



High Alloy Steel ASTM A351 Gr. CF3M

Standard Specification for Castings, Austenitic, for Pressure-Containing Parts

MATERIAL DATASHEET

GROUP
Ferrous Stainless Steel Alloys**SUB GROUP**
ASTM A351 / 351M Castings**INDUSTRY**
Investment Casting

This low-carbon molybdenum-enhanced austenitic casting alloy combines the sensitization resistance of ultra-low carbon content with superior pitting and crevice corrosion resistance in chloride-bearing environments. The addition of 2–3% molybdenum significantly elevates its performance in aggressive chemical, pharmaceutical, and marine applications compared to standard CF3. Solution annealing ensures microstructural stability, making it a preferred grade for critical pressure-containing components demanding both corrosion resistance and long-term reliability.



CHEMICAL COMPOSITION

ELEMENT	SYMBOL	COMPOSITION
Carbon	C %	0.030 max.
Silicon	Si %	1.500 max.
Manganese	Mn %	1.500 max.
Phosphorus	P %	0.040 max.
Sulphur	S %	0.040 max.
Chromium	Cr %	17.000 - 21.000
Nickel	Ni %	9.000 - 13.000
Molybdenum	Mo %	2.000 - 3.000
Iron	Fe %	Balance



MECHANICAL PROPERTIES

PERFORMANCE SPECIFICATIONS

Tensile Strength **485**
Minimum Value MPa**Yield Strength** **205**
Minimum Value MPa**Elongation** **30**
Minimum Value %**HEAT TREATMENT**
Solution Annealing

INDUSTRY APPLICATIONS

Offshore valves



Seawater pumps



Pharma reactors



Desalination systems



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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