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TECHNICAL DATA SHEET

Nickel Alloy Alloy 718 (UNS N07718)

Application

Alloy 718 (UNS N07718) is a precipitation-hardening nickel-chromium alloy known for high strength, excellent fatigue resistance, and good corrosion resistance at temperatures up to 704°C (1300°F). Its remarkable mechanical
properties are achieved through niobium additions, which form gamma double prime precipitates during heat treatment.

This alloy exhibits excellent weldability and stress corrosion cracking resistance. Due to its outstanding strength and durability under high-stress conditions, Alloy 718 is extensively used in aerospace components, turbine engines, and high-performance automotive and energy applications.

Available tube product forms

STRAIGHT | COILED | SEAMLESS

Typical manufacturing specifications

ASTM B637 / AMS 5589

Also individual customer specifications.

Industries predominantly using this grade

Aerospace and aviation, Gas turbines and power generation

Automotive performance parts, Oil & gas and cryogenic

Maximum Coil Length per Dimension (Unit : meter)

		Wall thickness (mm)					
		0.51	0.71	0.89	1.24	1.65	2.11
Outside diameter (mm)	3.175	-	-	-	-	-	-
	6.35	-	425	350	268	219	-
	9.53	-	-	221	166	131	109
	12.7	-	-	162	120	93	76
	19.05	-	-	-	77	59	48
	25.4	-	-	-	57	43	35

* We can provide longer length according to customer requirement

Technical Data

Chemical composition(% by weight)

Element	C	Mn	Si	P	S	Cr	Ni	Mo	Cb(Nb)	Ti	Al	Co	Ta	B	Cu
Minimun	-	-	-	-	-	17.00	50.00	2.80	4.75	0.65	0.20	-	-	-	-
Maximum	0.08	0.35	0.35	0.015	0.015	21.00	55.00	3.30	5.50	1.15	0.80	1.00	0.05	0.006	0.30
Aiming	0.03	0.1	0.1	0.01	0.0005	20	53	3	5	0.95	0.5	0.25	0.01	0.004	0.05

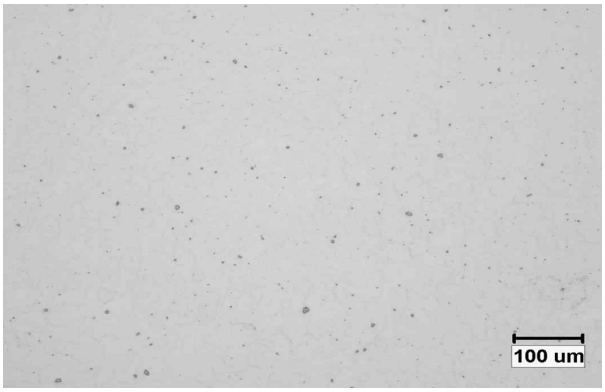
Mechanical Properties

	Tubing, Annealed(at 1040℃)		After the user's aging	
Tensile Rm	140	ksi (max.)	180	ksi (min.)
Tensile Rm	965	MPa (max.)	1241	MPa (min.)
Yield (R.p. 0.2%)	80	ksi (max.)	150	ksi (min.)
Yield (R.p. 0.2%)	550	MPa (max.)	1034	MPa (min.)
Elongation	30	% (min.)	15	% (min.)

Physical Properties(Room Temperature)

Specific Heat (0-100°C)	435	J.kg-1.°K-1
Thermal Conductivity	12	W.m -1.°K-1
Thermal Expansion	13.2	μm/m/°C
Modulus Elasticity	200	GPa
Electrical Resistivity	122	μohm·cm
Density	8.19	g/cm3

Microstructure



Maximum allowable pressure (Unit : BAR)

		Wall thickness (mm)						
		0.5	0.71	0.89	1.24	1.65	2.11	2.41
Outside diameter (mm)	4.76	1410	2074	2680	-	-	-	-
	6.35	-	1509	1935	2812	3850	-	-
	7.93	-	1188	1515	2187	3017	-	-
	9.53	-	-	1243	1782	2455	3231	-
	12.7	-	-	916	1303	1779	2342	2725
	15.88	-	-	725	1027	1394	1823	2115
	19.05	-	-	-	848	1146	1494	1727
	25.4	-	-	-	628	846	1097	1264

* After the user's aging heat treatment.

* For reference only if the yield strength is 150KSI or higher