



Hot rolled flat steel bars

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STEEL RANGE

Structural steels EN 10025-2-3-5
Free cutting non-alloyed steels EN 10087
Case hardening steels EN 10084
Steels for quenching and tempering EN 10083-2-3
Steels for quenched and tempered springs EN 10089
Steels for cold heading and cold extrusion EN 10263
Micro-alloyed steels EN 10267
Steels for pressure purposes EN 10273 - ASTM A105 - ASTM A 350

Note: possibility of supplying steels in accordance with Customer specifications, to be agreed upon at the order stage.

PRODUCTION RANGE

STANDARD MANUFACTURING SIZES

Cerveno: width from 35 to 202 mm with thickness from 7 to 92 mm
Sello: width from 180 to 300 mm with thickness from 20 to 50 mm
(See the enclosed shape list - It is advisable to print the whole specific page in "A3 - Actual Size" format).

BAR LENGTH

Cerveno: 3 ÷ 12.5 m (including length+ tolerance)
Sello: 5 ÷ 18.2 m (including length+ tolerance)
Commercial length with range ≤ 1 m
Standard Fixed Length -- 0/+200 mm or +/- 100 mm.
Extra Standard Fixed Length -- 0/+100 mm or +/- 50 mm. (to be agreed upon)

DIMENSIONAL TOLERANCES: UNI EN 10058; DIN 1017; DIN 59200; NFA 45-001; NFA 45-102

Standard	UNI EN 10058; DIN 1017; DIN 59200; NFA 45-001; NFA 45-102
Extra standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.

Note: tolerances with different deviations (with the same range) may be accepted, on condition that they have been agreed upon at the order acquisition stage.

STRAIGHTNESS

Standard	Cerveno: 4 ‰ L for cross-section ≤ 1000 mm ² Cerveno: 2.5 ‰ L for cross-section > 1000 mm ² Sello: 4 ‰ L
Extra Standard	Cerveno: camber $\leq 1,5$ ‰ L with straightening

PERPENDICULARITY

Standard	Thickness ≤ 25 mm: $\leq 0,5$ mm Thickness > 25 mm ≤ 40 mm: ≤ 1 mm Thickness > 40 mm ≤ 92 mm: $\leq 1,5$ mm
Extra Standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.



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END APPEARANCE

Standard	Cerveno: Hot shear cut with flat blades. Sellero: Cold saw cut at 2 ends.
Extra Standard	Cerveno: Cold saw cut at 1 or 2 ends (to be agreed).

SUPERFICIAL DEFECTS

Standard	Production statistics 0.008 *Side with 0.3 minimum and 0.6 mm maximum. Class B EN 10221
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NON-DESTRUCTIVE TESTS FOR INTERNAL DEFECTS

Standard	Not guaranteed
Extra standard	For ≥ 25 mm thickness: 100% off-line core test - Manual ultrasonic test with double probe at 90° and H2O coupling. EN 10308 Class 1 - 2 - 3.

Note: the rolled section for 100% testing must be sandblasted in advance and must have a minimum reduction ratio equal to 4:1.

DECARBONISATION

Standard	Max. 1% of the side, with a minimum equal to 0.30 mm.
Extra standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.

Note: if rolled section subjected to heat treatment, minimum guaranteed decarbonisation is equal to 1.3 mm.

NON-METALLIC INCLUSIONS

Standard	Macro-purity at ≤ 2 as per S.E.P. 1584 standard, Micro-purity at grade $\leq 2,5$ as per ASTM E 45 standard or with K method at the values of the EN 10083/06-1 standard, App E, Macro-segregation $\leq C3-R2-S2$ as per ASTM E 381 standard
Extra Standard	Through the vacuum degassing (VD) process it is possible to obtain macro-inclusions falling into grade 0 of the S.E.P. 1584 standard.

BANDING

Standard	Maximum guaranteed banding as per Grade IV of the UNI 8449 standard.
Extra Standard	Through the vacuum degassing (VD) process, maximum guaranteed banding as per Grade III of the UNI 8449 standard.

AUSTENITE GRAIN REFINING FOR SPECIAL STEELS

Standard	Guaranteed 5 ÷ 8 austenite grain as per ASTM E112 or ISO 643. This grain size range is not guaranteed for general purpose structural steels, with the exception of the J2 types envisaged in the EN 10025-2 table.
Extra Standard	With extra standard process, 6 or finer austenite grain can be guaranteed.

MECHANICAL CHARACTERISTICS AND HARDENABILITY

Standard	In accordance with the standardisation table mentioned in the order. On request, all steels can be produced with hardenability restricted to 2/3 of the H standard band, i.e. in the HL (lower 2/3) and HH (upper 2/3) types. Reference for Jominy test: EN ISO 642 standard.
Extra Standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.



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MAGNETIC RETENTIVITY

Standard	Not guaranteed
Extra Standard	To be evaluated at the order acceptance stage

PACKAGING

Standard	<ul style="list-style-type: none">- 4 ÷ 5 Tight containment ties + 2 certified metal lifting rings (Italy)- 4 ÷ 5 Tight containment ties- 1 Tag per bundle- 3 identification stamps per bundle (if requested by the Customer)- Colour as requested by the Customer
Extra Standard	<p>Peculiar conditions besides the previous ones, to be evaluated at the order acceptance stage.</p> <ul style="list-style-type: none">- 2 Tight containment ties + 4 straps per bundle- 2 tags, 1 at the front and 1 at the rear of the bundle- Polyester lifting belts- Identification stamps on all bars

HEAT TREATMENTS

Our products can be supplied with the following heat treatments:

- Softening annealing +A
- +AC Globular annealing globular level guaranteed $\geq 70\%$
- Stress-free annealing +SR
- Annealing for ferrite-pearlite structure +FP
- Normalising +N
- Shearability annealing +S
- Hardening field annealing +TH

ANTI-MIX CHECK

Standard	Spark test
Extra standard	100% anti-mix check with spectrometer (to be agreed)

BUNDLE WEIGHT

Standard	2,500 ÷ 3,100 kg
Extra standard	1,500 ÷ 2,000 kg

OTHER INFORMATION

Cold sawability	Guaranteed
Cold shearability	Guaranteed with Max. HB = 220
Manufacturing times	40 ÷ 60 days
Product certificate	<ul style="list-style-type: none">• Compliant with EN 10204• TÜV - AD WO/TRD100 and 97/23/EC Directive (PED) for rolled sections intended for pressurised systems• Caterpillar Approval (1E1861)• CE certification as per EN 10025-1/06 for rolled sections intended for use in structures
Minimum batch size	5 tons for standard products included in the shape list
Weight tolerance with respect with the ordered amount	<ul style="list-style-type: none">• $\pm 20\%$ up to 5 tons.• $\pm 10\%$ > 5 ÷ 25 tons.• $\pm 6\%$ > 25 tons.



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SHAPE LIST - REVISION 10/2020

