

Alloy Information Sheet

Alloy 2205

UNS S31803
W Nr 1,4462

ALLOY 2205 is a second generation duplex stainless steel that displays many of the good properties of both austenitic and ferritic groups combined with high strength.

The balanced duplex structure of the alloy imparts good resistance to chloride stress corrosion cracking - a short-coming of grades such as 304L and 316L. The chromium, molybdenum and nitrogen content of the alloy give it good pitting and crevice corrosion resistance and for many environments, general corrosion resistance that is superior to 316L. Because of its corrosion properties, the alloy is well suited for use in applications involving brackish water and for many processes in the chemical and petro-chemical industries.

The high proof strength of ALLOY 2205 - approx twice that of the common austenitic stainless steels - provides for superior safety and economical design whilst the ductile to brittle transition temperature is at - 55 deg C.

Other features of ALLOY 2205 are : - low thermal expansion and high heat conductivity
- good weldability

NOMINAL COMPOSITION (%)

Ni	Cr	Mo	Mn	Si	N	C	Fe	Other	Other
5,5	22	3,0	1,5	,45	,16	,02	Rem		

APPLICABLE SPECIFICATIONS

PLATE, SHEET	ASTM A240
PIPE, TUBE	ASTM A790/789
BAR	ASTM A276
FASTENERS	
FORGINGS	ASTM A 182 / ANSI B 16.5 *
FITTINGS	ASTM A 815/ ANSI B 16.9 *
WELDING PRODUCTS	

* In applicable parts

FABRICATION

The higher strength of this duplex alloy will necessitate greater loads having to be used in the forming of ALLOY 2205. This will apply to tube expansion as well as the bending of plate etc. Hot working can be carried out in the temperature range 1150 to 950 deg C whilst full annealing requires heating into the temperature range 1020 to 1070 deg C followed by rapid cooling. ALLOY 2205 possesses good weldability but precautions should be observed to maintain a balanced microstructure. NO preheating must be carried out prior to welding and the interpass temperature should be below 150 deg C. A filler metal with a matching composition may be used and this will give the weld properties comparable to the parent metal.

Please call for details of Stock
Delivery and Price

TYPICAL MECHANICAL PROPERTIES

U T S	(MPa)	700
0.2% PROOF STRENGTH	(MPa)	515
ELONGATION		35%
HARDNESS	(Brinell)	255

TYPICAL PHYSICAL PROPERTIES

DENSITY	(kg / cu m.)	7850
YOUNGS MODULUS	(GPa)	200
THERMAL CONDUCTIVITY	(w/ m.C)	20
THERMAL EXPANSION	(per Deg C)	0,000013

- At room temperature

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. No warranty is expressed or implied and we assume no responsibility for the accuracy, completeness or usefulness of the content.

