



Cr-Ni AUSTENITIC STAINLESS STEEL ACX 315	
EN DESIGNATION	ASTM DESIGNATION
1.4541 1.4878	321
X6CrNiTi18-10	S32100

DESCRIPTION Cr-Ni austenitic stainless steels are the most versatile with the most extended use ones. They exhibit good properties regarding corrosion resistance, forming and weldability. Titanium stabilization improves ACX 315 regarding susceptibility to intergranular corrosion and, therefore its use in the sensitization range, between 427 a 816°C.

CHEMICAL COMPOSITION

C	Si	Mn	P	S	Cr	Ni	Ti
≤0.060	≤0.75	≤2.00	≤0.040	≤0.015	17.00-19.00	9.00-11.00	≥5 (C + N)

APPLICATIONS

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

MECHANICAL PROPERTIES AFTER COLD ROLLING AND FINAL ANNEALING

Rp_{0.2}	> 220 N/mm ²
Rm	520 - 720 N/mm ²
Elongation	> 45%
Hardness	< 210 HB

PHYSICAL PROPERTIES

At 20°C it has a density of 7.9 kg/dm³ and a specific heat of 500 J/kg·K

	20°C	100°C	200°C	300°C	400°C	500°C
Modulus of elasticity (GPa)	200	194	186	179	172	165
Mean coefficient of linear expansion between 20°C (10⁻⁶ x K⁻¹) and	-	16	16.5	17	17.5	18
Thermal conductivity (W/m·K)	15	17	18	19	20.5	22
Electrical resistivity (Ω·mm²/m)	0.73	0.80	0.90	1.00	1.10	1.20

WELDING

The recommended consumable electrodes are:

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

INTERGRANULAR CORROSION

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

It is suitable for working in the critical sensitization range, 550°C a 850°C, and in slow cooling operations in such temperature range.



CORROSION RESISTANCE

ACX 315 shows good corrosion resistance in a wide range of applications. As an example, ACX 315 exhibits corrosion rates lower than 0.10 mm/year in the following media:

- 20% acetic acid at 80°C.
- 90% formic acid at 20°C.
- 20% phosphoric acid at 60°C.
- 20% nitric acid at 50°C.
- 90% sulphuric acid at 20°C.
- Toluene.
- Milk.
- Beer.
- Juice.
- Wine.

PITTING CORROSION

ACX 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

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

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

ACX 315 is approved in compliance with:

- PED (Pressure Equipment Directive) according to EN 10028-7 and AD 2000 Merkblatt W2 and W10.
- Lloyd's Register of Shipping.

ACX 315 complies with the European Directives:

- Food industry, RE 1935/2004.
- Hexavalent chromium, ROHS.
- Electrical instruments, ROHS.