

END-TO-END MANUFACTURING

# TAKE YOUR DESIGNS FROM POWDER TO PART

Vertically integrated metal additive manufacturing  
production and quality management

**REDUCE RISK**

De-risk innovation and scale AM to qualified production

**EQUIP YOUR TEAM**

with our metallurgy, metal powder, and AM experts

**130+ YEARS**

alloy and production expertise

**THE MOST INDUSTRY-LEADING METALLURGISTS**

and thousands more material and industry experts on staff

**BRAND PORTFOLIO**

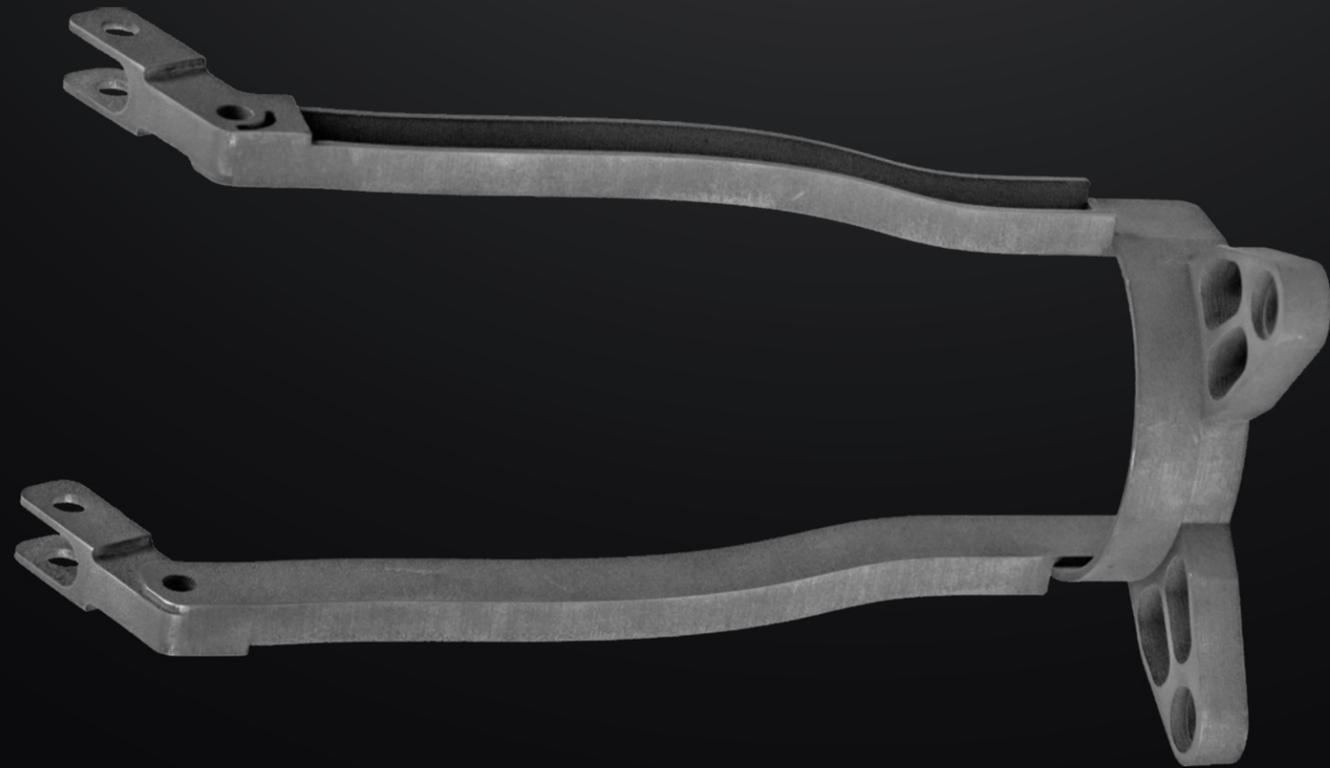
of proven, high-performance alloys:

- Titanium-based
- Superalloys
- Nickel-based
- Cobalt-based
- Stainless steels
- Tool and die steels
- Alloy steels
- Custom alloys

**WORLD-CLASS R&D**

expertise, equipment, and infrastructure for:

