. The software was unveiled at Tube 2014 back in April. “At the moment, there is no other design planning software available for halls that can match ours for all-round excellence,” claims the Marketing Director. It has been developed to fulfill all of the challenging demands placed on it by Vallourec.

**Business Model**

Vallourec offers each customer an individual design for their industrial hall project prepared by Feldmann + Weynand (F+W). Projects will be carried out by experienced and licensed partners and experts in steel construction in Germany, the US, France, China, and Brazil. These partners have already implemented PREON® box for customers from various industries such as trade, logistics, and aeronautics and rave about the ease and efficiency of working with Vallourec and their products. “The simplicity of the PREON® box construction has impressed both customers and partners. Now with the planning software, the solution has a further advantage”, says Nico Genge. With 10 years of valuable experience, Vallourec will recommend leading companies worldwide as partners, giving customers a choice of suppliers. Customers may choose from a range of general contractors who will plan and organize their project in conjunction with F+W engineers. F+W will provide the design, including the unique dimensions and any necessary modifications needed to optimize construction in line with costs and resources. They will additionally provide cost estimates, materials lists, and check on the availability of all necessary components. The general contractor responsible for the construction of the designed building will oversee the planning, organization, and production of the PREON® box elements for construction and attend to further aspects such as details regarding the supporting structure, the roof panels, and the finished walls. In essence Vallourec will be a part of the team serving the customer, working with the engineers and the contractor in realising each new PREON® box construction.

**Current PREON®box Project**

**Distribution center in Burghausen, Germany**

**Company:** Buhlmann GmbH + Co.KG, Bremen

**Architect / project coordination:** Hinterschweifinger Projekt GmbH, Mehring

**Project information:**
- Double vaulted storage facility using a steel skeleton framework construction with a crane runway
- Length: 130 m, Height: 13 m
- Width of span: 30 m (each vaulted hall)
- Features: – Extensible longitudinal axis
  – Photovoltaic system on the roof

**Structural design/planning:**
- Feldmann + Weynand Ingenieure, Aachen

**Steel construction:**
- C+P Industriebau GmbH & Co. KG, Angelburg

**Start of construction:** November 2014

**Steel construction:** 1st Quarter 2015

**Why did Buhlmann choose PREON®box for the construction of their facility?**

“As a globally active, premium house trading in steel tubes, it was clear to us from the beginning that we wanted to create our new warehouse in Burghausen using steel tubing. So it seemed obvious to take advantage of the PREON® solution from Vallourec. With PREON® box, two crucial components are combined: firstly, the high quality MSH – structural hollow sections, provide the highest level of quality and aesthetics and are easy to assemble, and secondly, implementation is highly flexible, quickly realized, and cost-effective thanks to the design software of PREON® box. Our customers expect the best quality and service from us. Why should be expect less of those responsible for the construction of our new industrial hall?”

Jörg Klüver,
Managing Director, Buhlmann

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Big Success with small batch sizes – tailor-made as standard

Vallourec Bearing Tubes (VBT) is now in a perfect position to meet customers’ individual needs. This is a result of the company’s investment in an innovative induction plant for quenching and tempering steel tubes. The plant can be quickly reprogrammed and refitted for fast and cost-effective production in small batches.

In Montbard, France VBT is embracing innovative technologies to align itself with changing market requirements in tube production. The company is situated in the Côte d’Or Department in the Burgundy region, famed for its excellent wines, and forms part of an industry cluster in France known as Metal Valley. Managing director of VBT, Alexandre Schaer, is responsible for a successful business model with a strong and consistent customer focus.

The market is becoming more demanding
Demand has grown considerably in recent years for seamless tubes with increasingly tighter tolerances in an array of grades. Customers require tubes with minimal eccentricities at cross-sections, and greater homogeneity in wall thickness and length. At the same
time, each batch should be ready for delivery as soon as possible. With all these diverse requirements, there is one constant expectation: top quality. In order to meet the market’s changing requirements, Vallourec invested in a state-of-the-art heat treatment plant for its Montbard location: the QT Line. “QT” stands for “quenching” and “tempering”, the two most important processes in manufacturing hardened and tempered steel tubes. A particular advantage of this type of production over conventional methods is that it enables quick and cost-effective manufacturing, even for small batch sizes. “With the QT Induction Line the customer benefits, on the one hand, from economies of scale and the high degree of automation of a modern plant. On the other hand, the plant also enables us to respond with ease to the growing demand for product customization. Our innovative and highly-customized product portfolio is therefore leading to a steady increase in customer satisfaction,” Alexandre Schaer reports.

