



Austenitic Stainless Steel NAS 315	
ASTM Designation	EN Designation
321	1.4541
S32100	X6CrNTii18-10

**DESCRIPTION**

Cr-Ni austenitic stainless steels are the most versatile with the most extended use. They exhibit good properties regarding corrosion resistance, forming, and weldability. Titanium stabilization improves NAS 315 regarding susceptibility to intergranular corrosion and, therefore its use in the sensitization range, between 800 and 1500°F

**CHEMICAL  
COMPOSITION**

C	Si	Mn	P	S	Cr	Ni	Ti
≤ 0.080	≤ 0.75	≤ 2.00	≤ 0.045	≤ 0.030	17.00-19.00	9.00 - 12.00	≥ 5(C+N)

**APPLICATIONS**

- Tubes
- Welded structures
- Aeronautical industry
- Electrical resistances
- Exhaust systems

**MECHANICAL  
PROPERTIES AFTER  
COLD ROLLING AND  
FINAL ANNEALING**

UTS	75 ksi min
0.2% YS	30 ksi min
Elongation	40% min
Hardness	max 95 HRB

**PHYSICAL  
PROPERTIES**

At 68 °F, it has a density of 0.286 lb/in<sup>3</sup> and a specific heat of 0.12 Btu/lb/°F

Modulus of Elasticity (x10 <sup>6</sup> psi)	28
Coefficient of Thermal Expansion, 68-212°F, /°F	9.2 x10 <sup>-6</sup>
Thermal conductivity (Btu/hr•ft•°F)	9.3
Electrical resistivity (Micro ohm-in)	28.4

**WELDING**

The recommended consumable electrodes are:

Shielded electrodes	Wires and rods	Hollow electrodes
E 19 9 Nb	G 19 9 L (GMAW) W 19 9 L (GTAW)	T 19 9 L
308L	P 19 9 L (PAW) S 19 9 L (SAW)	308L
347	308L 347	347

**INTERGRANULAR  
CORROSION**

NAS 315 is more resistant to intergranular corrosion than NAS 120 because it is titanium stabilized.

It is suitable for working in the critical sensitization range, 1020°F to 1550°F, and in slow cooling operations in such temperature range

**CORROSION  
RESISTENCE**

NAS 315 shows good corrosion resistance in a wide range of applications. As an example, NAS 315 exhibits corrosion rates lower than 0.004 in/year in the following media:


- 20% acetic acid at 176°F.
- 90% formic acid at 68°F.
- 20% phosphoric acid at 140°F.
- 20% nitric acid at 120°F.
- 90% sulphuric acid at 68°F.
- Toluene
- Milk
- Beer
- Juice
- Wine

**PITTING  
CORROSION**

NAS 315 can be safely used in chloride media with concentrations lower than 200 ppm.

**SURFACE  
CLEANING**

Wash the surface with neutral soap and water applied with a cloth or a brush without scratching the stainless steel. Then, always rinse the stainless steel with water to remove completely the cleaning agent. Finally, it is recommended to dry the surface to preserve a good superficial condition. In severe environments, a frequent cleaning is strongly recommended.



**SPECIFICATIONS**

NAS 315 austenitic stainless steel is included in the main international standards.

This grade can be supplied according to ASTM, ASME, AMS, QQS, EN, and MILS standard requirements.

NAS 315 is approved in compliance with:

PED (Pressure Equipment Directive) according to EN 10028-7 and AD 2000 Merkblatt W2 and W10