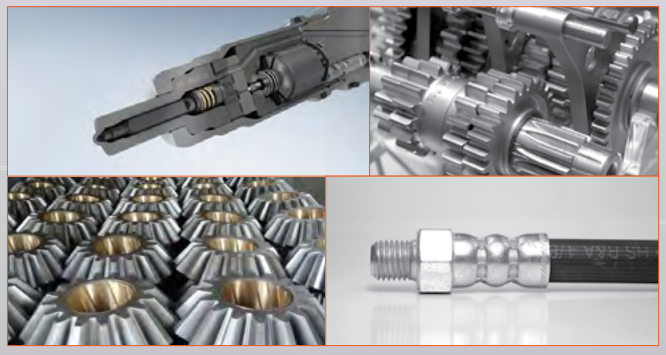
ArcelorMittal Europe - Long Products
Revigny

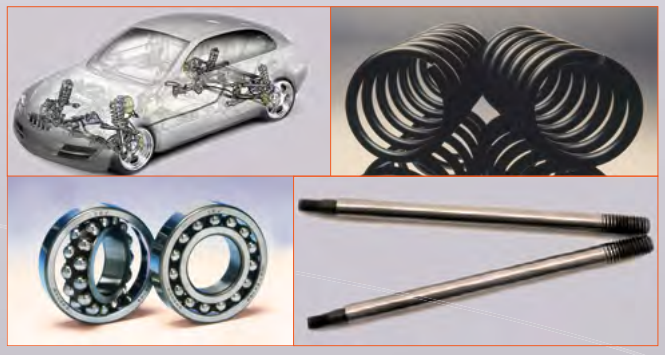
ArcelorMittal

Bright Bars Specialist

Mechanical engineering



Automotive



ArcelorMittal Revigny

ArcelorMittal Revigny is an ArcelorMittal entity, leader in bright bars, drawn and peeled bars.

We have a diversified portfolio of low, high carbon and alloyed steel. Our main markets are automotive, mechanical engineering and construction.

The company is ideally located in the heart of Europe, between Paris and Strasbourg.

ArcelorMittal Revigny is the leading French supplier of bright bars and has a capacity of 100,000 t/year of cold drawn, peeled or grinded bars.

Solutions for drawing and free cutting

ArcelorMittal Revigny is a highly dynamic company, especially in the development of steel grades thanks to our extensive Group Research and Development department.

ArcelorMittal Revigny offers a large range of products:

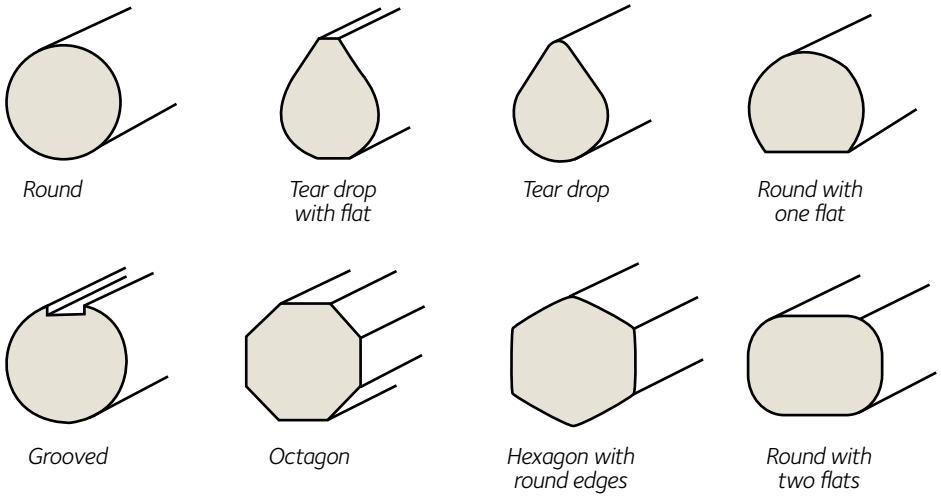
- Low carbon steel for free cutting with sulphur, with or without lead
- Free cutting steel grades for heat treatment
- Carbon grades, with or without lead
- Alloyed grades

