



SPECIALTY METAL PRODUCTS



AEROSPACE

High performance metal products for critical airframe and engine applications across the commercial aircraft, defense and space sectors.

Our high strength, high pressure, heat resistant and lightweight metal products are engineered to enhance the performance and efficiency of aircraft worldwide.

- High Pressure and High Strength Tubes
- Ultra Thin Foils and Precision Strip
- Highly Conductive Nickel Strip
- High Tolerance Custom Shaped Wire
- Thermal Management Materials
- Specialty Metal Atomized Powder



HIGH PRESSURE, HIGH STRENGTH PRECISION TUBES

NADCAP approved seamless titanium tubes engineered for aircraft hydraulic and pneumatic control systems up to 5,000 psi with excellent strength to weight ratios. Deliver substantial weight savings for reduced fuel consumption and operating costs.

Heat resistant stainless steel and nickel alloy tubes for extreme temperature and high strength engine applications.

PRODUCTS

- Titanium: Ti CP (Grade 1 and 2), Ti 6Al-4V (Grade 5), Ti 3Al-2.5V (Grade 9), Ti 6Al-4V ELI (Grade 23), Ti A-40, Ti 4Al-2.5V
- Stainless steel: 304, 316, 321, 347, 15-5PH®, 17-4PH®, 17-7PH®, 21-6-9, FV607
- Nickel alloy: Nimonic Alloy® 75, C263, 200, 201, 211, 600, 625, 718, X-750, Invar® 36, Waspaloy™
- Sizes: From 0.010 in (0.25 mm) to 1.5 in (38.10 mm) OD

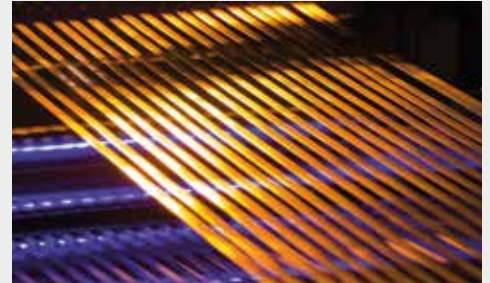
- Seamless, welded and welded & redrawn (titanium seamless only)

APPLICATIONS

- Hydraulic and pneumatic control systems
- Actuation
- Instrumentation
- Landing gear
- Pitot tubes
- Convoluting / seals
- Engine fuel lines
- Fire suppression, drain lines and bleed air systems
- Satellite propulsion systems
- Heat exchangers
- Fuel and hydraulic tube for space rocket engines

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ULTRA THIN, HEAT RESISTANT FOIL AND PRECISION STRIP

Ultra thin metal strip and foil in nearly any alloy rolled to the tightest tolerances and thinnest gauges in the industry - from 1.5mm (0.060") down to 1.5 microns (0.000060") in thickness.

We are experts in controlling consistency, precise thicknesses, specific mechanical, physical, electrical and magnetic properties and surface finish.

PRODUCTS

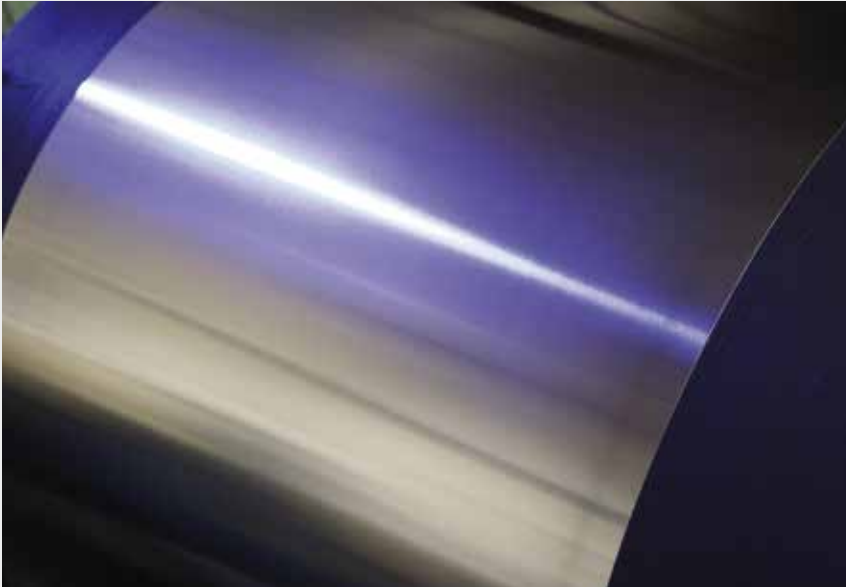
- Precision heat resistant brazing foil rolled from 0.0001" to 0.0004" (0.0025mm to 0.01 mm) thick
- Metal strip for specialized sensor diaphragms
- Alloys: Stainless and heat resisting steels, nickel and high nickel alloys, nickel base superalloys, cobalt base superalloys, custom alloys, copper and copper alloys, titanium, controlled expansion alloys

