

# CORROSIONS-RESISTANT STEELS - AUSTENITIC STEELS AND NON MAGNETIC STEELS

## Application Segments

Engineering

## Available Product Variants

Long Products

## Product Description

BÖHLER A220SC is a low carbon, chromium nickel and molybdenum steel. Structure homogeneous, stable austenite. Weldable with analogous filler metal giving fully austenitic deposit. Resistant to intergranular corrosion in the temperature range up to 750°F (400°C). Resistance to acids having a reducing effect, like diluted sulphuric acid and hydrochloric acid is good. The steel is not susceptible to pitting, crevice and stress corrosion cracking in media containing chloride ions and possesses excellent resistance to the attack of urea and biocompatibility. Cold forming properties are good. The steel is capable of taking a mirror finish. The steel is produced as a remelt grade and thus meets the usual requirements for steel purity as specified for implant material.

## Process Melting

Airmelted + ESR

## Applications

- > Orthopedics
- > Surgery
- > Stomatology
- > Cardiology

## Technical data

| Material designation |      | Standards      |      |
|----------------------|------|----------------|------|
| 1.4435               | SEL  | DIN ISO 5832-1 | DIN  |
| 1.4441               |      | E114           | ASTM |
| X2CrNiMo18-14-3      | EN   | F138           |      |
| X2CrNiMo18-15-3      |      | 7252/1         | BS   |
| S31603               | UNS  |                |      |
| 316LUG               | AISI |                |      |

## Chemical composition (wt. %)

| C             | Si        | Mn        | P             | S             | Cr             | Mo           | Ni             | Cu        | Co        | N            |
|---------------|-----------|-----------|---------------|---------------|----------------|--------------|----------------|-----------|-----------|--------------|
| max.<br>0.030 | max. 0.75 | max. 2.00 | max.<br>0.025 | max.<br>0.010 | 17.00 to 19.00 | 2.25 to 3.00 | 13.00 to 15.00 | max. 0.50 | max. 0.10 | max.<br>0.10 |

Related to ASTM F138. Composition index = % Cr + 3.3 \* % Mo = min 26.0

## Delivery condition

### Solution Annealed + Quenched

|                        |          |
|------------------------|----------|
| Tensile Strength (MPa) | min. 490 |
| Yield Strength (MPa)   | min. 190 |

### Hot worked

|               |          |
|---------------|----------|
| Hardness (HB) | max. 250 |
|---------------|----------|

### Solution annealed + cold worked

|                        |                                                  |
|------------------------|--------------------------------------------------|
| Tensile Strength (MPa) | min. 860                                         |
| Yield Strength (MPa)   | min. 690   Diameter or thickness 1.60 - 38.1 mm. |

### Solution annealed + cold worked

|                        |                                                                             |
|------------------------|-----------------------------------------------------------------------------|
| Tensile Strength (MPa) | min. 1,350   Condition extra - hard - diameter or thickness 1.60 - 6.35 mm. |
|------------------------|-----------------------------------------------------------------------------|

## Round Bars and Wire Rod (if any)

Diameter\*  
mm

| ROLLED |   |       |
|--------|---|-------|
| 5.00   | - | 15.50 |

\* Diameter 5.00 - 15.5 mm available as Wire Rod.

More information regarding MOQ, length and tolerance upon request.

If other available product variants are listed in addition to long products, please note that these may differ in terms of melting process, technical data, delivery and surface condition as well as available product dimensions. For mandatory technical specifications, other requirements and dimensions, please contact our regional voestalpine BÖHLER sales companies. The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.

**voestalpine BÖHLER Edelstahl GmbH & Co KG**

Mariazeller Straße 25

8605 Kapfenberg, AT

T. +43/50304/20-0

E. [info@bohler-edelstahl.at](mailto:info@bohler-edelstahl.at)

<https://www.voestalpine.com/bohler-edelstahl/de/>

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ONE STEP AHEAD.