

CORROSION RESISTANT STEELS - MARTENSITIC PRECIPITATION HARDENING (PH) STEELS

Application Segments

Engineering

Available Product Variants

Long Products

Product Description

BÖHLER N700 is a corrosion resistant steel in the form of bars, wire, forgings in the solution annealed condition. It is a martensitic, precipitation hardenable chromium-nickel-copper steel with high strength and toughness. Further increases in strength can be achieved by cold working followed by precipitation hardening.

These products are typically used for parts that require corrosion resistance and high strength. Improved corrosion resistance compared to the 13% or 17% chromium steels. Various remelting processes are used to improve steel purity and homogeneity. (ESU, DESU, VLBO). Certain processing methods and operating conditions can make these products susceptible to stress corrosion cracking. For applications such as threaded fasteners where stress corrosion is possible, the product should be age-hardened at a minimum of 4 hours at the highest temperature consistent with the strength requirements, but in no case lower than 552°C.

Typical applications for engineering are instruments in the field of surgery and dentistry but also e.g. components for aerospace, reactor construction, highly stressed pump parts, springs, ship shafts, and many more.

Process Melting

Airmelted + Remelted

Applications

- | | | |
|--|---|------------------------------|
| > Civil and mechanical engineering | > Medical | > Mechanical Engineering |
| > Injection molds and screws for the processing of glass fiber reinforced plastics | > Shafts | > Other Components |
| > Pumps and High Pressure Components | > Fasteners, Bolts, Nuts | > Food processing industry |
| > Injection Molding | > General Components for Mechanical Engineering | > Other Aerospace Components |
| > Medical Industry | | |

Technical data

Material designation		Standards	
17-4 PH	Market grade	10088-3	EN ISO
1.4542	SEL	A564	ASTM
X5CrNiCuNb16-4	EN	F899	
S17400	UNS		
630	AISI		

Chemical composition (wt. %)

C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Nb
max. 0.07	max. 0.70	max. 1.50	max. 0.040	max. 0.015	15.0 to 17.0	max. 0.60	3.0 to 5.0	3.0 to 5.0	5xC to 0.45

Related to SEL 1.4542

Delivery condition

Solution Annealed + Quenched	
Hardness (HB)	max. 360
Tensile Strength (MPa)	max. 1,200

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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