



# Hot rolled billets

## Business contact

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Revision 01/2020





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Revision: 01/2020 - Page 2 of 5

## 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
Hot-rolled 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

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

## PRODUCTION RANGE

## STANDARD MANUFACTURING SIZES

Rolled sections in bars: Cross-section: 30 ÷ 120 mm  
30 - 33 - 34 - 35 - 37 - 38 - 39 - 40 - 42 - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52 - 53 - 54 - 55 - 56 - 57 - 58 - 60 - 61 - 62 - 63 - 64 - 65 - 67 - 70 - 73 - 75 - 78 - 80 - 85 - 88 - 90 - 95 - 96 - 97 - 100 - 110 - 120.

## BAR LENGTH

Cerveno: 3 ÷ 12.5 m (including length+ tolerance)  
Lesegno: 4.5 ÷ 12.6 m (including length+ tolerance)  
Sellero: 3 ÷ 12.5 m (including length+ tolerance)  
Sellero standard 5 ÷ 18,2 mt (including length+ tolerance +) - Extra standard  $\geq$  3 mt

Commercial length with range  $\leq$  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)

Note: crop end, if agreed upon at the order,  $\geq$  3 m for  $\leq$  10% of the ordered weight. It will be included in the supply if hot-rolled and separately wrapped if cold-rolled.

Note: length for rolled product to be subject to heat treatment to be agreed upon. (Changes depending on the heat treatment).

Note: possibility of supplying sandblasted - sandblasted/oiled rolled sections with length equal to:

- Cerveno: 3 ÷ 12.5 m (including length+ tolerance)
- Lesegno: 4.5 ÷ 7.7 m (including length+ tolerance)
- Sellero: 3 ÷ 12.5 m (including length+ tolerance)

## DIMENSIONAL TOLERANCES - UNI EN 10031; UNI 7063; NFA 43-302

Standard	UNI EN 10031; UNI 7063; NFA 43-302
Extra Standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.

Notes: 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	Camber $\leq$ 4‰ L
Extra Standard	Camber until $\leq$ 2‰ L with straightening



# Hot rolled billets

Revision: 01/2020 - Page 3 of 5

## DIAGONALS

Standard	$D_{\max} - D_{\min} \leq 6\% D_{\max}$
Extra Standard	$D_{\max} - D_{\min} \leq 3\% D_{\max}$

## TORSION

Standard	$\leq 4^\circ/\text{mt}$ with Max $10^\circ$ for length $\leq 6$ mt - $\leq 4^\circ/\text{mt}$ with Max $15^\circ$ for length $\geq 6$ mt
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## EASEMENT RADIUS

Standard	16 ÷ 19 % of side
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## END APPEARANCE

Standard	- 30 ÷ 48 mm: Hot shear cut with flat blades. - 50 ÷ 100 mm: Hot shear cut with shaped blades. - 100 ÷ 120 mm: Cold saw cut at 2 ends (Sellero).
Extra Standard	- 30 ÷ 100 mm: 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 size $\geq 25$ mm: 100% off-line core test - Manual ultra-sound test with double probe at $90^\circ$ EN 10308 Class 1 - 2 - 3.

Notes: the rolled section for US testing 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 grade $\leq 2$ 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 or EN10084/08 App. C. 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.



# Hot rolled billets

Revision: 01/2020 - Page 4 of 5

## 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	5 ÷ 8 austenite grain as per ASTM E112 or ISO 643 guaranteed. 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.

## MAGNETIC RETENTIVITY

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

## PACKAGING

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

## 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)



# Hot rolled billets

Revision: 01/2020 - Page 5 of 5

## 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	- Compliant with EN 10204 - TÜV – AD W0/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	± 20% up to 5 tons. ± 10% > 5 ÷ 25 tons. ± 6% > 25 tons