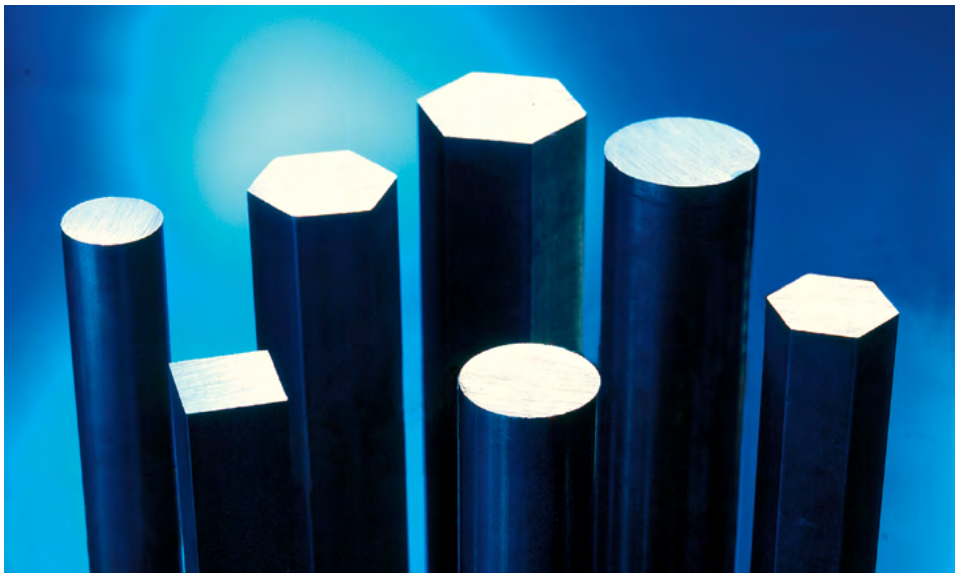
The automotive industry accounts for 75% of ArcelorMittal Revigny's production, this is via 1st tier suppliers as well as subcontractors.
The remaining production goes into mechanical engineering industry, hydraulic industry, agriculture, construction and stockholders.

The main steel grades used, refer to European standards, as follows: EN 10277-3, EN 10277-4, EN 10277-2, EN 10277-5, EN 10083-1, EN 10083-2 and EN 10084.

The various steel grades are sold as drawn, peeled or grinded profiles, with or without chamfering. ArcelorMittal Revigny is also able to provide specific profiles (simple forms).

Some examples of products





Technical characteristics

Production range *(specific profiles on request)*

Drawn profiles (3 to 7 m length)
- Round from 5 to 80 mm; hexagons from 5 to 65 mm.

Grinded profiles (1.5 to 7 m length)
- Round from 8 to 60 mm.

Peeled bars (3 to 8 m length)
- Round from 20 to 100 mm (H9 Tolerance possible).

Tolerances

- Tolerance of the dimension: Quality 7, 8, 9, 10 and 11.
- Endings dresses, chamfered, sawn, etc.

Production tools

Coil drawing units
- 5 integrated drawing units, transforming coils to bars, in the range of 5 to 50 mm, round, hexagon or square.

Bar drawing units
- bar to bar drawing units, up to 80 mm.

Grinding
- 4 centerless grinding units.

New investments
- 1 Off line surface control + US, FBH (KSR) 0.7 mm
- 1 Peeling line, Ø 20 - 100 mm

Packaging

The bars are packed into bundles and secured with metal straps, the maximum weight being 2 tonnes. On request, we can protect the bundles with plastic wrapping, or place them into wooden crates. Specific packaging on request.

Identification

All our material is individually identified with labels referring to: steel grade, dimension, lot number, batch number, bundle number and weight.

Certificate

We supply all goods with a certificate according to the EN 10204-3.1.

Surface control

- Eddy current control equipment is incorporated in to most of our production lines. The majority of our products are inspected in line. Our plant is equipped with surface defect detection devices using rotating-head probes or encircling coils installed in or off line. The central soundness of the cold finished bars may be verified by ultrasonic examination. This is to meet the high quality standard according to EN 10277-1.

Off line US and eddy current control

Peeling line

ISO TS 16949

- ArcelorMittal Revigny achieved this automotive certification in 2002.

