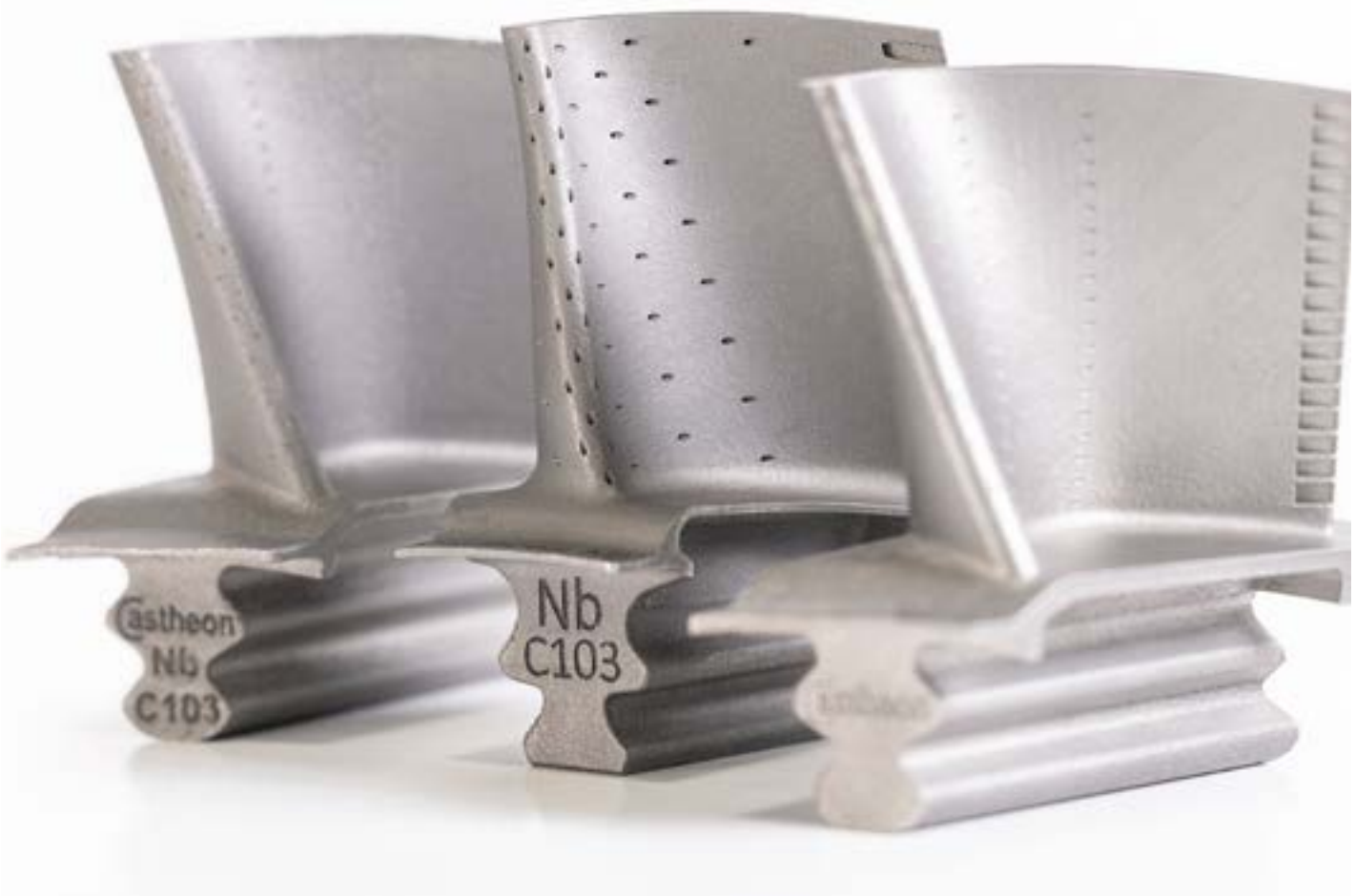
ADDMAN
POWER THE PURSUIT™

Power the Pursuit

Our pursuit is to solve your manufacturing challenges.



Purpose-Driven Production

ADDMAN is more than just a print shop. Our mission is to power a better tomorrow with additive-enabled engineering and manufacturing solutions.

