

Inconel's strength, and high temperature and corrosion resistance make it an excellent material for diverse applications in the aerospace and chemical industries. Typical applications include aviation thrust reversers and ductwork, industrial pressure sensors and gauges, as well as sodium sulfide manufacturing applications.

Arnold's PTM business rolls a range of Inconel grades to your specifications, up to 17.5" (444.5mm) wide for as-rolled edge and up to 17.0" (431.8mm) with a slit edge, depending on thickness of the material.

Dimensional

Each is available in a variety of thicknesses and dimensions shown below:

Thickness	Maximum Width
0.025" - 0.003" (0.635 - 0.08mm)	17.5" (444.5mm) as-rolled edge 17.0" (431.8mm) with a slit edge
0.0029" - 0.001" (0.079 - 0.0254mm)	16.5" (419.1mm) as-rolled edge 16.0" (406.4mm) with a slit edge
0.0009" - 0.0004" (0.025 - 0.01mm)	15.5" (393.7mm) as-rolled edge 15.5" (393.7mm) 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

Grades and Composition (wt %)

Grade	Element (% by weight)														
	Ni	Cr	Fe	Mo	Nb	Co	Mn	Cu	Al	Ti	Si	C	S	P	B
600	72	14.0-17.0	6.0-10.0	—	—	—	1	0.5	—	—	0.5	0.15	0.015	—	—
601	58.0-63.0	21.0-25.0	Bal- ance	—	—	—	1	1	1.0-1.7	—	0.5	0.1	0.015	—	—
625	58	20.0-23.0	5	8.0-10.0	3.15-4.15	1	0.5	—	0.4	0.4	0.5	0.1	0.015	0.015	—
X-750	70	14.0-17.0	5.0-9.0	—	0.7-1.2	1	1	0.5	0.4-1.0	2.25-2.75	0.5	0.08	0.01	—	—

Key Physical & Mechanical Properties

Grade	Density	Melting Range	Permeability at 200 Oersteds	Curie Temp.	UTS ksi (MPa)	YS (.2% offset) ksi (MPa)
600	0.306 lb/in ³ (8.47 g/cm ³)	2470-2575 F (1354 - 1413 C)	1.01	-192 F (-124 C)	Annealed: 80-100 (550-690)	Annealed: 30-45 (205-310)
601	0.293 lb/in ³ (8.11 g/cm ³)	2480-2571 F (1360 - 1411 C)	1.010 (at room temp.)	<-320 F (-196 C)	Annealed: 115 (796) min	Annealed: 60 (420) min
625	0.305 lb/in ³ (8.44 g/cm ³)	2350-2460 F (1290 - 1350 C)	1.0006	<-320 F (-196 C)	Annealed: 120-150 (827-1034) 30% cold reduction 165 (1137) min	Annealed: 60-95 (414-655) 30% cold reduction 152 (1048) min
X750	0.299 lb/in ³ (8.28 g/cm ³)	2540-2600 F (1391 - 1427 C)	1.002	-225 F (-143 C) as hot-rolled	Annealed: 100 (689) min 30% cold reduction 165 (1137) min	Annealed: 45 (310) min 30% cold reduction 152 (1048) min

TYPICAL APPLICATIONS

- Aerospace engine and airframe components in high-temperature locations
- Heat-generation and heat-protection devices
- Pressure vessels, sensors and gauges

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.

Conformance

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

MATERIALS CHARACTERISTICS

The most common Inconel grades requested:

Inconel 600: Excellent strength and oxidation resistance at high temperatures.

Inconel 601: Used in the chemical industry for its strength and corrosion resistance.

Inconel 625: Used extensively in chemical and seawater applications for its strength and corrosion resistance. Excellent weldability and fatigue strength.

Inconel X750: Resistant to many industrial corrosives, both oxidizing and reducing at high temperatures. Can be heat treated to a wide range of strengths and properties as needed by your application.