Super Duplex — ASTM A890 4A

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 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	Minimum Value	**620** MPa
Yield Strength	Minimum Value	**415** MPa
Elongation	Minimum Value	**25** %

✓ HEAT TREATMENT
Solution Annealing

INDUSTRY APPLICATIONS

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

Tamboli Castings Limited
Bhavnagar, Gujarat, India

Phone: +91 278 2541000
Email: info@tambolicastingslimited.com