

ATI Wah Chang — Frackville Operations

ABOUT

ATI Wah Chang, Frackville Operations, a subsidiary of Allegheny Technologies Incorporated, has been producing titanium bar and wire since 1956. The division's 55,000-square-foot manufacturing facility, located in Frackville, Pennsylvania, supplies mill products worldwide. Titanium bar and fine wire products are drawn, cleaned, and annealed in an enclosed 22,000-square-foot section of the Frackville facility.

ATI Wah Chang staff assist customers with the development and implementation of specifications designed for unique applications. Products meet all specifications for commercially pure and alloy titanium grades.

CAPABILITIES & EQUIPMENT

Frackville Operations state-of-the-art equipment produces superior surface finishes and tight tolerances on various bar sizes. Equipment progressively draws the titanium to its proper size through intermediate annealing stages. Several restricted-range straighten and cut machines allow a variety of size groupings to be cut simultaneously.

The sophisticated equipment enables the division to produce large diameter bar (0.875" to 0.156" (2.2225 cm to .39624 cm)) with tolerances as tight as + 0.0005 and produces small diameter bar (0.125" to 0.032" (0.3175 cm to 0.8128 cm)) with tolerances as close as + 0.002. Standard finish is 16RMS.

Because of titanium's affinity for contamination gases at elevated temperatures, Frackville uses a vacuum furnace capable of operating at 10⁻⁸ TORR at 2700°C (4,892°F) for annealing, stress relief, and aging. Frackville can meet the stringent requirements of AMS, ASTM and custom specifications.

To meet high quality standards, ATI Wah Chang Frackville Operations quality control technicians and inspectors perform mechanical testing on all incoming semi-finished material. Sample material from each lot is analyzed to verify the material meets the latest specification revisions. Frackville's sophisticated software allows infinite traceability of mechanical testing.

ABOUT TITANIUM

Titanium's unique corrosion-resistance, great strength-to-weight ratio, excellent toughness and freedom from contamination, have made it a material-of-choice for aerospace systems and aircraft structural components for decades. Titanium is readily available for cost-effective use in an every widening range of industries. Titanium wire applications include lead wires for pacemakers, wool for bonding prostheses to

bone, pins, fasteners, and screens for medical and dental products, aircraft and automotive springs, and on-board fuel filtration systems in satellites. In addition, titanium wire is used as brush spines for cleaning heat exchangers, cloth filters, and corrosion resistant rod is used for supports.

PRODUCT LIST

Commercially Pure Titanium	ASTM B 348 Grades 1, 2, 3, 4 AWS A5.16 ERTi 1, 2, 3, 4 AMS 4951 AMS 4921 ASTM F 67 Grades 1, 2, 3, 4
Titanium Alloy 6Al 4V	ASTM B 348 Grade 5 AWS A5.16 ERTi 5 AMS 4954
Titanium Alloy 6Al 4V	ELI ASTM F 136 AMS 4956 AWS A5.16 ERTi 5 ELI
Titanium Alloy Ti 0.2Pd	ASTM B 348 Grades 7, 11 AWS A5.16 ERTi 7
Titanium Alloy Ti 0.3 Mo .8Ni	ASTM B 348 Grade 12 AWS A5.16 ERTi 12
Titanium Alloy 5Al 2.5Sn	AMS 4953 AWS A5.16 ERTi 6 ASTM B 348 Grade 6
Titanium Alloy 3Al 2.5V	ASTM B 348 Grade 9 AWS A5.16 ERTi 9
Titanium Alloy TiNb	ASTM F 1295
Lengths supplied: 18" – 20' (45.72 cm – 6.096 m) Spools: 2" – 12" (5.08 cm – 30.48 cm) Diameters: 0.0015" – 0.500" (0.00381 cm – 1.27 cm)	

SALES & SERVICE

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ATI Wah Chang — Huntsville Operations

OVERVIEW

ATI Wah Chang Huntsville Operations, located in Huntsville, Alabama, has been producing niobium-titanium and other rod and wire products since 1984. The facility comprises 111,955 ft² in five buildings on 21 acres.

CAPABILITIES AND EQUIPMENT

Huntsville Operations makes numerous sizes of superconducting grade niobium-titanium rod. Rivet-grade niobium-titanium sizes include 0.248" (6.2992 mm), 0.185" (4.699 mm), 0.1555" (3.9497 mm), 0.1245" (3.1623 mm), and 0.093" (2.3622 mm) in diameter. Rivet-grade wire is supplied unannealed with lubricant left on the material to help in the heading of rivets by the end user.

Huntsville's facilities include an 8F four-die swage that can swage-point up to 4" diameter multifilamentary bar. The facility's 200,000-pound draw bench is capable of processing bars up to 80' length with a capacity of 100,000 pounds-per-month. A second draw bench is capable of drawing nominal 2.4" diameter bars and lengths up to 180'.

Additional equipment in Huntsville's rod processing department includes a continuous annealing furnace, an aging furnace, straightening equipment, and ultrasonic testing equipment. The site's numerous bull blocks process material from 0.625" – 0.011" in diameter.

Huntsville Operations can anneal up to 1,000 pounds of material in its vacuum anneal furnace. After annealing, material is pickled in an acid cleaning facility, which includes 30' tanks for rods up to 28" long and tanks for pickling coils ~ 48" diameter.

Huntsville's protective surfaces on all machinery and handling equipment enable it to maintain high yields and unparalleled metallurgical and surface qualities.

PRODUCTS

Huntsville Operations manufactures a variety of products, including rivet-grade niobium-titanium, various diameters of zirconium and its alloys, NiTiNOL, Zr4 nuclear weld rod, hafnium for welding plasma tips and rod and wire, and 0.011" Zr 702 demister wire. In addition, the facility does the final processing for Smith and Nephews Zr2.5Nb and performs conversion processing of copper-clad superconductor for outside customers, processes nickel-base alloys, and draws various grades of titanium for other ATI operations.

Niobium-titanium alloys produced in Huntsville are used in Magnetic Resonance Imaging (MRI) devices (which safely scan the body's soft tissues) and in high-energy particle accelerators. In addition, niobium alloys emerging technologies, such as energy storage devices and ultra-efficient motors, use niobium-titanium. A niobium-titanium alloy is even used in pipe and other forms in gold mining autoclaves, where corrosion and ignition of materials are a great concern.

SALES AND SERVICE

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