Nickel & Its Alloys

Precision Thin Rolled Nickel and Its Alloys from Arnold's PTM business are of the highest quality grades that are rolled and fabricated to your exacting specifications. Nickel's ability to withstand extreme temperature and corrosive environments, as well as its magnetic properties at or near room temperature, make it the preferred metal for applications ranging from rechargeable battery technologies to microphone capsules to strain gauges, instrumentation sensors, gaskets, motor valves, and other devices.

Arnold's Precision Thin Metals division is the leader in providing rolled strip or sheet nickel and nickel alloys in a wide selection of grades, thickness and tight dimensional tolerances, including ultra-thin nickel in most grades.

Dimensional

Nickel and Nickel Alloy grades are available in a variety of thicknesses and dimensions. Each offers high dimensional stability over a range of temperatures. Nickel and nickel alloys from Arnold can be rolled to thicknesses from 0.001" to 0.00008" (0.0254 - 0.002mm).

Thickness	Maximum Width
0.001" - 0.0004" (0.0254 - 0.01mm)	11.75" (298.5mm) as-rolled edge 11.50" (292.1mm) with a slit edge
0.00039" - 0.00008" (0.099 - 0.002mm)	4.25" (107.95mm) as-rolled edge 4.00" (101.6mm) with a slit edge

Materials Characteristics

Some of the more popular nickel alloy formulations and best fit applications are listed below.

Alloy	Description	Use / Applications
Nickel 200 & 201	Commercially pure (99%) Nickel with excellent resistance to reducing chemicals and caustic alkalis Magnetic at or near room temperature	Battery applications, pressure sensors
Invar	FeNi36 or 64FeNi, Low coefficient of thermal expansion (CTE or a)	Precision instruments, clocks, seismic creep gauges, shadow-mask frames, motor valves, antimagnetic timing devices
Constantan	CuNi, 55% Cu, 45% Ni (also known as Eureka, Advance, Ferry)	Where constant resistivity needed over wide T range
Hastelloy	Withstands high temperature, high stress, corrosion or erosion	Pressure vessels, piping, valves for nuclear and chemical facilities, distillation equipment
Ni-Chrome	Resistance heating alloy with melting point near 2550 F (1400 C)	Heating elements
Ni Span C	Nickel-Iron-Chromium alloy, often with added titanium, aluminum Outstanding controllable thermoelastic coefficient characteristics, excellent oxidation resistance at high temperature	Precision springs, mechanical resonators, precision elastic components
Monel	High corrosion resistance	Chemical handling

TYPICAL APPLICATIONS

- Precision instrumentation and gauges
- Battery and energy storage
- Cladding
- Heat-generation and heat-protection devices
- Mechanical and audio resonators
- Piping and valve components for extreme conditions, corrosive chemicals

DELIVERY

Availability
Global.

Size
Available in thicknesses and widths per table.

Temper
Available in the annealed or as-rolled condition.

Surface
Clean uniform surface, 1Ra - 16Ra without discoloration or surface defects. Available with a slit edge (typical burr <10% of strip thickness) or with an as-rolled edge.

Packing
Properly packaged to avoid damage in transit. International packaging available upon request. Delivered coiled or in sheet form.

Conformance
ASTM B265, ASTM F67 (latest revision), DFARS Compliant.

Certifications
ISO9001, AS9001, Nadcap.

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