Greater flexibility with induction heating

The production planners ruled out conventional, fossil fuel burning furnaces for this new and flexible plant. These would simply be unable to respond fast enough to alternating batches with various material dimensions and qualities, which must all be treated using a range of temperatures. Rather than applying heat to the tubes with naked flames, a far more effective approach consists in generating heat directly within the steel itself. External magnetic fields induce a current within the metal, which heats up due to its electrical resistance. This contactless transfer of energy is as much as 30 times more powerful per square-centimeter of target surface than a gas burner. This is why VBT opted for induction furnaces; they provide a quick, precise, flexible, clean, and environmentally friendly heating method. In addition, they can be digitally adjusted and the conditions are easily reproducible.

Constant throughput for all dimensions

The new, highly automated QT Line is as long as a football pitch. Monitored by two system supervisors, it uses a throughput method that can be programmed to suit specific needs. The plant operates with an hourly output of approximately 4 tons and a variety of materials of various measurements can be processed. The throughput speed depends on the type of product to be heated, and is calculated based on the tube cross-section – i.e. diameter and wall thickness – as thick tubes require longer heat soaking. After commercial production began in February 2012, followed by ramp-up from March onwards, a total of 10,000 tons of QT tubes were produced in the first year of operation, all according to individual specifications. Output is currently at 1,000 tons per month, although a further increase of 30 percent would be possible at any time.

Before installing the QT plant, VBT had to turn to heat treatment workshops, or “job shops,” whenever highly customized products were required. The outsourcing volume at that time amounted to as much as 2,000 tons per year. Thanks to the company’s own expertise and flexible facilities, production today has taken on a whole different scale. VBT now handles around five times the volume previously outsourced. “The market for steel tube production continues to be very fragmented,” says Alexandre Schaer. “With
**In the plant**

**Inductive heating is ideal for quick process lines**

Inductive heating zones can be easily installed in continual processes in tube production. Using induction, energy can be transferred without contact and at phenomenal rates while the tube passes along the line. This pioneering method is already widely used in induction hobs in kitchens. Instead of using heat radiation from a hot plate, this method generates heat in the bottom of the cooking pot, even without direct contact.

The process is based on the laws of physics, and is also used in transformers in small electrical devices. When an alternating current passes through an electrical conductor, it produces a circular electro-magnetic field around itself. If another conductor enters this field, such as a steel tube, electric voltage is generated within it, resulting in a current – all without contact. Due to the material's ohmic resistance, heat builds up in the tube, as in a light bulb.

In the case of inductive heating for tubes, the metal units pass through a coil inductor. Depending on the frequency of the alternating current applied, the magnetic field permeates the workpiece to varying depths. Meanwhile, cooling water flows through the inductor to prevent it from overheating.

**THE INDUCTION METHOD**

- **Conductor Tube**
  - Made of copper
  - Alternating high frequency and capacity current. Intensity approx. 1000 A. Internal cooling with water

- **Induction Coil**
  - Current Conductor generates magnetic field

- **Energy Transfer**
  - Gap between tube and coil bridged without contact by induction

- **Steel Tube**
  - Moves through the stationary magnetic field for heat treatment along its full length

- **Magnetic field lines**
  - Around the conductor

- **Heating Zone 900 ºC**
  - Shifted by the movement of the tube

- **Inverter**
  - Capacity 2000 kVA

**Automation makes individual production cost-efficient**

The new heat treatment line in Montbard has quickly proved its worth. It is highly reliable and achieves opt-

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Dr. Alain Muggeo, Quality director of the Industry Division, R&D director of Vallourec Bearing Tubes

its new production plant, Vallourec now offers its customers the advantages of a one-stop shop. "Whatever specifications or standards they require, our customers can now order everything from one supplier. And they are ensured maximum quality at minimum costs."

