

Incoloy 800 / 800H / 800HT Wire (UNS N08800 / N08810 / N08811) — Technical Data Sheet

Wire wire supplied to BS 3075 NA15, DIN 17753 and ISO 9724 — B408 defines the grade chemistry but stops short of wire; figures are typical published Alloy Wire International ranges, with an optional stress relief at 450–470 °C after cold forming.

Chemical Composition — ASTM B408 limits, three designations

Element	Alloy 800 (UNS N08800)	Alloy 800H (UNS N08810)	Alloy 800HT (UNS N08811)
Nickel (Ni)	30.0–35.0%	30.0–35.0%	30.0–35.0%
Chromium (Cr)	19.0–23.0%	19.0–23.0%	19.0–23.0%
Iron (Fe)	39.5% min.	39.5% min.	39.5% min.
Carbon (C)	0.10% max.	0.05–0.10%	0.06–0.10%
Aluminium (Al)	0.15–0.60%	0.15–0.60%	0.25–0.60%
Titanium (Ti)	0.15–0.60%	0.15–0.60%	0.25–0.60%
Aluminium + Titanium	0.30–1.20%	0.30–1.20%	0.85–1.20%
Copper (Cu)	0.75% max.	0.75% max.	0.75% max.
Manganese (Mn)	1.50% max.	1.50% max.	1.50% max.
Silicon (Si)	1.00% max.	1.00% max.	1.00% max.
Sulfur (S)	0.015% max.	0.015% max.	0.015% max.
Annealed Grain Size	Not specified	ASTM 5 or coarser	ASTM 5 or coarser

Typical Strength Ranges by Temper (wire as delivered)

Temper	Typical Tensile Strength	Typical Use
Annealed (soft)	600–800 MPa (87–116 ksi)	Forming and coiling before hot service
Spring temper	800–1100 MPa (116–160 ksi)	Springs, clips and fixtures needing a set

Delivery Conditions

Delivery State	Typical Diameter	Notes
Annealed (soft)	0.025–21 mm	Softest state, formed and coiled before service
Spring temper	0.10–8.0 mm	Heavily reduced, holds a set in hot fixtures
Stress relieved	0.10–12 mm	Relieved at 450–470 °C after cold forming

Physical Properties (Approx.)

Property	Value
Density	Approx. 7.94 g/cm³
Melting range	Approx. 1357–1385 °C
Specific heat, 0–100 °C	Approx. 460 J/kg·°C
Modulus of elasticity at 20 °C	Approx. 196.5 GPa
Thermal conductivity at 20 °C	Approx. 11.5 W/m·K
Thermal expansion, 20–100 °C	Approx. 14.4 µm/m·°C
Electrical resistivity at 20 °C	Approx. 0.989 µΩ·m
Curie temperature	Approx. –115 °C
Magnetic behaviour	Non-magnetic at ambient temperature
Hardness, annealed	Approx. 138 HB

Standards and Designations

Standard	Product or Application
BS 3075 NA15	British wire document for the 800 series
DIN 17753	German wire document for the 800 series
ISO 9724	ISO wire document for nickel alloys

Heat Treatment (coarse-grain solution anneal)

Condition	Typical Treatment
Solution Annealed (800H)	Held at 1121 °C (2050 °F) minimum, then cooled to set ASTM 5 or coarser grain
Solution Annealed (800HT)	Held at 1149 °C (2100 °F) minimum for the 0.85–1.20% Al+Ti window
Grade 800 Anneal	Annealed without a grain-size requirement, keeping the higher room-temperature strength
Stress Relieved	A low-temperature relief that holds straightness without dwelling in the 425–815 °C sensitization band

Surface Finishes (Wire)

Surface Condition	Typical Use
Bright Annealed	Protective-atmosphere annealing leaves this wire oxide-free and ready to draw.
Pickled	Acid cleaning descaled this wire after the anneal.
Coated	A light carrier film on this wire that protects it during downstream redrawing.

Typical Supply Dimensions — Wire

Product Form	Typical Supply	Length
Wire (Coil or Spool)	0.025–21 mm dia., typical	Coil, spool or custom
Fine Wire	0.025–0.80 mm dia.	Spool
Spring-Temper Wire	0.10–8.0 mm dia.	Coil or spool
Woven Mesh Wire	0.10–3.0 mm dia.	Coil
Straightened and Cut Wire	1.0–10 mm dia.	Straight lengths
Custom Wire	To drawing	Custom

Values are for reference; the mill test certificate prevails for final acceptance. Designations, heat-treatment conditions, and surface finishes are confirmed at quotation.
Southerly Alloy — nickel alloy bar, rod, pipe, tube, plate, wire and fittings · www.southerly-alloy.com · Values are for reference; the mill test certificate prevails for final acceptance.
Document Control · Incoloy 800 / 800H / 800HT Wire Data Sheet · Rev. 1.0 · Issued 6 October 2026