

NICKEL ALLOY ALLOY 600 (UNS N06600)

Application

Alloy 600 is a nickel-chromium alloy designed for use from cryogenic to elevated temperatures in the range of 2000°F (1093°C). The high nickel content of the alloy enables it to retain considerable resistance under reducing conditions and makes it resistant to corrosion by a number of organic and inorganic compounds. The nickel content gives it excellent resistance to chloride-ion stress-corrosion cracking and also provides excellent resistance to alkaline solutions.

Its chromium content gives the alloy resistance to sulphur compounds and various oxidizing environments. The chromium content of the alloy makes it superior to commercially pure nickel under oxidizing conditions. In strong oxidizing solutions like hot, concentrated nitric acid, 600 has poor resistance. Alloy 600 is relatively un-attacked by the majority of neutral and alkaline salt solutions and is used in some caustic environments. The alloy resists steam and mixtures of steam, air and carbon dioxide.

Available tube product forms

STRAIGHT || **SEAMLESS** ||

Typical manufacturing specifications

ASTM B163, ASTM B167

Also individual customer specifications.

Industries predominantly using this grade

**Heat exchangers, Thermocouples, Chemical processes
Nuclear and power etc.**

Technical Data

Chemical composition(% by weight)

Element	Ni	Cr	Fe	Mn	C	Cu	Si	S	-	-	-	-
Minimum	72.0	14.0	6.0	-	-	-	-	-	-	-	-	-
Maximum	-	17.0	10.0	1.0	0.15	0.5	0.5	0.015	-	-	-	-
Aiming	73.6	15.8	8.8	0.17	0.003	0.02	0.4	0.001	-	-	-	-

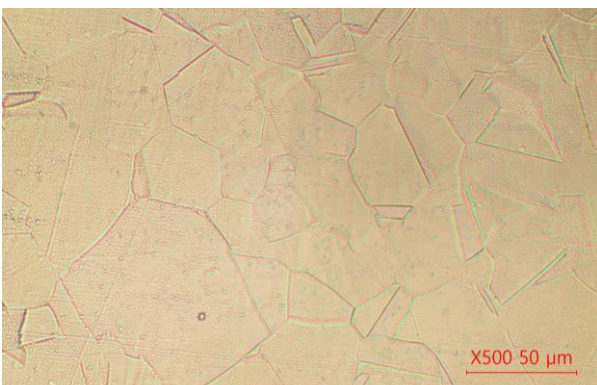
Mechanical Properties

	Tubing, Annealed (OD 5 in. under)		Actual data	
Tensile Rm	80	ksi (min.)	84~101	ksi
Tensile Rm	550	MPa (min.)	580~700	MPa
Yield (R.p. 0.2%)	35	ksi (min.)	40~50	ksi
Yield (R.p. 0.2%)	240	MPa (min.)	280~350	MPa
Elongation	30	% (min.)	37~40	%

Physical Properties(Room Temperature)

Specific Heat (0-100°C)	460	J.kg ⁻¹ .°K ⁻¹
Thermal Conductivity	14.8	W.m ⁻¹ .°K ⁻¹
Thermal Expansion	12.4	mm/m.°C
Modulus Elasticity	207	GPa
Electrical Resistivity	10.3	μohm.cm
Density	8.42	g/cm ³

Microstructure



Maximum allowable pressure (Unit : BAR)

		Wall thickness (mm)						
		0.89	1.24	1.65	2.11	2.77	3.96	4.78
Outside diameter r (mm)	6.35	451	656	898	1161	-	-	-
	9.53	290	416	573	754	1013	-	-
	12.7	214	304	415	546	742	-	-
	19.05	-	198	267	349	470	-	-
	25.4	-	147	197	256	343	509	630
	31.8	-	116	156	202	269	396	488
	38.1	-	-	129	167	222	325	399
	50.8	-	-	96	124	164	239	292

* We follow customer requested dimensions.

* Select tubes according to design pressure