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mum availability and productivity. Thanks to a range of technological features, it is also highly economical and energy-efficient. Unlike conventional furnaces the QT Line’s inductive elements, for example, only consume energy when they are actually in use in production. Depending on the customer’s requirements, tubes can now be manufactured with a diameter of 75 mm to 205 mm and a wall thickness of 8 mm to 55 mm. Lengths of up to 11 m can be provided. The QT Line is equally flexible when it comes to the materials used, the thermal treatment applied, and the tempering characteristics ordered.

The principal material used, at 50 percent, is Avadur, Vallourec’s hardened, low-alloy, chrome-molybdenum steel specifically for heat treatment. This includes the grade SAE 4130/4140, known in Germany as 25CrMo4. This is a heat-treated alloy steel with a tensile strength of 550 to 1200 MPa and good welding properties used for parts that require considerable toughness, such as safety components in automotive engineering. Of the more than 10,000 tons of tubes produced annually, 80 percent are sold to the OCTG accessories sector and used in mechanical engineering, for specialized products such as construction elements. These may be heavy-duty cylindrical crane and digger components, or hollow pins, hydraulic cylinders, turned parts, transport casters or driveshafts with coupling stocks, perforating guns, and lines. The product portfolio has been further developed in mechanical tubes for oil and gas applications such as parts for blow out preventers.

Quality as a unique selling point

Dr. Alain Muggeo, director at VBT for Quality and R&D, is an expert on all of the individual variables and batch sizes. Together with a team of 15 specialists, he monitors the QT Line by testing the output. The measurements are part of an on-going quality control procedure and are used to enhance new processes.

“"We are confident of the high quality of Vallourec products – and so are our customers.”

"The QT Line’s inductive elements, only consume energy when they are actually in use in production. Here the still red-yellow glowing tube is on the move to cooling down for hardening by quenching."
The right man for the right job

The new organization for Vallourec in North America features integrated cross border teams in a matrix with legal entities. Teams in Europe and North American will implement one way of doing business and be fully integrated in all processes. This will further improve the quality of response times, increase customer satisfaction, and reduce internal issues. As the leading force behind this organization, Dr. Marcel Schneider is the new Vice President for the Industry Division, Vallourec USA.

Leading integration in North America
Marcel Schneider will promote better cross border cooperation between Vallourec USA, Vallourec Canada, and Vallourec Germany by streamlining administrative procedures to accelerate decision making processes, thus strengthening customer proximity. All sales managers responsible for the American market, regardless of which subsidiary they are active in, will now report directly to the new Vice President. In turn, VP Schneider will report directly to Rainer Bindewalt, Director of Export Markets, Industry Division.

Marcel Schneider’s professional background
Dr. Marcel Schneider (46) had already discovered his taste for the industry as a student. He graduated from the Technical University of Twente in the Netherlands in 1992 with a Master of Science degree in Mechanical Engineering and subsequently obtained his PhD with “Laser Cladding with Powder” in 1998. His course work at that time focused on metallurgy and laser technology. He then started his career in the flat rolling steel industry in Dutch Hoogovens, which later became a part of Tata Steel.

Having started as a research engineer in the Netherlands, he relocated in 2000 to Germany where he became responsible for the commissioning of new rolling mills. He then quickly moved on and advanced from rolling mill department manager to plant manager. Mr. Schneider then made the switch to customer service and sales.

After an extended assignment in Hong Kong he returned to Germany in 2007 and started in 2008 in the newly created position of Director, Product Management for the Industry Division with Vallourec. The responsibility for product development was soon expanded to Technical Sales, including technical customer service and he became the Director of Quality, Safety and the Environment.

Customer focus
“In a manner of speaking, I am the ‘integrator’. We aim to grow closer to our customers, cut administrative
procedures and, above all, become faster and more service oriented”, says Mr. Schneider. “It’s very simple, because at the end of the day it’s the customers who pay our invoices. I will therefore dedicate all my energy to enhancing Vallourec’s successful customer approach.”

He adds: “Increased competition leads to market conditions changing permanently. As a ‘premium supplier’, it is essential for Vallourec to respond to customer needs with high-quality solutions in a timely matter.” Schneider will achieve this by integrating Vallourec’s organization in Europe and North America. “My team in North America has an excellent understanding of the US market and understands customer specific requirements. German colleagues, on the other hand, are essential for communicating with the mills and, of course, for sophisticated technical support in the background. In other words, it’s my goal to ensure that our company offers comprehensive products and services as one global company and as one integrated team”, Schneider explains.

