

718-API NICKEL ALLOY - UNS N07718

MATERIAL DESCRIPTION

Alloy 718 (UNS N07718) is an age hardenable, Ni-base alloy with excellent strength, good ductility, good weldability, good formability, and excellent cryogenic & corrosion properties. Produced by vacuum induction melting followed by consumable remelting (vacuum arc or electroslag). Typical applications are gate blanks, deep hole drilling tools and wellbore components.

APPLICABLE SPECIFICATIONS

API 6ACRA, API 6A PSL 4

ANSI/NACE MR0175/ISO15156-3, ANSI/NACE MR0103

FMC M40910, FMC M40902,

VGS 5.141.1, VGS 5.541.1

WN-301 Rev.X except para.4.0, ES-MA-46-2 , BMS N201, BMS N213

CSP-4, CMS-Z1CGU.0, 100986456, 100237403.

HEAT TREATMENT

Intoco bar stock is in the Solution Annealed & Age Hardened condition

CHEMICAL ANALYSIS RANGE

ELEMENT	WEIGHT %	ELEMENT	WEIGHT %
C	0.045 max.	Ti	0.80 - 1.15
Mn	0.35 max.	Fe	Balance
P	0.010 max.	Al	0.20 - 0.60
S	0.010 max.	Mo	2.80 - 3.30
Si	0.35 max.	Co	1.00 max.
Ni	50.0 - 55.0	Cu	0.23 max.
Cr	17.0 - 21.0	B	0.0060max. (60 ppm)
Pb	0.0010 Max	(Cb+Ta or Nb+Ta)	4.87 - 5.20
Se	0.0005 Max	Bi	0.00005 Max

TYPICAL MECHANICAL PROPERTIES (Min unless stated)

0.2% Yield ksi (MPa)	UTS ksi (MPa)	Ductility		Full size (10mm x 10mm) Charpy V Notch @ -76°F	Hardness HBW (HRC)
		%El 4D	%RA	Ft-lbs (J)	
125 – 145 (862 – 1000)	150 (1034)	20	($\leq 10''$ dia)	($< 3''$ dia)	299 - 361 (32- 39)
			35	50 (68) avg. 45 (61) single	
			($> 10''$ dia)	(≥ 3 to $\leq 10''$ dia)	
			25	35 (47) avg. 30 (41) single	
				($> 10''$ dia)	
				30 (41) avg. 27 (37) single	

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