Inconel 625 Pipe and Tube — Technical Data Sheet

UNS N06625 seamless pipe and tube to ASTM B444, welded pipe to ASTM B705, and welded tube to ASTM B704 — minimum room-temperature values per the governing standard.

Chemical Composition (ASTM B444 / B705 / B704)

Element	Content
Nickel (Ni)	Balance
Chromium (Cr)	20.0–23.0%
Molybdenum (Mo)	8.0–10.0%
Niobium + Tantalum (Nb + Ta)	3.15–4.15%
Iron (Fe)	5.00% max.
Cobalt (Co)	1.00% max.
Carbon (C)	0.10% max.
Manganese (Mn)	0.50% max.
Silicon (Si)	0.50% max.
Phosphorus (P)	0.015% max.
Sulfur (S)	0.015% max.
Aluminum (Al)	0.40% max.
Titanium (Ti)	0.40% max.

Minimum Room-Temperature Mechanical Properties

Product Form	Standard	Condition	Tensile Strength	Yield Strength, 0.2% Offset	Elongation
Seamless pipe and tube	ASTM B444	Grade 1 (annealed ≥ 871 °C)	≥ 827 MPa (120 ksi)	≥ 414 MPa (60 ksi)	≥ 30%
Seamless pipe and tube	ASTM B444	Grade 2 (solution annealed ≥ 1093 °C)	≥ 690 MPa (100 ksi)	≥ 276 MPa (40 ksi)	≥ 30%
Welded pipe	ASTM B705	Grade 1 (annealed)	≥ 827 MPa (120 ksi)	≥ 414 MPa (60 ksi)	≥ 30%
Welded pipe	ASTM B705	Grade 2 (solution annealed)	≥ 690 MPa (100 ksi)	≥ 276 MPa (40 ksi)	≥ 30%
Welded tube	ASTM B704	Grade 1 (annealed)	≥ 827 MPa (120 ksi)	≥ 414 MPa (60 ksi)	≥ 30%
Welded tube	ASTM B704	Grade 2 (solution annealed)	≥ 690 MPa (100 ksi)	≥ 276 MPa (40 ksi)	≥ 30%

Physical Properties (Approx., annealed)

Property	Value
Density	8.44 g/cm³ (0.305 lb/in³)
Melting Range	1290–1350 °C (2350–2460 °F)
Elastic Modulus	205 GPa (29.8 × 10³ ksi)
Thermal Conductivity	9.8 W/m·°C at 20 °C
Expansion Coefficient	12.8 µm/m·°C (20–100 °C)
PREN (pitting resistance estimate)	Approx. 50–52
Alloy Type	Nickel-chromium-molybdenum, solid-solution strengthened

Standards and Designations

Standard / Designation	Product / Application
ASTM B444 / ASME SB444	Seamless pipe and tube (Grade 1 / Grade 2)
ASTM B705 / ASME SB705	Welded pipe
ASTM B704 / ASME SB704	Welded tube
ASTM B366	Wrought fittings matched to the pipe standard
SAE AMS 5581	Seamless tube and hydraulic tubing
DIN 17751	Nickel alloy pipe and tube, W.Nr. 2.4856
NACE MR0175 / ISO 15156	Sour-service qualification (reference)
VdTÜV 499	Pressure equipment approval (Europe)
UNS N06625 · W.Nr. 2.4856	Designations

Typical Supply Dimensions

Product Form	Typical Supply Range	Length
Seamless pipe	OD 6–219 mm, SCH 5 to SCH 80 and custom wall	Random or cut to length
Welded pipe	OD up to 1219 mm, SCH 5 to SCH XXS	Random or cut to length
Seamless tube	OD 6–50 mm, precision wall	Custom cut lengths
Welded tube	OD 6–50 mm for exchanger duty, custom wall	Custom cut lengths

Surface Finishes

Surface Condition	Typical Use
Annealed & pickled	Standard delivered condition for line pipe and exchanger tube
Bright annealed	Scale-free bore and OD for instrumentation and clean service
Mill finish	As-produced surface for spool fabrication and further machining
Polished bore	Reduced roughness where flow or cleanliness demands it
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.