Clear job strategy
Schneider is fully aware of the fact that his open mind and intercultural experience will be of enormous benefit in his new role. Sharing his personal thoughts about the new business, he says, “I do not give up easily. If you have a good idea, you have to go for it. In addition, you need to have a persistent yet positive approach. And, of course, you have to be self-critical. If things are not moving forward, first ask yourself what needs to be done and how you can solve the problems.” A positive working environment is also a key to success. „Demotivating teams might be simple. But empowering them to do a good job with the proper tools and resources is for sure more challenging”. 

Seven questions for … Dr. Marcel Schneider

Why is Vallourec successful?
Because of the quality of our products and our technical competency. We have outstanding relationships with our customers and have highly motivated and skilled people in our teams. We basically invented the process of making hot-rolled seamless pipes and tubes and we are proud of that.

How do you ensure competitive advantages?
The customer expects us to be perfect with the entire package: full service, responsive and flawless on inquiries, confirmations, documentation and technical advice. Tube making is in our DNA. No other company in the world has the same skill set, tradition and product portfolio. Our product development activities ensure a continuous flow of new innovations that offer real added value and solutions to our customers.

What do you enjoy most about your job?
The diversity. No day is like another. I love the interaction with our customers and working with a great group of people. I am in a unique position in my current job.

Where do you see the biggest opportunities for change?
Even though people speak the same language, that does not mean they understand each other. There is so much information between the lines, and effective team work across borders is only possible when people are aware of cultural differences.

What is your top priority when dealing with employees and colleagues?
Honesty, open communication, and trust. There is no need to be best friends with everybody, but as a minimum there should be respect for the other person. I expect everybody in my team to get the job done and to satisfy our customers’ needs.

How do you recharge your batteries in your free-time?
I like to read and go out for a long run every Saturday and Sunday. Unfortunately Houston is not the ideal place for mountain biking and the heat and humidity in summer can be brutal. Recently I started playing golf in the States, but still need a lot of practice to improve my game.

What is your greatest strength?
I believe I’m a very positive-thinking, solution-focused person. One thing I learned during my time in China is that if there’s a ‘no!’ to your question, then you obviously asked the wrong question.
Safety First

In France, Vallourec kicked off Safety Day 2014 on 26 June at Montbard and La Charité with a message from Philippe Crouzet, Chairman of the Management Board, reinforcing his commitment to safety improvements. Both sites featured safety-related scavenger hunts and evacuation drills as well as workshops on how to assess a situation for risks, hand protection tips, and hazards to be aware of when using machinery.

Vallourec sites worldwide celebrated their fifth annual Safety Day with 24,000 participants sharing information and experience in events devoted to safety issues and best practices. Safety Day is a time to think about safety as a core value in the Vallourec company culture, as a top priority in the workplace, and as the key to operational excellence.

Since the adoption in 2008 of CAPTEN Safe, an action plan for reducing accidents, and the continuation of this plan, CAPTEN+ Safe in 2011, Vallourec has exceeded goals for reducing accidents. As a result of the efforts at all levels of management and personnel, a training program, and regular safety visits, the accident rate has fallen by 83% since 2008 and the lost time injury rate (LTIR) has dropped from 9 to 2.7 percent. CAPTEN+ Safe focuses on improving communication about safety issues in the company, organizing safety visits, developing effective risk assessment tools, and promoting preventive measures, such as continuous improvement teams (CIT) and the events featured on Safety Day.

Safety is a state of mind to have all the time, everywhere. “Looking out for each other” was the Safety Day 2014 motto this year, encouraging all employees to assume individual responsibility for the safety of themselves and others. This theme was emphasized by workshops offered in Montbard and La Charité, which stressed the importance of taking personal responsibility for safety by taking time to think before acting, observe appropriate procedures and guidelines, and wear personal protective equipment (PPE). Personnel were encouraged to contribute to a company culture of safety by seeking input and feedback from all team members, reviewing regulatory compliance, and implementing best practices. Workshops took place in offices, warehouses, and factory sites, highlighting the importance of workplace safety everywhere, for everyone.

