

ADVANCED METALLURGICAL PRODUCTS FOR CRITICAL APPLICATIONS



finetubes

SuperiorTube

AMETEK®
SPECIALTY METAL PRODUCTS
EIGHTY FOUR

AMETEK®
SPECIALTY METAL PRODUCTS
WALLINGFORD

HPM | HAMILTON
PRECISION
METALS

COINING™

Mission-Critical Metallurgy

Our materials are used in a variety of applications, including aerospace, medical, electronics, space and satellites, nuclear, defense, renewable energy and industrial.



MARKETS INCLUDE:

- AEROSPACE
- MEDICAL
- ELECTRONICS
- SPACE AND SATELLITES
- NUCLEAR
- DEFENSE
- RENEWABLE ENERGY
- INDUSTRIAL
- AUTOMOTIVE
- OIL AND GAS

ABOUT AMETEK SPECIALTY METAL PRODUCTS

AMETEK Specialty Metal Products consists of six leading manufacturers of advanced metal products based in the USA and UK: **Fine Tubes**, **Superior Tube**, **AMETEK Eighty Four**, **AMETEK COINING**, **Hamilton Precision Metals**, and **AMETEK Wallingford**.

Our extensive product range includes thermal management materials, metal tubes, strip, shaped wire, clad plate, powder, bonding wire and ribbon, solder preforms, and bond pads.

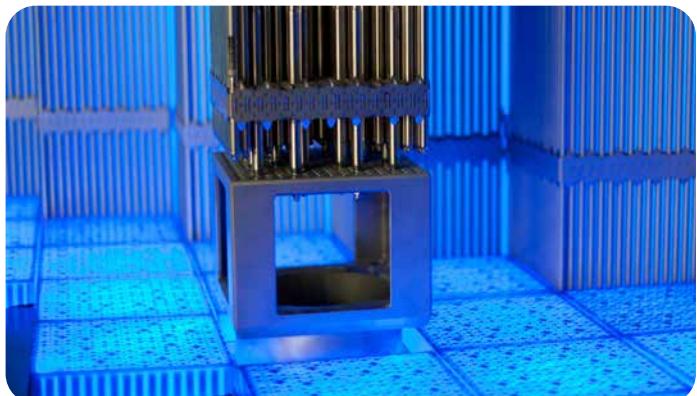
From powering aircrafts and space rockets, to advancing medical care, and accelerating the transition to renewable energy – our precision materials enable technological innovations.

AMETEK Specialty Metal Products is a business of AMETEK Inc., a leading global provider of industrial technology solutions serving a diverse set of attractive niche markets.

Fine Tubes

Precision Engineered Metal Tubing

Fine Tubes is a leading manufacturer of high precision tubing for critical applications in the toughest environments. We have the capability to custom manufacture both seamless and welded tubes, in a wide range of alloys.

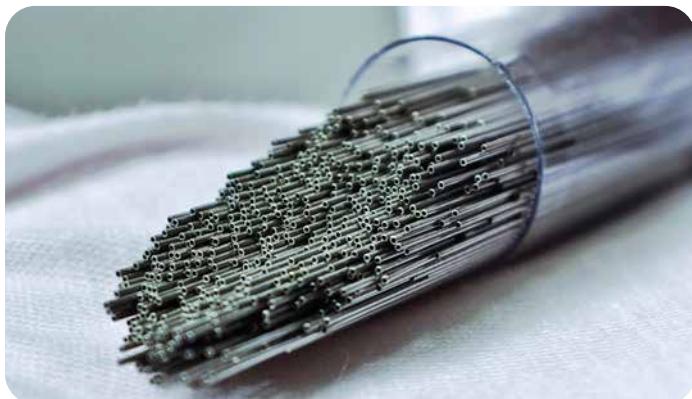


- Precision metal tubing in specialty grades of Stainless Steel, Nickel alloy and Titanium
- Seamless, welded, and redrawn tubes in straight lengths and coils
- Round, rectangular, square, oval, and elliptical profiles
- Key markets: Aerospace, Space, Nuclear, Medical, Instrumentation
- ISO certifications include: ISO 45001:2018, ISO 9001, ISO 14001

Superior Tube

Small Diameter, Thin-wall, Precision Tubing

Superior Tube is a global leader in the manufacture of thin wall, speciality alloy tubes. From nuclear power reactors to commercial aircraft, and Navy submarines to heart valves, our products are used in a wide range of demanding applications.



