

AISI 321

STAINLESS STEEL

BOLTING MATERIAL FOR HIGH TEMPERATURE SERVICE

AISI 321 are the basic austenitic 18/8 steel (Grade 304) stabilised by Titanium (321) or Niobium (347) additions. These grades are used because they are not sensitive to intergranular corrosion after heating within the carbide precipitation range of 425-850°C. AISI 321 is a higher carbon content, to provide improved high temperature strength. A limitation with 321 is that titanium does not transfer well across a high temperature arc, so is not recommended as a welding consumable. AISI 321 have excellent forming and welding characteristics, are readily brake or roll formed and have outstanding welding characteristics. Post-weld annealing is not required. They also have excellent toughness, even down to cryogenic temperatures. AISI 321 does not polish well, so is not recommended for decorative applications.

Chemical Properties

C	Mn	P	S	Si	Cr	Ni	Ti
0.08 Max	2.00 Max	0.045 Max	0.030 Max	1.00 Max	17.0-19.0	9.0-12.0	0.70 Max

Mechanical Properties

Yield strength	Tensile strength	Elongation	Reduction
Min 0.2% Mpa	Min Mpa	Min %	Min %
205	515	30	50

Physical Properties

Density	Elastic Modulus	Mean Coefficient of Thermal			Thermal Conductivity	Specific Heat	Electrical Resistivity	
(Kg/m ³)	(Gpa)	Expansion(µm/m/°C)			(W/m.K)	0-100°C	(nΩ.m)	
8027	193	16.6	17.2	18.6	16.1	22.2	500	720

Heat Treatment

Solution Annealed @ 1040°C & Liquid Quenched @ 260°C

Equivalent Designation

UNS S32100
 En Name X6CrNiTi18-10
 Din X6CrNiTi18-10
 Werkstoff.No. 1.4541
 AFNOR X6CrNiTi18-10
 BS 321 S 12

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