



High Alloy Steel ASTM A743 Gr. CA6NM

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 low-carbon martensitic stainless steel casting grade delivers an exceptional combination of high strength, good toughness, and moderate corrosion resistance, making it the preferred material for hydraulic turbine runners, pump casings, and heavy-duty pressure-containing components. With nickel additions of 3.5-4.5% and molybdenum of 0.4-1.0%, it offers significantly improved toughness and weldability over conventional martensitic grades like CA15 while maintaining tensile strength of 755 MPa minimum. Hardening and tempering heat treatment optimizes its martensitic microstructure for maximum mechanical performance in high-stress hydropower, oil and gas, and marine casting applications.

CHEMICAL COMPOSITION

ELEMENT	SYMBOL	COMPOSITION
Carbon	C %	0.060 max.
Silicon	Si %	1.000 max.
Manganese	Mn %	1.000 max.
Phosphorus	P %	0.040 max.
Sulphur	S %	0.030 max.
Chromium	Cr %	11.500 - 14.000
Nickel	Ni %	3.500 - 4.500
Molybdenum	Mo %	0.400 - 1.000
Iron	Fe %	Balance

✓ HEAT TREATMENT
Normalizing of tempering

MECHANICAL PROPERTIES

PERFORMANCE SPECIFICATIONS

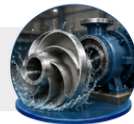
Tensile Strength Minimum Value	755 MPa
Yield Strength Minimum Value	550 MPa
Elongation Minimum Value	15 %
Reduction of Area Minimum Value	35 %
Hardness max	285 HB

INDUSTRY APPLICATIONS

Hydraulic turbines



Water pump impellers



Hydro runners



Cavitation-resistant machinery



Hydraulic power equipment



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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