

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

## Application Segments

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Oil & Gas / CPI

## Available Product Variants

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Long Products\*

Semi-Finished Products / Billet

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

## Product Description

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BÖHLER P513 is a weldable, non-magnetic austenitic stainless steel with resistance to seawater and intergranular corrosion. Does not require post-weld heat treatment. It offers best galling resistance of all stainless steels and high pitting resistance. The oxidation resistance of BÖHLER P513 is far superior to common Cr-Ni austenitic stainless steels (Type 304) but not quite as good as for Cr-Ni-Mo Types (316), but it offers better chloride pitting resistance, stress corrosion cracking resistance and crevice corrosion resistance than Type 316 under standard testing conditions.

BÖHLER P513 is a high Silicon, high Manganese, Nitrogen strengthened austenitic stainless alloy that was originally designed as a temperature alloy and therefore performs well at high temperature around 1800°F. The additions of silicon and manganese assist to inhibit wear, galling and fretting even in the annealed condition. Through cold working BÖHLER P513, it is possible to attain higher strengths, however it does not enhance the anti-galling properties

It is used in the Aerospace, Food and Drug, Oil Field, Petrochemical, Surgical and Chemical Processing Industries for e.g. Valve Stems, Seats and Trim, Fastening Systems, Screening, Chain-drive Systems, Pins, Bushings and Roller Bearings, Pump Components (Wear Rings and Lobes), Food-Contact applications.

## Process Melting

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Airmelted

## Applications

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- Components for food processing and animal feed
- Food processing industry
- Tubular Products, Flanges, Fittings
- Wellhead, X-mas trees and Manifolds (incl. Tubing hangers), BOPs
- Fasteners, Bolts, Nuts
- Oil & Gas / CPI
- Valves and Actuators
- Wire Lines
- Flowlines & Connectors
- Other Oil and Gas + CPI components
- Well Completion Tools
- Well Logging Tools

## Technical data

| Material designation |              | Standards  |      |
|----------------------|--------------|------------|------|
| Nitronic 60          | Market grade | A193       | ASTM |
| S21800               | UNS          | A194       |      |
|                      |              | A276/A276M |      |
|                      |              | A479/A479M |      |

## Chemical composition (wt. %)

| C         | Si         | Mn         | P          | S          | Cr           | Ni         | N            |
|-----------|------------|------------|------------|------------|--------------|------------|--------------|
| max. 0.10 | 3.5 to 4.5 | 7.0 to 9.0 | max. 0.060 | max. 0.030 | 16.0 to 18.0 | 8.0 to 9.0 | 0.08 to 0.18 |

Related to ASTM A193 B8S,B8SA

## Delivery condition

| Solution annealed                     |          |
|---------------------------------------|----------|
| Hardness (HB)                         | max. 271 |
| Tensile Strength (N/mm <sup>2</sup> ) | min. 656 |
| Yield Strength (MPa)                  | min. 345 |

## Round Bars and Wire Rod (if any)

| Diameter*<br>mm |   |        |
|-----------------|---|--------|
| ROLLED          |   |        |
| 5.00            | - | 13.50  |
| 5.00            | - | 130.00 |
| FORGED          |   |        |
| 130.10          | - | 304.80 |

\* Diameter 5.00 - 13.50 mm available as Wire Rod.

Diameter 5.00 - 130 mm round bars.

Further information on MOQ, lengths and tolerances on 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.

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