MULTI Alloys

ADDING VALUE THROUGH EXPERIENCE

ALLOY 2507

ALLOY INFORMATION SHEET | UNS S32750 W Nr 1.4410

HEAT AND/OR CREEP RESISTANT | CORROSION RESISTANT | OTHER

Alloy 2507 is a high alloyed a duplex stainless steel characterized by a very high mechanical strength, excellent resistance to chloride stress corrosion cracking (SCC) and pitting corrosion. It extends the strength and corrosion capability of the duplex range beyond that of Alloy 2205.

Alloy 2507 is one of several super-duplex stainless steels so named because their PRE# value > 40. This property combined with its SCC resistance, strength and coefficient of thermal expansion makes the grade a suitable choice for heat exchangers involving fluids with high levels of chlorides. Alloy 2507 is also used in seawater desalination processes and in the chemical industry. It is highly resistant to corrosion in a range of organic acids.

Further typical applications for Alloy 2507, which arise from its high resistance to erosion corrosion and corrosion fatigue, are rotating equipment most notably pump shafts, mixer components and fan impellers, as well as piping systems for liquids which may have entrained solids.

There is a service temperature limitation for the duplex grades that is quite low. If Alloy 2507 is exposed to temperatures greater than 250 deg C (280 deg C for Alloy 2205) for an extended period, it will suffer a loss of impact strength.

NOTE: *Further property and fabrication data available on request*

\# = Pitting Resistance Equivalent, an empirical value which is calculated from %Cr+3.3%Mo+16%N

COMPOSITION (%) * = Maximum									
	Ni	Cr	Mo	Mn	Si	N	C	Fe	Other
Alloy 2507	6.0-8.0	24.0-26.0	3.0-5.0	1.2*	0.8*	0.24-0.32	0.03*	Bal	0.5Cu

APPLICABLE SPECIFICATIONS (ASTM / ASME)	
PLATE, SHEET & STRIP	A240 / SA240
PIPE	A789 / SA789 A790 / SA790
BAR	A479 / SA479
CASTINGS	A890 Grade 5A
FORGINGS	A182 / SA182
FITTINGS	A815 / SA815
WELDING CONSUMABLES	ER2594 / E2594

*PLEASE CALL FOR DETAILS OF **STOCK, DELIVERY AND PRICE***

MECHANICAL PROPERTIES #	
TENSILE STRENGTH (MPa) (min)	795
0.2% PROOF STRENGTH (MPa) (min)	550
ELONGATION (% in 50mm) (min)	15%
HARDNESS (Brinell) (max)	310

TYPICAL PHYSICAL PROPERTIES #	
DENSITY (kg / cu m.)	7800
YOUNGS MODULUS (GPa)	200
THERMAL CONDUCTIVITY (W/m.°C)	14
THERMAL EXPANSION (per °C)	0.0000135

 # - At room temperature

FABRICATION

The high strength of this alloy requires a greater force having to be used to form it than would be the case for 316. This will apply to the bending of plate as well as the expansion of tubes. Hot working can be carried out in the range 1250 to 1025 °C whist full annealing requires heating into the range 1040 to 1120 °C followed by rapid cooling.

Alloy 2507 has good weldability and precautions should be observed to maintain a balanced microstructure after welding. This is achieved by control of the heat input. There should be NO preheating prior to welding and the interpass temperature should be below 100 °C. To produce weld metal properties comparable to those of the parent metal, the recommended filler metal should be used.

Alloy 2507 is more demanding to machine than is the case for 316 ie the super duplex requires high cutting forces and gives rise to more rapid tool wear.

Detailed technical data available upon request

Note: Data shown are typical and full research should be done to determine the usefulness in any application or design.

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