

	STANDARD	DIMENSIONS	APPLICATIONS
TUBING	ASTM A 789	6,35 x 0,89 to 50,8 x 3,04 (mm)	Heat exchangers, condensers, instrumentation.
PIPING	ASTM A 790	1/8" x sch5S to 8" x Sch XXS	Conduction.



FABRICACION DE ALEACIONES ESPECIALES S.A.

FAE
DIN EN ISO 9001 : 2000



FABRICACION DE ALEACIONES ESPECIALES S.A.

FAE
ISO 14001
OHSAS 18001



FAE S.A.

Pbro. Juan González y Aragón 15 - Ezeiza B1802AYA - Buenos Aires - ARGENTINA

Tel: (54-11) 4480-9155/9028/0786 - Fax: (54-11) 4480-0604

E-mail: fae@pecom.com - Http://www.fae.com.ar

FAE

Fabricación de Aleaciones
Especiales S.A.

DUPLEX

Oil and Gas

Offshore

Petrochemical

Chemical-Urea

Refineries

Pulp and paper

*Sea water condensers
and heat exchangers*





properties

- Excellent resistance to stress corrosion cracking.
- Excellent resistance to pitting and crevice corrosion.
- Very high mechanical properties, superior to other stainless steels.
- High resistance to general corrosion and erosion-corrosion.
- Good weldability.
- Cost-effectiveness.

ASTM A 789 Chemical Composition DUPLEX

UNS	C	Mn	P	S	Si	Ni	Cr	Mo	N	Cu	Others
S31803	0,3 max.	2 max.	0,03 max.	0,02 max.	1 max.	4,5 / 6,5	21 / 23	2,5 / 3,5	0,08 / 0,2		
S31500	0,03 max.	1,2 / 2	0,03 max.	0,03 max.	1,4 / 2	4,2 / 5,2	18 / 19	2,5 / 3	0,05 / 0,1		

ASTM A 789 Chemical Composition SUPERDUPLEX

S32750	0,03 max.	1,2 max.	0,035 max.	0,020 max.	0,8 max.	6 / 8	24 / 26	3 / 5	0,24 / 0,32	0,5 max.	
S32760	0,03 max.	1 max.	0,03 max.	0,01 max.	1 max.	6 / 8	24 / 26	3 / 4	0,02 / 0,3	0,5 / 1	W 0,5 / 1*

* UNS 32760 PRE^o % Cr + 3,3 x % Mo + 16 % N ≥ 40

duplex

DUPLEX and SUPERDUPLEX tubes are manufactured by FAE in Latin America and then exported to countries all over the world.

superduplex

The so-called SUPERDUPLEX alloys have sea water resistance equivalent to, and sometimes higher than, superaustenitic stainless steels or nickel alloys, with lower costs than those materials difficult to find on the market.

corrosion resistance

One way to forecast duplex corrosion resistance is by using PRE (Pitting Resistance Equivalent). This value takes into account the chromium, molybdenum and nitrogen contents, the principal elements of their properties against corrosion.

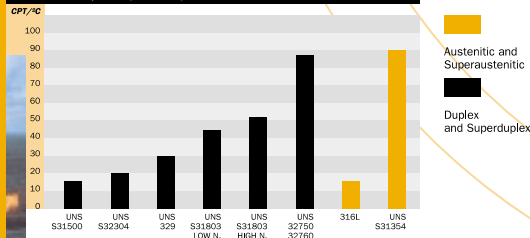
PRE = %Cr + %Mo 3,3 + N x 16

When DUPLEX has > 40 PRE, it must be considered SUPERDUPLEX.

pitting corrosion

One way to evaluate pitting corrosion is by determining the Critical Pitting Temperature (CPT). Figure 1 shows the DUPLEX, SUPERDUPLEX, austenitic and superaustenitic CPT of the most used stainless steels.

FIGURE 1 / CPT (1M NaCl) - Seamless tubes

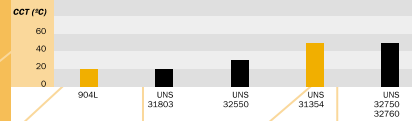


crevice corrosion

The DUPLEX stainless steels have an excellent crevice corrosion resistance. Figure 2 shows the CCT (Crevice Corrosion Temperature) for cold worked tubes.

FIGURE 2 / Crevice corrosion temperature CCT

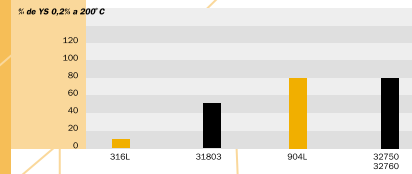
(CCT= Critical Crevice Temperature) for Duplex and Superaustenitics (ASTM G48B (6%Cl₂Fe))



stress corrosion cracking

DUPLEX and especially SUPERDUPLEX have an excellent stress corrosion cracking resistance. They may be tested by the DET (Drop Evaporation Test), in which service conditions under stress are created in a NaCl solution. The determined fracture values are related to the yield strength values under service conditions and they are proportional to the yield strength. Figure 3 compares the DET results with austenitic materials and superaustenitic materials.

FIGURE 3 / Stress corrosion DET



mechanical properties

DUPLEX average values of yield strength and tensile strength are clearly higher than the austenitic ones. The smaller grain size is the main reason for this advantage, which makes it possible to cut down costs, due to the fact that wall thickness can be reduced while keeping the same safety factors. Figure 4 compares the austenitic and DUPLEX yield strength.

FIGURE 4 / Yield Strength

