

Corus Wire Rod

Automotive spring steel products

Endless possibilities



Super-clean steel for the stringent quality demands of oil-tempered automotive springs.

Product in brief

Corus Wire Rod has the knowledge and expertise to produce rod that meets the stringent quality demands of automotive spring manufacturers.

Corus is one of only a small number of steelmakers in the world able to produce the super-clean, high-performance wire rod required for oil-tempered automotive spring applications.

Automotive springs, such as valve, transmission and suspension springs, are among the most demanding applications for any steel, and the approval and testing procedures are extremely arduous.

Corus continuously strives to stay ahead of the latest innovations in both steelmaking and wire rod manufacture, always working closely with customers to develop technical solutions for specific applications. Our advanced

research, design and technical resources ensure that we continually extend the boundaries of steel innovation, keeping our customers ahead of the competition.

High-performance material
Oil-tempered automotive spring applications demand super-clean, consistent-quality steel.

Valve springs are in constant motion when in use, which means that Corus spring-grade steel must undergo rigorous fatigue testing to ensure it meets the necessary quality criteria to prevent catastrophic failure in use.

Experience of making super-clean steels for other automotive applications has enabled Corus to meet the significant challenge of manufacturing this premium grade of steel. As well as valve springs, Corus supplies rod for other oil-tempered automotive springs, including clutch and coil suspension springs.

Quality assurance

Corus Wire Rod is committed to producing automotive spring wire 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.

Monitoring and control

Corus Wire Rod manufactures steel under tightly controlled conditions to ensure that the rod we produce meets the most challenging specifications.

Composition

- The composition of wire rod is carefully controlled in the basic oxygen steelmaking process. The use of high-purity iron ore and high-purity scrap maintains low levels of residual elements. Low sulphur content is achieved by desulphurisation of the iron before primary steelmaking and by the use of synthetic slags in secondary steelmaking.
- Composition is managed during secondary steelmaking in the ladle furnace by carefully controlled alloying. Sample analysis throughout the process enables the composition to be controlled to achieve the desired final properties.
- Electromagnetic stirring encourages the flotation of inclusions into the slag, which facilitates their removal. Shrouding of the steel during pouring protects it from atmospheric contaminants.

Valve spring grade VS56G3 (equivalent to EN 10089:2002 54SiCr6)

Composition (%)	C	Si	Mn	P	S
Max	0.58	1.60	0.80	0.020	0.015
Min	0.54	1.40	0.60		
Typical cast	0.55	1.52	0.70	0.011	0.010



Cleanliness, segregation and decarburisation

- We achieve a high level of cleanliness in our wire rod through strict control of the purity of our alloys. We maintain low levels of oxides and aluminates by applying metallurgical engineering to eliminate non-deformable inclusions.
- Special measures are used to separate the slag and liquid steel during steelmaking and tight control of the secondary slag ensures that any remaining inclusions are benign. Special refractories are designed to prevent harmful inclusions entering the liquid steel.
- Cleanliness levels are maintained by using efficient shrouding systems during continuous casting. Our advanced casting technology ensures that segregation is maintained at exceptionally low levels to reduce the risk of fractures during wire drawing and subsequent operations.
- Decarburisation is minimised by reheating in our state-of-the-art furnace, which directly feeds the rod mill. 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.

Surface quality

- Our 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.

Dimensional control

- To provide wire-drawing customers with a consistent feedstock, continuous Zumbach Gauge monitoring enables close control of rod tolerance and ovality.

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, composition, size, shape and tensile strength properties.
- Despatch through the purpose-built rod service centre or automated coil warehouse allows us to provide 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:

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