

SOUTHERLY ALLOY

Hastelloy C-276 | UNS N10276 | Werkstoff Nr. 2.4819 / NiMo16Cr15W

ASTM B574 / B622 / B619 / B626 / B575 — Grade Data for Bar, Tubular and Flat Product

Product Description

Hastelloy C-276 is a nickel-molybdenum-chromium alloy that carries tungsten in solid solution. Molybdenum at 15.0–17.0% resists reducing acids, chromium at 14.5–16.5% covers oxidizing media, and tungsten at 3.0–4.5% reinforces the passive film. Carbon at 0.010% max keeps welded joints corrosion-resistant in the as-welded condition. The grade is not age-hardenable.

Chemical Composition (ASTM B574 / B575 / B622)

Element	Content	Element	Content
Nickel (Ni)	57.0% min. (balance)	Cobalt (Co), max.	2.50%
Molybdenum (Mo)	15.0–17.0%	Manganese (Mn), max.	1.00%
Chromium (Cr)	14.5–16.5%	Vanadium (V), max.	0.35%
Tungsten (W)	3.0–4.5%	Silicon (Si), max.	0.08%
Iron (Fe)	4.0–7.0%	Carbon (C), max.	0.010%
Phosphorus (P), max.	0.040%	Sulphur (S), max.	0.030%

Minimum Room-Temperature Mechanical Properties

Product Form	Std.	Condition	Tensile Strength	Yield Strength, 0.2% Offset	Elongation
Bar and rod	B574	Solution annealed	≥ 690 MPa (100 ksi)	≥ 283 MPa (41 ksi)	≥ 40%
Seamless pipe and tube	B622	Solution annealed	≥ 690 MPa (100 ksi)	≥ 283 MPa (41 ksi)	≥ 40%
Welded pipe	B619	Annealed after welding	≥ 690 MPa (100 ksi)	≥ 283 MPa (41 ksi)	≥ 40%
Welded tube	B626	Annealed after welding	≥ 690 MPa (100 ksi)	≥ 283 MPa (41 ksi)	≥ 40%
Plate, sheet, and strip	B575	Solution annealed	≥ 690 MPa (100 ksi)	≥ 283 MPa (41 ksi)	≥ 40%
Forgings and flanges	B564	Solution annealed	≥ 690 MPa (100 ksi)	≥ 283 MPa (41 ksi)	≥ 40%

Hardness on annealed product: 100 HRB max. Aerospace deliveries run to AMS 5750 (bars, forgings, rings) and AMS 5530 (plate, sheet, strip).

Physical Properties (typical values)

Property	Value	Property	Value
Density	Approx. 8.89 g/cm ³	Electrical resistivity, 20 °C	Approx. 1.30 μΩ·m
Melting range	Approx. 1325–1370 °C	Thermal expansion, 20–100 °C	Approx. 11.2 μm/m·K
Modulus of elasticity	Approx. 205 GPa	Strengthening	Solid solution and cold work
Thermal conductivity, 20 °C	Approx. 10.2 W/m·K	Magnetic behaviour	Practically non-magnetic
Specific heat, 20 °C	Approx. 427 J/kg·K	Service ceiling in air	Approx. 540 °C continuous

Applicable Standards

Standard / Designation	Product / Application
ASTM B574 / ASME SB574	Rod and bar, solution annealed
ASTM B622 / ASME SB622	Seamless pipe and tube, cold-finished or hot-finished
ASTM B619 / ASME SB619	Welded pipe, solution annealed after welding
ASTM B626 / ASME SB626	Welded tube for heat exchangers, condensers, evaporators
ASTM B575 / ASME SB575	Plate, sheet, and strip
ASTM B564 / B366	Forgings, flanges, and wrought fittings in the same grade
ASTM B829 / B775 / B751	General requirements for seamless and welded product
SAE AMS 5750	Bars, forgings, and flash-welded rings
SAE AMS 5530	Plate, sheet, and strip
NACE MR0175 / ISO 15156	Sour service in oil and gas production
DIN 17750 / 17751 / 17752	Wrought nickel alloy flat product, tube, and bar
UNS N10276 · W.Nr. 2.4819 · NiMo16Cr15W · NS334	Designations

Typical Supply Dimensions

Product Form	Typical Supply Range
Bar and rod	3–340 mm dia., by section and condition
Seamless pipe	NPS 1/8 to NPS 24, SCH 10 to SCH 160 and custom wall
Seamless tube	OD 6–114.3 mm, wall 0.5–10 mm
Welded pipe and tube	OD 3.18–127 mm, wall 0.38–12.7 mm
Plate and sheet	0.5–100 mm thick, cut to length and width
Strip and coil	0.5–6.35 mm thick, slit to width

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.

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