



Outokumpu: A synonym for innovation, knowledge and experience

Since its foundation a century ago, Outokumpu has evolved from a local mining enterprise to a global leader in stainless steels. Today the company stands at the forefront of innovation in the stainless steel industry, constantly striving to improve existing materials and develop new ones. Stainless Steel World recently spoke to Mr. Claes Sörebo, Product Manager for Outokumpu's high-alloyed special grades, not only to learn about the latest additions to the company's ever-growing product portfolio, but also to gain an interesting insight into their approach to achieving maximum customer satisfaction and benefit.

By Joanne McIntyre & Matjaž Matošec

Based in Avesta, about two hours' car drive from Stockholm, Mr. Sörebo is responsible for global supply and promotion of specialist stainless steel

grades, particularly those from the austenitic family. Having a long history of stainless steel production, this Swedish town is home to Outokumpu's

duplex and special grades. The fully integrated production facility is considered to be one of the most productive in the world, when it comes



Claes Sörebo: "We see ourselves as the leading innovator in the stainless steel industry."

to special stainless steel. In addition to its large manufacturing capacities providing work for some 700 people, the company's business operations in Avesta include a research centre employing 50 engineers, deeply involved in supporting sales and marketing teams by developing new products. However, innovation is much more than merely the creative spark of invention – a fact which Mr. Sörebo and his colleagues are well aware of.

Innovations need a purpose

"For me an innovation is quite useless if it is not clear where the benefit is for the customers. That is why our innovations put the customers first. A good idea can easily pop up and, to be sure, having one is always great, but oftentimes the main challenge is to execute and implement it. As much as we produce our own ideas, we also carefully listen to our customers. In other words, at Outokumpu we strongly believe that feedback from the industry is essential. Therefore, adhering to this principle, we try to identify clear customer needs, which is best done by having a very close dialogue and really understand the customers' needs. What is the problem? How can we help you? By getting answers to these questions, it is much easier for us to come up with great ideas and ways to develop them. The advantage of such a big company like Outokumpu is that we have a lot of experience and we have various areas of expertise. This is one of our key assets and a great opportunity for us to learn from each other because when a good idea emerges in one business area, we can easily use it in another business area." If necessity is the mother of invention, then strong research and development resources should be called its cousin. Currently, Outokumpu has three strong R&D departments, one in Avesta, Sweden, another one in Tornio, Finland, and the third one in Krefeld, Germany. "Having these centres," Mr. Sörebo explains, "is essential when you are involved in the kind of development work we are doing. No less important," he adds, "is to work closely with R&D and marketing because then you really create a good business case: the marketing explains customer needs, R&D explores or evaluates what is possible, and when you combine that, you have your innovation."

Improving a grade or developing an entirely new one requires time and a



HEAT-IT Oy from Finland selected Outokumpu's new high chromium ferritic stainless steel Core 4622 as the material for their RESPETRA rescue chamber. The RESPETRA rescue chamber is a stainless steel cabin used in underground mines. It provides shield and protection for miners for example in case of fire for as long as for four days. Core 4622 is technically very suitable for the rescue chamber due to its good combination of strength and toughness and can thus handle pressure relief well. The walls of the rescue chamber are curved to provide protection against pressure and gases. Photo courtesy of HEAT-IT.

step-by-step approach. Mr. Sörebo thus describes Outokumpu's innovation strategy: "We have a very detailed process when it comes to product development. It begins with the business case, followed by two more stages in which the project needs to be approved. In the prestart stage we consider the production challenges, while in the last step we go into action, do the production trials to see if we are able to produce the new product, whether it really fulfils the customer demands and whether it meets all other expectations. During this stage we also once more review the original business case. Was the story really as good as we thought in the beginning? Can we confirm that there will be business for this product? Will it meet the needs of the customer? If the answer to all these questions is positive, then we add it to our existing product programme. This is a clearly defined process that we have within Outokumpu – it starts with a good idea and then we have a business case and go ahead. Sometimes you have a magnificent business case, but usually there is a good reason why no one has produced the material yet. For example it may be extremely difficult to produce, which makes it too expensive for anyone to buy it."