APPLICATIONS

- Brazing foils used in jet engine fan blades, vanes and housings. Placed between the inner and outer skins on both sides of a metal honeycomb, the brazing foil joins critical parts of the engine
- Diaphragms for specialized aerospace sensor applications

[Click for more details](#)

www.hpmetals.com



HIGHLY CONDUCTIVE NICKEL STRIP

Our high purity nickel strip battery connectors deliver 15-20% higher conductivity than traditional cast nickel strip connectors.

We employ an advanced wrought powder metallurgy process for roll compacted strip which achieves the highest purity commercially available. This means reduced impedance and increased conductivity in battery tab connectors delivering higher transmission of power.

The higher conductivity of our battery tab material allows for manufacturers and designers to continue miniaturizing the sizes and weights of the battery connections without sacrificing power handling capabilities.

PRODUCTS

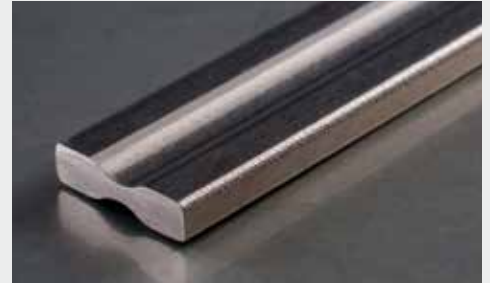
- Highest purity (99.98%) for greater conductivity
- Low impedance
- Available nickel grades: Nickel 270 (899A), Nickel 201/200 (899L), Nickel 201/200 (899M)
- Thickness range: Down to 50 microns
- Standard and custom sizes & tempers
- Customizable materials
- Small minimum order sizes
- Short lead times

APPLICATIONS

- Aerospace batteries
- Heat exchangers
- Bellows

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www.ametek-ct.com



HIGH TOLERANCE CUSTOM SHAPED WIRE

Specialty shaped wire and flat wire products in an extensive range of standard and custom shapes and alloys.

Our wrought powder metallurgy process delivers proven advantages—purity, consistency, and close compositional control. These advantages give our customers improved die wear, formability, and platability.

Used primarily in aircraft push-pull mechanisms to deliver remote activation of aerospace controls. Our shaped wire is used by manufacturers of these devices to build a bearing controlled linkage for applications requiring high tension and compression forces and tight radii for the cable assembly.

PRODUCTS

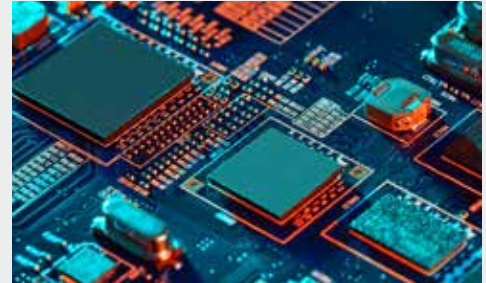
- Alloys: Aluminum, copper, copper alloys, nickel, nickel alloys, stainless steel, custom
- Shapes: Round, square, rectangular, half-round, hex, flat-wire, bunched, custom
- Sizes: Square 0.010" to 0.200", round 0.004" to 0.250", flat 0.008" x 0.018"
- Edge capabilities: Square edges, rounded corners, natural rolled or round edges, full rounded or blended edges

APPLICATIONS

- Push-pull mechanisms required for remote activation of aircraft controls, fuel shutoffs, fasteners, landing gear and emergency controls
- Lock collar tape for aerospace rivets

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www.ametek-ct.com



THERMAL MANAGEMENT MATERIALS

We specialize in engineering high quality Molybdenum Copper composites for the management of heat in electronics packages that operate in spacecraft and satellites.

