

# AUSTENITIC STEELS

## Application Segments

|               |
|---------------|
| Oil & Gas/CPI |
|---------------|

## Available Product Variants

|               |
|---------------|
| Long Products |
|---------------|

## Product Description

Weldable, non-magnetic austenitic steel with resistance to seawater and intergranular corrosion. Does not require post-weld heat treatment.

This austenitic stainless Cr-Ni-Mn-Mo-N steel has corrosion resistance greater than that provided by Cr-Ni-MoTypes 316, 316L, 317, and 317L, plus approximately twice the yield strength at room temperature. In addition, P511 Stainless Steel has very good mechanical properties at both elevated and subzero temperatures. Unlike many austenitic stainless steels it does not become magnetic when cold worked or cooled to sub-zero temperatures. P511 is especially suitable for cryogenic application thanks to its excellent impact strength at -196 °C (-320 °F).

### Application

Oil and Gas, offshore, subsea, chemical, fertilizer, nuclear fuel recycling, pulp and paper, textile, food processing and marine industries. Components using the combination of excellent corrosion resistance and high strength include: pumps, valves and fittings, fasteners, cables, chains, marine hardware, boat and valves shafting, heat exchanger parts, and springs.

## Process Melting

|           |
|-----------|
| Airmelted |
|-----------|

## Applications

- > Comps. for Food processing and Animal Feed
- > Distributors for Component Applications
- > Distributors or producers of standard parts without knowledge of final applications
- > Drilling Tools and Components
- > Fasteners, Bolts, Nuts
- > Flowlines & Connectors
- > Food processing Industry
- > Forging Applications
- > Mechanical Engineering
- > Oil & Gas
- > Other Oil and Gas + CPI comps.
- > Steel Industry
- > Tubular Products, Flanges, Fittings
- > Valves and Actuators
- > Well Completion Tools
- > Well Logging Tools
- > Wellhead, X-mas trees and Manifolds (incl. Tubing hangers), BOPs
- > Wire Lines
- > Medical Instruments & Implants
- > Other Components

## Technical data

| Material designation |              | Standards               |        |
|----------------------|--------------|-------------------------|--------|
| S20910               | UNS          | A182                    | ASTM   |
| X3CrNiMoCuNbN21-13-3 | EN           | A276/A276M              |        |
| XM-19                | Market grade | NACE MR0175 / ISO 15156 | Others |
| Nitronic 50          |              |                         |        |

**Chemical composition (wt. %)**

| C         | Si        | Mn         | P          | S          | Cr           | Mo           | Ni           | V            | Nb           |
|-----------|-----------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|
| max. 0.06 | max. 1.00 | 4.0 to 6.0 | max. 0.045 | max. 0.030 | 20.5 to 23.5 | 1.50 to 3.00 | 11.5 to 13.5 | 0.10 to 0.30 | 0.10 to 0.30 |

Related to ASTM A479 XM19.

**Available Dimensions**

**Round Bars**

| Diameter      |          | MOQ ex mill | Length   | Tolerance |
|---------------|----------|-------------|----------|-----------|
| mm            | inch     |             |          |           |
| <b>ROLLED</b> |          |             |          |           |
| 12.50         | - 130.00 | 0.492       | - 5.118  |           |
| <b>FORGED</b> |          |             |          |           |
| 130.10        | - 304.80 | 5.122       | - 12.000 |           |

Further information on MOQ, length and tolerance on request.

For more information see <https://www.voestalpine.com/boehler-edelstahl/de/>

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