# Inconel 713C (UNS N07713) — Technical Data Sheet

Inconel 713C supplied against the agreed order specification, with SAE AMS 5391 / GB/T 14995 as the chemistry reference.

## Chemical Composition (AMS 5391 / K418 window, UNS N07713)

| Element | Content |
|---|---|
| Nickel (Ni) | Balance |
| Chromium (Cr) | 12.0–14.0% |
| Molybdenum (Mo) | 3.8–5.2% |
| Aluminum (Al) | 5.5–6.5% |
| Niobium + Tantalum (Nb + Ta) | 1.8–2.8% |
| Titanium (Ti) | 0.5–1.0% |
| Carbon (C) | 0.08–0.20% |
| Zirconium (Zr) | 0.05–0.15% |
| Boron (B) | 0.005–0.015% |
| Iron (Fe) | 2.50% max. |
| Silicon (Si) | 0.50% max. |
| Manganese (Mn) | 0.25% max. |
| Copper (Cu) | 0.50% max. |
| Sulfur (S) | 0.015% max. |
| Phosphorus (P) | 0.015% max. |

## Mechanical Properties (Typical, As-Cast Castings)

| Product Form | Condition | Tensile Strength | Yield Strength, 0.2% Offset | Elongation | Hardness |
|---|---|---|---|---|---|
| Investment castings | As-cast, typical | 900–1050 MPa (130–152 ksi) | 700–800 MPa (102–116 ksi) | 5–10% | 33–37 HRC |

## Physical Properties (Typical)

| Property | Value |
|---|---|
| Alloy | Inconel 713C |
| UNS | N07713 |
| Werkstoff | 2.4671 |
| Density | Approx. 7.9 g/cm³ |
| Melting Range | Approx. 1260–1340 °C |
| Elastic Modulus | Approx. 200 GPa (room temperature) |
| Alloy Type | Nickel-chromium-molybdenum-aluminum-titanium |
| Strengthening | Gamma-prime precipitation, Ni3(Al,Ti) |
| Magnetic | Non-magnetic (austenitic) |

## Standards and Designations

| Standard | Product / Application |
|---|---|
| SAE AMS 5391 | Nickel base investment castings, IN-713C (UNS N07713) |
| GB/T 14992 | Designation of the Chinese cast grade K418 |
| GB/T 14995 | Cast superalloy master alloy, ingot technical conditions |
| HB 5162 | K418 master alloy ingot for investment casting |
| GJB 5512.1 | Cast superalloy ingots for defense supply |
| UNS N07713 · W.Nr. 2.4671 · K418 | Material designations |

## Typical Supply Dimensions — Inconel 713C

| Product Form | Typical Supply Range |
|---|---|
| Master alloy bar | Ø30–200 mm dia., cut lengths to order |
| Foundry ingot | Formats sized to crucible and charge weight |
| Investment castings | To casting house drawings |
| Wrought bar, plate, sheet, or tube | Not produced, the grade is cast-only |

## Surface Finishes

| Surface Condition | Typical Characteristics / Applications |
|---|---|
| As-Cast Skin | Standard master alloy surface for remelt charging |
| Peeled | Machined bright surface for clean charging and exact weighing |
| Ground | Diameter-corrected bar for foundries with tight melt budgets |

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