



Sandvik offers competitive to the oil & gas industry

By Miel Bingen

Of all the fields of application of corrosion resistant alloys the oil & gas industry is without doubt one of the most demanding. With operation conditions getting more corrosive and wells becoming deeper and deeper, suppliers are faced with ever-higher demands on delivery, quality and product performance. All this suits Sandvik Materials Technology like no one else. Sandvik focuses on offering innovative solutions in order to improve the competitiveness of its customers. Stainless Steel World travelled to Sandviken in Sweden to learn more about what Sandvik has to offer the oil & gas industry.

Sandvik Materials Technology calls on years of experience supplying corrosion resistant alloy products to the oil & gas industry, using advanced materials research and sophisticated product development to continuously bring new market leading materials and competitive solutions to the industry.

Before getting into the nitty gritty details of the oil & gas business Mr Lars Thorén, General Manager of product area Tube, starts off by explaining the basic ideas behind Sandvik's unique approach to the market. 'Our vision is always to be the reliable partner for competitive solutions. This means we do not focus on selling a piece of pipe but on solving customers' problems in order to improve their productivity and competitiveness – and, consequently, generate customer value. The way to do this for us is to get closer to the customers and to really understand what their demands are and where we can support them with our solutions and materials expertise. Therefore our prime



Sandvik Materials Technology's staff has years of experience in supplying products to the oil & gas industry. From left to right Dr Magnus Nyström, Director of Business Development within product area Tube, Mr Per Eklund, Business Development Manager within product area Wire and Mr Lars Thorén, General Manager of product area Tube.

Partnerships are not only formed with customers though but also with other key players in the industry such as research institutes. Dr Magnus Nyström, Director of Business Development within product area Tube explains: "We are constantly on the lookout for possibilities where we can further increase our competences and widen our expertise by an open exchange of information. Establishing these relationships takes time though - to learn how the partner organisations work, to optimise communications and to establish a framework regarding the fruits of the co-operation."

'Our vision is always to be a reliable partner for competitive solutions'

A partnership Dr Nyström looks to with particular pleasure is Sandvik's co-operation with EWI. 'EWI is one of the top players when it comes to joining of materials. Our partnership goes back more than five years by now and dates from the time we developed the Sandvik SAF 2507 tube fitting together with Swagelok. EWI provided very valuable advice regarding welding issues and the co-operation has continuously been strengthened. Only recently EWI, ExxonMobil, Kvaerner and Sandvik developed an innovative and unique welding method for super duplex gas lift umbilical. Thanks to the new method, conventional welding that required three to eleven passes has become obsolete and now only one or two passes are needed to achieve a higher quality weld.'

MATERIALS DESIGN

At the core of Sandvik's ability to solve customers problems lies its particular strong research and development capabilities. Mr Thorén emphasises: 'Sandvik has tremendous opportunities to develop innovative and competitive solutions for the customer. Sandvik employees are so used to Sandvik's immense R&D capabilities that they often do not recognise how unique these capabilities really are. Having only joined the company in the beginning of 2003 I am so impressed over and over again by what our R&D staff can offer our customers and partners. Looking at the product area Tube, for instance, a substantial amount of developments are underway to be launched on the market. Moreover Sandvik also carries out an impressive amount of a more 'open-ended' type of research. The potential of

goal is to establish a true partnership with our customers.' Mr Thorén continues to explain that the concept of partnership is not taken lightly at Sandvik. 'For us the word partnership means more than just an open discussion on current problems that need to be resolved on short notice. What makes a partnership particularly valuable is that it opens up opportunities to address the challenges of tomorrow. We want to make sure our partners can make full use of our resources and expertise and therefore an open exchange of information is crucial. Time and time again we have seen how sharing information on where a user industry will go enables us to point out possible solutions our partners have never thought of. At the same time feedback from our partners has been a more than fruitful source of information for future research. All in all I believe I can say that by following this approach we have been able to contribute to our partner's competitiveness in a very successful way.'

this ongoing research is huge and customers are simply not and cannot be aware of the potential benefits as the technology under development often follows new roads.'

Dr Nyström continues with saying that Sandvik has a long time ago built further on traditional ideas of materials selection and now focuses on tailor made materials design in order to satisfy and exceed customer needs.

'Proper materials selection is of course of great importance and in many cases can offer very good solutions to customers queries. There is definitely more though. In many cases a more tailor-made material will outperform existing grades by far and we therefore believe that adapting an alloy to specific needs or developing a totally new grade is the way forward. Again, a close co-operation with the end user is of vital importance. In order to offer the user an optimum solution for his materials problems we need to know where he is

faced with challenges and what his operating conditions are. In return we can offer the user a material that outperforms anything he will be able to find on stock and at an optimum price.'