- Precision metal tubing in specialty grades of Stainless Steel, Nickel, Titanium and Zirconium
- Seamless, rolled and welded & drawn
- Profiles and cross section shapes to suit any requirement
- Both seamless and welded products come both as straight lengths or coils
- Seamless and welded drawn tubes

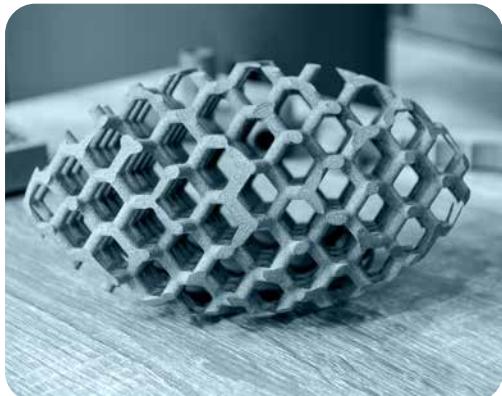
from under 0.010" (1/4 mm) up to 1.25" (31.75mm) OD

- Finished wall thicknesses down to less than 0.002" (0.05 mm) up to 0.150" (3.8 mm)
- Straight lengths of tubing up to 45ft (14m) long and coiled tubes up to 3,200ft (975m) in length

AMETEK Eighty Four

Water Atomized Powders, and Stainless Steel Flake

A global leader in the design, development and production of atomized, high technology metal powders. Recognized as a premier manufacturer of ultimate quality products certified to ISO 9001 status for critical applications.

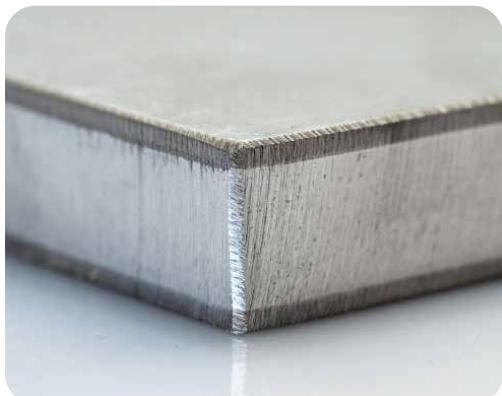


- Stainless steel and HP Ultra powders for Powder Metallurgy (P/M) and Metal Injection Molding (MIM)
- Specialty alloys including Inconel®, Monel®, Hastelloy®, Fe-Cr, Fe-Al, Ni-Cr-Fe-B-Si, Ni, NiCr, NiAl, NiCrAl, Fe-Ni, Tribaloy® and more
- Tool steel powders for automotive and industrial parts
- Filter grade powders for sintered metal filters
- Polyester and nylon spinning and liquid polymer filtration powders
- Surface coating and hardfacing powders
- Plastic compounding powders and metallic additive powders
- Stainless steel flake, leaf and paste for paint and coating additives

AMETEK Eighty Four

Roll-bonded Clad Metal Plate

Our high performance clad plate is produced through roll bonding dissimilar metals, combining the superior properties of each metal: strength, corrosion resistance, lightweight, cost, thermal and electrical conductivity.



- Materials: Stainless Clad Aluminum, Nickel Clad Steel, Stainless Clad Steel, Inconel Clad Steel, 276 Clad Steel, Copper Clad Steel, Titanium Clad Steel, Stainless Clad Tool Steel
- Sizes: standard widths from 120" lengths to 480" and thickness ranging from 3/16" to 1". Cladding on steel backing can be supplied in a

range of thicknesses from 5 to 40% of the overall material thickness

- Applications: industrial cooktops, commercial braising pans, grills, boilers, pressure vessels, steam vessels, cryogenic transition plates, ship building transition plates, specialty knives

Hamilton Precision Metals

Precision Strip and Ultra-Thin Foil

Hamilton Precision Metals engineers metal strip and foil in a large variety of alloys to the tightest tolerances and thinnest gauges in the industry.

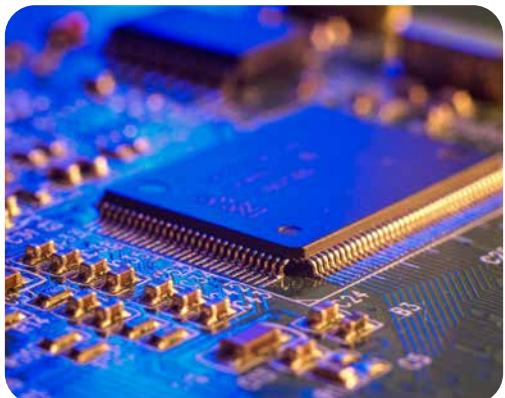
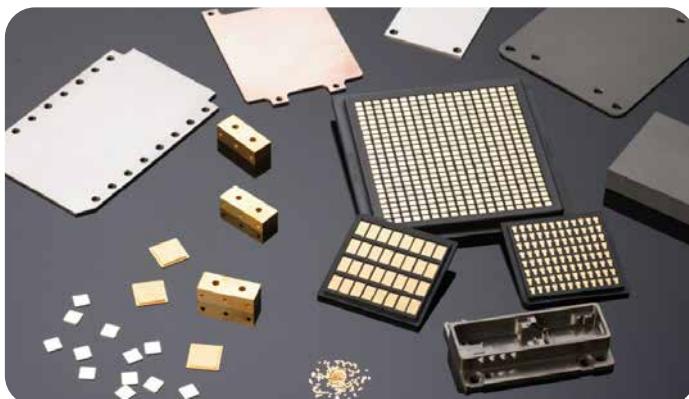


