

# Brück: the complete solution

Brück is one of Europe's largest forge masters and one of the world's leading specialists of forged and seamless hot-rolled rings, flanges, and special forgings for both standard and unique customer designs. This achievement has not been realized overnight. It has grown from the company's successful and continuous development over a number of decades, coupled to the high manufacturing expertise and excellent materials knowledge of its staff. Regardless of whether a client wishes to purchase a single product or a complete package of equipment, Brück will serve their needs well. It is able to do so in an unlimited range of middle-to-large product dimensions in more than 1,000 different grades of materials, ranging from carbon steels through stainless steels to nickel-based alloys, aluminum, and titanium. Not only does the company provide outstanding one-stop shopping, it is also a renowned solution provider, facilitating its customers to achieve the best possible results to the challenges they face. Stainless Steel World recently met with Jack Hoeben (Manager Projects), Raymond Cordewener (Innovation and R&D Manager), Dennis Nuij (Business Manager), and Paul Attasio (Commercial Director Dubai) to talk about this special success story

By John Butterfield and Gillian Gane

## Collaboration to solve complex projects

"For a customer in today's intricate industrial scene, a forging is rarely just a straightforward forging," begins Jack Hoeben. "It will necessarily become part of a complex production system and therefore its later operational life needs to be taken into consideration when it is being manufactured to ensure that it will function as effectively as possible."

Knowing this, one of Brück's real strengths in terms of the products it produces is its record of being a company with a high level of manufacturing expertise as well as having excellent materials knowledge. It has enabled Brück to create solutions that best fit with the individual needs of their clients whether this be for standard, or more complex equipment.

"The application areas for many of the industries to which we supply equipment have become increasingly critical in recent years, for example, higher temperatures, greater pressures and depths, and more



Nozzle.

corrosive atmospheres," Jack Hoeben continued. "This is particularly true of the oil & gas, and certain branches of the power generation, industries we service. This means that equipment, once installed, cannot always be easily replaced. It has to hold up under these arduous working conditions without respite. From experience we have become experts in tailoring equipment to meet customer requirements under these conditions, though we are naturally still learning as application difficulties continue to evolve." It is not just in supplying equipment to withstand harsh operational conditions



Ring roller.

that Brück excels but also in managing complex logistical and time frame issues. A recent case, for example, involved managing the logistics of supplying 2,500+ identical, complex forgings to a tight delivery schedule while guaranteeing the quality of the production process to the highest specification standard of their client. Then they had to be shipped to several locations around the world with all relevant certifications.

"It's not an everyday occurrence," said Raymond Cordewener, "But it is a good illustration of the type of complex project we can smoothly handle, which is another reason why customers come to us."

## Project management and knowledge sharing

Brück staff like to talk to their customers and get to know them well. They see this as an essential factor in establishing strong, long-term customer-supplier relationships, and in facilitating the detailed discussion of projects, which are essential to ensuring that orders can be completed to the very highest standards.

Brück's project management personnel are organized on an industrial-segment as opposed to a regional basis. This has the advantage that the staff that works in these segments, like oil & gas and power generation, is already relatively specialized in these application areas. The project managers track orders and might liaise over all the aspects involved in the manufacture of a single product or a complete array of products for a project from design, through production, assembly, testing, delivery, and after-servicing. Although standard products and deliveries are the bread-and-butter of the company, many orders have a much greater complexity and therefore require much more detailed guidance with communication about them taking anything up to a few hours in a week and even continuing for several months. Project managers also work cross-departmentally as orders move through the various phases from production to welding, machining, and testing.



Anchor flange.

"All this is done to ensure that the products delivered live up to the specifications and needs of the client," said Dennis Nuij. "Many customers come to us because of the faith they have in our abilities to provide full solutions. We will often advise them with regards to specifications or make suggestions, which ultimately improve designs and product performance. We also regularly come up with ideas that the client had not thought or failed to recognize as being crucial. In this way our solutions often save the client considerable expenditure and time."



Press.

# provider

## Innovation trends and current investments in R&D

A trend that has taken place since the Deepwater Horizon tragedy in the Gulf of Mexico in 2010 has been an ever increasing demand for complex specifications for equipment deliveries.

"However, in parallel we also see that sometimes customers may not exactly know what they need in terms of specifications or may even come to us with conflicting specifications without knowing this, or with specifications which may not adequately fit the job," added Raymond Cordewener. "So it is essential that on run-of-the-mill orders we take time to investigate what is needed, what the exact application is and how this will be affected by the surrounding environment. Only after this assessment can we make clear recommendations using the vast pool of experience we can draw on within the Brück organization to get things right. This is also why our customer contacts are engineers to make sure that orders are clearly understood."

"We certainly are very willing to share our knowledge base with our customers knowing that providing them with an excellent solution is the best way to guarantee new orders for the future," said Dennis Nuij. "Moreover, customers increasingly turn to us not just with their forging problem put also with associated piping, fittings, cladding, and design challenges, knowing that we also have the knowledge to handle these situations as well."



The Brück staff members in the Dubai office.

"Quenching and tempering material gives the material certain corrosion and strength properties, but also brings stress and possible cracking problems with it," explains Cordewener. "Unfortunately, there are no text books that tell you what happens with stress. This has to be worked out. At Brück we carry out many experiments examining the effect it will have on the mechanical properties of the alloys when this equipment is put to use in critical applications. Some of our competitors fail to recognize the importance of this with all the consequences this may have for their clients in the future."



Ring.

said Dennis Nuij. "More often than not, this starts up from requests that come to us from the customers of our customers who work in industries related to those we are already involved in. This has led to Brück seeing potential in the medical industry, for example, where there is a gradual switch from cast to forged products because of the unique properties this offers."

Other examples of new industries that Brück is entering are forgings to be used in defense industry, like in the radar technology where high specification rings are needed, or for the navy where forgings are able to fulfill requirements that castings cannot achieve. Another project has been the collaboration between Brück and a well-known hydraulic systems producer. Until recently the company had produced

its equipment in much the same way for many years. However, together with Brück they began to look at using different materials in the pre-forming stage of the forging process, which enabled them to produce a lighter yet stronger product. Through this development the client was eventually able to take on bigger projects because of the higher strength and performance achieved by the hydraulic systems.

"Being at the forefront of the forging industry is a place where Brück feels at home," said Jack Hoeben. "For we see the initiation of new developments as one of the keys factors leading to our success. What we did 10 years ago is now common knowledge so you can source these products worldwide. However, without the specialist knowledge and experience that we have at our fingertips you really cannot effectively make many of the advanced products we are busy with."

"Wherever companies move to the forefront of new application fields they are confronted with new questions to which they need answers and special solutions. We aim to provide these solutions and answers," concluded Raymond Cordewener. "And in this way continue to guarantee ourselves a bright future."



Stock material..

Not only have the requirements for materials become demanding over recent years, customers also want stronger materials produced from leaner products with reduced wall thicknesses while still retaining the same mechanical load. These and many more new, stringent, requirements have necessitated that Brück return to 'basics' and a deep understanding of the metallurgy and physics behind what happens in such processes as heating, cooling, tempering, and quenching. These factors affect the mechanical properties of the alloys and ultimately the performance of products in the application field.

The company has also invested heavily in 3D calculation software, something very specific to the forging industry, and into training staff to interpret the data so that it can be put to even better use in understanding what happens to the structure and properties of alloys during forging, and how this may affect their ultimate performance in an application.

## Expansion into new markets

"We don't normally decide to start up work in a new application field on our own,"



Small products.