SOUTHERLY ALLOY

Monel 400 Plate and Sheet | UNS N04400 | Werkstoff Nr. 2.4360 / NiCu30Fe

ASTM B127 — Hot-Rolled Plate, Cold-Rolled Sheet and Strip

Product Description

Monel 400 plate, sheet, and strip cover UNS N04400 flat product from 0.13 mm coil to 100 mm plate. The grade resists flowing seawater, hydrofluoric acid, and caustic solutions, so flat product suits vessel shells, linings, tubesheets, and gaskets. Cold-rolled tempers run from annealed through quarter-hard to spring, which gives parts strength without a heat treatment.

Chemical Composition (ASTM B127)

Element	Content	Element	Content
Nickel (Ni) plus Cobalt (Co)	63.0% min.	Iron (Fe), max.	2.5%
Copper (Cu)	28.0–34.0%	Manganese (Mn), max.	2.0%
Carbon (C), max.	0.30%	Silicon (Si), max.	0.50%
Sulfur (S), max.	0.024%	Strengthening route	Cold work only

Minimum Room-Temperature Mechanical Properties

Product Form	Condition	Tensile Strength	Yield Strength, 0.2% Offset	Elongation
Hot-rolled plate	Annealed	≥ 70 ksi (485 MPa)	≥ 28 ksi (195 MPa)	35%
Hot-rolled plate	As-rolled	≥ 75 ksi (515 MPa)	≥ 40 ksi (275 MPa)	25%
Hot-rolled sheet	Annealed	≥ 70 ksi (485 MPa)	≥ 28 ksi (195 MPa)	35%
Cold-rolled sheet	Annealed	70–85 ksi (485–585 MPa)	≥ 28 ksi (195 MPa)	35%
Cold-rolled strip	Quarter-hard	78–85 ksi (538–586 MPa)	≥ 45 ksi (310 MPa)	20%
Cold-rolled sheet	Hard	≥ 100 ksi (690 MPa)	≥ 90 ksi (620 MPa)	2%

No yield requirement applies below 0.51 mm thickness. Cold-rolled temper hardness runs from skin hard at 68–73 HRB through quarter-hard 73–83, half-hard 82–90, and three-quarter hard 89–94, to spring temper at 98 HRB and above.

Physical Properties (typical values)

Property	Value	Property	Value
Density	Approx. 8.80 g/cm³	Electrical resistivity, 20 °C	Approx. 0.51 µΩ·m
Melting range	Approx. 1300–1350 °C	Thermal expansion, 20–100 °C	Approx. 13.9 µm/m·K
Modulus of elasticity	Approx. 179 GPa	Curie temperature	Approx. 21–49 °C
Thermal conductivity, 20 °C	Approx. 21.8 W/m·K	Magnetic behaviour	Slightly ferromagnetic at ambient
Specific heat, 20 °C	Approx. 427 J/kg·K	Service ceiling	Approx. 480 °C continuous

Applicable Standards

Standard / Designation	Product / Application
ASTM B127 / ASME SB127	Plate, sheet, and strip, hot-rolled and cold-rolled
ASTM B906	General requirements for flat-rolled nickel alloy product
SAE AMS 4544	Plate, sheet, and strip, 67Ni - 30Cu, annealed
ASTM B164 / B165	Bar and rod, and seamless tube, in the same grade
DIN 17750	Flat product, W.Nr. 2.4360
ISO 6208	Nickel alloy flat product
NACE MR0175 / ISO 15156	Sour service in oil and gas production
UNS N04400 · W.Nr. 2.4360 · NiCu30Fe	Designations

Typical Supply Dimensions

Product Form	Typical Supply Range	Length / Width
Plate	4.76–100 mm thick, up to 2000 mm wide	Up to 6000 mm
Sheet	0.46–6.4 mm thick, up to 2000 mm wide	Up to 6000 mm
Strip and coil	0.13–6.4 mm thick, slit to width	Coil or fixed length
Plate blank	Cut to your blank list	Up to 6000 mm
Circles	Burner-cut or machined to diameter	Per drawing
Perforated sheet	0.5–6 mm thick	Per drawing

Filler metal for welding: ERNiCu-7 wire to AWS A5.14 and ENiCu-7 electrodes to A5.11. Solution annealing runs at 705–980 °C (1300–1800 °F).