



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
≤0.030	≤1.00	4.00-6.00	≤0.035	≤0.015	19.50-21.50	1.50-3.00	≤0.60	0.05-0.17

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.



ACX 920 / DUPLEX STAINLESS STEEL

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.