

MECHANICAL AND CHEMICAL VALUES FOR:
DUPLEX UNS 31803 FLANGES

ASTM specifications regulate approved raw materials from which flanges can be made. Forged or Rolled alloy steel pipe flanges, forged fittings and valves for high temperature applications

DUPLEX, AN AUSTENITIC FERRITIC IRON CHROMIUM-NICKEL ALLOY WITH MOLYBDENUM ADDITION. GOOD RESISTANCE TO PITTING, HAS A HIGH TENSILE STRENGTH AND HIGHER RESISTANCE TO STRESS CORROSION CRACKING AT MODERATE TEMPERATURES TO THAT OF CONVENTIONAL AUSTENITIC STAINLESS STEELS.

CHEMICAL COMPOSITION [All values are maximum unless otherwise stated]

%C	%Cr	%Ni	%Mo	%Mn	%S	%P	%Si	%N
0.03	21.0-23.0	4.5-6.5	2.5-3.5	2.00	0.020	0.030	1.00	0.08-0.20

MECHANICAL PROPERTIES

YIELD STRENGTH	TENSILE STRENGTH	ELONGATION (MIN)	REDUCTION OF AREA (MIN)	HARDNESS (MAXIMUM)	ASTM SPECIFICATION
(ksi) (mpa) 65 450	(ksi) (mpa) 90 620	20	45	(HB) (HRC) - * -*	ASTM A812 F51

** Nace MR0175A limits the supplies hardness to 35 HRC MAX*

**PREn (PITTING RESISTANCE EQUIVALANT) [%Cr] + (3.3 x %Mo) + (16 x %N)
HEAT TREATMENT**

SOLUTION ANNEALED AT 1020 DEG C—1100 DEG C WATER QUENCH

EQUIVALENT GRADES

UNS	SB EN	SWEDEN SS	GERMANY DIN	FRANCE ANFOR	SANDVIK +
31803	1.4462	2377	X 2 CrNiMoN 22.5.3	Z2 CND 22.05.03	SAF 2205

Duplex is a material having an approximate equal amount of austenite and ferrite. These combine excellent corrosion resistance with high strength. Mechanical properties are approximately double those of singular austenitic steel and resistance to stress corrosion cracking is superior to type 316 stainless steel in chloride solutions. Duplex material has a ductile / brittle transition at approximately - 50 deg°C. High temperature use is usually restricted to a maximum temperature of 300deg°C for indefinite use due to embrittlement