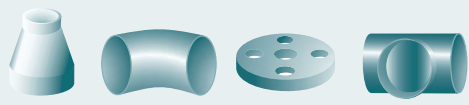


Specifications Alloy 600

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Alloy 600

Alloy 600 (UNS N06600) is a nickel - chromium - iron alloy.

This alloy is characterised by:

- good resistance to oxidation, carburisation and nitriding
- good resistance to stress corrosion cracking, at both room and elevated temperatures
- good resistance to dry chlorine and hydrogen chloride
- good mechanical properties at sub-zero, room and elevated temperatures

Designation and Standards

Country National Standards	Material Designation	Chem. composition	Specification						
			Tube and pipe seamless	pipe welded	Sheet and plate	Rod and bar	Strip	Wire	Forgings
France AFNOR	NC15Fe								
Germany DIN VdTÜV	W.-Nr. 2.4816 NiCr15Fe	17742 305	17751 305		17750 305	17752 305	17750	17753	17754 305
United Kingdom BS	NA 14		3074		3072	3076	3073	3075	
USA ASTM	UNS N06600		B 167	B 163 B516/517	B 168	B 166	B168	B166	B564
ASME			SB167	SB163 SB516/517	SB168	SB166	SB168	SB166	SB564
AMS			5580			5540	5665	5540	5687
ISO	NiCr15Fe8								

Chemical Composition (%)

Alloy 600	Ni	Cr	Fe	C	Mn	Si	Cu	Al	Ti	B	P	S	
min	72.0	14.0	6.0	0.05	-	-	-	-	-	-	-	-	
max	-	17.0	10.0	0.15	1.0	0.5	0.5	0.3	0.3	0.006	0.015	0.015	

Mechanical Properties

The following properties are applicable to annealed Alloy 600 in the indicated forms and size ranges. Specified properties of material outside these ranges are subject to special enquiry.

Sheet and plate	up to 50mm	2 in
Strip	up to 3mm	0.12 in
Rod and bar	up to 300mm	12 in
Tube	up to 125mm	5 in

Alloy and condition	Tensile strength		0.2% Yield Strength		Elong. A5 %	Brinell hardness HB
	N/mm ²	ksi	N/mm ²	ksi		
Alloy 600 annealed	550	80	240	35	30	≤ 195

Minimum mechanical properties at room temperature

Please Note: The figures quoted are intended for guidance only. For further information, please refer to the standards listed or contact our sales or QA Departments.

Metallurgical Structure

Alloy 600 has a face-centred cubic structure.

Corrosion Resistance

Alloy 600 is resistant to a wide range of corrosive media. The chromium content gives the alloy better resistance than Alloy 200 and Alloy 201 under oxidising conditions. At the same time, the high nickel content gives good resistance to reducing conditions and alkaline solutions and also virtual immunity to chloride-ion stress-corrosion cracking.

Corrosion Resistance continued:

Alloy 600 shows moderate resistance to mineral acids and good resistance to acetic, formic, stearic and other organic acids.

Excellent resistance is shown in high purity water, as used in the primary and secondary circuits of some nuclear reactors.

Alloy 600 is particularly resistant to attack by dry chlorine or hydrogen chloride, even at temperatures up to 650°C (1200°F).

At high temperatures in air the annealed and solution treated alloys show good resistance to oxide scaling and have high strength.

The alloy also resists ammonia bearing atmospheres, as well as nitrogen and carburising gases. Under alternating oxidising and reducing conditions this alloy may suffer from selective oxidation (green rot).

Applications

Typical applications include:

- thermocouple sheathing in aggressive atmospheres
- vinylchloride monomer production; resistance to chlorine, hydrogen chloride, oxidation and carburisation
- conversion of uranium oxide to hexafluoride; resistance to attack by hydrogen fluoride
- production and use of caustic alkalis, particularly in the presence of sulphur compounds
- production of titanium dioxide by the chlorine route
- production of organic and inorganic chlorinated and fluorinated compounds; resistance to attack by chlorine and fluorine

Typical applications continued:

- nuclear reactor components
- heat treatment furnace retorts and components, particularly with carburising or nitriding atmospheres
- catalyst regenerators in petrochemical production

Stock Size Range

Alloy 600 - Bar, Tube, Pipe and Fittings

Bar mm dia	Tube mm o/d	Pipe nb sch10 - sch80	Seamless fittings nb
6.35 - 160.0	6.35 - 25.4	1/2" - 6"	1/2" - 6"

Alloy 600 - Sheet and Plate

Size	2m x 1m	8' x 4'	2.5m x 1.25m	3m x 1.2m	3m x 1.5m
Thickness	3mm	3, 4, 5, 6mm	3, 4, 5, 6mm	2, 3mm	2, 3, 6, 25.4mm

Size	10' x 5'	4m x 2m	6m x 2m	6.096m x 2.438m
Thickness	3/4", 1 1/4", 1 1/2"	16mm	3, 5mm	5, 6, 8, 10, 12mm

The above tables represent our standard stock range.

Other sizes can be manufactured to order, often with short lead times.