Manufacturing’s inherent need for innovation is reflected in our “Power the Pursuit” charter. With a portfolio of companies with more than 30 years of production experience and a strong tradition of innovation, we strive to be a leading force in American manufacturing.

We pursue quality, sustainability, and security regardless of the challenges brought forward by our partners. With the right technology, our only limitation is our own imagination.

Our Strategic Pursuits

We power innovation and ambition through customer focus, engineering excellence, and mission critical quality.

Mission Critical Quality

Utilizing state-of-the-art technologies, we manufacture mission-critical parts that are lighter, stronger, and faster to market. In highly regulated industries such as hypersonic flight, our quality is backed by our Castheon business. A leader in refractory metal additive manufacturing, Castheon is known for its high-quality, isotropic microstructures, high build capability, and high productivity.

Sustainable Manufacturing

Our HARBEC venture is our corporation's leader in green initiatives. The use of energy-efficient equipment and on-site green energy sources reduce greenhouse gas emissions at our HARBEC facility. Our carbon-neutral facility paves the way for a healthier future. We meet the needs of today without compromising the quality of tomorrow. The long and successful history of sustainable manufacturing at HARBEC will become the benchmark for ADDMAN companies in their ESG initiatives.

Additive Industrialization

ADDMAN uses cutting-edge metal and polymer printing technologies to produce highly complex products. Additionally, we assist companies in developing a tactical roadmap to establish a competitive advantage through additive manufacturing.

Supply Chain Stability

A combination of technology and machine capacity ensures that ADDMAN partners get the parts they need when they need them. As a vertically integrated company, we can handle a variety of volume requests, covering precision machining, 3D printing of polymers and metals, and injection molding. Our Accelerated Manufacturing is supported by our online portal.

Empowered Engineers. Revolutionary Capabilities.

Our Foundation

ADDMAN Group is owned by American Industrial Partners (AIP), a private equity company that invests in industrial businesses. The concept for ADDMAN was born from AIP's dedication to bringing additive manufacturing solutions to the other companies owned by the firm. ADDMAN is best described as an engineering-centric, additive-enabled manufacturing partner. We use additive to push boundaries in manufacturing, but we don't approach problems as though additive is the only solution. We offer a full solution approach to solving manufacturing challenges by offering, metal and polymer 3D printing, precision CNC machining and thermoplastic injection molding.

Our Brand Portfolio

CASTHEON *powered by* ADDMAN®

Castheon specializes in additive manufacturing of hypersonic and commercial space additive applications. Castheon's AM processes are optimized for optimal and isotropic microstructures, high build capability and high productivity.

DOMAILLE MANUFACTURING *powered by* ADDMAN®

The Domaille Manufacturing company includes three brands.

- Domaille Engineering specializes in high-precision machining for national security projects.
- Stanley Engineering is focused on automated machining of small parts in high batch volumes.
- Tech Manufacturing produces large-scale aero frame structures and critical assembly machining.

HARBEC

HARBEC specializes in the pre-production and production of precision machined components (3 to 7-axis CNC, EDM), metal and polymer 3D printing, injection molding with an internal tool and die-making capabilities, and quality assurance.

Let’s tackle your top challenges, together.

We provide end-to-end manufacturing solutions for hypersonic flight, space travel, automotive, medical and energy applications. Our process begins with understanding our customers’ biggest challenges and desired outcomes. We then develop and implement manufacturing solutions tailored to their applications and their requirements.

What role does innovative technology or processes play in your company’s product roadmap?

Your products and manufacturing needs are unique. And when it comes time to improve those products, advanced manufacturing techniques may not be within your scope. Together, we can leverage our unique strengths to speed up innovation and make your products better.

By handling complexity, ADDMAN frees up customers to focus on what they do best. Our unrivaled engineering expertise allows customers to add seasoned and accomplished engineers to their teams, allowing them to focus on their core responsibilities.

TALK TO AN EXPERT

CHALLENGE 1

Part quality and performance

A company’s future can be determined by the cost of quality. It is often necessary for customers in high-regulated industries need to redesign very complex parts or even change manufacturing methods in order to improve the quality and performance of their products. Companies can lose time and money if they lack proper insight into supplier performance both from a compliance and quality standpoint.

ADDMAN SOLUTION: With your part specifications in hand, our engineers can develop a design, material, and manufacturing process customized to your application. To ensure that our products are consistently high-quality, ADDMAN adheres to the ISO 9001:2015 standard.

