



The World's Most Advanced
Specialty Metals Manufacturing Facility
Athens Operations





From design, to equipment, to production efficiencies, the visionary Athens facility incorporates the best practices learned over 125 years of Carpenter Technology Corporation's leadership in advanced manufacturing technology.

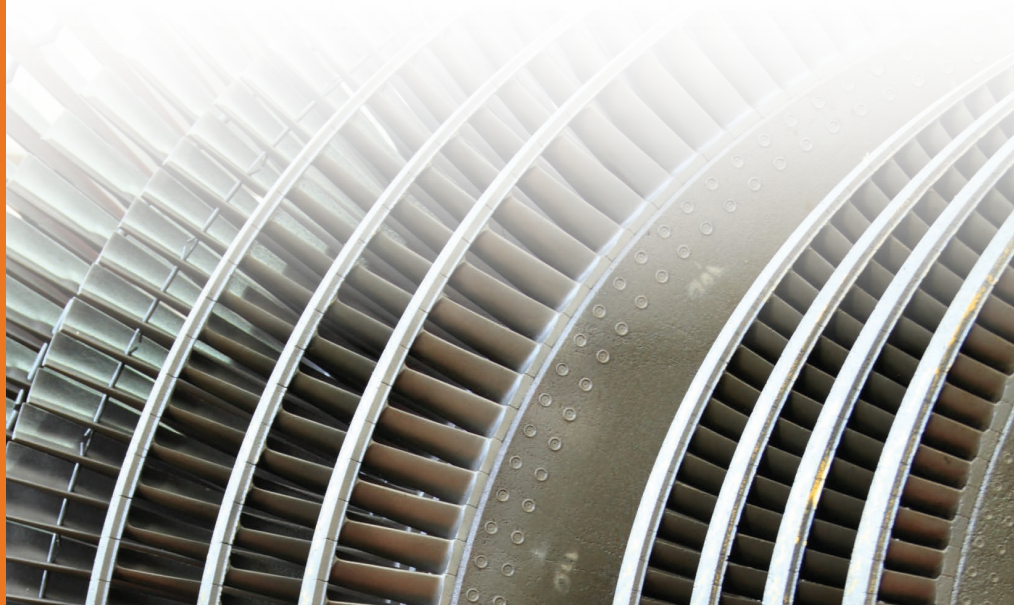
The Athens facility manufactures ultra-premium alloys using highly automated, procedure-driven processes to ensure quality and fast delivery.

- World's largest hydraulic radial press
- Procedure/automation-driven processes
- Statistical Process Controls (SPC) and Key Performance Indicators (KPI)
- "Real time" production status/performance systems
- Product weighing and yield tracking at all work centers
- Single-piece tracking throughout all production systems
- Continuous process improvement culture

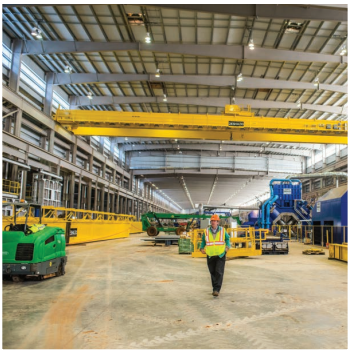
Athens Operations Is Lean – The plant's linear layout enables material to flow in a manner that dramatically expedites production. "Bottlenecking" is eliminated due to the use of conveyor belts and transfer cars to move single pieces of material to each manufacturing step—greatly reducing the need for cranes.

Athens Operations Means Quality – Carpenter's furnace control logic and phased array inspection system ensure consistent product quality. Our advanced metallurgical and chemistry laboratories utilize qualification guidelines currently in place in our Pennsylvania labs (Reading and Latrobe).

Athens Operations Increases Capacity – Carpenter has invested hundreds of millions of dollars in capacity at its Reading and Latrobe facilities to increase production capacity so they can supply the Athens facility with a steady stream of high-quality ingots.



