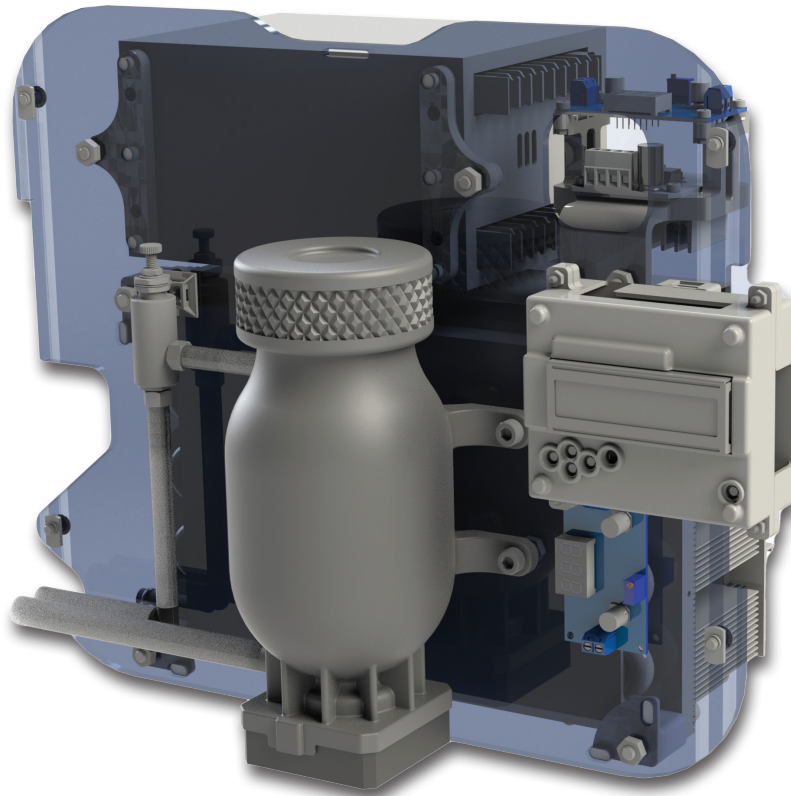


ATHENA 3D MANUFACTURING HELPING CLIENTS DESIGN FOR ADDITIVE MANUFACTURABILITY WITH 3DEXPERIENCE WORKS SOLUTIONS

Case Study



Athena 3D Manufacturing relies on SOLIDWORKS design and simulation, and 3DEXPERIENCE Works collaboration, communication, and data management solutions, to help its clients design products for additive manufacturability, so they can be efficiently and cost-effectively manufactured using 3D printing technology.

Challenge:

Meet ISO 9001 certification requirements for managing and releasing designs, documents, and drawings, and leverage simulation tools to ensure design for additive manufacturability.

Solution:

Implement SOLIDWORKS design software in conjunction with solutions from the **3DEXPERIENCE** Works portfolio—including Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and Collaborative Business Innovator—on the cloud-based **3DEXPERIENCE** platform.

Results:

- Doubled revenue
- Formalized product development workflows, eliminating errors
- Supported remote workforce and increased collaboration
- Leveraged simulation tools to improve design for additive manufacturability

Athena 3D Manufacturing was created in 2019 with one goal in mind: creating high-quality parts with production volume and pricing available through additive manufacturing, also known as 3D printing. Challenging the traditional methods by which designers and engineers imagine, design, and produce products, Athena has expanded since then and offers various additive manufacturing methods (including HP Jet Fusion and Markforged Metal X technologies), post-processing services, CNC machining, injection molding, and cast urethane production, as well as design and engineering services to help clients design products that take full advantage of additive manufacturing.

Although based near Phoenix, Arizona, Athena has a wide reach—providing high-quality 3D printing and engineering services across the United States. Shortly after its founding, the company established a design and engineering services division to assist clients with design for additive manufacturability—the unique design requirements specific to 3D printing production—according to Chief Technical Officer Dean Price. “We established our design and engineering consulting division to help Athena’s clients design their products for additive manufacturing,” Price explains. “Our expertise and niche is in design for additive manufacturability, and customers turn to us to ensure fast, quality outcomes for orders that are produced on the manufacturing side of our business.”

Athena’s design and engineering group initially used Autodesk® Fusion 360® design software, but decided to move to SOLIDWORKS® design and SOLIDWORKS Simulation analysis software, and add collaboration, communication,

and data management solutions from the **3DEXPERIENCE**® Works portfolio. The innovation portfolio, purpose-built for the mainstream market, leverages the cloud-based **3DEXPERIENCE** platform to connect a business’ ecosystem in a single, unified, collaborative environment. Athena implemented these solutions—including Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and Collaborative Business Innovator—to establish robust data management capabilities as part of its ISO 9001 certification process.