Safety Day 2014 also stressed the importance of reducing risks in professional and domestic environments. In France, for example, a workshop was held on how to use a defibrillator, while in Germany employees were shown how to assess stress levels and practice relaxation techniques. Additional events in the US provided information about developing safe habits on and off the job, from avoiding unsafe practices such as texting while driving to safe bicycling practices.

Safety is a top priority for the Vallourec Group, in keeping with their social responsibility policy in which safety is a core business value and a fundamental part of the Vallourec Sustainable Development Charter.
Vallourec wins exclusive contract with NK of South Korea

Thanks to the success of a previous delivery fulfilled by Vallourec, NK, the largest specialist developer and manufacturer of high pressure gas cylinders based in Busan, South Korean, has signed off on a contract for the delivery of 2000 “hollows”, corresponding to 7800 tons. According to Thomas Jost, Area Sales Manager, Export Markets Industry Division, NK was completely satisfied with the ca. 2700 ton delivery they had previously received. The 2000 hollows will be delivered in several portions over the course of the next year and the first order is expected for Q4 of 2014.

New Internet Presence Strengthens Vallourec Brand

With the launch of the new corporate website (www.vallourec.com) and the Vallourec Group presence on diverse social media channels, the Group has asserted the Vallourec brand as a unified platform highlighting the company and the Vallourec product portfolio. The rollout of a single brand for the Vallourec Group unifies the brand image on the Internet and allows the company to share its expertise and promote its products, applications, and projects. Completely redesigned, the new website incorporates the previous websites of the Group’s subsidiaries into one showcase for the Vallourec brand, which serves as a portal for all types of visitors and makes it easier for each to find what they are looking for. From potential and current customers to media interests, shareholders, job applicants and other stakeholders, each visitor can navigate to any particular area of interest. The Vallourec website and social media presence may be viewed on all types of devices such as computers, tablets, and mobile phones, allowing visitors, including Vallourec personnel and partners, to follow and engage with Vallourec through several different social media channels. The Vallourec Industry Division will be available at the beginning of 2015 with its own dedicated web presence.

Web:
www.vallourec.com

Twitter:
www.twitter.com/VallourecGroup

Facebook:
www.facebook.com/Vallourec

Linkedin:
www.linkedin.com/company/vallourec

Youtube:
www.youtube.com/user/VallourecGroup

Google+:
https://plus.google.com/+vallourec

1.27 Mil. feet of seamless tubes for Harley Davidson

Vallourec Brazil has been awarded an exclusive order through Summit Steel to provide an additional 552 MT or over 1 million feet of cold-drawn seamless (CDS) tubes 4130 for Harley Davidson motorcycles. This makes Vallourec Cold Drawn Brazil now the single source supplier for Harley Davidson via a 2nd tier manufacturer. They are used in the serial and aftermarket production of motorcycle engine and rear guards. According to Susan Market, Sales Manager Industry Division, strict production practices and traceability are required for this product and “on time delivery” was the top priority. 1,273,748 feet have been ordered in 4th Q 2014 for production through September 2015, which amounts to 2 containers (40 MT) of engine guards per month and 5 container (10 MT) of rear guards per month. This is serial production for Q1-Q3 2015 with an additional 82,000 feet of CDS hydraulic fluid line for Harley Davidson through Summit.

Vallourec wins the Red Dot Design Award 2014 and the German Design Award 2015

Twice now Vallourec, with design agency experts, Quadrolux, have created convincing advertising. Vallourec was awarded the German Design Award for a product video about ‘PREON® marine’ which is about a steel tube solution for the environmentally friendly anchoring of offshore wind mills. With the recent Red Dot Design Award for 2014, the ‘PREON® box’ film was honoured. The video particularly highlights the advantages of the product. The virtual world and reality fuse just as easily as the hall planning and construction. The prizewinning videos are here:

PREON® box (Red Dot Design Award):
PREON® marine (German Design Award):
With PREON® box you can plan and construct halls with spans of 30 to more than 100 meters using our specially developed design software – more quickly, more economically, and with greater flexibility. From multiple static systems this software determines the most sensible solution for your project. So you can construct efficiently, saving time and costs, and are always able to react fast and easily to changing requirements.

industry@vallourec.com