- Thickness down to 1.5 microns (0.000060")
- Titanium CP (Grades 1, 2 & 4) and alloyed (Grade 9)
- Stainless and heat resisting steels, standard & special grades (17-4PH®, 17-7PH)
- Nickel and high Nickel alloys: Hastelloy® C-276, MP35N®, Pure Nickel, Precision C
- Precision resistor alloys: Constantan®, Evanohm®, Manganin®, HPM 80/20, HPM600
- Controlled expansion alloys: NiFe 36, 42, 52, Rodar®/Sealvar®
- And many others including Havar®, L-605, Moly Permalloy®, Tantalum

AMETEK Wallingford

High Purity Strip, Shaped Wire, Thermal Management Materials, and Engineered Components

Located in Wallingford, Connecticut, AMETEK Specialty Metals Products is a pioneer in specialty metal products with more than 50 years of experience and numerous patents in technically advanced metallurgical materials.

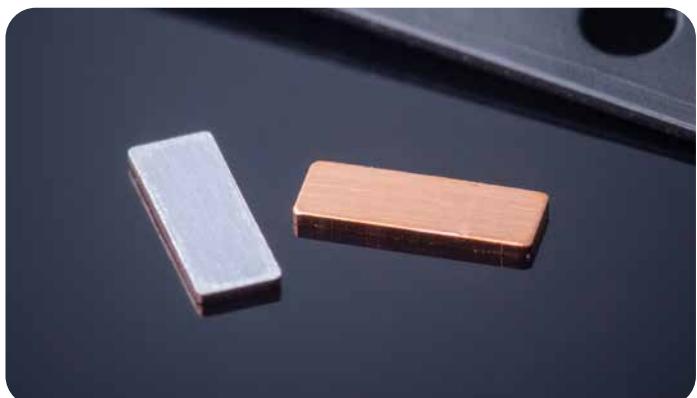
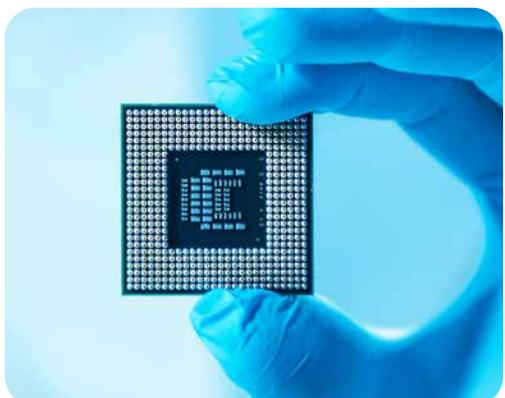


- Metal strip (Nickel, Nickel Iron, Nickel Tungsten, High Purity Iron)
- Strip for Welding: Nickel Chrome, Ductile Cobalt
- AM-388, Pfinodal® (CuNi15Sn8) strip, bars, rods and shaped components
- Controlled expansion alloys: NiFe 36, 42, 52, Rodar®/Sealvar®
- Machine-finished parts
- Shaped wire
- Thermal management materials (Molybdenum Copper, Tungsten Copper)
- Titanium: Cold rolled Grades 5 and 23 for Medical and Aerospace applications

AMETEK COINING

Precision microelectronics components and wire

COINING is a leading expert in electronic solutions and alloy customization, with factories in Montvale, NJ and Penang, Malaysia. Offering a large portfolio of alloys, bonding wire, and ribbon, all held to the tightest tolerances.



