

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

## Application Segments

Engineering

Oil &amp; Gas/CPI

## Available Product Variants

Long Products\*

Semi-Finished Products / Billet

Plates

Open Die Forgings

\* Presented data refer exclusively to long products. Please observe the detailed explanations at the end of the data sheet (pdf).

## Product Description

BÖHLER P501 is a highly corrosion-resistant, nitrogen-strengthened Cr-Ni-Mo-N steel that is characterised by its resistance to corrosion in seawater and very good resistance to intergranular corrosion and stress corrosion cracking. Due to the alloy design, the yield strength is significantly higher than that of a comparable Cr-Ni-Mo stainless steels and a stable austenitic microstructure is achieved, so that the steel remains non-magnetisable even after cold forming and has the lowest magnetic permeability. In addition to its original application as a hull and structure for submarines, BÖHLER P501 is also used for magnetic shielding and components in the oil and gas industry, for example.

## Process Melting

Airmelted

## Applications

- > Drilling tools and components
- > Well Completion Tools
- > Other Components
- > Well Logging Tools
- > Other Power Generation Components

## Technical data

| Material designation |     |  | Standards |        |
|----------------------|-----|--|-----------|--------|
| 1.3964               | SEL |  | SEW 390   | Others |
| X2CrNiMoNNb21-16-5-3 | EN  |  |           |        |
| S20910               | UNS |  |           |        |

## Chemical composition (wt. %)

| C          | Si       | Mn         | P          | S          | Cr           | Mo         | Ni           | Nb        | N            |
|------------|----------|------------|------------|------------|--------------|------------|--------------|-----------|--------------|
| max. 0.030 | max. 1.0 | 4.0 to 6.0 | max. 0.025 | max. 0.010 | 20.0 to 21.5 | 3.0 to 3.5 | 15.0 to 17.0 | max. 0.25 | 0.20 to 0.35 |

Related to SEW 390

## Delivery condition

### Round Bars and Wire Rod (if any)

| Diameter<br>mm |   |        |
|----------------|---|--------|
| <b>ROLLED</b>  |   |        |
| 5.00           | - | 130.00 |
| <b>FORGED</b>  |   |        |
| 130.10         | - | 300.00 |

More information regarding MOQ, lengths and tolerances upon request.

## Physical Properties

|                             |     |                          |
|-----------------------------|-----|--------------------------|
| Density                     | 7.9 | [kg/dm <sup>3</sup> ]    |
| Thermal conductivity        | 14  | [W/(m.K)]                |
| Specific heat               | 460 | [kJ/kg K]                |
| Spec. electrical resistance | 0.8 | [Ohm.mm <sup>2</sup> /m] |

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.

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ONE STEP AHEAD.