FERRITIC AND MARTENSITIC STEELS, INCL. PRECIPITAION HARDENING STEELS

Application Segments

Engineering

Available Product Variants

Long Products

Product Description

BÖHLER N765 (UNS S46500) is a premium stainless, double vacuum-melted, martensitic-age-hardenable steel (PH -grade) that offers a unique combination of high strength, toughness, and corrosion resistance.
Products have been used typically for heat-treated parts requiring stress corrosion resistance, along with a combination of high strength and high toughness up to 800 °F (427 °C) with good ductility and strength in the transverse direction, but usage is not limited to such applications.
BÖHLER N765 stainless is capable of ultimate tensile strength in excess of 250 ksi (1722 MPa) when aged at 950°F (H950 condition). The alloy offers excellent notch tensile strength and fracture toughness in this condition The strength is higher than that of any other available precipitation-hardenable (PH) stainless steel long product. Overaging provides a superior combination of strength, toughness and stress corrosion cracking resistance compared with other high-strength PH stainless alloys such as 15-5PH or PH 13-8Mo.
Aging temperatures ranging from 950°F to 1050°F can be selected in order to achieve the desired balance of strength, toughness, and stress corrosion cracking (SCC) resistance.
While the alloy meets the special and exacting needs of aerospace manufacturers, it also has found application in marine equipment, firearms, hand tools, oil and gas drilling, and the medical industry among others.

Process Melting

VIM + VAR

Applications

- Civil and mechanical engineering
- Medical
- Fasteners, Bolts, Nuts
- Shafts
- Mechanical Engineering
- Medical Industry

Technical data

Material designation	
Custom 465	Market grade
S46500	UNS

Standards	
F899 A564	ASTM

Chemical composition (wt. %)

C	Si	Mn	P	S	Cr	Mo	Ni	Ti	N
max. 0.02	max. 0.25	max. 0.25	max. 0.015	max. 0.010	11.00 to 12.50	0.75 to 1.25	10.75 to 11.25	1.50 to 1.80	max. 0.01

Refers to ASTM A564 S46500.

Delivery condition

Solution annealed

Hardness (HB)	max. 331 | Additionally subzero treated

Round Bars and Wire Rod (if any)

Diameter*					
mm			inch		
ROLLED					
5.00	-	13.50	0.197	-	0.531
12.50	-	65.00	0.492	-	2.559

* Diameter 5.00 - 13.50 mm available as Wire Rod.

Diameter 12.5 - 65 mm round bars.

Further information on MOQ, length and tolerance on request.

For additional specifications and other sizes please contact BÖHLER Edelstahl - Special Materials Engineering

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ONE STEP AHEAD.