WORLD-LEADING MANUFACTURING CAPABILITIES

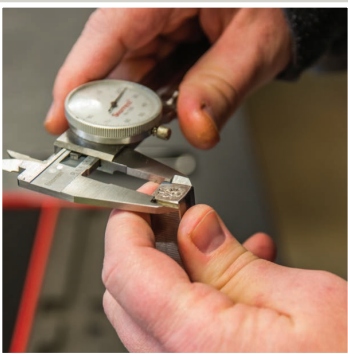


It's not often that a company gets the chance to rethink, retool, and expand its business by making a visionary manufacturing operation a reality. That's what Carpenter Technology has done in Limestone County, Alabama. The \$518 million Athens facility, which opened in 2014, includes remelting, hydraulic radial pressing, and associated finishing, inspection, and testing capabilities.



- The Athens facility was designed with modern technology and optimum product flow to meet customer requirements for reduced lead times.

- Production focuses on 4- to 18-inch ultra-premium alloy round bar solutions, with a total facility output of 27,000 tons of additional premium product per year when at full capacity.



- The facility was built in response to strong customer demand for ultra-premium alloy products.

- Athens is a key component of Carpenter's integrated mill system. Through the "one-mill" concept, major premium alloy and stainless steel manufacturing operations are managed in combination with the Company's other specialty alloy production facilities. Integrated manufacturing enables us to maximize efficiency and maintain high quality standards.



Carpenter Technology manufactures and distributes high-performance alloys, primarily for the fast-growing aerospace, consumer, and energy industries. After 125 years of industry leadership, the Company continues to increase its global manufacturing capacity and operations in order to provide single-source solutions for today's everchanging materials challenges.

Streamlined Production Process



Primary Melting

Product arrives from one of Carpenter's two primary melting facilities: Reading or Latrobe. Vacuum Induction Melting (VIM) furnaces melt raw materials under controlled vacuum conditions to produce high-purity ingots.

Lead time reduction: High VIM capacity at our legacy operations provides a steady supply of high-quality ingots to the facility based on demand.



Storage and Ingot Conditioning

On delivery, high-purity ingots are entered into a new automated storage and retrieval system that identifies and tracks material through the production process. When "called," ingots move into conditioning (grinding and cutting) before entering remelt.