CHALLENGE 2

Supply chain restraints and technology accessibility

It is inevitable that even the best manufacturers will experience production delays from time to time. Our customers often lack access to the right technology or machine capacity to produce their parts at the speeds they need.

ADDMAN SOLUTION: The right mix of technology and machine capacity ensures ADDMAN partners get the parts they need when they need them. Our vertically integrated operations include precision machining, injection molding, and polymer and metal 3D printing, allowing us to support a wide range of volume requests. These capabilities are backed by our on-demand Accelerated Manufacturing Portal which supports industry-leading turnaround times and a seamless customer experience.

CHALLENGE 3

Technical expertise

There are not enough engineers, managers, and executives who understand additive technology well enough to develop a strategy to benefit from it. It is important for design engineers to understand build prep software, material development, machine and process parameters, and post-processing requirements. Another challenge is understanding the difference between traditional and additive technologies. With 3D printing, there are design and manufacturing rules that determine whether a part can be manufactured successfully.

ADDMAN SOLUTION: Our process begins with understanding our customers’ biggest challenges and desired outcomes. We then develop and implement manufacturing solutions tailored to their applications and their requirements.

CHALLENGE 4

Material development

The availability of suitable materials is a challenge facing 3D printing. Unlike traditional manufacturing processes, which have developed materials for decades, additive manufacturing materials and parameter development require a lot of trial and error.

ADDMAN SOLUTION: We have over 30 years of experience in material and parameter science. Understanding and isolating process variables allow us to show improved strength, density, and fatigue resistance.

SERVICES AND SOLUTIONS

Solutions That Move You Forward

With our additive and conventional manufacturing technologies, we will guide you on a successful path to your complex part. Throughout the process, we help you optimize without compromising, from concept to scaled production. You can rely on us to deliver what you need when you need it, with the quality you expect.

Engineering Consulting

With your part requirements in hand, we can develop your part's application-specific design, material, and manufacturing process.

- Design services
- Metallurgy & Material parameter development
- Reverse engineering
- Advanced training & support

Certifications

- ITAR Compliant
- ISO 9001 / AS9100
- ISO 13485:2016
- ISO 14001:2004
- ISO 50001
- NIST 800-171 Compliance
- JCP: 0086270 / 0058842 / 0025691 / 0081082
- Exostar 3.55

3D Printing

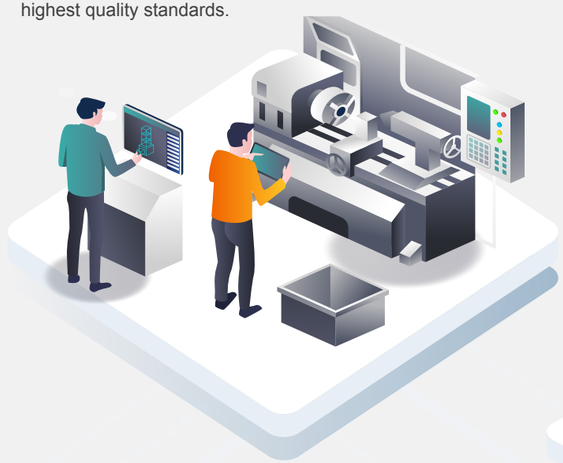
By using cutting-edge metal and polymer printing technologies, we can create deeply complex results that are otherwise impossible. Our team creates custom material parameter sets and has developed a polymer process that produces parts that are 70% stronger and 100x less porous than typical polymer parts.

Injection Molding

Our domestic injection molding capabilities are fueled by the dedicated team at our HARBEC business. With more than 45 years of experience, we offer superior strength and product durability, fast production speeds, and the capacity to meet the need for high production volumes.

Precision Machining

A full complement of processing and finishing elements are available with ADDMAN's precision machining footprint, which includes 5 axis CNC turning centers, wire EDM systems, and complete processing and finishing capabilities. With over 50 years of experience in precision machining, we have achieved the highest quality standards.



Accelerated Manufacturing

As a vertically integrated company, we are able to support volume requests across precision machining, polymer 3D printing, and metal additive manufacturing. Our Accelerated Manufacturing Portal, can meet turnaround requirements even when minimal consultation is required. Beyond speed, our output is backed by a network of engineers and experts who specialize in a variety of industries and materials.