Our Molybdenum-Copper (AMC) composites are engineered through wrought powder technology to deliver improved thermal conductivity and highly controlled thermal expansion.

These materials are trusted in sensitive space applications such as electronic and integrated circuit (IC) packaging that necessitate tight thermal expansion control.

PRODUCTS

- Alloys: Molybdenum-Copper (AMC), consisting of various compositions
- Compositions: 60% Molybdenum - 40% Copper, 65% Molybdenum - 35% Copper, 75% Molybdenum - 25% Copper, 80% Molybdenum - 20% Copper, 85% Molybdenum - 15% Copper
- Sizes: Width: 4 inches (102 mm), Thickness: 3 inches (76 mm), Length: 24 inches (610 mm)

APPLICATIONS

- Electronic and integrated circuit (IC) packaging
- Heat sinks
- Circuit board cores
- Pedestals
- Optoelectronics
- Microwave packages

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SPECIALTY METAL ATOMIZED POWDER

We supply several products through qualified AS9100 powder producers. Many of our products are key constituents of blends or some of the original materials used in aerospace thermal spray metallic coatings.

Our metal additive powders are engineered for space application components made by Laser Powder Bed, Binder Jet, and Cold Spray processes.

PRODUCTS

- 80/20 nickel chrome
- PF 60
- Inconel 600
- 316L (including A240 grade), 304L, 17-4PH[®]

[Click for more details](#)

www.powderclad.com

SPECIALTY METAL PRODUCTS FOR AEROSPACE APPLICATIONS

Hydraulic flight control surfaces servo actuator system

Hydraulic high pressure pump system. Engine driven pump (EDP) actuator system

Pitot tubes

Hydraulic nose landing gear

Oxygen lines

Waste water system

Fuel lines

Fuel manifold system

Brazing foils for use in jet engine fan blades

Diaphragms for specialist aerospace sensor applications

Bellows

Thermal spray metal powder coatings

Air conditioning system

Potable galley water system

Landing gear hydraulic retraction jacks or brakes systems

Push-pull mechanisms

Thrust reverser door actuators

Auxiliary power unit fuel feed

Aerospace batteries

Heat exchangers

Lock collar tape for aerospace rivets

Defense applications include



- Afterburners
- Combat aircraft hydraulics
- High performance actuation
- Pitot tubes
- Flex-heaters
- Radar / sound detection
- High power batteries

Space applications include



- Satellite propulsion systems
- Flex-heaters in satellites
- Space rocket engines
- Spacecraft launch and detonation systems
- High power batteries
- Electronic packages

From commercial aircraft to fighter jets and satellites, our metals enhance the performance of the aerospace sector.

Customer approvals include: Airbus, Boeing, Bombardier, Embraer, GE Aviation, Liebherr, Lockheed Martin, Raytheon, Rolls-Royce, SNECMA-SAFRAN, UTC and more.

STRIP

TUBE

POWDER

SPECIALTY METAL PRODUCTS FOR AEROSPACE APPLICATIONS



ABOUT AMETEK SPECIALTY METAL PRODUCTS

AMETEK Specialty Metal Products (SMP) is a business unit of AMETEK, Inc. a leading global manufacturer of electronic instruments and electromechanical devices with annualized sales of approximately \$5.5 billion.

The Specialty Metal Products business unit consists of five businesses and operating facilities in the United States and the United Kingdom.

These businesses are proven experts in the manufacture of advanced metallurgical products including roll bonded clad plate, precision metal strip, ultra-thin foil, shaped wire, engineered components, thermal management materials, water atomized powders and precision tube.

Our high performance metal products are used around the world for critical applications in a range of industries including aerospace, automotive, defense, electronics, industrial, medical, nuclear, oil and gas, and space and satellites.



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information

