

22% Cr Duplex/F51

Grade: Duplex stainless steel (UNS S31803, ASTM A182 grade F51), ASTM A276, ASTM A479. NACE MR-0175/ISO 15156, NORSOK M-650 qualifications MDS-D44, MDS-D47.

Trade name – Zeron 25

Type: High alloy 22 % Cr (dual phase) ferritic-austenitic stainless steel, usually delivered in the solution annealed condition

Nominal Composition	
Element	Weight %
Carbon	0.03 max
Silicon	1.0 max
Manganese	2.0 max
Phosphorus	0.03 max
Sulphur	0.02 max
Molybdenum	2.5 – 3.5
Chromium	21.0 – 23.0
Nickel	4.5 – 6.5
Nitrogen	0.08 – 0.2
PREN	33 min

Notes

The chemical composition of super duplex varies depending on the manufacturer (mill). Duplex grades have enhanced seawater corrosion and mechanical properties when compared to standard austenitic stainless steels.

Mechanical Properties

Property	Values
Ultimate Tensile Strength *	90 min Ksi (620 Mpa)
0.2 % Yield Strength *	65 min Ksi (450 Mpa)
Elongation	25 % min
Reduction of Area *	45 % min
Charpy Impact Toughness (Typical values up to 10")	55 mean/ 40 min J at -46° C
Hardness (typical)	Typically 28 HRC max

Notes:

The good corrosion resistance of these grades means that they are used in severe environments, for applications such as piping, valves, fasteners and other pressure containing items.