CAPABILITIES

CNC Machining

- 123x 3-7 Axis Machining Centers
- 14x Turning/Milling Centers
- 5x CNC Lathes
- 15x CMM Centers

Injection Molding
Reciprocating Screw Machines

- 8x Fanuc Roboshot S-2000i 55-ton
- 2x Sumitomo Electric SE100D 100-ton
- 4x Fanuc Roboshot S-2000i 100B 110-ton
- 5x Fanuc Roboshot S-2000i 150B 165-ton
- 2x Fanuc Roboshot a-S330iA 358-ton
- 4x Arburg 370 Golden Electric- 67-ton

Metal Additive Manufacturing

- 3x VELO3D Sapphire
- 1x Additive Industries MetalFAB1
- 1x EOS M 400 - 1 (single laser)
- 1x EOS M 400 - 4 (quad laser)
- 7x EOS M 290
- 1x EOS M 270
- 1x EOS M 100
- 3x 3D Systems PROx 300
- 1x 3D Systems PROx 200
- 2x Concept Laser M2
- 1x Renishaw RenAM 500 Flex

3D Polymer Printing

- 2x Titan Atlas
- 1x Fusion3 F410
- 2x Shape
- 5x Formlabs Form 3L
- 1x 3D systems Projet 600HD SLA
- 1x Connex 500 Polyjet
- 1x Markforged FDM
- 1x 3D Systems Fortus 400MC FDM
- 1x 3D Systems Fortus 450MC FDM
- 1x Roboze Argo 500 FDM

Innovation that increases FDM part strength

Introducing InterFill 3D

InterFill 3D, powered by ADDMAN and our CAAM (Computer Aided Additive Manufacturing) methodology, is a printer-agnostic build prep tool that yields industry-leading part strength.

The software application takes conventionally sliced files and converts designs into an interlocking infill structure. The result is stronger parts that direct the path for future polymer production.

WHAT IS CAAM?

CAAM or Computer Aided Additive Manufacturing is ADDMAN's approach to optimizing part strength. Our team challenges status-quo processes and develops new ways to advance software and material & machine parameters. Our goal is to make additive manufacturing a repeatable process, supporting both prototyping and mass production.

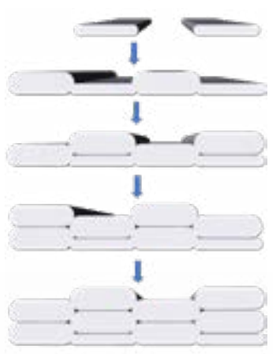
70%
STRONGER PARTS

Industry-leading part strength is enabled by cross-linking planes creating an innovative build technique.

100x
LESS POROSITY

The printing sequence of the offset beads allows for filling of the valleys, almost completely eliminating porosity.

Offset Bead Print Sequence



With conventional slicing techniques the weakest portion of the part is the X/Y plane.

MATERIALS

We have over 30 years of experience in material and parameter science. Understanding and isolating process variables allow us to show improved strength, density, and fatigue resistance.

CNC Metals

- Aluminum
- Brass
- Copper
- Graphite
- Hastelloy
- Inbar
- Kobar
- Molybdenum
- Steel (Inconel, Stainless)
- Titanium
- Tungsten

3D Printing Metals

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

3D Printing Polymers

- ABS & ABS-Carbon Fiber
- ASA
- Ceramic Resin
- Elastic 50A
- ESD Resin
- Flexible 80A
- Nylon 11
- Nylon 12
- PC-Glass Filled
- PEEK/PEK
- PETG
- Polycarbonate
- Polypropylene
- Rigid 10K
- Rigid 4000
- Tough 2000
- TPU
- Ultem 9085, 1010

Injection Molding Thermoplastics

- ABS, Nylon, Polycarbonate, TPU
- **Bioresins:** reclaimed, biodegradable
- **Chemical-resistant:** Isoplast™
- **Filled:** carbon, glass, metal, mineral
- **High-density:** EcoMass™
- **High-heat:** PEEK, Radel™, Stanyl™, Ultem™
- **Thermally-conductive:** Electric and dielectric

Accelerate your path to manufacturing innovation. Let’s start today.

Together, let’s work at the speed today’s industry demands and turn your complex needs into your competitive advantage.

Talk to an expert today.

addmangroup.com