Super Duplex — ASTM A890 5A

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 super duplex iron-chromium-nickel-molybdenum alloy with elevated molybdenum of up to 5% delivers exceptional resistance to pitting, crevice corrosion, and stress corrosion cracking in the most aggressive chloride-rich environments. Its dual austenitic-ferritic microstructure provides an outstanding balance of high mechanical strength and corrosion performance, recognized across American, European, and German standards. Solution annealing ensures optimal phase balance for critical valve, pump, and industrial casting applications worldwide.

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 %	0.040 max.
Chromium	Cr %	24.000 – 26.000
Nickel	Ni %	6.000 – 8.000
Molybdenum	Mo %	4.000 – 5.000
Nitrogen	N %	0.100 – 0.300
Iron	Fe %	Balance

MECHANICAL PROPERTIES

PERFORMANCE SPECIFICATIONS

Tensile Strength	Minimum Value	**690** MPa
Yield Strength	Minimum Value	**515** MPa
Elongation	Minimum Value	**18** %

✓ HEAT TREATMENT
Solution Annealing

INDUSTRY APPLICATIONS

- **Deepwater subsea systems** 
- **High-pressure offshore equipment** 
- **Corrosion-critical valves** 
- **Seawater pumps** 
- **Heat exchangers** 

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