- Specialized Gold and Aluminum Bonding Wire and Ribbon
- Solder and Braze Preforms
- Precision thermal management materials
- Microstampings
- Bond Pads
- Cover Assemblies and Ceramic Cover Assemblies
- Commonly manufactured alloys are of Gold, Silver, Lead, Tin, Zinc, Antimony, Copper, Indium, Iron, Molybdenum, Nickel, Tungsten and Kovar™
- Extensive cladding capabilities with the ability to create multi-layer microstampings
- Variety of packaging options available: Stamp to Tape and Waffle Packs to protect and secure products

Our Alloys

AMETEK EIGHTY FOUR

(Water Atomized Powders & Clad Metals)

300 Series Stainless Steel: 303L, 304L, 310L, 316L, 317L, 327L, HPUltra 303L, HPUltra 304L, HPUltra 316L

400 Series Stainless Steel: 409LCb, 410L, 420, 430L, 431, 434L, 434LCb, 446L

Hardfacing & Thermal Spray: 80/20 Ni/Cr, Ni/Al, Inconel® 600, Hastelloy® (C-22, C-276, X), NiCrFeSiB

Specialty Alloys: 17-4 PH, Ni/Fe alloys, 70/30 Fe/Cr, DP-1, Inconel®, Hastelloy®, Monel®, Tribaloy® T-400 and T-800, Stellite®, Molyperm®, Nickel 200, Ni/Cr alloys, Ni/Al alloys, T-15, D-2, M3/2, and custom Tool Steels

Clad Alloys: 304L, 309, 310, 316L, 317L, 2205, 410S, C-276, 285-C, inconel® 625, inconel® 686, inconel® 825, Monel® 400, Nickel 200, CuAl, SS/Al, SS/Al/SS

FINE TUBES AND SUPERIOR TUBE

(Precision Tubing)

Stainless Steel: 303Se, 304, 304L, 310, 316, 316L, 316LN, 316LVM, 316Ti, 317L, 321, 347, 6Mo, 904L, 15-5PH, 16-6 PH, 17-4PH®, 17-7PH, 21-6-9, 42-6, 446, FV607, Nitronic® 50, Duplex S31803, Super Duplex (S32750 and S32760)

Nickel: 36% Ni-Fe, 42% Ni-Fe, 59, 75, 188, 200, 201, 211, 263, 29-17 (Kovar®), Monel® 400, 600, 625, 690, 718, 800-H-HT, 825, C22, C276, C902, HX, K-500, L-605, MP35N®, Waspaloy®, X750

Titanium: Ti CP (Grade 1 and Grade 2), Ti 3Al-2.5V (Grade 9), Ti 6Al-4V (Grade 5), Ti 6Al-4V ELI (grade 23), Ti A-40

Zirconium: Zircaloy 2, Zircaloy 4

Our Alloys

HAMILTON PRECISION METALS

(Foil & Strip)

Stainless Steel: 301, 302, 304, 304L, 316, 316L, 316 LS, 410, 420, 430, 17-4PH®, 17-7PH

Nickel: 200, 201, 270, 625, Hastelloy® C276, Inconel 600, Monel® 400, MP35N®, Precision C, X-750

Titanium: CP Ti (Grades 1, 2 & 4), Grade 9

Specialty: Constantan®, Evanohm®, Havar®, L-605, 715, Manganin®, Moly Permalloy®, NiCr 80/20, NiFe, Tantalum

AMETEK WALLINGFORD

(Strip, Wire, Shaped Components & Thermal Management Products)

Nickel: 200, 201, 270, NiFe 36, 42, 48, 52, NiW, NiCr alloys

Titanium: Ti 6Al-4V (grade 5), Ti 6Al-4V ELI (grade 23)

Specialty: AM-388, CoFe, CoFeNi, Pure Cobalt, F-15 alloy, High Purity Iron, MoCu, Pfinodal® CuNiSn, WCu

COINING

(Solder Preforms, Bond Pads, Microstampings, Cover Assemblies, Aluminum & Gold Bonding Wire and Ribbon)

Molybdenum: ASTM B361 **Nickel:** ASTM B162

Gold: ASTM B562, ASTM F72 (bonding wire/ribbon) **Solder:** J-STD-006

Solder Alloys: Sn60Pb40 (Melting range 183-188 °C), Sn96.5Ag3Cu.5 (Melting range 217-220 °C) Au80Sn20 (Melting point: 280 °C) Pb95Sn5 (melting range: 305-314 °C) *Other solders available upon request.*

AWS A5.8 Braze Alloys: Ag72Cu28 (Melting point 780 °C), Ag65Cu20Pd15 (Melting range 850-900 °C) Cu80Ag15P5 (Melting range 643-802 °C)

Copper: CDA 101/102 **Kovar:** Mil-I-23011 or ASTM F-15



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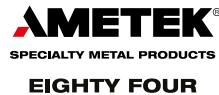
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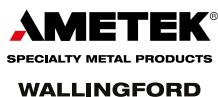
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