

Tubular Products Europe

With nine production sites across four European countries, ArcelorMittal Europe's division Tubular Products produces and markets virtually the full spectrum of tubular products in an unparalleled range of sizes. With its seamless, spiral welded and longitudinal welded products, available in both small and large outside diameters, the company is active in the energy, construction, mechanical and automotive markets. An increasing share of its output is in the form of value-added products, developed in cooperation with its customers.

Tubular Products produces seamless and welded pipes and tubes including ERW¹, HFI², precision, cold-drawn, HSAW³ and LSAW⁴. In 2015, Tubular Products Europe delivered pipes and tubes to the energy, construction, engineering and automotive sectors.

A wide range of seamless pipes

ArcelorMittal Europe's division Tubular Products offers seamless pipes with outside diameters ranging from 21.3mm - 508mm and wall thicknesses of up to 50mm. Access to high-quality steels allows the division to create pipe and tube solutions for the most challenging applications. Its mills in Romania and the Czech Republic have supplied many complex orders, including structural tubes for the Azerbaijan Olympic Stadium, piping systems for the UK Navy's flagship aircraft carriers, and oil and gas projects across the world.

Flexible large-diameter welded facilities

Tubular Products' highly flexible operations enable it to meet the demands of both large and small projects. The division has the capability to produce individual pipes, making it the ideal supplier for small projects with many components. Recent investments have led to the extension of the outside diameter of its HSAW pipes to 1,016 mm. A wide range of grades is available in strengths of up to X70. Additional services include end preparation for sockets, cut-to-length pipes and an in-house coating facility.

Extensive small welded offer

Small, welded cold-formed and hot-finished tubes are produced at Tubular Products' mills in Karviná (Czech Republic), Krakow (Poland) and Iasi (Romania). These products are typically used in construction, and in the transportation of fluids and gases. Its offer is constantly developing to meet customer requirements for high value-added products. Over the past two years, Tubular Products Europe has made important investments to increase its production of galvanized and colour-coated tubes, and hot-finished hollow-sections. These investments have enabled it to increase the variety of grades on offer and improve its logistics systems.

A leading manufacturer of automotive tubing

Due to their contribution to structural strength, reduced number of welds and light weight in relation to the optimised number of joints, steel tubes help to lower costs, increase safety and reduce overall mass - critical factors for car manufacturers. With four production sites in Europe specialising in automotive tubing, Tubular Products Europe is a leading manufacturer and marketer of tubes for the automotive industry with a wide range of welded and cold drawn mechanical steel tubing and tubular shapes, fabricated parts and precision components. The products are used for a wide range of high-value added applications, ranging from suspension systems to crash management components to axle housing assembly systems, and everything in between.

¹ ERW – Electric Resistance Welded

² HFI – high frequency induction

³ HSAW – Helically Submerged Arc Welded

⁴ LSAW – Longitudinal Submerged Arc Welded

Key investments and R&D

ArcelorMittal's customers benefit from the group's global R&D capabilities which include **1,300 full-time researchers, \$227m dedicated to research in 2015** and 12 major research centres worldwide.

In recent years, the group's European mills have made major investments in state-of-the-art equipment for the production of pipes and tubes, including:

- **an investment at the site of Ostrava** (Czech Republic) in February 2014 to modernise the manufacture of small diameter seamless pipes and increase product quality and production capacity in response to customer requirements and increasing international demand for its products, particularly in North America.
- A new **colour-coating line** for cold-formed welded tubes at **Iasi** (Romania) in 2016
- A new **melamine colour-coating line** at **Karviná** (Czech Republic) commissioned in autumn 2015

Other important areas of research are being conducted in the following locations:

- **Vitry** (France), which is constantly developing parts for automotive applications. As weight is a key consideration for carmakers, Vitry has adapted and developed a low-carbon steel crash component that is lighter and more cost-effective than aluminium - just one example of how ArcelorMittal is using innovation and imagination to create additional value for the customer.
- **Roman** (Romania) and **Ostrava**, where new grades are being developed on site. Ostrava is developing a new grade of steel to broaden its range for gas applications: the spiral welded pipe DN10000 grade X70. In 2015, the plant shipped its first supply of offshore grade for a project in Nigeria and is planning further revamps to develop its OCTG⁵ products in 2016, involving threading facilities and a coupling shop to further extend its range of seamless products. Premium threaded connections are designed for use in oil and gas well drilling operations by customers with mission-critical drilling processes where any malfunction in the connecting devices may result in significant economic and environmental losses.

