



FERRITIC STAINLESS STEEL ACX 845	
EN DESIGNATION	ASTM DESIGNATION
1.4509	--
X2CrTiNb18	S43940

DESCRIPTION ACX 845 is a titanium and niobium stabilized stainless steel that offers good mechanical and oxidation resistance at high temperature. It exhibits better forming and weldability properties than most ferritic stainless steels.

CHEMICAL COMPOSITION	C	Si	Mn	P	S	Cr	Ti	Nb
	≤0.030	≤1.00	≤1.00	≤0.040	≤0.015	17.50-18.50	≥0.10	0.30-1.20

APPLICATIONS

- Exhaust systems
- Domestic burners
- Catering furniture, household appliances, etc

MECHANICAL PROPERTIES AFTER COLD ROLLING AND FINAL ANNEALING	Rp _{0.2}	> 230 N/mm ²
	Rm	430 - 630 N/mm ²
	Elongation	> 20%
	Hardness	< 185 HB

PHYSICAL PROPERTIES At 20°C it has a density of 7.7 kg/dm³ and a specific heat of 460 J/kg·K

	20°C	100°C	200°C	300°C	400°C	500°C
Modulus of elasticity (GPa)	220	215	210	205	195	185
Mean coefficient of linear expansion between 20°C (10 ⁻⁶ x K ⁻¹) and	-	10	10	10.5	10.5	-
Thermal conductivity (W/m·K)	25	-	-	-	-	26.3
Electrical resistivity (Ω·mm ² /m)	0.65	0.80	0.95	1.07	1.20	1.30

WELDING The recommended consumable electrodes are:

Shielded electrodes	Wires and rods	Hollow electrodes
E 23 12 L	G 23 12 L (GMAW)	T 23 12 L
ER 308L	W 23 12 L (GTAW)	308L
430LNb	P 23 12 L (PAW)	430LNb
	S 23 12 L (SAW)	
	308L	
	430LNb	

PITTING CORROSION The titanium and high chromium content gives ACX 845 a satisfactory pitting corrosion resistance.
There must be taken special care on the interstices resulting from the design, as they are preferred areas of attack.



CORROSION RESISTANCE	<p>ACX 845 has good corrosion resistance in a wide range of media. For instance, this steel shows a corrosion rate lower than 0.10 mm/year in the following media:</p> <ul style="list-style-type: none">- 65% nitric acid at 50°C.- 50% phosphoric acid at 80°C.- 90% acetic acid at 90°C.- Fuel.- Toluene.- Benzene.
STRESS CORROSION CRACKING	<p>As ferritic stainless steel ACX 845 has good stress corrosion cracking resistance.</p>
INTERGRANULAR CORROSION	<p>ACX 845 has high intergranular corrosion resistance due to the double titanium and niobium stabilization.</p>
ATMOSPHERIC CORROSION	<p>Atmospheric corrosion resistance of ACX 845 is good. For better performance, a homogeneous surface finish with low roughness is recommended.</p>
HIGH-TEMPERATURE OXIDATION RESISTANCE	<p>ACX 845 exhibits good oxidation resistance at high temperature service. The maximum working temperature is 850°C, due to its niobium content. Because of its ferritic structure, the thermal expansion coefficient is lower than austenitic steel one, so its performance is better in thermal cycles.</p>
CLEANING SURFACE	<p>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.</p>
SPECIFICATIONS	<p>It can be delivered according to EN-10088-2 and ASTM/A-480M standard requirements.</p>