ArcelorMittal

Steel solutions provider to the global wind energy industry

What is your turbine's carbon footprint?

ArcelorMittal thinks green.

Sustainability mindset

ArcelorMittal is constantly developing new technologies which improve the sustainability of our products and business practices. We work in close partnership with our customers to help them achieve their environmental goals through innovative steel solutions.

As an international company, ArcelorMittal is fully engaged in global efforts to reduce greenhouse gas emissions and mitigate their impact. As a natural, permanent material, steel is the ideal product to meet the challenge of providing sustainable solutions for the future.

We manage our production facilities in a responsible way and with the objective of reducing our CO_2 emissions and increasing the energy efficiency of our operations.

Steel is used to create more than 80% of the components required to build a typical wind turbine. Valued for its strength, flexibility and durability in the field, steel is also 100% recyclable, making wind energy truly renewable.

What are your wind turbines made of?

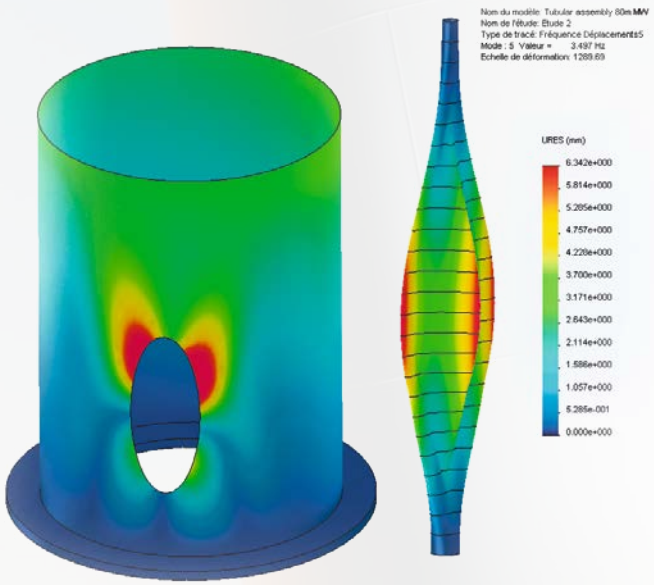
Creating wind power solutions for the future

At ArcelorMittal we know a lot about steel. Our R&D department includes more than 1,300 world-class researchers located in 11 laboratories around the globe. Their experience and knowledge of steel enables ArcelorMittal to support our customers who are developing new solutions to meet the challenges they face.

We provide a multidisciplinary and specialised range of expertise for wind turbine towers and foundations. Our integrated knowledge of materials, design and fabrication processes is available to our customers.

ArcelorMittal's full engineering approach begins with characterisation of materials and continues through to component testing.

Welding laboratory:
Multi-wire Submerged Arc Welding (SAW)



Finite elements method

In-house equipment is available to test new techniques such as improved welding methods.

With our modelling and simulation tools, ArcelorMittal can offer solutions for your design and engineering challenges while ensuring your turbines achieve maximum efficiency.

Our active collaboration with certification institutes helps to ensure the relevance of our research.

Who can support you on the road to success?

ArcelorMittal offers our wind turbine customers a:

- Global presence to support your projects
- Wide range of steels for all components of a wind tower
- Comprehensive research and development approach to help you develop new solutions.

ArcelorMittal

Where are your turbine components produced?

ArcelorMittal: a worldwide presence

ArcelorMittal produces an extensive portfolio of steels which are used in the major components of a wind turbine.

Our worldwide industrial operations are strategically located with easy access to sea routes. They are backed by an international sales and distribution network which is an asset for all parts of the wind energy supply chain.

ArcelorMittal has a global footprint

We're here to help you

Quarto plate, hot rolled coils, electrical steels, SBQ steels, merchant bars, beams

Flat Carbon Europe

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Long Carbon Europe

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ArcelorMittal Ringmill

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Credits

Photos by ArcelorMittal, Philippe Vandenameele, Miysis and Ubiquity, Shutterstock – zhu difeng, majeczka, pedrosala.

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Reliable steels for every part of the wind turbine

ArcelorMittal

1 Foundations and flanges

ArcelorMittal SBQ (Special Bar Quality) steels for anchoring ensure durable and long-lasting foundations for the wind tower structure.
Flange profiles are available in grades with high cleanliness. The profile range can weigh up to 250 kg/m.

2 Tower

Around 85% of all wind turbine towers are built with quarto plate, also known as heavy plate. Since 2005, ArcelorMittal has supplied quarto plate for more than 5,000 wind towers from our mills in Spain (Gijon) and Romania (Galati).
ArcelorMittal also supplies hot rolled coils of higher strength steels such as Amstrong™. These steels are suitable for taller structures and shell towers.

Quarto plate specifications

Quarto plate used in wind turbines must meet the provisions of the EN 10025 standard for structural steel grades. ArcelorMittal's quarto plate steels are available in the following grades and dimensions:

Grades	S235, S275, S355, and from S420 up to S460 (including J, J2, JR, M, ML, N, and NL specifications)
Thickness	Up to 80 mm
Width	Up to 3,800 mm
Length	Up to 20,000 mm

ArcelorMittal can deliver your quarto plate shot-blasted, cut and bevelled if required.

Hot rolled coil specifications: Amstrong™

ArcelorMittal's high strength Amstrong™ steels can be supplied in the following grades and dimensions:

Grades	S460 to S500MC
Thickness	Up to 25 mm

ArcelorMittal's offer includes the widest range of merchant bars on the market. Merchant bars are utilised as the secondary steel of the tower.

3 Nacelle

ArcelorMittal offers a large variety of specific beams suitable for the main frame of the nacelle. Quarto plates can also be used to manufacture this structure.

4 Generator

ArcelorMittal supplies a full range of electrical steels for both medium- and high-power generators. These steels possess the required magnetic properties to maximise the amount of energy each turbine can produce. In addition to the electrical grades which meet the EN 10106 standard, ArcelorMittal also offers electrical steels with high permeability or low losses. Different thicknesses are available to meet the requirements of each specific design.

Electrical steel specifications:

ArcelorMittal provides a full range of non grained oriented (NGO) fully processed electrical steels for use in wind generators. Our offer includes the standard M400-50A which is widely used today.
Low loss electrical steels such as M250-50A are available in thicknesses from 0.35 to 1 mm.
Specific highly permeable grades such as M400XP50A and M470P65A are specifically designed for low speed machines.

5 Gearbox, yaw and pitch

Bearings and gears are key components of a wind turbine. ArcelorMittal's steels ensure high performance and long life.
Seamless rolled rinsteelgs can be provided in large diameters to meet the requirements of different turbine designs.

Seamless rolled ring steels

Steels for ring gears	34CrNiMo6, 18CrNiMo7-6, 14CrMoV6-9, 31CrMoV9
Steels for orientation systems (pitch and yaw bearings)	42CrMo4
Steels for coupling systems	42CrMo4

ArcelorMittal's offer is completed by our SBQ range (in round or square bars) which is available in sizes up to 200 mm.

We're here to help you

Flat Carbon Europe

http://industry.arcelormittal.com/energy – fce.technical.assistance@arcelormittal.com

Long Carbon Europe

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ArcelorMittal Ringmill

http://www.arcelormittalringmill.be – qualite@arcelormittalringmill.be

ArcelorMittal offers a wide range of quality steels for foundations, towers, flanges, nacelle structures, connections, gearing, bearings, and generators.

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