

voestalpine Grobblech: expansion of roll-bonded and heads

voestalpine Grobblech GmbH is the leading European producer of roll-bonded clad plates. As well, the Austrian plates and carbon steels in the form of shell plates and the corresponding heads in a single package. Over the reliability in many different fields such as refineries, the oil and gas industry, the chemical industry, desalination voestalpine Grobblech plans to expand its capacity in this niche by 50 percent. "By April 2009 we will be able says Christian Fischer, the company's technical marketing director in an interview with *Stainless Steel World*. of heavy plates a year. Based in Linz, the company is a 100 percent subsidiary of voestalpine Stahl GmbH with

Already a leading company, the management of voestalpine Grobblech makes no secret of its ambitions. "We want to consolidate our leading position in the market and reduce our delivery times. That's why we're investing substantially in expanding our capacity", Fischer explains. Once the expansion is completed, he continues, the company will be able to supply large orders of 10,000 tons and over within a reasonable period. voestalpine Grobblech will then be able to carry out major projects according to market requirements. "In particular, together with our reliable pipe partners we will offer our clad plates for clad pipes for high-demanding projects in the offshore industry", Fischer says.

The new production facilities are being built in existing halls on the voestalpine site in Linz. What is remarkable is that the company is building the new facilities on its own. "We're doing all the planning. We contract out the manufacture of special parts to small companies mainly

from our region. This approach gives us two advantages. Firstly, we can contribute our expertise and secondly it increases the identification by our staff with the new machinery", Fischer says. Production will move to the new facilities step-by-step so that the work flow will not be affected. "There won't be any break in production", he promises.

A niche in the niche

These are massive investments for a special product within their heavy plate business - "a niche in the niche", as Fischer terms it. What is the secret of roll-bonded clad plates? "To put it simply, we combine base material for the static demands with clad material for corrosion protection. In roll-cladding under high pressure and temperature we inseparably clad a thick but rather inexpensive carbon steel as base material with a thin but expensive high-quality corrosion-resistant alloy as cladding material. This composite material gives eco-



clad plates

company is the world's only supplier of roll-bonded clad plates. In the past 40 years the company's products have proven their use in desalination plants and flue-gas desulphurisation units. Now, the company is able to produce 30,000 tons of roll-bonded clad plates a year", voestalpine Grobblech produces a total of 650,000 tons of clad plates annually in the voestalpine Group, Austria's largest steelmaker.

nomical benefits compared to solid stainless steel respectively to solid Nickel-based alloys and has a wide range of applications", Fischer outlines. The two different materials are bonded by a special vacuum-cladding process based on a patent filed in 1962. Since then, the process has continuously been improved to today's high standard.

As with similar products, these roll-bonded clad plates give customers both proven advantages in the commercial and metallurgical fields. "Compared with solid stainless steel plates, our clad plates are not as heavy due to their thinner walls as a result of the higher strength of the base material. The weld length is shorter because the plates are larger and the cost of filler materials is lower", says Fischer, listing their advantages. voestalpine Grobblech's successful niche product has even more advantages compared with overlay welding, explosive cladding and rubber coatings and linings.

Successful projects

Clad plates made in voestalpine Grobblech-style are used for a wide range of applications such as pipes and fittings, for refineries (e.g. in coke drums, fractionators and vacuum towers) and the chemical industry, oil and gas production, desalination plants and environmental technology. Its products go all over the world. For instance, the company supplied 900 tons of clad plates and heads to Valero - the leading refinery company in North America - at Port Arthur in Texas (clad material 410S). It also delivered 800 tons of clad plates (410S, 317L, Alloy 625, Alloy C276) to the oil company Motiva for expanding its refinery in Port Arthur. Another large order consisted of 3,500 tonnes of clad plates and heads for the oil and energy company Suncor in Canada, used in oil sand refinery. And it produced 610 tons (410S) for the national oil company Petrobras in Brazil. These are just a few examples of the proven use of roll-bonded clad plates in various applications.

