CORROSIONS-RESISTANT STEELS - AUSTENITIC STEELS AND NON MAGNETIC STEELS

Application Segments

Engineering

Available Product Variants

Long Products

Product Description

BÖHLER P558 is a high-nitrogen 11% manganese-17% chromium-3% molybdenum-nickel stainless steel for surgical implants. Its metallurgical requirements include a fine-grained, austenitic microstructure without delta ferrite, low inclusion content, and resistance to intergranular corrosion.

BÖHLER P558 also exhibits pitting and crevice corrosion resistance that is significantly better than the reference material in Specification F138 and exceeds the material values specified in Specification F1314 and Specification F1586. Biocompatibility tests for this material have been positive and meet the requirements of the test standards used.

The chemical composition of this steel features a high carbon content, along with high nitrogen content. The high carbon content is considered critical in the conventional metallurgy of chromium-nickel stainless steels, but the simultaneous alloying of nitrogen and carbon in BÖHLER P558 has a beneficial effect on the stabilization of the austenitic phase, extends the range of austenite stability to lower solution annealing temperatures, increases corrosion resistance, and leads to better toughness properties.

Process Melting

Airmelted + PESR

Applications

- Luxury Watch Industry
- Cardiology
- Surgery
- Orthopedics

Technical data

Material designation	
1.3808	SEL
X20CrMnMoN17-11-3	EN
S29225	UNS

Standards	
F2581	ASTM

BÖHLER

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BÖHLER P558

Chemical composition (wt. %)

C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Fe	N
0.15 to 0.25	0.2 to 0.6	9.50 to 12.50	max. 0.020	max. 0.010	16.50 to 18.00	2.70 to 3.70	max. 0.05	max. 0.25	REM	0.45 to 0.55

Related to ASTM F2581.

Delivery condition

Solution Annealed + Quenched	
Tensile Strength (MPa)	min. 827
Yield Strength (MPa)	min. 482

Round Bars and Wire Rod (if any)

Diameter* mm		
ROLLED		
5.00	-	13.50
12.50	-	65.00

* Diameter 5.00 - 13.50 mm available as Wire Rod.

Diameter 12.5 - 65 mm round bars.

More information regarding MOQ, lengths and tolerances upon 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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voestalpine
ONE STEP AHEAD.