Innovating for different markets

Seamless

The Seamless Business Unit of Tubular Products Europe manufactures and markets steel pipes and tubes for the full spectrum of industrial, engineering, and energy segments.

Access to high-quality steels allows us to create solutions for the most challenging applications. Our mills in Romania and the Czech Republic have supplied many complex orders including structural tubes for the Azerbaijan Olympic Stadium, piping systems for the UK Navy's flagship aircraft carriers and oil and gas projects across the world

Applications:

- Oil & Gas exploration
- Hydraulic cylinders
- Hydrocarbon transportation
- Structural applications
- Power generation
- Engineering and mechanical applications

⁵ OCTG – Oil Country Tubular Goods

The following plants produce seamless pipes in a broad range of sizes and grades in carbon and alloy steel, as well as large diameter spiral and longitudinally welded line pipes for transporting hydrocarbons:

- **Ostrava**, the Czech Republic's largest steelmaker has integrated steel making and rolling facilities and has continuously invested in upgrading its facilities to produce a superior range of pipes and tubes. Its main product is smooth, threaded, flanged and OCTG seamless pipes. The company also manufactures spiral-welded line pipes for the gas industry. For the construction industry, Ostrava offers both seamless and spiral-welded tubes.
- **Roman** is the one-stop shop for the entire range of tubular products required in the energy industry, producing seamless pipes for oil and gas projects around the world in a broad size range from 3" to 20".

Large Diameter Welded

Our Large Diameter Welded mills offer a wide range of products which meet the highest standards in all major applications. By working closely with our customers, we ensure that our pipes and tubes meet all customer specific requirements.

Our highly flexible operations make us the ideal partner for both large and small pipeline projects in the energy sector. We also manufacture and supply pipes for piling and structural application

Applications:

- Hydrocarbon transportation
- District heating systems
- Water distribution
- Piling and structural applications

The following plants produce seamless pipes in a broad range of sizes and grades in carbon and alloy steel, as well as large diameter spiral and longitudinally welded line pipes for transporting hydrocarbons:

- **Ostrava** manufactures spiral-welded line pipes for the gas industry. For the construction industry, Ostrava offers both seamless and spiral-welded tubes.
- **Galati** (Romania) produces LSAW pipes for the transportation of oil, gas, hydrocarbons and water.

Automotive Tubing

Tubular Products Europe is a leading manufacturer and marketer of welded and cold drawn mechanical steel tubing and tubular shapes, fabricated parts and precision components for the automotive industry.

Main applications:

- Suspension systems
- Crash management components
- Axle housing assembly systems
- Welded precision tubes for manufacturing of seats, instrumental panel beams, filler pipes, engine cradles and reinforcement components
- Complex hydroformed and other high-value added automotive applications

Four of Tubular Products' plants provide tailor-made solutions to the group's automotive customers. These include welded and cold-drawn welded tubes, and components based on global quality standards such as ISO TS 9001 and ISO TS 16949.

Hautmont (France) Located in northern France close to Maubeuge the ArcelorMittal Hautmont, Tubular Products factory (formerly Vallourec Précision Soudage) was built at the beginning of the 20th century. Its production of cold sized welded precision tubes ranges from 20mm - 130mm outside diameter and from 0.9mm - 6mm wall thickness, with lighter and heavier wall-to-diameter ratios. In addition to standard low

carbon steel, the factory produces high-strength low-alloy (HSLA), Dual Phase and (Trip) AHSS grades. Today, the plant is dedicated to meeting the demand for tubes from the automotive industry. Hautmont handles every stage of a tube's production, including slitting, ERW⁶ welding, NDT⁷ testing and annealing. Its tubes are used in numerous functions (front and rear suspension systems, body in white, engine environment, driveline systems..) for customers all over Europe. Hautmont also has cutting facilities with chamfering, length-measuring, washing and automatic packaging.

