

# CORROSION RESISTANT STEELS - MARTENSITIC, SEMI- MARTENSITIC AND FERRITIC STEELS

## Application Segments

Oil &amp; Gas/CPI

## Available Product Variants

Long Products\*

Semi-Finished Products / Billet

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 N404 is a stainless, soft martensitic Cr steel with 5% nickel and molybdenum addition with higher corrosion resistance than that of stainless steels of type 1.4313.

The molybdenum addition also permits limited use in the maritime sector.

BÖHLER N404 is particularly insensitive to intergranular corrosion and very resistant to fatigue and stress corrosion cracking and offers good mechanical properties in the quenched and tempered condition. This makes this material very suitable for use in the oil and gas sector, e.g. for fittings, pumps, compressors, centrifuges, hydropower machinery, reactor technology, shipbuilding, chemicals, petroleum technology, aviation and refrigeration technology. Very good low-temperature properties. Recommended application temperature from - 60 to 350°C. Special heat treatment to max. 23 HRC is required for sour gas stress in petroleum technology.

In order to achieve the best possible corrosion resistance, the relevant surfaces must be polished.

## Process Melting

Airmelted

## Applications

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| <ul style="list-style-type: none"> <li>› Components for Industrial Gas Compressors</li> <li>› General Components for Mechanical Engineering</li> <li>› Pumps and High Pressure Components</li> <li>› Valves and Actuators</li> <li>› CPI (incl. LNG, Urea)</li> <li>› Power Generation (Gas/Steam/Nuclear)</li> </ul> | <ul style="list-style-type: none"> <li>› Components for food processing and animal feed</li> <li>› Mechanical Engineering</li> <li>› Shafts</li> <li>› Water Power</li> <li>› Chemical industry - general</li> <li>› Blades &amp; Shafts for Turbines and Compressors</li> </ul> | <ul style="list-style-type: none"> <li>› Food processing industry</li> <li>› Other Oil and Gas + CPI components</li> <li>› Tubular Products, Flanges, Fittings</li> <li>› Wellhead, X-mas trees and Manifolds (incl. Tubing hangers), BOPs</li> <li>› Other Power Generation Components</li> </ul> |
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## Technical data

Material designation		Standards	
1.4418	SEL	10088-3	EN ISO
X4CrNiMo16-5-1	EN		

## Chemical composition (wt. %)

C	Si	Mn	P	S	Cr	Mo	Ni	N
max. 0.06	max. 0.70	max. 1.50	max. 0.040	max. 0.030	15.0 to 17.0	0.80 to 1.50	4.0 to 6.0	min. 0.020

Refers to EN ISO 10088-3 1.4418

## Delivery condition

Annealed	
Hardness (HB)	max. 320
Tensile Strength (MPa)	max. 1,100

Hardened and Tempered   QT760	
Tensile Strength (MPa)	760 to 960
Yield Strength (MPa)	min. 550

Hardened and Tempered   QT900	
Tensile Strength (MPa)	900 to 1,100
Yield Strength (MPa)	min. 700

## Round Bars and Wire Rod (if any)

Diameter mm		
ROLLED		
12.50	-	130.00
FORGED		
130.10	-	500.00

More information regarding MOQ, lengths and tolerances upon request. Flat bar 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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ONE STEP AHEAD.