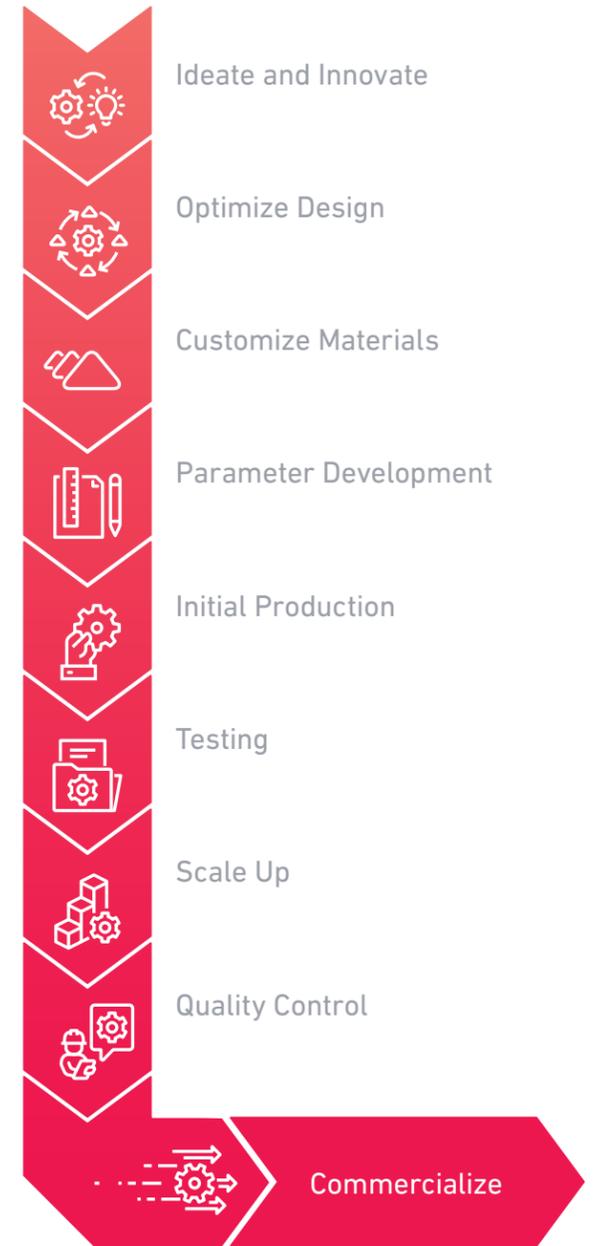
- Applied and basic research
- Modeling and simulation
- Process and materials characterization
- Alloy development
- Additive manufacturing
- Soft magnetics
- Scaling up and going to market



Vertically integrated AM production

At Carpenter Additive, we're serious about additive manufacturing (AM). Our global facilities are dedicated to supporting customers' end-to-end metal AM projects, no matter where they are in their journey from powder to part. Over a century of material expertise and our history of process development uniquely positions us to partner with companies and holistically inspect the entire AM process chain to overcome additive challenges. Customers rely on our team of metallurgists and additive manufacturing experts for material identification and custom alloy atomization, metal additive part production, HIP'ing, post-process machining, vacuum sintering, and accredited material validation.

From concept to creation, Carpenter Additive empowers you to unlock the potential of additive manufacturing and take your designs into full-scale AM production.



## The expertise to support you from concept to full-scale

Metal additive manufacturing is, at its heart, a metallurgical process. The material experts from Carpenter Additive not only supply the market with premium-grade material and custom alloy development, we also support customers with end-to-end manufacturing services. Our team of metallurgists, powder technologists, and AM experts have a deep understanding of each process step and help customers optimize designs, offer deeper insights on materials, recommend production processes, and optimize parameters to deliver best-in-class properties. We enhance the effectiveness of your engineering team through collaborative relationships.

- Variety of different machines and processes to offer a range of solutions to meet customers' requirements
- The only global partner from powder to part, with multiple production sites and duplicative supply chains for risk-reduction in highly critical applications
- Full value stream competency allows us to provide solutions for quick-turn development and then support your team to transition to long-term production

## Building the future of additive manufacturing

Our Emerging Technology Center in Athens, Alabama drives the commercialization of new technologies with 50,000 square feet of production space to foster project development and manufacturing support with the Carpenter Additive team. With innovation space to host our customers' engineers and collaborate on projects, the Emerging Technology Center demonstrates scaled-up application development, material traceability, component fabrication, post-processing, and certification to provide end-to-end solutions to your application requirements.

- Powder atomization and powder bed fusion metal AM production, all under one roof
- On-site HIP furnace, vacuum heat treatment, and machine shop for post-processing
- Metrology lab with microscopes, advanced metallography, and a CT scanner for quality validation and non-destructive testing of final components
- Digital thread underpinning the entire process to maintain full traceability and analytical insights, from powder to finished metal part

