



Drawn round steel bars

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Revision 07/2019



Drawn round steel bars

Revision: 07/2019 - Page 2 of 4

STEEL RANGE

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| 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 |
| Cold-finished steels EN 10277-2-3-4-5 |
| 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

Drawn round bars: \varnothing 20 ÷ 120 mm with 0.1 mm progression

BAR LENGTH

2.8 ÷ 6.8 m (including length+ tolerance)
Commercial length with range \leq 1 m
Extra Standard Fixed Length with range -0/+200 mm or \pm 100 mm
Extra Standard Fixed Length with range \geq 50 mm

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: possibility of supplying sandblasted drawn sections with length 2.8 ÷ 6.8 m (including the length+ tolerance).

DIMENSIONAL TOLERANCES: UNI EN 10277; UNI EN ISO 286; ASTM A108; BS 970

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| Standard | IT10 - IT11 - BS970 Circularity deviation \leq 50% of the \varnothing tolerance field. |
| Extra standard | IT9 up to 72 mm (not guaranteed on products previously subjected to heat treatment). Circularity deviation \leq 50% of the \varnothing tolerance field. |

Note: full-length tolerances will have to be agreed upon at the order acquisition stage.

STRAIGHTNESS

| | |
|----------------|----------------------|
| Standard | Camber \leq 1‰ L |
| Extra Standard | Camber \leq 0.5‰ L |

ROUGHNESS

| | |
|----------|-----------------------|
| Standard | Ra \leq 3.2 μ m |
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Drawn round steel bars

Revision: 07/2019 - Page 3 of 4

END APPEARANCE

| | |
|----------------|---|
| Standard | Shear or sawing machine cutting at both ends. |
| Extra Standard | Saw machine cutting and chamfering (max Ø 80 mm) on 1 or 2 ends; max. 10 mm with 30° - 45° chamfer. |

SUPERFICIAL DEFECTS

| | |
|----------------|---|
| Standard | Class 2 EN 10277 (statistical) |
| Extra Standard | Class 2 - 3 EN 10277 with NDT 100% Class 2 is guaranteed for automatic steels. |

Note: Note: semi-products can be previously subjected to US testing in accordance with standard EN 10308 Max Class 3

DECARBONISATION

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| Standard | Max. 1% of the Ø, with a minimum equal to 0.2 mm. |
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NON-METALLIC INCLUSIONS

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| Standard | Macro-purity at grade ≤ 2 as per S.E.P. 1584 standard. Micro-purity at grade ≤ 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 ≤ 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

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| 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

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| 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

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| 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. |



Drawn round steel bars

Revision: 07/2019 - Page 4 of 4

MAGNETIC RETENTIVITY

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| Standard | Not guaranteed |
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PACKAGING

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| Standard | Anti-corrosion oiling 4 straps for 2.8÷5 m bundles. N° 4/6 straps for 5.5÷7.2 m. 1 Tag per bundle Certified metal lifting rings |
| Extra Standard | Peculiar conditions besides the previous ones, to be evaluated at the order acceptance stage. 2 tags, 1 at the front and 1 at the rear of the bundle Bundle packaging with polythene-jute cloth Plates at the ends Packaging in crates Polyester lifting belts Additional oiling and protective paper at the shipment stage. |

HEAT TREATMENTS

Our products can be supplied with the following heat treatments:

- Softening annealing +A
- Spheroidising +AC
- Stress-free annealing +SR
- Annealing for ferrite-pearlite structure +FP
- Normalising +N
- Shearability annealing +S
- Hardening field annealing +TH

BUNDLE WEIGHT

| | |
|----------------|------------------|
| Standard | 1,000 ÷ 1,600 kg |
| Extra standard | 500 Kg |

OTHER INFORMATION

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|---|---|
| Hardness | Steels with hardness exceeding 245 HB must be previously annealed |
| Manufacturing times | 30÷40 days |
| Product certificate | Compliant with EN 10204 |
| Minimum batch size | 5 tons. |
| Weight tolerance with respect with the ordered amount | ± 20% up to 5 tons. ± 10% > 5 tons. |