Super Duplex — ASTM A890 Gr. 1B

Standard Specification for Castings, Iron-Chromium-Nickel-Molybdenum Corrosion-Resistant, Duplex (Austenitic/Ferritic) for General Application

MATERIAL DATASHEET

GROUP	SUB GROUP	INDUSTRY
Ferrous Stainless Steel Alloys	**ASTM A890 / A890M**	**Investment Casting**

This iron-chromium-nickel-molybdenum corrosion-resistant duplex (austenitic/ferritic) alloy offers exceptional strength and corrosion resistance in highly aggressive environments. With a dual-phase microstructure, it provides superior resistance to stress corrosion cracking, pitting, and crevice corrosion. The addition of copper enhances its resistance to reducing acids, while nitrogen improves pitting resistance and mechanical strength. Solution annealing heat treatment ensures optimal phase balance and mechanical properties for critical industrial casting applications.

CHEMICAL COMPOSITION

ELEMENT	SYMBOL	COMPOSITION
Carbon	C %	0.040 max.
Silicon	Si %	1.000 max.
Manganese	Mn %	1.000 max.
Phosphorus	P %	0.040 max.
Sulphur	S %	0.040 max.
Chromium	Cr %	24.500 - 26.500
Nickel	Ni %	4.700 - 6.000
Molybdenum	Mo %	1.700 - 2.300
Copper	Cu %	2.700 – 3.300
Nitrogen	N %	0.100 – 0.250
Iron	Fe %	Balance

MECHANICAL PROPERTIES

PERFORMANCE SPECIFICATIONS

Tensile Strength	Minimum Value	**690** MPa
Yield Strength	Minimum Value	**485** MPa
Elongation	Minimum Value	**16** %

✓ HEAT TREATMENT
Solution Annealing

INDUSTRY APPLICATIONS

- **Chemical process valves**
- **Oil & gas piping**
- **Pressure vessels**
- **Offshore systems**
- **Corrosion-resistant pumps**

DISCLAIMER: All information in this datasheet is indicative only and is not intended to be a substitute for the full specification. It provides typical values for comparison between metal alloy options rather than a definitive statement of mechanical performance. Values may vary with temperature, product type, and application. This data does not constitute any guarantee of properties.

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