**50,000 SQUARE FEET**  
production space

**INNOVATE, FABRICATE, AND TEST**  
tailored solutions



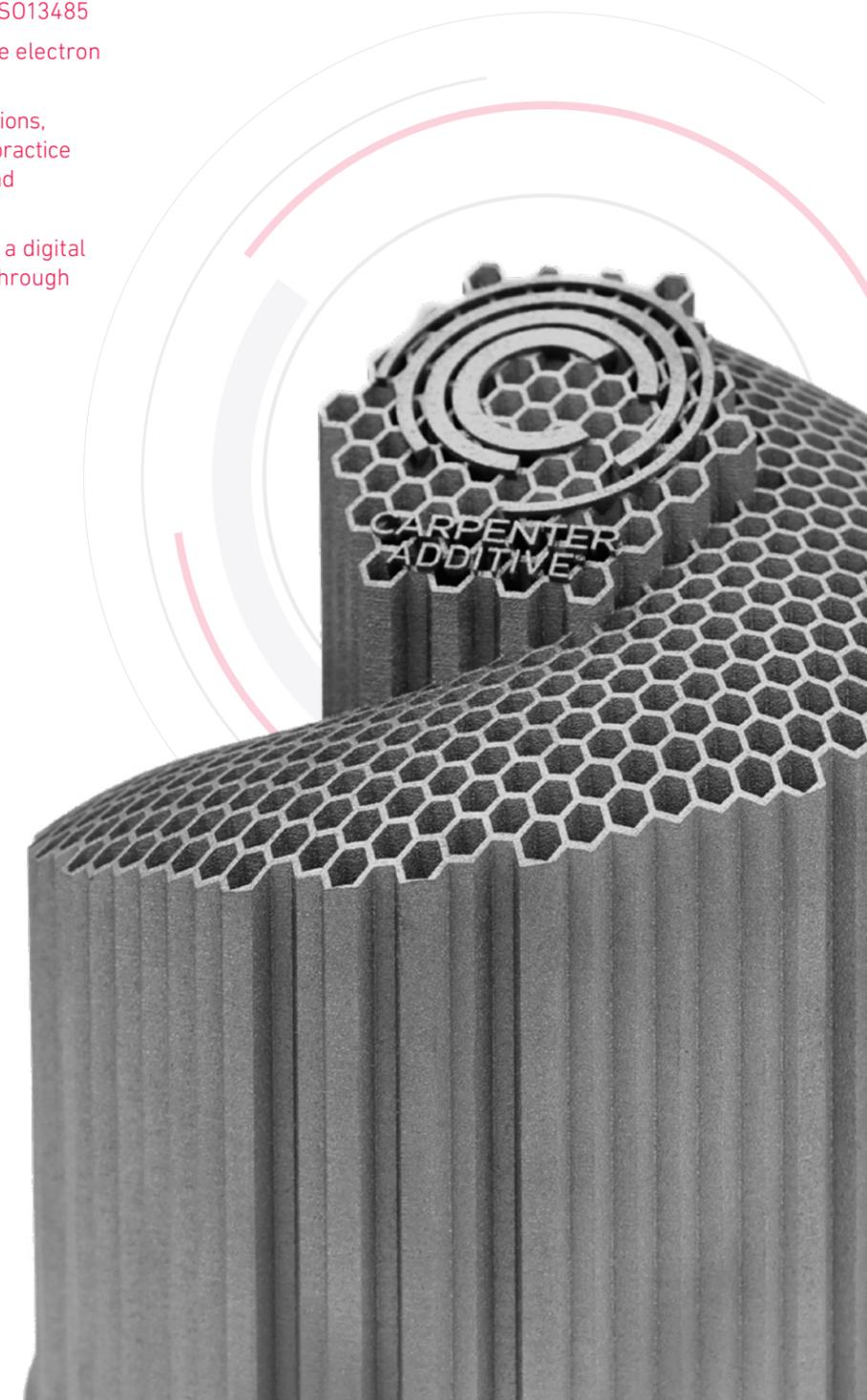
## Proven processes, precise results

Carpenter Additive is committed to adding quality to the AM process by supplying well-defined powders and services to support the needs of our customers. We harness over a century of experience working with mission-critical applications to ensure we deliver what our customers ask for, with the documentation required for validation.

- Certified AS9120, AS9100, ISO9001 and pending ISO13485
- First to receive NADCAP accreditation for both the electron beam and laser powder bed fusion process
- Active in developing all industry standard specifications, including ASTM and AMS-SAE, incorporating best-practice procedures for powder manufacturing, handling, and part quality
- Automated data collection at every step to create a digital library and reference specifications and results through the entire value chain

Eliminate outsourcing risk and partner with the industry leader in additive manufacturing.

Learn from our experts! White papers, webinars, datasheets, and more are available in our resource center: [CarpenterAdditive.com/Resources](https://CarpenterAdditive.com/Resources)



## Your trusted partner for end-to-end AM Solutions

Carpenter Technology Corporation is a recognized leader in high-performance specialty alloy-based materials and process solutions for critical applications in the aerospace, defense, transportation, energy, industrial, medical, and consumer electronics markets.

**For additional information, please  
contact your nearest sales office:**  
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