For more than three decades voestalpine Grobblech has been delivering clad plates for desalination units. In a multi-stage distillation sea water is desalted and made to drinking water. For the shell of the huge evaporator boxes clad plates with 316L are used; the wide water boxes connecting two successive vaporisation stages are made of plates clad with copper-nickel 90/10. A current development in these application is the use of high-strength base material for clad plates to reduce wall thicknesses and therefore to reduce material costs as well as processing costs, especially of welding.

Since a few years clad pipes - metallurgically bonded in contrast to mechanically bonded - have become very popular for producing pipelines which can be rolled off a ship in reels. "Our roll-bonded clad plates offer the characteristics that allow the pipelines to be rolled and unrolled and they have the corrosion resistance needed in deep-sea environments. The reeling of pipelines is much faster - and thus cheaper - than welding pipes on-board. That's what makes these pipelines so popular", Fischer says.

Another application of metallurgically bonded clad pipes made of roll-bonded clad plates are so-called catenary risers in the offshore industry. These vertical pipelines connect the subsea gas or oil field with the production facilities above sea level. Due to the high pressure of deep water installations and dynamic loads



Roll-bonded clad plates offer the characteristics that allow offshore pipelines to be reeled.

by waves and drifts as well as due to the corrosive medium inside such riser pipes must provide excellent mechanical properties as high strength combined with good toughness as well as proper corrosion protection.

Research and development

These high-quality products are the result of continuous research and development. In order to be ahead of market requirements which increase daily, voestalpine Grobblech maintains an own R&D department with excellent experts and state-of-the art technology. "This team is very experienced and focuses on applications-oriented research", says Dr. Gernot Heigl, Head of Quality Department. The challenge is to create solutions for materials used in increasingly extreme environments such as deserts, ice fields and deep beneath the sea. At the same time the requirements of all kinds of plants are increasing, especially regarding temperature and pressure. Heigl: "To meet these needs we have developed ways of using a wide range of high-quality cladding material such as 904 L, Alloy 625, Alloy 825 and titanium." As far as welding is concerned, the company uses the results of internal research for both its own processes and for customer support.

The finishing touch to the production process is internal quality control, which is carried out in different phases. Firstly the basic steels and the clad materials rolled by voestalpine are checked for 100 percent quality. The next step is to check the quality of the bonding between the carbon steel and the clad material. This testing requires a large degree of manual work. "Currently we are busy creating an automated solution together with a producer of ultrasonic equipment." Destructive and corrosion testing are carried out at voestalpine's own inde-

pendent and fully accredited test house, the most modern in Europe's steel industry.

Heads and plates in one heat

This high-quality and flexible product is only one side of the story. The other key element of the company's strategy is excellent service. In this connection the package idea is a major component. As the world's only producer, voestalpine Grobblech supplies roll-bonded clad plates, carbon steels and low-alloyed steels in the form of shell plates and the corresponding heads in a single package. The company produces carbon steel plates, roll-bonded clad plates and heads at the same plant - if requested, even of the same heat. This head and shell plate package is very attractive for use in pressure vessels, for example. "It has many benefits for the customer. The engineering process is easier because we use the same grade of steel for plates and heads. With welding in particular, this is a huge advantage." And the customer saves four to six weeks' delivery time as a result of simultaneous completion and shipment of shell plates and heads. The administrative expenses are lower because there is only one contact person for plates and heads. "These are just a few of the advantages", Fischer says. voestalpine Grobblech even delivers multi-piece cones as a complete package. "This is how we interpret the slogan 'one step ahead'".

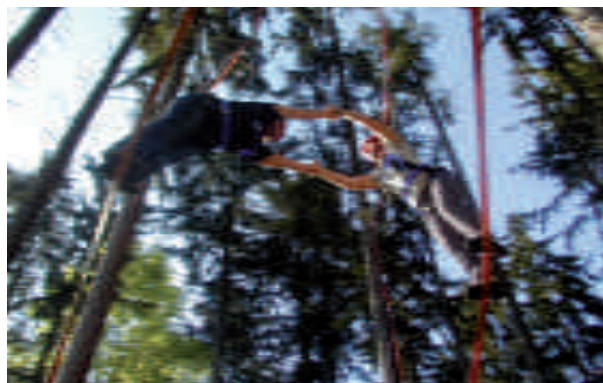
Another element of the company's service philosophy is to build up long-lasting relationships with its customers. "Our customers are our partners", Fischer explains. "We want to understand their business, we want to know what they do, how they do it and why they do it." This approach results in a special involvement. "We don't just submit a quote, wait for the response and then pro-

Roll-bonded clad plates give customers both proven advantages in the commercial and metallurgical fields.





