“Strength through unity”: Benelux is a vital market for stainless steel at the heart of northern Europe

Connections count: this is the lesson to be learnt from studying the Benelux countries (Belgium, the Netherlands and Luxembourg). With its ports, rivers, canals, roads, railways and pipelines, the region has an excellent infrastructure that allows ready access to and from the global marketplace. These multiple links make Benelux an outstanding region for doing business, while its oil and gas, refining, chemical and petrochemical industries provide a thriving market for stainless steel.

By James Chater

Benelux

Probably few people are aware that Benelux predates the European common market. The three northern European countries that comprise what is now called “Benelux” joined the European Coal and Steel Community (later the EEC, now the EU) in 1951. The group has similar laws, its own parliament and its own court of justice, and they share several institutions. Its motto can be translated as: “Strength through unity”.

And strong it is. The three countries have enjoyed steady growth and high per capita incomes for several years. They share a dynamic, diversified economy, excellent infrastructure and a diversified industrial base. It is one of the most interconnected regions of the world, crisscrossed by rivers, canals, railways, roads and bike paths. In addition, an elaborate network of pipelines (oil, gas, oxygen, hydrogen, nitrogen) links the ports of Antwerp and Rotterdam with the region’s other industrial hubs. These connections ensure easy access to and from its European trading partners.

Be

Belgium was the first of the three countries to undergo an industrial revolution. At first it was the steel, coal and textile industries that thrived, but they have long since yielded pride of place to refining, (petro)chemicals, pharmaceutical, food processing, breweries, electronics, machine fabrication and cars. Its process engineering industry is represented by Tractabel Engineering, which works on about 80 projects in 20 countries. Belgium has three large ports: Antwerp (Europe’s second-largest), Bruges-Zeebrugge and Ghent.

Ernest Solvay (1838-1922) was a Belgian chemist, industrialist and philanthropist. In 1861 he developed the ammonia-soda process for the manufacturing of soda ash. He set up his own company, Solvay, to manufacture it.
REGIONAL FOCUS

Industries

Oil and gas
The Netherlands is a major producer, consumer and exporter of natural gas, thanks to its onshore field at Slochteren in Groningen province in the north-east. Operated by the NAM natural gas operation in the Groningen field, the Netherlands.

The Netherlands is also an oil gas storage and trading hub, a position strengthened by the inauguration in 2011 of the Gate LNG liquefaction terminal in Rotterdam.

Refining, (petro)chemical
Refining, petrochemicals and chemicals are the jewels in Benelux’s industrial crown. They are concentrated mainly in the huge clusters of Rotterdam and Antwerp, Europe’s two largest ports.

The presence of so many interrelated industries in such strategic locations allows them to share facilities and to strengthen their business by using each others’ resources and products to achieve powerful synergies. They are microcosms of the global process industries. The Port of Rotterdam cluster comprises 23 petrochemical and 57 chemical operations, eight power stations and other utilities. It contains the Shell Pernis refinery, the BP Rotterdam Refinery, and other facilities owned by Air Liquide, Akzo Nobel, BASF, ExxonMobil, Kemira, Linde Gas, LyondellBasell, Statoil, Vopak, etc. The Antwerp Chemical Cluster includes facilities owned by Air Liquide, BASF, Bayer, Dow, Evonik Degussa, ExxonMobil, Ineos-Phenol, Lanxess, Monsanto and Total; nearby is BP’s Geel facility. The port specializes in handling liquid bulk and dangerous chemicals, and its freight handling business is growing rapidly. Other refineries in Benelux include SABIC’s petrochemical facility in Geleen, which has just been upgraded by Jacobs. The chemical process industry is represented mainly by BASF and Solvay. At its Verbund site in Antwerp, BASF produces a wide variety of petrochemicals, fertilizers polymers and other chemicals. Solvay, which before World War I was the largest company in the world, recently sold its pharmaceutical sector in order to concentrate on chemicals and plastics. It has plants in Antwerp, France, Germany,

Lux

In terms of per capita GDP, Luxembourg ranks second in the world. Its economy is nowadays based largely on banking and finance, with internet and telecommunications not far behind. However, its iron and steel industry is not negligible, accounting for 10% of exports. This sector is dominated by the world giant ArcelorMittal, which manufactures steel (including stainless steel) at several locations throughout the world.
Brazil, USA and Thailand. The Netherlands is also home to Stamicarbon, which has patented a process for making synthetic ammonia.

**Power generation**
The Netherlands produces most of its energy from natural gas, biomass, wood gas and coal (including the CCGT Moerdijk 2 plant, operational since 2012). Plans to build new coal-fired stations are on hold because of political opposition and costs. The only commercial nuclear plant currently operating is at Borssele, which in 2013 switched to burning MOX fuel supplied by Areva. Because it has no oil or gas reserves, Belgium has diversified into nuclear power generation to a much greater extent than the Netherlands: 54% of the country’s electricity comes from nuclear power generated at two power stations, Doel and Tihange. However, Belgium has announced it wants to phase these out. Renewable energy is on the increase. By 2012 Belgium had installed 2,649 MW of photovoltaic panels, compared with the Netherlands’ 321 and Luxembourg’s 47. In Belgium, Liege hosts the Solarmundo CSP test facility (a Fresnel Collector), while the Audi factory in Brussels is powered by solar panels. In the Netherlands the market for PV systems is expanding rapidly. Dutch consumers can “adopt” solar panels at remote locations, usually the roofs of company buildings. And students from Delft University have invented a “solar skin” with which to “wrap” terraced houses in solar panels and smart technology. From Benelux, the global CPS industry is served by Tractebel Engineering, Solar Energy Luxembourg and the pump manufacturer Ensival Moret. Wind power is also developing rapidly, with new capacity at Sabina Polder (2012) and Groningen (2012). A new generation of mega-turbines will increase efficiency. This type will be used in an offshore farm planned near Germany’s Helgoland Island.

