

Antonius

Partner in forming solutions



Antonius Vesselheads is a typical example of a traditional western European, heavy industry company that is facing up to growing competition from the rising economies in the East. Despite some difficult times in the past, Antonius is still going strong and will be a flourishing company when it celebrates its 70th birthday next year. We went to Maasbracht, in the deep south of the Netherlands, to find out what sets Antonius Vesselheads apart.

By Michael van Wijngaarden

“One of the key philosophies of Antonius,” says Guido Slump, Chief Executive Officer, straight away “is that we consider ourselves to be a solutions provider instead of just a vesselhead maker. Of course our key competence is transforming plate material but we do much more than that. We can supply solutions to forming problems that in some cases no one else can offer because we have all the equipment and knowledge in-house to convert practically any steel plate material into practically any shape. Our knowledge and reliability are the added values that attract customers from around the globe and the reason why we are a solution

provider up to a level where we enter into partnerships with our clients to jointly search for solutions to their problems. That doesn’t mean, however, that Antonius does not produce any standard vesselheads. On the contrary. The company has one of the widest product ranges in the market and customers can call upon Antonius for, let’s say, a 1 metre standard vesselhead in boiler plate to a 66 metre vesselhead or any other special pressed part in any kind of material.” “Besides our expertise in transforming”, Area Sales Manager Tom Mansvelders adds, “our cutting and welding capabilities make us stand out from the rest and

give us an extra edge against our competitors. On top of that we can transport very large components. This is especially of value in areas where on-site welding is difficult. We are currently involved in a project supplying a large vesselhead that needs to be assembled on site in a location where outside temperatures can drop to -30 degrees C. The client needs to take all sorts of costly measures to bring the components to room temperature simply to make welding possible. We enable him to save considerable sums of money because we can supply the biggest parts available and so significantly reduce the amount of welding to be done on site."

FINE ART

To stay ahead of competition, Antonius has always been present in the technically higher echelons of the market. Technical know how has always been the company's calling card and it has turned the process of transforming steel into a fine art. The company is therefore able to form components with practically every forming technique that is available today. At face value making a vesselhead may seem simple but we learned there is a lot more to it. The biggest challenge lies in the forming process which involves both cold forming (which is ideally suited to thinner components) and hot forming for special grades and thicker material. After the forming process, welding and heat treatment procedures can be performed to fine tune the product and bring it up to specifications.

All of these production steps can alter the material characteristics if the production process is not properly controlled. That would result in a vesselhead with entirely different mechanical and/or corrosion characteristics than the original plate as delivered by the mill.

Quality Engineering Manager Richard Hamersma: "This is indeed true so being able to accurately control the heat treatment procedure is therefore of paramount importance. A faulty procedure might destroy the entire structure of a material and render the component useless." On top of that, during the forming process the measurements of the vesselhead vary. These variations need to be calculated in advance and the forming process needs to be accurately controlled to make sure the finished product meets the measurement requirements. "The intelligence of our production process," Mr Slump continues, "lies in making the dye or mold. That is a particularly difficult profession because the shape of a vesselhead during the hot forming process is different from its final shape. Over the years we have mastered the art of predicting the final shape and are able to deliver vesselheads that meet the closest tolerances. This also gives our customers the added advantage of, for example, being able to run production of a tank in parallel to our production. The fabricator can already make the shell to the agreed dimensions because he knows he will get the exact vesselheads he requires."

TRANSPORT

And that brings us to a topic that on the surface may not have much to do with the company's core business of making vesselheads but does in fact determine its success to a large extent: transportation. In other words, how does Antonius ensure a 10 ton vesselhead is transported and delivered on time to customers located around the globe? Mr Slump: "Transportation and logistics indeed play a tremendous role in our business. We have to transport large and heavy objects and at first that may seem like a financial drain. But it is not.



"Our cutting and welding capabilities make us stand out from the rest and give us an extra edge against our competitors."



The company is able to form components with practically every forming technique that is available today.

In fact, in theory we may be able to transport our products more economically. A number of factors play a role in our transport. Firstly, the best steel for fabricators is mostly made here, in western Europe. Fabricators in other parts of the world first have to transport their raw material, steel plates, to their sites before they can get to work. This means they also transport a lot of plates with cut-off which gives them a disadvantage. We don't have that disadvantage. Our only substantial transport is of finished products. Secondly, we supply to so many projects that involve so many components of various sizes that we can literally stack them as efficiently as possible and ship them to the customer. On top of that, our company is strategically located at the river Maas which gives us easy access to the ports of Rotterdam and Antwerp, two of the most important hubs in the world. Some of our biggest markets are in the Middle East and the Far East and shipping prices for goods leaving Europe are much lower than for goods coming into Europe. In our experience, our location here gives us logistical advantages!"

EXPORT

Huib Slijpen, Export Manager, adds: "Across the board we have seen a steep increase in our export in the past five years due to a number of factors. One is that local suppliers are working at full capacity and two is that with current oil prices oil companies are investing a lot of money into expanding their production and refinery capacity. For them, quick and reliable delivery is now more important than cost."

The biggest growth markets for Antonius are also the areas where the company already has a strong foothold: oil & gas, chemicals and the food industry. Most of the activity goes on in the Middle East and Far East which is why a year ago Antonius opened a sales office in

Being able to accurately control the heat treatment procedure is of paramount importance. A faulty procedure might destroy the entire structure of a material and render the component useless.



