



DUPLEX STAINLESS STEEL ACX 920	
EN DESIGNATION	ASTM DESIGNATION
1.4482	2001
X2CrMnNiMoN21-5-3	S32001

DESCRIPTION ACX 920 is a low alloyed duplex (lean duplex) stainless steel with a microstructure consisting in a phase balance of approximately 50% ferrite and 50% austenite that provides much higher yield strength than ACX 120 and ACX 250. Also, it exhibits good formability and corrosion resistance.

CHEMICAL COMPOSITION

C	Si	Mn	P	S	Cr	Ni	Mo	N	Cu
≤0.030	≤1.00	4.00-6.00	≤0.035	≤0.030	19.50-21.50	1.50-3.00	≤0.60	0.05-0.17	≤1.00

APPLICATIONS

- Food industry
- Storage tanks and tube piping
- Structures and footbridges
- Cable trays
- Strips and clamps

MECHANICAL PROPERTIES
EN 10088-2
EN 10028-7

	C	H	P
R_{p0.2}	≥500 N/mm ²	≥480 N/mm ²	≥450 N/mm ²
R_m	700 - 900 N/mm ²	660 - 900 N/mm ²	650 - 850 N/mm ²
Elongation	≥ 20%	≥ 30%	≥ 30%

C = Cold rolled sheet
H = Hot rolled sheet
P = Plate

PHYSICAL PROPERTIES

At 20°C it has a density of 7.8 kg/dm³ and a specific heat of 500 J/kg·K

	20°C	100°C	200°C	300°C
Modulus of elasticity (GPa)	200	194	186	180
Mean coefficient of linear expansion between 20°C (10⁻⁶ x K⁻¹) and	-	13	13,5	14
Thermal conductivity (W/m·K)	15	16	-	-
Electrical resistivity (Ω·mm²/m)	0.80	-	-	-

WELDING

ACX 920 can be welded using most of the conventional welding methods, such as MMA/SMAW, TIG, MIG, SAW, FCAW, laser, etc. Due to its two-phase structure, it is resistant to hot cracking, grain coarsening embrittlement and martensite formation.

Set up recommendations for proper welds conditions include overalloyed filler material, a heat input of 2 kJ/mm maximum and nitrogen in the shielding gas.

As the other duplex stainless steel, ACX 920 does not normally need preheating or after welding process treatments.



CORROSION RESISTANCE | In general, ACX 920 exhibits good corrosion resistance, similar to ACX 120 austenitic in most of environments.

GENERAL CORROSION | ACX 920 presents corrosion rates lower than 0.10 mm/year when is in contact with:

- 20% acetic acid at 80°C.
- 20% phosphoric acid at 60°C.
- 20% nitric acid at 50°C.
- Milk.
- Beer.
- Juice.
- Wine.
- Water.

PITTING CORROSION | ACX 920 has a PRE (Pitting Resistance Equivalent) average value of 19, being equivalent to the ACX 120 one.

STRESS CORROSION CRACKING | ACX 920 is more resistant to stress corrosion cracking than austenitic stainless steels.

ATMOSPHERIC CORROSION | ACX 920 is more resistant to atmospheric corrosion than ACX 120, being similar to ACX 250.

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 | It can be delivered according to EN 1.4482 from EN 10088-2 and EN 10028-7, and also S32201 from ASTM A-240 standard requirements.