Making the customer's material choice easier

Outokumpu's commitment to innovation is reflected in their constantly-growing range of stainless steels. Latest additions to the company's product portfolio include Outokumpu Forta H-series, Outokumpu Supra 316^{plus} and Outokumpu Core 4622 (see accompanying boxes for



The One World Trade Center is the architectural landmark in Lower Manhattan, NY, USA. Two hundred tons of Laser-finished cladding, made in Dillenburg, Germany, was delivered to the construction site. Architects like stainless steels 'honest' and 'pure' qualities, as well as its noble appearance.

product information). But innovation at Outokumpu does not end with product development. To help their customers

compare different material options and to assess and select the optimum product for their specific performance and cost-efficiency needs, the company recently introduced a new way to categorise its wide range of stainless steel products. Divided into nine ranges, these are now arranged according to performance characteristics rather than their chemical composition. Highlighted key properties include corrosion resistance, heat resistance, strength, hardness and machinability. In his capacity as Product Manager for Outokumpu's high-alloyed grades, Mr. Sörebo was also involved in this project. His explanation of why he finds it important demonstrates a high level of care for the end-consumer's ease of choice.

"Most of us at Avesta are engineers working with the stainless steels, which can have the tendency to make us more technically-oriented than customer-oriented. In some cases this may have



Outokumpu and the Swedish fuel system company TechROi Fuel Systems (TFS) developed a new innovative stainless steel fuel tank. Stainless steel properties make the tank a competitive alternative for plastic tanks. Use of Outokumpu HyTens® steel grade allowed extremely thin walls and tailored strength, making the tank circa three kilograms lighter than the conventional fuel tank made of plastic, thus reducing the overall vehicle weight and making the car less fuel consuming and consequently mitigating emissions.

made it a little difficult for customers who are not engineers to have a clear guideline when it comes to material selection. Therefore we have developed this clear categorisation depending on customer needs.”

“Some customers have really high demands and are very skilled, but if you talk to a purchase manager, for example, they are more interested in general information. Having this new kind of ordering the products into categories now makes it much easier to have a dialogue with them. After the presentation I gave at the recent Outokumpu Experience event in Berlin, one customer approached me and said: ‘Claes, I think this looks really nice because now I know exactly what I need. It doesn’t interest me so much whether something is 0.8% or 0.9% nitrogen, for me the important factor is to see if I can use this in my application or my environment.’ And that, I think, is what this new categorisation system explains in a very clear way.”

Sharing knowledge and experience

Yet another way in which Outokumpu serves its clients and, more broadly, the stainless steel industry, is by making the wealth of their knowledge and experience available through publications. More specifically, the company has published three handbooks providing specialist yet accessible information concerning three closely related areas of expertise relevant for professionals working in various steel-related industries. The Outokumpu Handbook of Stainless Steel (2013) and The Outokumpu



Finnish company, Lant Group Cargo Solutions, chose Outokumpu’s high-chromium austenitic grade Supra 316plus for their new special cargo containers which will be used for transporting corrosive and sharp bulk materials.

Welding Handbook (2010) are of recent vintage, whereas The Outokumpu Corrosion Handbook, published for the first time in 1934, is nearly as long-established as the company itself. In its recently updated, 10th edition, this handbook classic contains, amongst other information, technical articles from several applications and customer cases, as well as a wealth of data about the relatively new duplex family of low-nickel stainless steels and the rich variety of new products and applications. Mr. Sörebö explains: “We see ourselves as the leading innovator in the stainless steel industry, which means that we are constantly striving to improve our offerings to our customers. We try to do so not only in terms of material selection and material properties, but also in terms of innovation and customer support when it comes to knowledge and service. This is our strength, appreciated

by many customers – that we are willing to share our experience. The Corrosion Handbook is a case in point. This being its 10th edition, innovative may not be the most appropriate word to describe it. Perhaps it is better viewed as a continuous tradition cultivated by one of the most experienced actors in the business. The Corrosion Handbook exemplifies our experience and our knowledge in the area of stainless steel which we have been producing since the early 20th century. That is a very long time. We have gained much experience during the years and that is something unique. In this way, Outokumpu continues its legacy of leadership in the stainless steel development.”



Outokumpu has three strong R&D departments, in Avesta (Sweden), Tornio (Finland), and the pictured is the plant in Krefeld (Germany).

Facts & Figures

Name:	Outokumpu
Production facilities:	China, Finland, Germany, Mexico, Sweden, UK, USA
Headquarters:	Espoo, Finland
Employees:	12,000
Turnover:	EUR 6,844 million
Main Products:	Coil and sheet, Quarto plate, Bar, Cast semis, Precision strip, Rebar, Welded pipe, Wire rod, Rolled and forged billet
Key Markets:	Architecture, building & infrastructure, automotive & transportation, catering, food & beverage, home appliances, energy & heavy industries
Website:	www.outokumpu.com