

# F61 (255) Duplex Stainless Steel

## F61 (255) DUPLEX STAINLESS STEEL DATASHEET

F61 (also known as Ferralium 255) Super Duplex is an austenitic-ferritic (duplex) stainless steel. Consisting of 25% Chromium and 5% Ni. A main difference in F61 (Ferralium 255) is the alloy is more suited in acidic environments over F53 (2507). Like other duplex grades F55 combines high corrosion resistance and strength over austenitic stainless steels, while also having superior pitting resistance. F55 does suffer from embrittlement and loss of toughness, when exposed to prolonged use in applications or environments below -50°F or above +600°F, this is why duplex is not suitable for exposure outside of these ranges.

Common industry/applications are: Oil & Gas equipment, Chemical and Biofluid processing, Pressure Vessels, and Mechanical and Structural.

Product forms include round bar, plate & sheet, and forgings.

### Standards

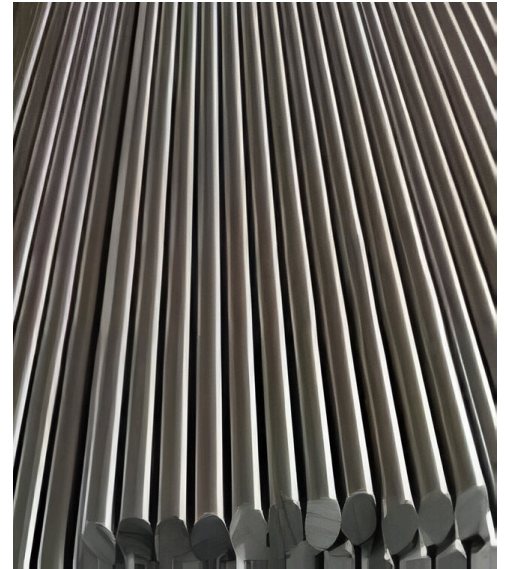
- UNS S32550
- ASTM A240
- ASTM A182 F61
- NACE MR0175
- ASTM A276/A479

### Physical Properties

- Density: 0.282LB/in<sup>3</sup> (7.81g/cm<sup>3</sup>)
- Melting Point: 2550–2630°F (1399–1443°C)
- Modulus of Elasticity: 30.0x10<sup>6</sup>psi (200 GPa)
- Magnetic Permeability: <1.05 @ 68°F (20°C)

### Characteristics

- For use in -50F to +600F temperatures.
- Excellent corrosion & pitting resistance.
- Good cryogenic (-50F) impact strength.



### Chemical Composition

	C	Mn	S	P	Si	Cr	Ni	Mo	N	Cu
MIN	-	0.80	-	-	-	24.50	5.50	3.10	0.20	1.50
MAX	0.025	1.20	0.005	0.025	0.70	26.50	6.50	3.80	0.25	2.00

PREN: Pitting Resistance Equivalent Number: An Equation to correlate pitting resistances of product, based on chemistry. This equation is: Cr + (3.3 x Mo) + (16 x N) – PREN = >40

### Mechanical Properties: Wrought & Forged Bars

Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) %	Hardness HRC (BHN)
115 (758)	85 (551)	25%	50%	19-28 (220-270)

Charpy Impact: Temp: -50°F (-46°C) / Value: ≥33Ft-Lbs (≥45J).

Typical mechanical properties, actual minimums may vary based on processing.

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