

# FERRITIC AND MARTENSITIC STEELS, INCL. PRECIPITATION HARDENING STEELS

## Application Segments

Aerospace

## Available Product Variants

Long Products\*

Semi-Finished Products / Billet

Plates

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

## Product Description

BÖHLER T670 is a corrosion-resistant steel in the form of bars, wire, forgings up to 12.0 inches (305 mm) in diameter or least distance between parallel sides in the solution heat treated condition and stock of any size for forging.

It is a martensitic precipitation hardenable chromium-nickel-copper-molybdenum steel possessing high strength and toughness.

Primarily for parts requiring corrosion resistance approximating that of Cr-Ni 18-8 type steels and high strength exceeding that of 12Cr martensitic type steels up to 700 °F (371 °C), but usage is not limited to such applications. This steel can be used in the solution heat treated condition and is capable of being precipitation heat treated to tensile strengths as high as 180 ksi (1241 MPa) with good ductility and strength in the transverse directions in large section sizes.

Certain processing procedures and service conditions may cause these products to become subject to stress-corrosion cracking.

## Process Melting

Airmelted

## Applications

> Aerospace

> Other Aerospace Comps.

> Structural parts (Aerosp)

## Technical data

Material designation		Standards	
S143	Market grade	S143	BS
		S144	
		S145	

### Chemical composition (wt. %)

C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Nb
max. 0.07	max. 0.60	max. 1.00	max. 0.035	max. 0.025	13.2 to 14.7	1.20 to 2.00	5.0 to 5.8	1.20 to 2.00	0.10 to 0.40

Related to BS S143

### Delivery condition

#### Solution annealed

Hardness (HB)	max. 331   bars, billets and forging stock for subsequent working(S143A)
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#### Solution annealed + precipitation hardened

Hardness (HB)	277 to 341   Black and bright bars for machining(S143B, S143D) and subsequently cold drawn, cold rolled, machined or ground, forgings(S143C)
Tensile Strength (MPa   ksi)	930 to 1,080   135 to 157
Yield Strength (MPa   ksi)	min. 780   114

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

Diameter		MOQ ex mill		Length		Tolerance
mm	inch	kg	lbs	m	ft	
<b>ROLLED</b>						
5.01	- 12.49	0.197	- 0.492	850	1,874	3.00 - 4.00 9.84 - 13.12 IT h/k 11
12.50	- 55.00	0.492	- 2.165	900	1,984	3.00 - 4.00 9.84 - 13.12 IT h/k 11
55.01	- 69.00	2.166	- 2.717	1,180	2,601	3.00 - 4.00 9.84 - 13.12 IT h/k 11
69.01	- 72.00	2.717	- 2.835	900	1,984	3.00 - 4.00 9.84 - 13.12 IT h/k 11
72.01	- 82.00	2.835	- 3.228	900	1,984	3.00 - 4.00 9.84 - 13.12 IT h/k 11
82.01	- 120.00	3.229	- 4.724	900	1,984	3.00 - 4.00 9.84 - 13.12 IT h/k 11
120.01	- 130.00	4.725	- 5.118	900	1,984	3.00 - 5.00 9.84 - 16.40 IT h/k 14
<b>FORGED</b>						
130.01	- 203.20	5.119	- 8.000	1,320	2,910	2.00 - 5.00 6.56 - 16.40 IT h/k 14

#### Flat Bars

Width		Thickness		MOQ ex mill		Length		Tolerance
mm	inch	mm	inch	kg	lbs	m	ft	
<b>ROLLED</b>								
15.00	- 121.00	0.591	- 4.764	8.00	- 86.00	0.315	- 3.386	1,100 2,425 3.00 - 4.00 9.84 - 13.12 LN 1017
120.00	- 150.00	4.724	- 5.906	25.00	- 85.00	0.984	- 3.346	1,100 2,425 3.00 - 4.00 9.84 - 13.12 LN 1017
150.00	- 275.00	5.906	- 10.827	20.00	- 100.00	0.787	- 3.937	1,100 2,425 3.00 - 4.00 9.84 - 13.12 LN 1017
275.00	- 330.00	10.827	- 12.992	25.00	- 80.00	0.984	- 3.150	1,100 2,425 3.00 - 4.00 9.84 - 13.12 LN 1017

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**Long Products:** For additional specifications, technical requirements, and other dimensions, please contact our regional voestalpine BÖHLER sales companies.

**Sheet & Plates:** Product Variant may differ in terms of melting process, technical data, delivery, and surface condition as well as available product dimensions. Please contact voestalpine BÖHLER Bleche GmbH & Co KG.

**Semi-Finished Products:** Product Variant may differ in terms of melting process, technical data, delivery, and surface condition as well as available product dimensions. Please contact the business unit Semi Finished Products of voestalpine BÖHLER Edelstahl GmbH & Co KG.

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