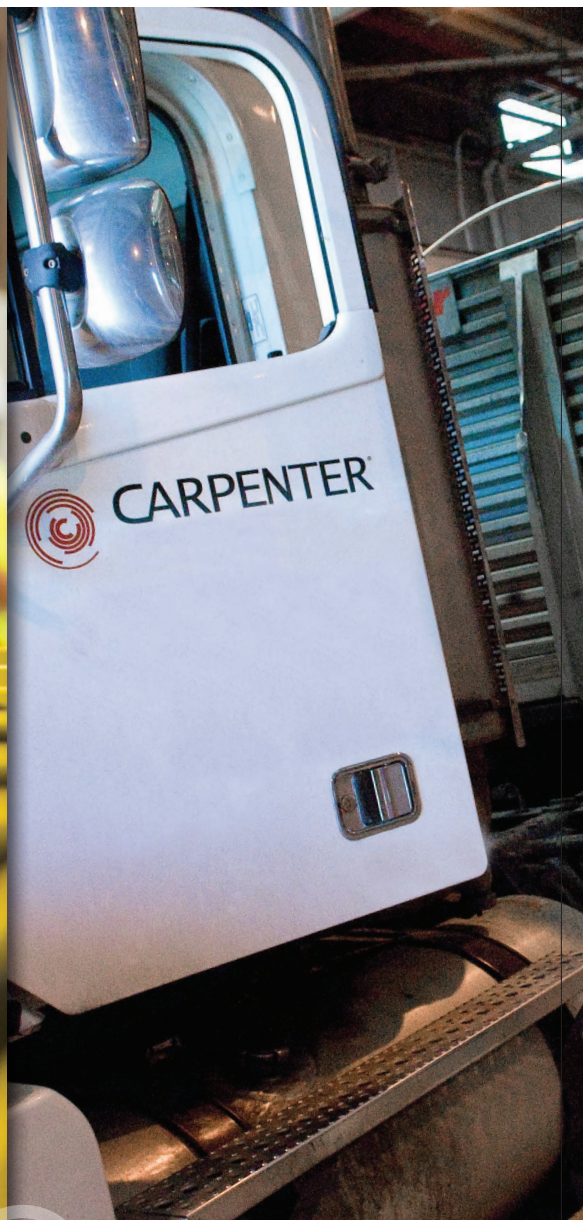
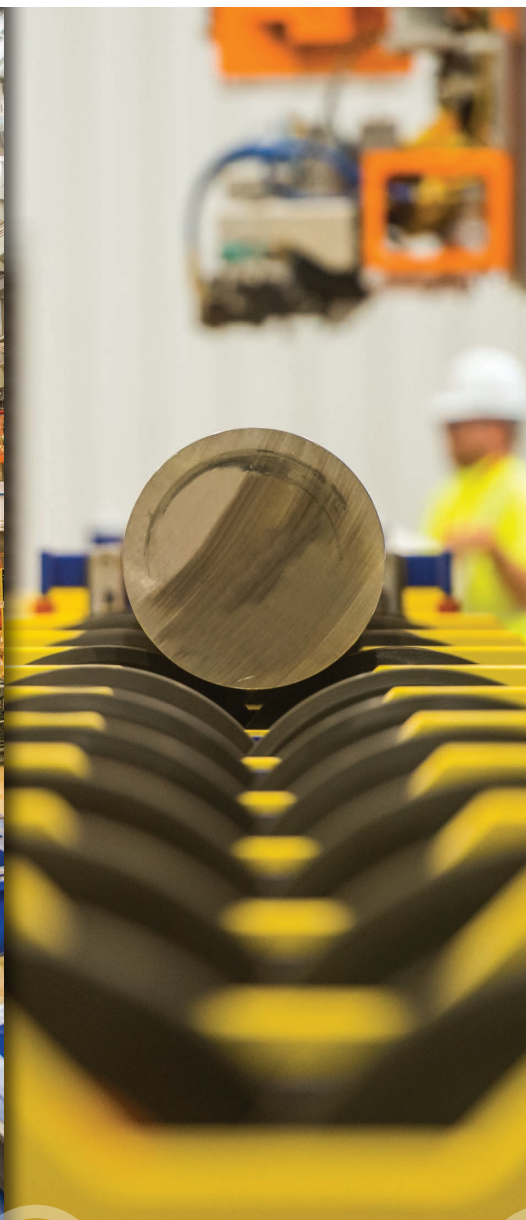
Lead time reduction: Inventory buffers are minimal at each machine, with little to no queue time.



Remelting

Electroslag Remelting (ESR) and Vacuum Arc Remelting (VAR) furnaces yield high-purity product and allow the tailoring of alloy quality to customer requirements. Ingots may go through triple melting to produce high-quality alloys with the cleaner, more homogeneous structures needed for some demanding applications, such as rotating parts for aerospace and power generation.

Lead time reduction: Less equipment changeover due to a more focused product portfolio.



Radial Press Finishing Shipping

Our hydraulic radial press is the world's largest and most advanced machine ever devised to forge or press the most sophisticated alloys, providing endless opportunities for future technical and product developments.

Lead time reduction: Hot working cycle time is reduced due to the advantages of the hydraulic radial press.

Billets enter the technologically advanced, automated straightening equipment to reduce variation. Grinding and turning technology enables Carpenter to turn larger diameter bars specially designed for the ultra-premium alloys. The bars are polished before going through ultrasonic testing.

Lead time reduction: Finishing equipment is designed with material handling capabilities to maximize product flow and efficiency.

Immediately following finishing, product moves to its final destination for delivery to customers worldwide.

Lead time reduction: New technology helps Carpenter optimize each shipment for fast delivery.



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Our location in Alabama provides us the opportunity to expand our operations to accommodate future growth. As we approached the final stages of the Athens facility, we announced the construction of a new superalloy powder facility to be located directly across the street from the new plant, with production scheduled to begin in 2015. Initially, superalloy powder will be produced for aerospace applications, with future demand expected for energy and additive manufacturing applications.