Super Duplex — ASTM A890 6A

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 advanced super duplex alloy uniquely incorporates tungsten alongside chromium, nickel, molybdenum, copper, and nitrogen to deliver superior resistance to pitting, crevice corrosion, and stress corrosion cracking in highly aggressive environments. The combination of copper and tungsten additions further enhances corrosion resistance in both oxidizing and reducing media, setting it apart from standard duplex grades. Solution annealing ensures an optimally balanced dual-phase microstructure for reliable performance in critical valve, pump, and industrial casting applications.

CHEMICAL COMPOSITION

ELEMENT	SYMBOL	COMPOSITION
Carbon	C %	0.030 max.
Silicon	Si %	1.000 max.
Manganese	Mn %	1.000 max.
Phosphorus	P %	0.030 max.
Sulphur	S %	0.025 max.
Chromium	Cr %	24.000 – 26.000
Nickel	Ni %	6.500 – 8.500
Molybdenum	Mo %	3.000 – 4.000
Copper	Cu %	0.500 – 1.000
Nitrogen	N %	0.200 – 0.300
Tungsten	W %	0.500 – 1.000
Iron	Fe %	Balance

MECHANICAL PROPERTIES

PERFORMANCE SPECIFICATIONS

Tensile Strength	Minimum Value	**690** MPa
Yield Strength	Minimum Value	**450** MPa
Elongation	Minimum Value	**25** %

✓ HEAT TREATMENT
Solution Annealing

INDUSTRY APPLICATIONS

- **Desalination plants**
- **Chemical injection systems**
- **Offshore topside equipment**
- **Marine process piping**
- **Severe corrosive environments**

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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