**Water management**
For centuries the Netherlands has been contending with floods from the sea or its extensive river system. The country’s very existence depends on dykes, drainages ditches, canals and pumping stations that keep the water at bay. Global warming will cause the sea level to rise further and increase the risk of storm surges. The Dutch are strengthening their defences and granting more flow space to rivers. Such systems will require a lot of valves and pumps.

**Transport**
Public transport and vehicles surely provide opportunities for stainless steel use. The French TGV train system has recently been extended to Luxembourg, and there are plans to introduce trams and light-rail lines. Bicycles are an everyday mode of transport in the Netherlands, and titanium is frequently used in high-end sports bikes. Finally, although neither Belgium nor the Netherlands produces aircraft, there is a thriving aerospace industry comprising R&D, component manufacture and consultancies. Delft University of Technology is Europe’s largest aerospace engine faculty. Chromalloy (parts for gas turbine engines), Dutch Space, DutchAero, Fokker Technologies, Techspace Aero (part of Safran), and the Netherlands’ National Aerospace Laboratory are just some of the companies active in this field.

**Medical**
Benelux is home to several companies specialized in 3D printing, a revolutionary technology for producing complex shapes with little or no waste of materials, unlike traditional methods involving cutting. Among these companies is LayerWise. This spin-off from Leuven University specializes in components for the process industries, and in medical and dental implants. It undertook the first ever patient-specific, 3D-printed titanium jaw implant. Customized 3D-printed spectacles in titanium are being produced by Melotte in collaboration with the Belgian designer and optician Patrick Hoet.
REGIONAL FOCUS

Stainless suppliers

For several years there has been overcapacity in the stainless steel industries, and Benelux is no exception. As of 2012, Belgium's production had not yet returned pre-2008 levels, reflecting the overall EU trend (1). In the Netherlands oil & gas and food processing are growth areas, whereas construction has slumped. Nevertheless, a great variety and number of stainless steel suppliers, fabricators, stockholders and vendors call Benelux their home. Foreign companies represented in Benelux include Carpenter, Schmolz + Bickenbach, Sandvik, Outokumpu, Sumitomo, Jacquet and Tubacex.

Among domestic producers, the largest and most versatile is probably Aperam, spun off from ArcelorMittal in 2011. The company, which claimed 29% of the total market for 2009, is headquartered in Luxembourg and has six facilities in Brazil, Belgium and France. It specializes in flat products, and also produces welded tubes, precision strip and flat bars in austenitic, ferritic, martensitic, heat-resistant and duplex. Another producer of flat products is Industeel, a subsidiary of ArcelorMittal. Industeel Belgium, based in Charleroi, makes both stainless and low alloy steel plates. It specializes in 9% Ni steel plates for LNG storage tanks and in duplex stainless steel quarto plates.

Stockholders include Fisher Edelstaal, IMS Belgium, MCB Group, Roestvrij, Sadel and Stainalloy Nederland, which claims to be the largest in Europe and to have doubled its capacity in the last five years. The region also has an abundance of tube, pipes and fittings specialists. One of the most international is undoubtedly Van Leeuwen, which supplies tubes, pipes, fittings, flanges and valves to a wide range of process and construction industries. The company is expanding rapidly thanks to acquisitions and organic growth. In 2011 it acquired Teuling Staal, specialized in (super) duplex, and in 2014 it entered the Brazilian market by acquiring Tubexpres. Other manufacturers include Victaulic, Sosta (headquartered in the Netherlands, but with manufacturing facilities in Germany) and Icarus. Preeminent among tube stockholders are Dylan Belgïe, Hart (piping materials in nickel and titanium alloys), W. Maass Nederland, Merinox (seamless tubing for instrumentation), Noxon Stainless, Paul Meijerings Metalen and Steuer Nederland. Highly specialized producers include Brück Group (forging and ringrolling of turbine and generator parts), Gemaco (urea and nitric acid grades), Gillain (process equipment for the food & drink, chemical and pharmaceutical sectors), Larsen Premium Precision Parts (semiconductor, nuclear, aerospace etc.), LCMA (titanium semi-finished products) and Romynox (pharmaceutical grades). Finally, where would a trading nation like the Netherlands be without its specialized online trading platform: Stainless Is More, already familiar to readers of this publication!

Did you know?

- In the Netherlands, 27% of all trips are by bicycle – the highest of any country in the world.
- Belgium is home to the cartographer Mercator (he of the projection), Hergé’s Tintin and the Agatha Christie detective, Hercule Poirot.
- Bakelite, an early plastic, was invented in Belgium.
- The Big Bang theory was first proposed in 1927, by Georges Lemaître (Catholic University of Leuven).
- Luxembourg is the world’s only surviving grand duchy. Other grand duchies have included Finland, Lithuania and Tuscany.
- The first full-time stock exchange was located in Amsterdam.
- The CD, DVD, Wi-Fi and Bluetooth were all invented in the Netherlands.

Reference

(1) www.worldstainless.org/Files/ISSF/non-image-files/PDF/ISSF_Stainless_Steel_in_Figures_2013.pdf

Van Leeuwen supplied motor-operated ball valves and hand-operated valves for the Amstel Field Project, made of various stainless steel and duplex grades.