Clad plates and clad heads in a single package for high-quality pressure vessels.



The "Life" programme aims at improving personal health and performance as well as the soft skills and the ability to work in teams - for instance by "adventure-type" outdoor activities

duce what we are asked for. We do far more. We even assist our customers when they negotiate with their clients." When a customer - for instance, a producer of pipelines - is involved in negotiations with an oil and gas company, both parties can benefit from voestalpine Grobblech's know-how and experience. "When we're involved in planning a project, we can advise our customer and the end-user on the choice of materials, alloys and the engineering process."

For refineries a new business approach has been developed: "In former times the vessel manufacturers with their fixed specifications were our costumers. Today our motivated sales people make contracts directly with the engineering companies." Those design the apparatus and vessels for the refinery and then give orders to the vessel industry. "Now we are much earlier involved," Fischer states, "as the engineering companies get first-hand information about intended investments by the oil companies. We can advise during the design-phase of the vessels and therefore adjust to our production process." Consequently following its strategy to keep closer to the costumer and their business voestalpine Grobblech has opened two new sales offices overseas this year - one in Dubai dealing on the Saudi Arabian market and a second one in Houston, Texas, the centre of US oil industry. As well, reliability in all aspects is important for the company's service approach.

Top team

The best strategy is useless without a highly skilled and motivated workforce. What does the company do to keep the team motivated and its skills up-to-date? "We invest a lot of time and money in the development of our staff", Fischer replies. For this purpose the company has created the "Life" programme, which aims at improving personal health and performance as well as the soft skills and the ability to work in teams - for instance by "adventure-type" outdoor activities. This is especially important when working on projects. "In such cases we often work in teams consisting of colleagues from all departments involved. That ensures that all information is available to everyone right at the beginning of the project. And it increases the staff's identification with the entire project." Another step in the company's strategy of being one step ahead....

Overview

Name: voestalpine Grobblech GmbH

Headquarter: Linz, Austria

Workforce: 630

Products: roll-bonded clad plates, heads and cones, heavy plates

Applications: pipes, chemical industry, oil and gas production, desalination plants, flue-gas desulphurisation units, fittings, pressure vessels.

Capacity: 650,000 tons of heavy plates a year including 30,000 tons roll-bonded clad plates

CrMo steels

voestalpine Grobblech is the only supplier worldwide to deliver CrMo low-alloy pressure vessel steels such as SA 387 Gr:11 Cl.2, SA 387 Gr:12 Cl.2, SA 387 Gr:22 Cl.2 and SA 516 Gr 70 without limitation. It can supply these steels in unlimited quantities because it makes them at its own facilities - from steel producing to rolling, quenching and tempering.

Package: Four in one

voestalpine Grobblech is the world's only supplier of heads and plates for pressure vessels that simultaneously fulfil four requirements: a bottom clad head or cone as well as clad plates for the bottom part of the shell due to corrosion protection demands, high-quality pressure vessel carbon steel plates for the top part of the shell and a top head or cone of carbon steel - all this parts for high-quality pressure vessels under corrosive conditions are supplied by voestalpine Grobblech from one single source.

Titanium Clads

voestalpine Grobblech has developed a technically advanced process for producing titanium roll-bonded clad materials that combines the advantages of explosive bonding and hot rolling technology. This method offers the customer two major advantages. Firstly, the produced plates are larger than those produced conventionally, which reduces the number of seam welds. Secondly, a thinner CRA layer can be used, which offers economic benefits. Furthermore, the plate flatness and the surface quality are excellent, as is the uniform high bond strength on the plate area.