



Enabling Mission Critical Capability

castheon.com

Industry Leading Expertise

At Castheon your vision comes to life through cutting-edge advancements in advanced materials and metal additive manufacturing. Established in 2016 by Dr. Youping Gao, a renowned expert in the rocket industry, Castheon was founded with a clear mission: to push the boundaries and unlock potential by leveraging the strength of refractory metals, especially Niobium.

In today's dynamic landscape of defense and exploration technologies, the imperative to re-imagine essential components like combat planes, hypersonic vehicles, missiles, and high-temperature parts has never been clearer. Castheon understands this call for innovation and stands at the forefront, advocating for a paradigm shift. Our game-changing technology of additive manufacturing has the potential to revolutionize the industry, enabling faster, more robust production of military and defense components.



Metal Additive Manufacturing & Engineering Services

Leveraging cutting-edge metal additive technology, Castheon delivers design freedom, speed, and cost-effective solutions for aerospace, defense, and medical needs. Our expertise extends to engineering and design services, utilizing methods like Laser Powder Bed Fusion (LPBF) to craft precise, customized components.



Materials

Castheon's innovative 3D printing methods empower precise control over properties and microstructure, revolutionizing hypersonic applications and defense systems with complex designs and enhanced material possibilities.



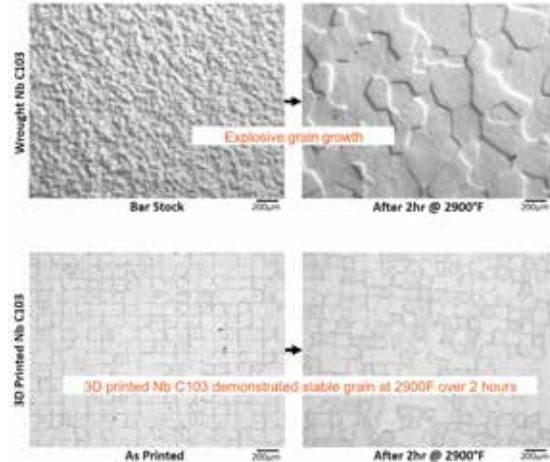
Metallurgy & Parameter Development

Castheon is known for our rapid and robust AM process development that is optimized for optimal and isotropic microstructures, build capability, and high productivity.

Material Characteristics

Better Than Wrought

Castheon's 3D-printed Niobium C103 outperforms traditional materials via precise control of rapid solidification in LPBF (Laser Powder Bed Fusion). This ensures metal integrity even under extreme conditions, enhancing grain boundary properties for superior performance. The LPBF process allows stable oxide and carbide structures, boosting strength and fabricability. Proven through third-party testing and space flight missions, our Niobium C103 stands superior over wrought materials.



Metal Powders

The Foundation of Precision and Strength

- Aluminum
- Carbon Composites
- Cobalt Chrome
- Copper
- Magnesium
- Nickel Alloys
- Niobium Alloys
- Steel Alloys
- Titanium
- Rhenium
- Tantalum
- Tungsten

**Complete material list available upon request.*

Post-Processing

Transforming Your Part's Look and Feel

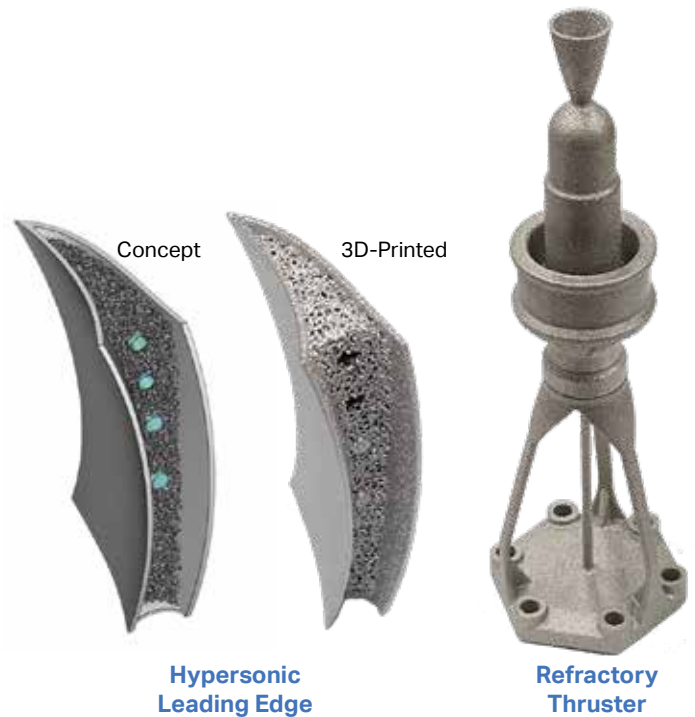
- Annealing
- Anodizing
- Bead Blasting
- Black Oxide
- Chemfilm
- Dry Film
- Heat Treating
- Lubricants
- Masking
- Metal Plating
- Non-Destructive Testing
- Passivation
- Penetrant Inspection
- Pickle and Oiling
- Polishing | Electropolishing
- Powder Coatings
- Primer / Paint Application
- Shot Peening

The Technology Landscape

Additive Refractory Metals For Hypersonics

We provide advanced refractory alloys and unique geometries for hypersonic and space flight applications. Our 3D-printed Nb C103 refractory thrusters have proven effective in space, featuring a high mach leading edge with integrated cooling. Our offerings include a variable density mesh with embedded internal structures, as well as high-quality, affordable thrusters, injectors, and hot gas manifolds.

- Significant cost savings
- Ability to ramp up production quickly
- Extremely high temperature tolerant
- Non-Ablative
- Durable and strong throughout entire temperature range
- Impact and damage resistant



Explore Our Range of Industry-Leading Machines

Committed to expanding production capabilities using top OEM technology, we ensure the industry's largest formats are readily available for our clients.



Industry Expertise

We provide cost-effective, high-performance, and sustainable solutions to innovative industries from prototype through production. Whether it is mission-critical operations or life-saving procedures, we offer end-to-end solutions.



Commercial Space



Aerospace & Defense



Industrial



Energy



Medical



Automotive

To ensure top-quality, compliant parts, we employ a nationwide certified Quality Management System (QMS).

CERTIFICATIONS

- ITAR Compliant
- ISO 9001 / AS9100
- ISO 13485:2016
- ISO 14001:2004
- ISO 50001
- NIST 800-171 Compliance
- Exostar 3.55

One-Stop Manufacturing Solution: **Delivering Quality, Precision, and Efficiency**

Castheon, as part of ADDMAN, offers comprehensive manufacturing solutions with unmatched quality, precision, and efficiency.

- Experience the formidable strength of our **metal additive manufacturing**, which excels in producing precise components while leveraging our profound metallurgical expertise.
- Unleash creativity with our **polymer 3D printing**, crafting robust parts with stunning designs.
- Our **injection molding** processes deliver cost-effective, high-quality production.
- Complementing these capabilities, our robust **CNC and post-processing** expertise enhance the overall quality and precision of our offerings.

With trust in our unwavering commitment, technological prowess, and extensive capabilities, we are poised to bring your innovative ideas to life.

Contact us for more information and to get a quote for your production needs.

www.castheon.com

