Inconel 718 Forged Bar (UNS N07718) — Technical Data Sheet

Inconel 718 Forged Bar supplied to ASTM B637 / ASME SB637 — values are minimum requirements per the governing ASTM specification.

Chemical Composition (ASTM B637)

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.
Phosphorus (P)	0.015% max.
Sulfur (S)	0.015% max.
Copper (Cu)	0.30% max.
Boron (B)	0.002–0.006%

Mechanical Properties (Minimum, Room Temperature)

Product Form	Condition	Tensile Strength, min.	Yield Strength (0.2%), min.	Elongation, min.	Hardness, min.
Forged bar, all sizes	ASTM B637, solution treated + aged	>=1275 MPa (185 ksi)	>=1034 MPa (150 ksi)	12%	>=331 HBW

Physical Properties (Typical)

Property	Value
Alloy	Inconel 718
UNS	N07718
Werkstoff	2.4668
Density	Approx. 8.19 g/cm³
Melting Range	Approx. 1260–1336°C
Alloy Type	Nickel-chromium-iron
Strengthening	Precipitation hardening

Heat Treatment

Step	Treatment Behind the Forged Bar
Solution anneal	Near 940 to 1010 °C, then air cooled
First age	718 °C for 8 hours, then furnace cooled at about 55 °C per hour
Second age	621 °C for 8 hours, then air cooled

Standards and Designations

Standard	Product or Application
ASTM B637 / ASME SB637	Nickel alloy bar, forgings and forging stock, aged
AMS 5662 / 5663	Bars and forging stock, solution treated and aged
UNS N07718 - W.Nr. 2.4668 - NiCr19Fe19NbMo	Material designations

Typical Supply Dimensions — Inconel 718 Forged Bar

Product Form	Typical Supply Range
As-forged bar	100–300 mm diameter, larger on request
Peeled forged bar	100–300 mm diameter with a machined skin
Forged blocks	Square sections to 400 mm across flats

Surface Finishes

Surface Condition	Typical Use
As-forged	Forging skin kept for rough machining of this forged bar.
Peeled	Machined skin for shops that want clean stock first.
Rough machined	Turned surface sized for final machining allowances.

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