“Part of the reason that we moved to SOLIDWORKS and **3DEXPERIENCE** Works solutions is the fidelity of SOLIDWORKS because it’s more of a professional-level tool,” Price says. “The other reason for the move was the need for a robust system for managing and releasing designs, documents, and drawings that would be accessible to our remote workforce as part of our ISO 9001 certification.”

“As we’ve grown, we’ve taken on different types of projects for which SOLIDWORKS is more beneficial, particularly on the simulation side of things,” says Head of Applications Engineering Steven Szymeczek.



“The **3DEXPERIENCE platform has increased collaboration within our team, as well as cross-collaboration with customers and manufacturing professionals, which powers innovation.”**

— Dean Price, Chief Technical Officer

INCREASED COLLABORATION, TRANSPARENT DATA MANAGEMENT

Using SOLIDWORKS design software and data management solutions from the **3DEXPERIENCE** Works portfolio, Athena has increased its ability to collaborate internally across its remote workforce and with customers on the cloud-based **3DEXPERIENCE** platform—reducing travel requirements and associated costs—while simultaneously managing data transparently in the cloud. The solutions have also enabled Athena to establish formal workflows and release processes, meeting ISO 9001 quality requirements, increasing efficiency, and eliminating errors and nonconformities, in the process.

“The **3DEXPERIENCE** platform has increased collaboration within our team, as well as cross-collaboration with customers and manufacturing professionals, which powers innovation,” Price stresses. “We built our workflow contingent on our ISO 9001 certification for release and revision control. Following a formal workflow and having a collaborative project space has not only made us more efficient but has also helped us eliminate design errors and nonconformities through greater due diligence and the application of simulation tools.”

LEVERAGING SIMULATION TO IMPROVE ADDITIVE MANUFACTURABILITY

Athena acquired SOLIDWORKS Simulation to obtain faster, higher-fidelity answers to the engineering equations the company's engineers had utilized to validate designs for additive manufacturability. "One of the characteristics that attracted us to SOLIDWORKS is the accuracy and reliability of its simulation solutions," Price notes.

"For example, the ability to analyze nonuniform pressure distributions and static load simulations has become part of the due diligence that we have now adopted to boost quality," Price continues. "We haven't had a single error or nonconformity since we began leveraging simulation and adhering to our ISO 9001 certified workflow."

SUPPORTING GROWTH AND INCREASED THROUGHPUT

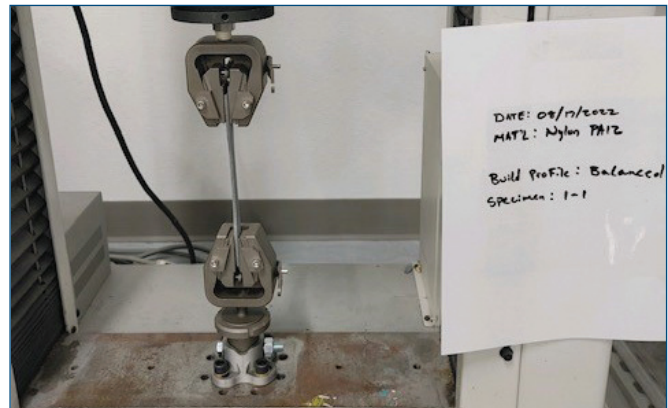
The implementation of SOLIDWORKS design software and **3DEXPERIENCE** Works collaboration, communication, and data management solutions has allowed Athena's design and engineering division to work smarter, travel less, and support growth marked by a doubling of revenue and substantially increased production throughput. "With the more robust product lifecycle management tools from the **3DEXPERIENCE** Works portfolio, we are prepared to continue growing and can hire new team members from anywhere because the cloud-based **3DEXPERIENCE** platform supports our commitment to a remote workforce," Szymczek says.

"With the **3DEXPERIENCE** platform, we've broadened our reach so we not only can serve customers across the United States, but also internationally," Szymczek adds. "Design for additive manufacturability is an emerging specialty and growth market, and the **3DEXPERIENCE** platform is helping us go after new opportunities and work more efficiently with our customers."

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With SOLIDWORKS Simulation capabilities, Athena 3D Manufacturing can more thoroughly evaluate designs for additive manufacturability (DFAM)—for both polymer and metal-based 3D printing—resulting in the elimination of errors and nonconformities ever since Athena began leveraging SOLIDWORKS Simulation as part of its due diligence.

Our **3DEXPERIENCE**® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

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