Inconel 718 Pipe and Tube — Technical Data Sheet

UNS N07718 seamless pipe and tube to ASTM B983, with aerospace tube to AMS 5589 / 5590 — minimum room-temperature values per the governing standard.

Chemical Composition (ASTM B983 / AMS 5589 / AMS 5590)

Element	Content
Nickel (Ni)	50.0–55.0%
Chromium (Cr)	17.0–21.0%
Iron (Fe)	Balance
Niobium + Tantalum (Nb + Ta)	4.75–5.50%
Molybdenum (Mo)	2.80–3.30%
Titanium (Ti)	0.65–1.15%
Aluminum (Al)	0.20–0.80%
Cobalt (Co)	1.00% max.
Carbon (C)	0.08% max.
Manganese (Mn)	0.35% max.
Silicon (Si)	0.35% max.
Copper (Cu)	0.30% max.
Phosphorus (P)	0.015% max.
Sulfur (S)	0.015% max.
Boron (B)	0.006% max.

Minimum Room-Temperature Mechanical Properties

Product Form	Standard	Condition	Tensile Strength	Yield Strength, 0.2% Offset	Elongation
Seamless pipe and tube	ASTM B983	Solution annealed + precipitation hardened	≥ 1034 MPa (150 ksi)	≥ 862 MPa (125 ksi)	≥ 20%
Bar and forgings (reference)	ASTM B637	Solution treated + aged	≥ 1275 MPa (185 ksi)	≥ 1034 MPa (150 ksi)	≥ 12%

Physical Properties (Approx.)

Property	Value
Density	8.19 g/cm³ (0.296 lb/in³)
Melting Range	1260–1336 °C (2300–2440 °F)
Elastic Modulus	200 GPa (29.0 × 10³ ksi)
Thermal Conductivity	11.4 W/m·°C at 20 °C
Expansion Coefficient	13.0 µm/m·°C (20–100 °C)
Typical Aged Hardness	36–44 HRC
Alloy Type	Nickel-chromium-iron, precipitation hardenable

Standards and Designations

Standard / Designation	Product / Application
ASTM B983 / ASME SB983	Seamless pipe and tube (precipitation hardened)
ASTM B829	General requirements for seamless pipe and tube
ASTM B637	Bar and forging stock reference for flanges and fittings
SAE AMS 5589	Seamless tube, solution treated and aged
SAE AMS 5590	Seamless tube, solution treated
DIN 17751	Nickel alloy pipe and tube, W.Nr. 2.4668
ISO 6207	Nickel alloy seamless tube
NACE MR0175 / ISO 15156	Sour-service qualification (reference)
API 6A	Wellhead and downhole equipment compliance
UNS N07718 · W.Nr. 2.4668 · EN NiCr19NbMo	Designations

Typical Supply Dimensions

Product Form	Typical Supply Range	Length
Seamless pipe	OD 6–219 mm, wall 0.5–15 mm	Single Random, Double Random or Custom
Hot-finished pipe	OD up to 610 mm, heavier wall	Single Random or Custom
Precision tube	OD 3–50 mm, tight-tolerance wall	Custom cut lengths or coils
Custom assemblies	Coils and U-bends to project drawings	—

Supply Conditions and Finishes

Surface Condition	Typical Use
Solution Annealed & Pickled	Standard delivered condition for fabrication stock
Aged & Pickled	Final high-strength condition after double aging
Bright Annealed	Smooth, scale-free bore and OD for instrumentation and clean service
Beveled End	Weld-preparation beveling to the agreed standard for butt welds

Values are for reference; the mill test certificate prevails for final acceptance. Dimensions, conditions, and surface finishes are confirmed at quotation.