Chevillon (France) The Chevillon plant (also formerly Vallourec Précision Soudageis located in northeast France in the Marne valley. The tubes manufactured range from 10 mm - 55 mm outside diameter and from 0.6 mm to 3 mm wall thickness. In addition to the standard low carbon steel grades, the factory also produces HSLA⁸ and Dual Phase steels. Production is aimed predominantly at the automotive market, which requires welded precision tube for the manufacture of seats, instrument panel beams, crash components, filler pipes, engine cradles, reinforcement components and shock absorbers. The core manufacturing process on site consists of slitting, welding, NDT testing, and cutting, including brushing, length measuring and washing.

Karviná (Czech Republic) has a long tradition of producing longitudinally welded products for the mechanical industry and, more recently, the automotive market. Its facilities include tube mills, annealing furnaces, coating lines, cold-drawing benches, and machines for cutting and chamfering. A hot stretched reduction process is used in tubemaking for homogenous properties. The site also produces tubular products on cold sizing lines within narrow tolerances.

Vitry le François (eastern France) This facility is a major supplier of automotive tubular parts, including tubular cross parts for twist beam rear axles, and crash management parts and components. The facility's core business is to design, develop and produce components which meet the quality standards required by the automotive industry. At Vitry, the emphasis is on tailoring the component to the individual requirements of each carmaker. Working closely with ArcelorMittal Automotive and the R&D team in France, Vitry's dedicated team of engineers and designers provide tailored solutions to meet its customers' needs.

For the first time, ArcelorMittal is presenting its tubes for the automotive industry at the International Trade Fair Tube in Düsseldorf. The group will be showcasing rear axles beams and front crash components, produced at its plants Vitry and Hautmont.

Small Welded Industrial

ArcelorMittal Europe's division Tubular Products has a long tradition as a supplier of high quality products to the mechanical tube market, which is the division's biggest single market. Tubular Products offers a comprehensive and diversified range of tubular products that includes precision and cold-drawn tubes, cold and hot finished hollow sections, cold and hot finished pressure pipes as well as plain, galvanized or colour-coated pipes in a vast array of steel grades. The division's excellent tube making process guarantees the performance of its steel tubes for engineering applications and a wide range of mechanical ones.

Main applications

- Structural applications
- Scaffolding and fencing
- Gas and water transportation
- Farm machinery equipment
- Mineral mining equipment
- Storage systems
- Heavy construction equipment
- Furniture

⁶ ERW – Electric Resistance Welding

⁷ NDT – Non Destructive Testing

⁸ HSLA – High Strength Low Alloy

Three plants are specialised in the production of welded steel pipes for the mechanical engineering industry:

Krakow (Poland, produces longitudinal welded tubular products for mechanical purposes, such as building, water distribution, and scaffolding. Its location in the southern province of Malopolskie ensures reliable distribution throughout Poland, Czech Republic, Slovakia, Germany, Denmark, and the Baltic states. The products are produced from hot and cold rolled coils. Krakow is also a centre of excellence for galvanized products. In the last 12 months, the site has considerably increased its hot-formed range with new dimensions for structural and rectangular pipes.

Karviná (Czech Republic) has been manufacturing longitudinal welded thin-wall sections and pipes and thin-wall opened sections since 1929. The majority of the products are used in the mechanical and civil engineering industry because of their low weight and the possibility to use the products for installation of various utility lines. The company also produces precision cold-drawn and calibrated tubular products for the automotive industry. Located in the Eastern Czech province of Moravia, it is well positioned for distribution in the Czech Republic, Northern and Western Europe. Karviná opened a new melamine colour-coating line in autumn 2015. The line will be used for coating pipes with lengths of 3 - 7.5m, and diameters of 17.2 - 219 mm, to be used in fire extinguishing systems, water mains in greenhouses and utility lines in production halls or shopping centres.

Iasi (Romania) is the largest producer of longitudinal welded steel pipes in Romania, and the nation's market leader for mechanical tubes. From its location in Eastern Romania, it can easily distribute products throughout the country and in neighbouring countries, including Northern and Western Europe. The site also produces cold rolled profiles and crash barriers for motorways. Since 2015, the site offers new grades for hollow structural sections, and in 2016, it opened a new colour-coating line for cold-formed welded tubes.