



Super Duplex — ASTM A890 4A

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

MATERIAL DATASHEET

GROUP

Ferrous Stainless Steel Alloys

SUB GROUP

ASTM A890 / A890M

INDUSTRY

Investment Casting

This duplex austenitic-ferritic alloy combines chromium, molybdenum, and nitrogen to deliver excellent resistance to pitting and stress corrosion cracking across a wide range of corrosive environments. The carefully controlled low carbon content minimizes sensitization risk, while copper additions further enhance resistance to reducing acid environments. Its well-balanced composition and solution annealed condition make it a preferred casting grade for valves, pumps, and demanding industrial applications where both strength and corrosion resistance are critical.



CHEMICAL COMPOSITION

ELEMENT	SYMBOL	COMPOSITION
Carbon	C %	0.030 max.
Silicon	Si %	1.000 max.
Manganese	Mn %	1.500 max.
Phosphorus	P %	0.040 max.
Sulphur	S %	0.020 max.
Chromium	Cr %	21.000 – 23.500
Nickel	Ni %	4.500 – 6.500
Molybdenum	Mo %	2.500 – 3.500
Copper	Cu %	1.000 max.
Nitrogen	N %	0.100 – 0.300
Iron	Fe %	Balance



MECHANICAL PROPERTIES

PERFORMANCE SPECIFICATIONS

Tensile Strength **620**
Minimum Value MPa

Yield Strength **415**
Minimum Value MPa

Elongation **25**
Minimum Value %



HEAT TREATMENT

Solution Annealing

INDUSTRY APPLICATIONS

Chloride-rich chemical plants**Offshore process systems****Corrosion-critical valves****Seawater pumps****Heat exchangers**

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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