

Hastelloy B-3 Wire (UNS N10675 / W.Nr. 2.4600) — Technical Data Sheet

Wire drawn from UNS N10675 to DIN 17753 and ISO 9724, because the ASTM nickel-molybdenum rod standard names rod rather than wire — published data gives this grade a working band from –200 to +400 °C, and a stress-relief pass at 400–450 °C for two hours followed by air cooling suits formed parts.

Chemical Composition — ASTM B335 limits, UNS N10675

Element	Content
Nickel (Ni)	65.0% min.
Molybdenum (Mo)	27.0–32.0%
Chromium (Cr)	1.0–3.0%
Iron (Fe)	1.0–3.0%
Tungsten (W)	3.0% max.
Cobalt (Co)	3.0% max.
Manganese (Mn)	3.0% max.
Carbon (C)	0.01% max.
Silicon (Si)	0.10% max.
Phosphorus (P)	0.030% max.
Sulfur (S)	0.010% max.
Vanadium (V)	0.20% max.
Aluminum (Al)	0.50% max.
Titanium (Ti)	0.20% max.
Copper (Cu)	0.20% max.
Columbium (Nb)	0.20% max.
Tantalum (Ta)	0.20% max.
Zirconium (Zr)	0.10% max.
Nickel plus Molybdenum	**94.0–98.0%**

Typical Wire Tensile Ranges by Temper (published supply data)

Temper	Typical Tensile Strength	Typical Use
Annealed (soft)	under 1200 MPa (under 174 ksi)	Forming and coiling before fabrication
Spring temper	1600–2000 MPa (232–290 ksi)	Springs, clips and retained-set parts

Physical Properties (Approx.)

Property	Value
Density	Approx. 9.22 g/cm³
Melting range	Approx. 1370–1418 °C
Modulus of elasticity	Approx. 216 GPa
Modulus of rigidity	Approx. 83 GPa
Thermal conductivity at 20 °C	Approx. 11.2 W/m·K
Electrical resistivity at 20 °C	Approx. 1.37 µΩ·m
Thermal expansion, 25–100 °C	Approx. 10.6 µm/m·K
Magnetic behaviour	Essentially non-magnetic in the annealed condition
Strengthening route	Cold work only

Standards and Designations

Standard	Product or Application
DIN 17753	German wrought nickel alloy wire document
ISO 9724	International wire document
ASTM B335 (base metal)	Rod document that stops short of wire

Delivery Conditions (temper and stress relief)

Delivery State	Typical Diameter	Notes
Annealed (soft)	0.025–21 mm	Softest state, formed and coiled before fabrication
Spring temper	0.025–21 mm	Heavily reduced, holds a set in spring work
Stress relieved	0.025–21 mm	Relieved at 400–450 °C for two hours and air cooled after forming
Flat and shaped sections	to your drawing	Flat stock from 0.15 mm thick and to 12.00 mm wide, shaped profiles to 45 mm²

Surface Finishes (Wire)

Surface Condition	Typical Use
Solution Annealed and Pickled	Annealing followed by acid descaling leaves this wire scale-free for hydrogen chloride service.
Bright Annealed	Protective-atmosphere annealing leaves this wire oxide-free for instrument and vacuum work.
Spooled	This wire wound onto spools or carriers at an even tension.

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	0.10–20 mm dia.	Coil or spool
Flat Wire	0.15–12.0 mm section	Coil or spool
Shaped Wire	To 45 mm² section	Coil or spool
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.
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