ISO 14001

- ArcelorMittal Revigny achieved this certification in 2013.

OHSAS 18001

- ArcelorMittal Revigny achieved this certification in 2011.

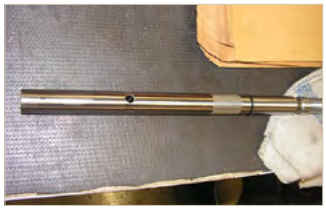
Grades designation

Improved Machinability Steels

Improved Machinability Steel grades have small amounts of additional alloying elements to improve machinability. Alloying elements are added during secondary steelmaking specifically to modify the steel inclusion population.
Some elements are forming controlled inclusions to promote chip formation and break-up during subsequent machining, while others melt locally at the tool / work piece interface acting as a lubricant and reducing tool wear. Possible additions include sulphur, lead, tellurium, bismuth and selenium.

Usimax® D10	38SMn28
Usimax® D38	35S20
Usimax® D950	46S20
11SMn30	44SMn28
11SMnPb30	C15Pb
11SMn37	C35Pb
11SMnPb37	C45Pb
36SMnPb14	

Quenched and Tempered Steels



Quenched and Tempered Steel grades have greater hardenability than structural carbon steels have. The grades contain specific amounts of alloying elements to favour transformation of austenite into martensite during the quenching process.

- C35 to C60
- 34CrS4
- 41CrS4
- 42CrMoS4

Bainitic Steels

Bainitic Steels are designed for applications requiring a good compromise between tensile strength and ductility, and offer the added benefit of eliminating the final Quench and Tempering process usually performed to achieve high properties.
Controlled cooling after hot formed steers the austenite transformation into the bainitic region. The fine-tuning of alloying elements will enable to reach the desired level of strength, taking into account the customer process and the size of the piece.

- SOLAM® B1100 BB
- SOLAM® B1150 BB
- SOLAM® B1200 BB

Spring Steels

Spring Steels are medium or high carbon steels with very high yield strength. This property allows the part formed with these grades to return to their original shape after significant bending or twisting.
The principal alloying elements to achieve the high yield strength are silicon and manganese. For the very demanding applications, the grades are processed with high cleanliness level: hence, a very good fatigue behaviour.

- 51CrV4
- 54SiCr6

Grades designation

Case Hardening Steels

Case Hardening Steels are used for parts requiring high surface wear resistance but retaining a soft core that absorbs stresses without cracking.
The grades are Low-Carbon steels with addition of suitable alloying elements. These additions typically include chrome and manganese, but also nickel and molybdenum can be involved to increase the through-hardening for larger cross-sections. A special characteristic of this kind of grade is the Jominy curve, which needs to be well controlled. These grades cab be supplied with or without annealing (FP).

20Mn5	15CrNi6
16MnCr5	16CrNi4
16MnCrS5	17CrNi6
16MnCrS5Pb	18CrNi8
20MnCr5	17Cr3
20MnCrS5	20NiCrMo2
25MoCr4	14NiCrMo13
12NiCr3	23MnCrMo4
14NiCr14	17CrNiMo6
18NiCrMo6	

Bearing Steels

Bearing Steels are High-Carbon grades with very high mechanical properties achieved by quenching and tempering combined with a very high wear resistance. Depending on the type of applications, different levels of cleanliness will be required to avoid inclusions that initiate fatigue during rolling contact.

100Cr6
100CrMn6
100CrMo7
C70

Carbon Steels

Carbon Steel grades are the combination of three families: Low, Medium and High Carbon.
Low Carbon steels: Carbon range between 0.1 to 0.25%. One of the most common type of steels used for general purposes, these are inherently easier to cold-form and handle (draw, bend, etc.) due to their soft and ductile nature.
Medium Carbon steels: approximately 0.30 to 0.59% Carbon content. Can be heat treated to have a good balance of ductility and strength. These steels are typically used in large parts, forgings, machined and automotive.
High Carbon steels: above 0.60% of Carbon content. High Tensile and Yield strengths. Used for applications in which high strength, hardness and wear resistance are necessary, such as wear parts, gear wheels, chains, brackets.

C10 to C25
C30 to C60

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