

Product Description

Nickel 200 and Nickel 201 are commercially pure wrought nickel grades with high electrical and thermal conductivity, useful ductility and strong resistance to caustic and reducing media. Southerly Alloy supplies both grades as bar and rod to ASTM B160 in hot-worked, cold-worked and annealed conditions, with custom sizes and mill test documentation.

Chemical Composition (ASTM B160)

Element	Nickel 200 (UNS N02200)	Nickel 201 (UNS N02201)
Nickel (Ni), min.	99.0%	99.0%
Copper (Cu), max.	0.25%	0.25%
Iron (Fe), max.	0.40%	0.40%
Manganese (Mn), max.	0.35%	0.35%
Carbon (C), max.	0.15%	0.02%
Silicon (Si), max.	0.35%	0.35%
Sulfur (S), max.	0.01%	0.01%

Nickel determined arithmetically by difference; the purchase specification and mill test certificate decide final acceptance.

Mechanical Properties (minimum values, per ASTM B160)

Grade / Condition	Section	Tensile Strength, min.	Yield Strength, min.	Elongation, min.
Nickel 200, cold-worked (as worked)	Rounds ≤ 25.4 mm (1 in.)	≥80 ksi (550 MPa)	≥60 ksi (415 MPa)	10%
Nickel 200, cold-worked (as worked)	Rounds over 25.4–101.6 mm (1–4 in.)	≥75 ksi (515 MPa)	≥50 ksi (345 MPa)	15%
Nickel 200, cold-worked (as worked)	Squares, hexagons, rectangles, all sizes	≥65 ksi (450 MPa)	≥40 ksi (275 MPa)	25%
Nickel 200, hot-worked	All sections, all sizes	≥60 ksi (415 MPa)	≥15 ksi (105 MPa)	35%
Nickel 200, annealed	Rods and bars, all sizes	≥55 ksi (380 MPa)	≥15 ksi (105 MPa)	40%
Nickel 201, hot-worked	All sections, all sizes	≥50 ksi (345 MPa)	≥10 ksi (70 MPa)	40%
Nickel 201, annealed	All products, all sizes	≥50 ksi (345 MPa)	≥10 ksi (70 MPa)	40%

Elongation requirements do not apply to diameters or cross sections under 2.4 mm (3/32 in.).

Physical Properties (typical values, annealed material)

Property	Nickel 200 (N02200)	Nickel 201 (N02201)
Density	Approx. 8.89 g/cm³	Approx. 8.89 g/cm³
Melting range	Approx. 1435–1446 °C	Approx. 1435–1446 °C
Curie temperature	Approx. 358 °C	Approx. 358 °C
Modulus of elasticity	Approx. 204 GPa	Approx. 207 GPa
Thermal conductivity at 20 °C	Approx. 70 W/m-K	Approx. 70 W/m-K
Electrical resistivity at 20 °C	Approx. 0.095 µΩ-m	Approx. 0.08 µΩ-m
Thermal expansion, 20–100 °C	Approx. 13.3 µm/m-K	Approx. 13.3 µm/m-K

Applicable Standards

Standard / Designation	Scope
ASTM B160	Nickel and low-carbon nickel rod and bar — UNS N02200, UNS N02201
ASME SB160	ASME edition of the nickel rod and bar specification
UNS N02200 / N02201	Material designations for Nickel 200 and Nickel 201
W.Nr. 2.4066 / 2.4068	European designations for the two grades
JIS NW 2200 / NW 2201	Japanese designations for Nickel 200 and Nickel 201
DIN 17742	Nickel wrought alloys — bar and rod
ISO 9723 / ISO 9724	Nickel and nickel alloy bar and rod

Available Dimensions & Forms

Product Form	Typical Supply	Length
Round Bar	6–500 mm dia.	Cut to length or random
Round Rod	3–50 mm dia.	Cut to length
Bright Bar	6–150 mm dia.	Cut to length or random
Square Bar	10–150 mm	Cut to length or random
Hex Bar	10–150 mm A/F	Cut to length or random
Flat Bar	3–100 mm thick × 10–300 mm wide	Cut to length
Forged Bar	100–500 mm dia. or forged section	Cut to length
Precision-Ground Rod	3–100 mm dia., tight tolerance	Cut to length

Availability depends on delivery condition, surface finish and order quantity; tolerances follow ASTM B160 for the ordered condition.

Surface Finishes

Surface Condition	Typical Use
Hot worked (as-rolled or forged)	General service parts that will be machined to size
Annealed and pickled	Scale-free surface for fabrication and machining
Cold drawn	Close diameter control with a smooth, bright surface
Peeled	Uniform diameter and a machined skin for further turning
Centreless ground	Tight diameter and straightness for shafting and spindles
Polished	Reduced roughness for product-contact and appearance parts
Rough turned	Large or forged bar supplied with controlled machining allowance

Southerly Alloy — nickel alloy bar, rod, pipe, tube, plate and fittings · www.southerly-alloy.com · Values are for reference; the mill test certificate prevails for final acceptance.