



High Alloy Steel ASTM A743 Gr. CF16F

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

MATERIAL DATASHEET

GROUP
Ferrous Stainless Steel Alloys**SUB GROUP**
ASTM A743 / A743M**INDUSTRY**
Investment Casting

This selenium-bearing free-machining austenitic stainless steel casting grade is uniquely formulated to provide significantly enhanced machinability while maintaining adequate corrosion resistance for general industrial applications. The controlled addition of 0.20–0.35% selenium acts as a chip-breaking agent during machining operations, dramatically reducing tool wear and improving surface finish on complex cast components. Solution annealing ensures a stable austenitic microstructure, making it the preferred choice for intricately machined valve bodies, pump components, and precision engineering parts where superior machinability and acceptable corrosion resistance are equally prioritized.



CHEMICAL COMPOSITION

ELEMENT	SYMBOL	COMPOSITION
Carbon	C %	0.160 max.
Silicon	Si %	2.000 max.
Manganese	Mn %	1.500 max.
Phosphorus	P %	0.170 max.
Sulphur	S %	0.040 max.
Chromium	Cr %	18.000 - 21.000
Nickel	Ni %	9.000 - 12.000
Molybdenum	Mo %	1.500 max.
Selenium	Se %	0.200 - 0.350
Iron	Fe %	Balance



MECHANICAL PROPERTIES

PERFORMANCE SPECIFICATIONS

Tensile Strength **485**
Minimum Value MPa**Yield Strength** **205**
Minimum Value MPa**Elongation** **25**
Minimum Value % **HEAT TREATMENT**
Solution Annealing

INDUSTRY APPLICATIONS

Precision valves**Instrument fittings****CNC-machined components****Pump internals****Machinability-focused castings**

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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