DUPLEX STAINLESS STEEL ACX 940	
EN DESIGNATION	ASTM DESIGNATION
1.4362	2304
X2CrNiN23-4	S32304

DESCRIPTION

ACX 940 is a low alloyed duplex (lean duplex) stainless steel having a microstructure with a phase balance of approximately 50% ferrite and 50% austenite that provides a yield strength and tensile strength higher than ACX 120 and ACX 250. As all duplex stainless steels, this grade is suitable for cold forming operations and has good corrosion resistance.

CHEMICAL COMPOSITION

C	Si	Mn	P	S	Cr	Ni	Mo	N
≤0.030	≤1.00	≤2.00	≤0.035	≤0.015	22.00-24.00	3.50-5.50	0.10-0.60	0.05-0.20

APPLICATIONS

- Paper industry
- Chemical industry
- Food industry
- Mining industry
- Waste water treatment plants
- Structures
- Storage tanks

MECHANICAL PROPERTIES EN 10088-2 EN 10028-7

	C	H	P
$Rp_{0.2}$	≥450 N/mm²	≥400 N/mm²	≥400 N/mm²
Rm	650 - 850 N/mm²	650 - 850 N/mm²	630 - 800 N/mm²
Elongation	≥ 25%	≥ 25%	≥ 25%

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

PHYSICAL PROPERTIES EN 10088-1

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

	20ºC	100ºC	200ºC	300ºC
Modulus of elasticity (GPa)	200	190	180	170
Mean coefficient of linear expansion between 20ºC (10^{-6} x K^{-1}) and	-	13	13.5	14
Thermal conductivity (W/m·K)	16	17	19	20
Electrical resistivity (Ω·mm²/m)	0.80	-	-	-

WELDING

ACX 940 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.

CORROSION RESISTANCE	Its high chromium content gives ACX 940 an excellent corrosion resistance in general, similar to ACX 250.
GENERAL CORROSION	ACX 940 presents corrosion rates lower than 0.10 mm/year when is in contact with: - 20% phosphoric acid at boiling temperature. - 20% sulphuric acid at room temperature. - 50% acetic acid at boiling temperature. - Water. - Beer. - Milk. - Fuel.
PITTING CORROSION	ACX 940 has a PRE (Pitting Resistance Equivalent) average value of 26, showing slightly higher resistance than ACX 250 with a PRE value of 25.
STRESS CORROSION CRACKING	ACX 940 is less susceptible to this kind of corrosion than austenitic stainless steels.
ATMOSPHERIC CORROSION	ACX 940 is more resistant to atmospheric corrosion than 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 1.4362 from EN 10088-2 and EN 10028-7, and also S32304 from ASTM A-240 standard requirements.