SPUTTERING TARGETS
for High-Quality Thin Film Materials

AMETEK®
SPECIALTY METAL PRODUCTS

www.ametekmetals.com
Applying Wrought Metal Powder Fabrication Techniques to the Production of Vacuum Sputtering Targets

AMETEK Specialty Metal Products (SMP) offers a wide range of sputtering targets in shapes and material compositions that deliver maximum performance through an ideal combination of materials and manufacturing technology.

SMP manufactures the highest quality materials available and employs technologies unique to the industry. We produce targets using the latest powder metallurgy techniques, including a proprietary forging process. These materials are engineered from powders of specific particle sizes, distribution and purity to ensure the sputtering targets meet or exceed specifications.

Additionally, SMP offers a variety of casting alternatives, including vacuum casting technology. Our processes are capable of producing fine grain, homogenous, fully dense materials with purity levels as high as 99.995%.

The Benefits of AMETEK SMP Wrought Powder & Vacuum Casting Technologies

Our fabrication processes yield vacuum sputtering targets that deliver outstanding performance. The advantages of our manufacturing methods are:

- High purity surfaces
- Superior microstructure
- Uniformity of grain size
- Customized material availability
- Vacuum Cast full density
- PIF* processed high & full density

SMP serves as a single source for both targets and powders.

*Pneumatic Isotatic Forging (PIF) is AMETEK’s patented process for manufacturing high density and controlled microstructures in a variety of materials and forms. PIF is, essentially, high-tech blacksmithing that uses a gas hammer to forge materials to specified densities. By adding high pressure to the sintering process, we produce the desired material properties while reducing the time and temperature necessary to achieve high-performance characteristics.

PIF differs from Hot Isostatic Pressing (HIP) because of its consolidation mechanism and its rapid throughput, with cycle times at pressure of less than two minutes.

The key to our process is engineering the powders to yield the specified particle sizes and distribution, enabling the deposition of homogenous coating layers.
Target Materials for Many Applications

At SMP, we have a broad range of manufacturing capabilities for producing sputtering target materials. The industries we serve include:

- Electronics
- Optics
- Glass
- Tooling

Applications

- Adhesion layer between ceramic & metallic materials
- Barrier layers preventing corrosion & diffusion in ensuing layers
- High solar absorption and/or reflective coatings
- Protective wear resistance layers
- Decorative coatings

Services

- Product/Alloy Development
- Cold Isostatic Pressing (CIP) for superior consolidation
- Pneumatic Isostatic Forging (PIF) to achieve desired material density
- Vacuum Induction Melting & Casting

Size Capabilities

- Planar targets up to 12” in diameter & up to 2” thick
- Rectangular targets up to 2” thick
- Cylindrical targets up to 6” in diameter & 30” in length
- Evaporation Slugs (standard & custom sizes)

Materials

Our manufacturing processes can produce targets in a wide range of alloys, including:

- Aluminum
- Chromium
- Cobalt
- Copper
- Gold
- High-Purity Nickel
- Molybdenum
- Nickel-Chrome
- Palladium
- Platinum
- Silver
- Tantalum
- Titanium
- Titanium Alloy
- Tungsten
- Tungsten-Titanium
AMETEK Specialty Metal Products (SMP) is a world leader in the production of metal powders, sputtering targets, high-purity strip and ultra-thin metal foil, specialty wire, metal matrix components and clad metal products. The company holds numerous patents for developing technically advanced metallurgical materials.

AMETEK SMP manufactures or consolidates a variety of metal alloys, including stainless steel, precious metals, nickel-based alloys, cobalt-based alloys, titanium, titanium alloys and master alloys. For more than 50 years, the company has been creating innovative products tailored to customers’ applications.

AMETEK SMP is a division of AMETEK, Inc. (NYSE:AME), a leading global manufacturer of electromechanical products that has annual sales of $3.5 billion. The company employs more than 14,000 people at over 120 production facilities, and at more than 80 sales and service centers throughout the United States and worldwide.