



Corus Construction & Industrial

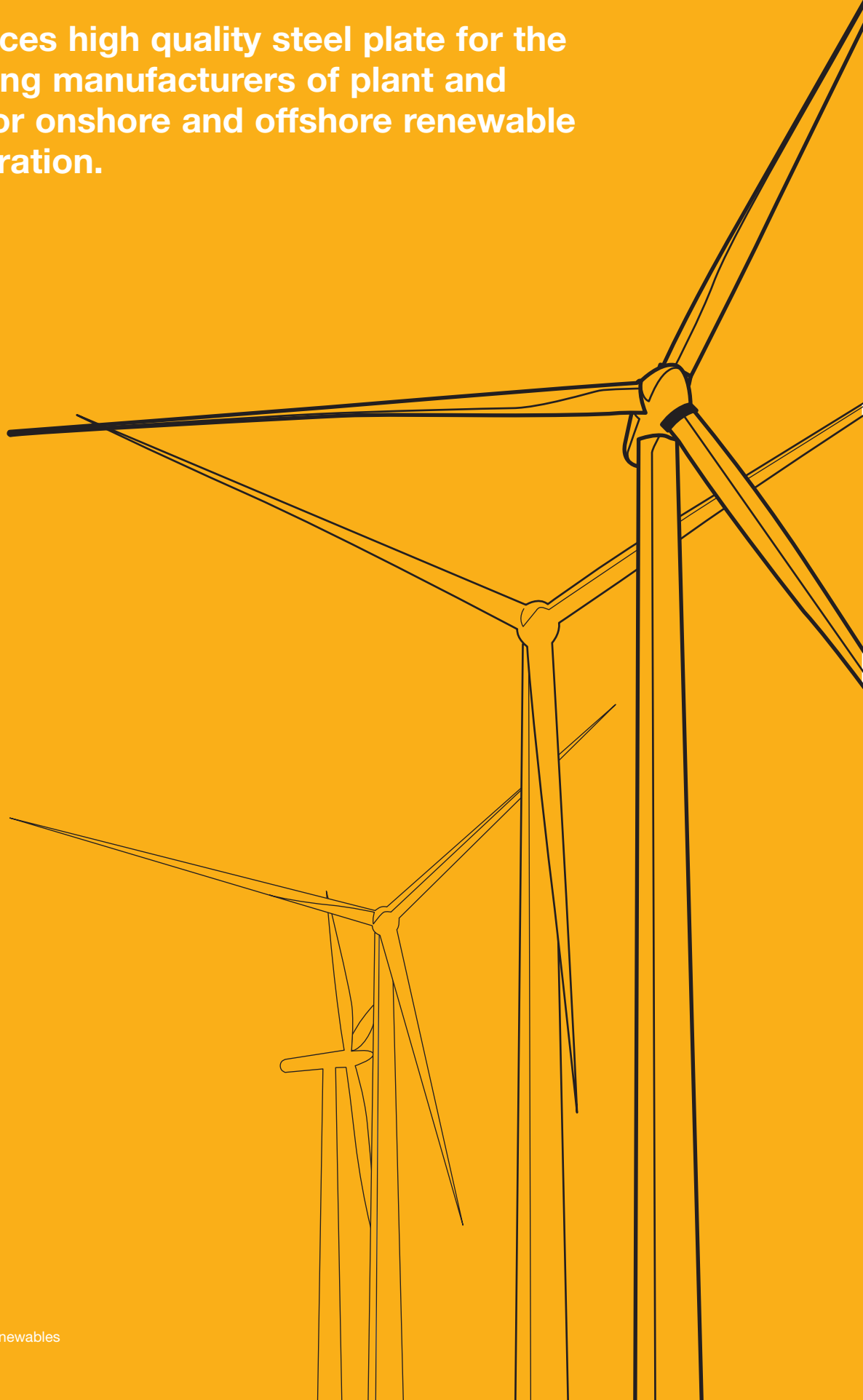
Generating performance in renewables

**Steel products and services for the
renewable energy market**



Working for a sustainable future

Corus produces high quality steel plate for the world's leading manufacturers of plant and equipment for onshore and offshore renewable energy generation.



Our commitment in offering competitive products and services helps to make renewable energy a viable option for the future.

Drawing on our comprehensive resources and long-standing expertise, we are able to deliver innovative, world-class solutions for renewable energy projects, large and small.

We supply plates and knowledge to original equipment manufacturers of wind turbines and are involved in the development of ground-breaking new technology to generate electricity from wave energy and tidal flows.