NEW TECHNOLOGIES: THE GRAM™ CONNECTOR

Sandvik is definitely more than just a materials supplier. Sandvik stands for offering competitive solutions to its partners and therefore it should not come as

a surprise that the company will jump in anywhere it sees opportunities to increase the competitiveness of its customers. Building on this philosophy Sandvik can now offer what might

Sandvik's Gram connector is a major breakthrough as it is extremely fast to make up and break. With the Gram connector an operator can make 25 to 30 joints an hour compared to 4 or 5 for a conventional riser system. Furthermore it is a very safe system to operate as there is no risk of falling parts.

very well become a revolution in the oil & gas industry; the Gram™ connector. The patented connector is mainly intended for riser applications but Sandvik feels it has the potential to become the natural successor to any other conventional couplings for offshore and onshore systems in the oil & gas industry.

'The Gram connector is truly a ground breaking development,' Dr Nyström says. 'Compared to normal couplings there are so many advantages to the Gram connector. For one there is the time saving issue. The connection is extremely fast to make up and break. With the Gram connector an operator can make 25 to 30 joints an hour compared to 4 or 5 for a conventional riser system. Furthermore it is a very safe system to operate. The seal is, in our view, better than any other system on the market. It is a secure system during make up and break - and due to the fast make up and break time there is a significantly reduced exposure time to the handling crew. Moreover the connector is very suitable for the use with ROV's. Finally there are the economical benefits of multiple make and break and reusable seals to name but a few'.

At present the Gram connector has found its first use in a 7 1/6 inch coil tubing stack up riser. The operators are particularly interested in the safety advantages the system offers. At present Sandvik is starting up full scale tests for subsea applications of the Gram connector. In these tests the connector is being pushed to the limit in order to ensure safe and reliable operation in the field and Sandvik's staff is confident the connector will meet all requirements put to it.

BROAD PRODUCT RANGE TO THE OIL & GAS INDUSTRY

There is definitely more than just tube related products that Sandvik has to offer to the oil & gas industry. In fact Sandvik is also a market leader in supplying so called slicklines. Mr Per Eklund, Business Development Manager within product area Wire, explains. 'Slicklines are used for lowering tools and instruments downhole, for intervention purposes.

SANDVIK PRODUCT PROGRAM TO THE OIL & GAS INDUSTRY:

- umbilical tubing
- production tubing
- riser tubing
- flowlines
- control lines
- instrumentation and hydraulic tubing
- coiled tubing
- heat exchanger tubing
- piping systems
- tube and pipe fittings
- wirelines/slicklines
- armour-wire for logging cables
- welding consumables
- solid and hollow bar



Sandvik Materials Technology focuses on solving customers' problems in order to improve their productivity and competitiveness - and, consequently, generate customer value. Therefore the company works at establishing partnerships with its customers to better understand the challenges they are confronted with.

Slicklines are a particularly demanding product, as they often require a very high corrosion resistance as well as exceptional mechanical strength and ductility. Wells are getting deeper, hotter and more corrosive. These deeper wells, together with heavier equipment to be lowered, means there is an increasing demand for higher strength materials. Most operators would prefer to see the diameter of the line remain the same, but with an increased breaking load.'

The next step in slickline technology has recently been taken with the introduction of Sandvik Sanicro 36Mo™. Sandvik Sanicro 36Mo is a true revolution in the oil and

gas industry. It is really amazing to see what a unique and unmatched combination of strength and corrosion resistance the material offers. Our prime goal in supplying slicklines to users is to guarantee as much uptime as possible and we believe we have made a major breakthrough with the introduction of the new grade. So far experiences with the new grade are only positive and it is our expectation that the grade will become a standard in the industry. Moreover, Sandvik Sanicro 36Mo is also available for logging cables that offer the same vital characteristics as the slicklines. But this is not where Sandvik's involvement ends of course.

'There are few if any companies that go so far as Sandvik in understanding users needs and offering tailor made solutions'

To support our customers we are constantly involved in activities such as helping customers estimate the lifetime of a line,' Mr Eklund explains.

Mr Lars Thorén sums up our discussion: 'If you were to ask me what makes Sandvik Materials Technology such an interesting partner for the oil & gas industry, 'it is our focus on the needs of the customer combined with our extensive technical expertise and materials knowledge. There are few if any companies that go as far as Sandvik in understanding the users' needs and offering tailor-made solutions that support our customers in a more and more competitive world. Moreover we are always there when a customer knocks on the door with a particular challenge to be met. What it all comes down to is that Sandvik really is the reliable partner for competitive solutions.'

Facts & Figures

Sandvik Materials Technology is a world-leading supplier of high value-added products in advanced stainless steels, special alloys, metallic and ceramic materials – as well as process plants based on steel conveyor belts and sorting systems. The company comprises five product areas: Tube, Strip, Wire, Kanthal and Process Systems. Materials technology is the core of Sandvik's business philosophy. The company strongly focuses on long term relationships and together with customers and partners it develops competitive solutions for a wide variety of industry segments. Sandvik Materials Technology has about 8,000 employees and annual sales of approximately SEK 12,500 million. It is a business area within the high technology Sandvik Group, which has 37,000 employees in 130 countries and a turnover of approximately SEK 50,000 million.