Dubai and continues to look at opportunities to expand its business. Mr Slijpen: "In this respect the chemical and food markets look promising. In all developing markets like Pakistan, India and China new chemical plants are being constructed for the production of PTA that require enormous amounts of titanium clad components." Talking about titanium, Mr Slijpen explained that the market for titanium clad components is one of the key markets for Antonius, generating a major share of the company's turnover. It is also a very demanding product to manufacture. In an ongoing process the material has to be heated, pressed and heated again and at the same time the temperature needs to be kept below a certain temperature because a higher temperature might have negative influence on the bonding of the clad plate.

BEER

Particularly large-size components are in demand from the food industry, more particularly the beer industry. In central Europe beer consumption is growing fast as traditional spirits as vodka are shunned in favour of trendier beer. Beer consumption in the European region (including former Soviet states) even grew by a tasty 52 per cent between 1996 and 2001.

Furthermore, when it comes to growing beer consumption all eyes are on South America and especially Africa. These are regions that show economic growth and where quite simply beer is more readily available than fresh drinking water. Beer production in Africa represents only 4.5 per cent of the worldwide beer market. However, the African market has grown tremendously in recent years and the further outlook is positive. Mr Mansvelders: "There is also another developments in the beer industry that is important to us. Economies of scale has taken hold of the beer makers

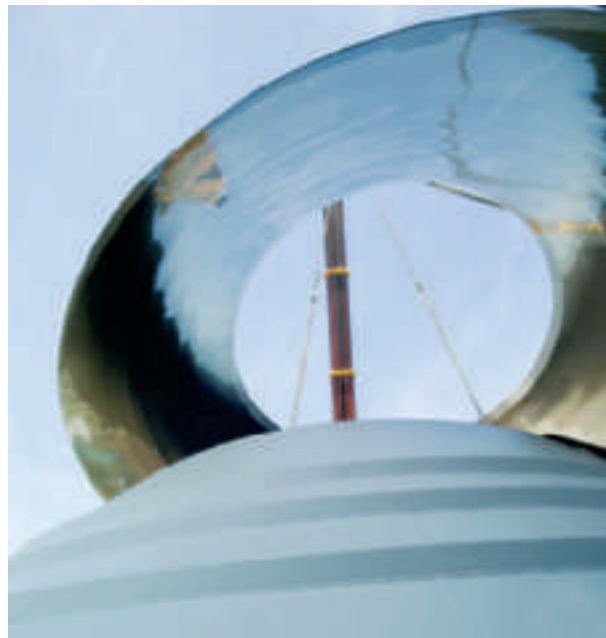


so they are seeking more efficient brew procedures to quench the thirst of millions of people. These production methods require ever bigger tanks and this is where Antonius comes in. We are able to supply the huge vesselheads they require everywhere in the world on time."

CRYOSTAT

On the other side of the spectrum and away from the very large common stainless steel components are projects that require an entirely different approach from Antonius and call upon all the material knowledge that it has in house. One of these projects deals with a European nuclear research program into new sources of energy. Antonius was asked to design a large, multiple walled cryostat that needs to completely shield the outside world from the processes that will take place inside the cryostat. And in this case, completely shielded literally means just that. The material selected for the cryostat needs to be impenetrable even to the smallest particles like electrons and protons.

Another high tech project Antonius was selected to participate in is the design of submarine doors for British Aerospace. Mr Slijpen: "These doors have to resist a tremendous outside pressure, as opposed to inside pressure as is usually the case. This is what makes this project such a challenge, together with the most stringent tolerances we have ever had to work with." The reason for these strict requirements is that in case of internal pressure the component is automatically pushed into a hemispherical shape. But in case of external pressure the component has to resist that pressure to maintain its shape. Any flat surface on the door forms an immediate danger to the submarine and its crew because it can cause the door to implode



The biggest growth markets for Antonius are also the areas where the company already has a strong foothold: oil & gas, chemicals and the food industry.

in deep-sea. On top of all that, submarine skins now need to be thinner to compensate the weight in electronic equipment that is carried by modern subs. "Everone at Antonius is extremely proud the company was selected for this project," concludes Mr Slijpen. "In this case we are exploring the boundaries of what is technically possible in the field of material engineering and we will continue to do so in the future." ■

About Antonius Vesselheads

Antonius Vesselheads BV, founded in 1937, is a specialist manufacturer of vesselheads, reducers, expansion joints and other pressed parts for the pressure vessel industry. Each year Antonius transforms over 5000 tons of steel into more than 10.000 products, of which they export 75% world wide. Located at the Dutch harbour of Maasbracht, at the river Maas, Antonius has a direct connection to Rotterdam and Antwerp. The company employs 80 people.

Steel technology center

The south of the Netherlands, with the city of Maastricht at its center, is an expert region for steel technology and one of the reasons that Maastricht is hosting the Stainless Steel World conferences. The area harbors a number of highly specialized industries that profit from strong synergy effects. Partners of Antonius in this region are, for instance, Brück, Corus Feyen, SIF, Kersten Europe and SMT (Shockwave Metalworking Technologies), all situated within a few kilometers of Antonius and near to the river Maas.