Our expertise and forward-looking approach, combined with our world-leading steels, help customers develop their own renewable energy projects and play an important role in building a more sustainable future for generations to come.

Quality you can trust

High quality products, processes and service are central to our long-term commitment to the renewable energy markets.

Steel that makes the grade

Our long-established track record in the renewable market assures customers of the high quality of Corus steel. We have a rigorous quality assurance programme that ensures all parts of the production process operate in compliance with ISO 9001:2000 and ISO 14001 quality standards.

Committed player

Corus plays a leading role in helping to shape the future requirements of the renewable industry through its membership of the British Wind Energy Association. We also have a presence within British and European standards publishing bodies.

Progress through partnership

We are dedicated to building partnerships with our customers, based on mutual trust in the quality of service, products and technical expertise that we supply. Corus is committed to the renewable energy market for the long term and our success rests on the high standards we are proud to maintain and the strong relationships we build with key players in the renewables industry.

Pelamis is an innovative renewable energy technology generating electricity from wave power.

Picture courtesy of Pelamis Wave Power.



Building a brighter future

Steel plate products are supplied to a rapidly expanding renewable market that demands exceptional innovation and quality.

Product range

Corus has one of the broadest plate product ranges in the world. We manufacture steel plate in the UK and Western Europe for many demanding applications, including onshore and offshore wind towers, foundations and other renewable projects such as tidal flows. Our steel is used by the world's leading wind turbine manufacturers.

Steel plate for renewable energy applications can be supplied in five different delivery conditions:

- 1 As rolled
- 2 Normalised rolled
- 3 TMCR (thermomechanically controlled rolled)
- 4 Normalised
- 5 Quenched and tempered

We offer a comprehensive range of structural EN10025: 2004 and offshore structural EN10225: 2001 grades, as well as EN10025: 2004 structural grades compliant with the EU Construction Products Directive CPD 89/106/EEC.

Our capability extends beyond supplying plate alone and into the provision of profiled and bevelled pieces, ready for bending into shape. This variety of products enables us to meet the whole spectrum of customer requirements.

Plate properties

Plates with a nominal yield strength up to 355 MPa can be supplied in either the as rolled, normalised or normalised rolled condition. Normalised plates are available up to 130mm thick, depending on the steel specification and are rolled from continuously-cast slab.

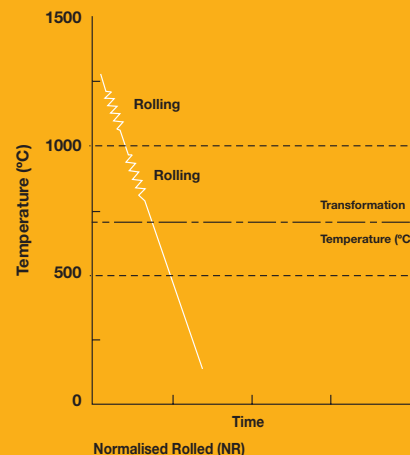
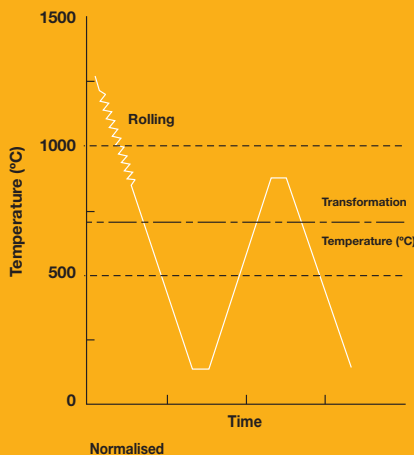
Normalised rolling is a process in which the final deformation is carried out in a specific temperature range, as shown in the schematic illustration. This leads to a material condition equivalent to that obtained after normalising, enabling the specified mechanical properties to be retained. Normalised rolled plates are available up to 60mm thick and are also rolled from continuously-cast slab.

The thermal cycles through which both types of steel plate pass during processing are illustrated on this page.

For plates with higher nominal yield strength, please contact a member of our account management team.

We maintain close control of chemical composition during steelmaking, to produce very pure steels with low sulphur, phosphorous and trace element content, which results in plate with consistent strength and toughness properties. The chemical compositions of our steel grades meet all the requirements of the relevant national standards. We have also invested in state-of-the art levellers, which produce plates with controlled residual stress.

Detailed information about the plate sizes available can be found in our technical brochure, "Plate products range of sizes." To request a copy, please find our contact details on the back page.





