

# CORROSION-RESISTANT STEELS - FERRITIC-AUSTENITIC (DUPLEX) STEELS

## Application Segments

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Oil & Gas / CPI

## Available Product Variants

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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

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BÖHLER A903 (UNS S32205) is the most common stainless ferritic-austenitic Cr-Ni-Mo steel with nitrogen addition. In addition to good strength properties, this steel offers high corrosion resistance, especially against stress corrosion cracking in chloride-containing solutions, and is resistant to intergranular corrosion up to 300°C.

The alloy should not be used at temperatures above 300°C due to embrittlement.

Heat treatment after welding is not necessary.

Required surface finish: pickled, scale-free heat treated or machined.

Commonly used in the oil and gas industry, hydroelectric power, pressure vessels, pulp and paper industry, components and chemical tanks, such as parts for separators and heat exchangers and parts in the paper industry, oil and gas extraction, compressors, seawater desalination.

## Process Melting

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Airmelted

## Applications

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- > Components for Chemical plants (incl. LNG, FGD, Urea, LDPE, etc.)
- > Flowlines & Connectors
- > Shafts
- > Well Completion Tools
- > Drilling tools and components
- > Pumping
- > Shafts for Mechanical Engineering
- > Components for food processing and animal feed
- > Other Oil and Gas + CPI components
- > Tubular Products, Flanges, Fittings
- > Well Logging Tools
- > Chemical industry - general
- > Wear Applications
- > CPI (incl. LNG, Urea)
- > Pumps and High Pressure Components
- > Valves and Actuators
- > Wellhead, X-mas trees and Manifolds (incl. Tubing hangers), BOPs
- > Filling
- > Mechanical Engineering

### Technical data

Material designation		Standards	
F51	Market grade	10088-3	EN ISO
1.4462	SEL	A182/A182M	ASTM
X2CrNiMoN22-5-3	EN	A276/A276M	
S31803	UNS	A479/A479M	NORSOK
S32205		MDS D47	

### Chemical composition (wt. %)

C	Si	Mn	P	S	Cr	Mo	Ni	N
max. 0.030	max. 1.00	max. 2.00	max. 0.030	max. 0.020	22.0 to 23.0	3.0 to 3.5	4.5 to 6.5	0.14 to 0.20

Related to Norsok M630 MDS D47 - UNS 32205

### Delivery condition

#### Solution Annealed + Quenched

Hardness (HB)	max. 290   hot finished or cold finished
Tensile Strength (MPa)	min. 655   hot finished or cold finished
Yield Strength (MPa)	min. 450   hot finished or cold finished

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

Diameter*		mm	
<b>ROLLED</b>			
5.00	-	13.50	
12.50	-	130.00	
<b>FORGED</b>			
130.10	-	203.20	

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

Diameter 12.5 - 130 mm round bars.

Further information on MOQ, lengths and tolerances on request. Flat bars 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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