Hastelloy B-2 Round Bar (UNS N10665 / W.Nr. 2.4617) — Technical Data Sheet

Round Bar supplied to ASTM B335 and ASME SB335 for UNS N10665 — that document sets one solution-annealed condition for rod from 7.94 to 88.9 mm, its mechanical table carries no hardness ceiling against this grade, and DIN 17752 plus ISO 9723 cover the German and international bar routes.

Chemical Composition — ASTM B335 limits, UNS N10665

Element	Content
Nickel (Ni)	Balance
Molybdenum (Mo)	26.0–30.0%
Iron (Fe)	2.0% max.
Chromium (Cr)	1.0% max.
Cobalt (Co)	1.00% max.
Manganese (Mn)	1.0% max.
Carbon (C)	0.02% max.
Silicon (Si)	0.10% max.
Phosphorus (P)	0.04% max.
Sulfur (S)	0.03% max.

Minimum Mechanical Properties (ASTM B335, solution annealed)

Condition and Grade	Tensile Strength, min.	Yield Strength (0.2%), min.	Elongation, min.
Solution Annealed — UNS N10665	≥760 MPa (110 ksi)	≥350 MPa (51 ksi)	40%

Physical Properties (Approx.)

Property	Value
Alloy	Hastelloy B-2
UNS	N10665
Werkstoff	2.4617
Density	Approx. 9.22 g/cm³
Melting range	Approx. 1330–1380 °C
Modulus of elasticity	Approx. 217 GPa
Thermal conductivity at 0 °C	Approx. 11.1 W/m·K
Thermal conductivity at 100 °C	Approx. 12.2 W/m·K
Specific heat at 100 °C	Approx. 389 J/kg·K
Electrical resistivity at 20 °C	Approx. 1.37 µΩ·m
Thermal expansion, 20–93 °C	Approx. 10.3 µm/m·K
Magnetic behaviour	Non-magnetic in the annealed condition
Strengthening route	Cold work only

Standards and Designations

Standard	Product or Application
ASTM B335 / ASME SB335	Nickel-molybdenum alloy rod, 7.94–88.9 mm, UNS N10665 in the scope table
DIN 17752 / ISO 9723	German and international bar documents
ASTM B564 / ASME SB564	Forged bar and heavier sections above the rod size ceiling

Heat Treatment (solution anneal and release)

Condition	Typical Treatment
Solution Annealed	Held at 1065–1095 °C, then water quenched, because Ni4Mo forms between 540 and 815 °C
Hot-Worked	Delivered as-rolled or as-forged, with the anneal agreed where the order calls for it
Cold-Drawn	Drawn after annealing, with the reduction recorded so the higher proof stress is documented
Stress-Relief Warning	A relief pass inside the 540–815 °C band precipitates Ni4Mo, so residual-stress work needs a full anneal instead
Post-Weld Anneal	Severe acid duty calls for a solution anneal at 1050–1100 °C and a water quench after welding

Surface Finishes (Round Bar)

Surface Condition	Typical Use
Solution Annealed and Pickled	Annealing followed by acid descaling leaves this round bar scale-free for hydrochloric acid service.
Cold Drawn	Drawn stock giving this round bar close diameter control and a smoother skin.
Peeled	A machined skin on this round bar with a uniform diameter for further turning.

Typical Supply Dimensions — Round Bar

Product Form	Typical Supply	Length
Round Bar	7.94–88.9 mm dia.	Cut to length or random
Pickled Round Bar	7.94–19.05 mm dia.	Cut to length or random
Ground Round Bar	19.05–88.9 mm dia.	Cut to length
Turned Round Bar	19.05–88.9 mm dia.	Cut to length
Cold-Drawn Round Bar	8–50 mm dia.	Cut to length
Forged Round Bar	Above 88.9 mm dia.	Cut to length
Custom Round Bar	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.