Support every step of the way

Corus understands customer requirements and delivers project management and technical support that are second to none.



Supply chain excellence

Corus has many years of experience in supplying highly demanding markets, where excellent delivery performance is essential to achieve customer objectives and timescales. This valuable experience enables us to understand and meet the demands of the renewables market, where similarly high standards of customer service are required.

We are continually investing to enhance our supply chain performance and spread the benefits of our expertise and high standards throughout the market.

First-class account management

Our dedicated account management services are well established. We understand the value of professional project management in ensuring that large contracts are delivered on time. Our mill-based team manages each contract from pre-production coordination to post-production back-up and support, working in partnership with our customers.

The account manager oversees:

- Pre-order customer liaison, covering suggested production plans and, if required, advice on product selection and design
- Implementation of the production and delivery schedule
- Progress monitoring and prompt resolution of any issues that arise
- Data analysis of mechanical properties or chemical analysis, if required

The account manager aims to understand and meet each customer's requirements fully and coordinate our resources to ensure a smooth and successful delivery throughout the project.

Logistical support

To facilitate the account manager's work, we may supply quick-start material to customers to get fabrication off to a flying start. We then operate a system of capacity reservation, which keeps rolling mill time available for the whole contract, to ensure delivery schedules are met.

Technical support

We offer specialist technical support to ensure our customers gain the greatest value from our products. We collaborate closely with customers and are keen to forge technology partnerships with those in the renewable energy industry.

Research and development

Corus has world-class research facilities and invests heavily in RD&T into both product development and techniques associated with the use of steel. Areas of development include structural integrity analysis, performance in service, corrosion protection, welding and fabrication. Using this expertise we are able to advise customers on the most cost-effective solution for a wide range of renewable energy applications.



Experience matters

**High performance steels, backed by
dedicated support and expert advice,
fulfill a wide range of applications in the
renewable energy markets**

Capricorn Ridge

A 65 turbine wind farm located near Sterling City in the State of Texas, USA.



Plates from Corus Construction & Industrial have been used to manufacture towers for the Capricorn Ridge wind farm project in the United States.

The 80m tapered tubular towers were manufactured in 3 sections with each requiring Just In Time delivery of the precision cut profiles.

Sets of plates from Scunthorpe and Dalzell were supplied via a profiler to specialist tower manufacturers, with the whole supply chain being managed by Corus' dedicated Account Management team both in the UK and in Denmark.

Each tower was manufactured from 31 plates in qualities S355J2+N, S355K2+N and S355NL. Plate thicknesses ranged from 13mm to 41mm and were first profiled into shape with the edges bevelled in preparation for subsequent welding operations.

The diameter of each tower tapers from approximately 4.2m at the base to around 2.4m at the nacelle. Including flanges and internal components each tower weighs approximately 162 tonnes and provides support for the 60 tonne, 93m diameter rotor and 82 tonne nacelle.

The 65 turbine Capricorn Ridge wind farm is located near Sterling City in the State of Texas and each 2.3MW Siemens turbine can produce enough zero emission electricity to power over 1,000 average sized households.

Globally wind energy has become a mainstream source in the world energy market and Corus is proud to supply high quality steel plates and services to projects such as Capricorn Ridge.



Pelamis Wave Power

Pelamis is an innovative renewable energy technology generating electricity from wave power.



'Pelamis' is an innovative renewable energy technology which operates on the surface of the water, generating electricity from wave energy through a number of hydraulic rams moving with wave swell, across and along the length of the machine.

Each machine is capable of producing 750 KW of power. Full commercialisation of a wave farm using such machines will involve circa 50-500 machines, incorporated in number of rows. A grid of 40 machines would typically produce 22.5 MW, sufficient to supply a town of 15,000 homes with electricity.

Corus steel plate was used to fabricate the 150m articulated wave energy device, 'Pelamis', which has been tested at EMEC (The European Marine Energy Centre) off the coast of Orkney and will form the world's first wave farm off the coast of Northern Portugal.

Plate material from Corus Construction & Industrial was rolled into cylindrical cans and profiled through a number of subcontractors in order to create the machine.

'Pelamis' represents one of the key renewable wave technologies currently under development within our seas and is consistent with enabling Corus to broaden its 'Value of Steel' in support of the renewable sector.

The wind, wave and tidal market is expected to grow significantly once such devices reach commercialisation. Devices such as 'Pelamis' are seen to be significant to achieving renewable goals for 2020 and beyond for the UK Energy Bill.



Pictures courtesy of Pelamis Wave Power.

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