



REFRACTORY AUSTENITIC STAINLESS STEEL ACX 340	
EN DESIGNATION	ASTM DESIGNATION
1.4833	309S
X12CrNi23-13	S30908

**DESCRIPTION** Refractory austenitic stainless steel ACX 340 has high mechanical resistance, toughness and excellent high-temperature oxidation resistance, as a result of its high chromium and nickel content. The low carbon level reduces carbide precipitation during welding or high temperature applications.

**CHEMICAL COMPOSITION**

C	Si	Mn	P	S	Cr	Ni
≤0.080	≤0.75	≤2.00	≤0.040	≤0.015	22.00-24.00	12.00-14.00

**APPLICATIONS**

- Electric resistances
- Furnaces
- High-temperature applications
- Air heaters

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

<b>R<sub>p0.2</sub></b>	> 210 N/mm <sup>2</sup>
<b>R<sub>m</sub></b>	515 - 700 N/mm <sup>2</sup>
<b>Elongation</b>	> 40%
<b>Hardness</b>	< 215 HB

**PHYSICAL PROPERTIES**

At 20°C, it has a density of 7.9 kg/dm<sup>3</sup> and a specific heat of 500 J/kg·K

	20°C	200°C	400°C	600°C	800°C	1000°C
<b>Modulus of elasticity (GPa)</b>	200	188	174	153	130	-
<b>Mean coefficient linear expansion between 20°C (10<sup>-6</sup> x K<sup>-1</sup>) and</b>	-	16	17.5	18	18.5	19.5
<b>Thermal conductivity (W/m·K)</b>	15	16	17.8	20.7	23.5	27
<b>Electrical resistivity (Ω·mm<sup>2</sup>/m)</b>	0.78	0.95	1.07	1.19	1.24	1.26

**WELDING**

The recommended consumable electrodes are:

Shielded electrodes	Wires and rods	Hollow electrodes
E 22 12	G 22 12 H (GMAW)	T 22 12 H
ER 309L (Si)	W 22 12 H (GTAW)	ER 309L (Si)
ER Ni Cr 3	P 22 12 H (PAW)	ER Ni Cr 3
	S 22 12 H (SAW)	
	ER 309L (Si)	
	ER Ni Cr 3	

**CORROSION RESISTANCE**

This grade is optimized to be employed at high temperature. When used in other media, these steels are equivalent to any other general-purpose austenitic stainless steel.

**PITTING CORROSION**

ACX 340 can be successfully used in chloride media with concentration not higher than 200 ppm.



### HIGH-TEMPERATURE OXIDATION RESISTANCE

As a result of their high chromium and nickel contents, these steels have high corrosion resistance at high temperatures.

Maximum operating temperatures for ACX 340 in continuous working in different media are:

- (a) Oxidizing media 1050°C
- (b) Oxidizing media with sulphur 1000°C
- Carburizing reducing media 950°C
- Sulphidizing reducing media 850°C

When the environment is not continuously oxidizing, the thermal death points are smaller than the ones above (a, b) and they depend on the cycling frequency. In any case they should not exceed 950°C.

It has satisfactory thermal resistance in cycles and is suitable in carburizing media. It can also be used in fused salt baths.

### 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 340 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 340 is approved in compliance with:

- PED (Pressure Equipment Directive) according to EN-10.095 and AD 2000 Merkblatt W2 and W10.
- Lloyd's Register of Shipping.

ACX 340 complies with the European Directives:

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