

Corus Wire Rod

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Cold heading steel products

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Endless possibilities



# Formable, ductile, high-performance wire rod for the worldwide fastener market.

## Product in brief

**Corus Wire Rod produces high-performance low-carbon wire rod to meet the diverse requirements of fastener manufacturers worldwide.**

Corus supplies a wide range of cold-heading grades for the manufacture of bolts, screws, rivets and other fasteners in the automotive, engineering and construction industries. Our commitment to continuous improvement in the quality of our cold-heading steels enables our products to fulfil new and ever more demanding applications.

## High-performance material

**Corus Wire Rod produces a range of grades offering the formability, ductility and strength required for cold-heading processes.**

## Boron steels

The enhanced formability of boron steels allows them to be processed into more complex shapes and makes them less susceptible to head bursts.

Corus boron steels offer excellent hardenability properties and perform consistently in cold forming and subsequent heat treatments. Hardenability is calculated and validated against a comprehensive database of Jominy end-quench results. This means that hardenability properties can be accurately and reliably predicted for different grades of boron steel. Tests can also be performed for customers by agreement.

## Ultra-low carbon boron (ULCB) steels

ULCB steel from Corus offers very high levels of drawability and formability. Its ultra-lean composition, combined with the addition of boron to remove the remaining carbon and nitrogen from solution, leaves a virtually interstitial free product with superior levels of formability.

ULCB wire rod offers:

- Low tensile strength
- High ductility
- Low work-hardening rates
- Lower ageing susceptibility.

The extreme drawability of ULCB wire rod means it can sustain additional drawing reductions, without the need for intermediate annealing. Cold heading can be performed with direct-drawn ULCB, whereas SAE 1005 AL steel would first need to be inter-annealed. This offers significant cost and time savings in the fastener manufacturing process.

## Low-carbon aluminium-killed steel

Our range of low-carbon aluminium-killed steels provides enhanced levels of ductility, formability and strength. These steels can be used in the full range of cold-heading applications.

## Quality assurance

**Corus Wire Rod is committed to producing cold-heading wire rod of the highest quality.**

Strict process controls and the rigorous application of our quality-assurance standards provide the peace of mind that all products will fulfil your specifications.

Corus Wire Rod holds ISO9001:2000 for our quality management system and ISO14001 for our environmental management system.

## Typical mechanical property data for 5.5mm rod

Corus quality code	Nearest equivalent standard	Tensile strength (MPa)	Reduction of area (%)
ULCB	-	310	90
B9/2G3	EN10263-4:2001 20MnB4	580	65
B10/25	EN10263-4:2001 36MnB4	700	55
A06	EN10263-2 2001 C4C SAE 1005 AL	370	75



### Monitoring and control

**Corus Wire Rod manufactures steel under strictly controlled conditions to ensure only the highest quality wire rod is supplied to customers.**

- **Composition** – Raw materials are carefully chosen to ensure close control over residual elements can be maintained during steelmaking – producing steel of a consistent quality for customers. Low levels of dissolved nitrogen, which are a characteristic of the basic oxygen steelmaking process, reduce the potential for both dynamic and static strain ageing effects.
- **Cleanliness** – High levels of cleanliness are maintained by using efficient shrouding systems during continuous casting. A consistent chemical composition is maintained through strict controls during steelmaking, ensuring that customers achieve consistent performance during wire drawing and heat treatment.
- **Segregation** – Our advanced casting technology ensures that segregation is maintained at exceptionally low levels, minimising the risk of fractures during wire drawing and subsequent operations.
- **Surface quality** – Corus wire rod is rolled from high-quality concast feedstock. Surface integrity is maintained through to the finished wire rod by rolling under controlled conditions, ensuring that the quality of the rod meets the requirements of the end application. Corus supplies rod to specified surface quality standards as detailed in BS EN 10221.
- **Decarburisation** – This is minimised by reheating in our state-of-the-art furnace, which directly feeds the rod mill. Our wire rod is supplied to decarburisation limits of 1.5% average maximum partial decarburisation, in line with EN 10263 – with tighter limits available on request.
- **Dimensional control** – To provide wire-drawing customers with a consistent feedstock, continuous Zumbach Gauge monitoring enables close control of rod tolerance and ovality.
- **Mechanical properties** – In addition to the close controls maintained on chemical composition, the post-rolling cooling process plays a very important part in ensuring that the correct mechanical properties are achieved.

### Testing and delivery

- A comprehensive testing procedure assures the quality of Corus products before they are despatched to customers. Testing in our fully equipped laboratories examines segregation, steel cleanliness, scale, surface quality, decarburisation, chemical composition, size, shape and tensile strength properties.
- Despatch through our purpose-built rod service centre or automated coil warehouse allows Corus Wire Rod to offer an efficient delivery service from these streamlined despatch facilities. They are equipped with bespoke handling equipment which, combined with minimal handling and an anti-abrasive flooring system, eliminates storage and handling damage.

### Product range

Rod diameter	5.5-15.0mm in 0.5mm increments
Coil weight	Nominal 2100kg
Coil dimensions	Outside diameter 1250mm Inside diameter 850mm

### Technical support

A team of experienced metallurgists provides Corus Wire Rod customers with technical support, helping you to select the most appropriate steels and ensuring you receive the best possible advice.

### Contact us

For more information or support on any of our products, please visit our website:

**[www.coruswirerod.com](http://www.coruswirerod.com)**

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