



## Venerable Technology-Driven Forging Company Achieves Aerospace Certification

**A**nchor Harvey is an almost 100-year-old aluminum forging company headquartered in Freeport, IL. Over the last ten years, the company has quadrupled their business, a level of success made possible through investments in new machinery, technology, and processes. Recently, the company has become AS9100 certified, a standard internationally recognized in the aerospace industry. "Our continued investments have enabled us to maintain our position as an industry leader in aluminum forging while enabling us to take on new opportunities and increasingly sophisticated projects for different markets, such as aerospace, medical, and defense," said Tom Lefavire, president of Anchor Harvey.

### Company Profile

Anchor Harvey was originally founded as the Harvey Metal Corporation in 1923 by Harold B. Harvey in Chicago, IL. In the years immediately following World War I, the defense industry became increasingly interested in new commercial technologies for the development of brass and aluminum forgings. The Harvey Metal Corporation quickly moved to reimagine the process for forging ordnance (guns or artillery), developing a new form of hot press forging that eliminated the porosity and inherent defects in components produced by other processes at the time. Throughout the 1930s and '40s, the company quickly gained renown for their innovative processes and began producing some of the first forged components used in the then-burgeoning automotive industry. They received further acclaim for their work in the pioneering development of aluminum forgings for the aviation market.

Chicago Extruded Metals acquired Harvey Metal Corporation in 1950. The new owners later merged Harvey Metal with their Anchor Screw Products division in Addison, IL—at which time the name was officially changed to Anchor Harvey.

In 1978, Anchor Harvey relocated to Freeport, IL, where the company currently operates. Over the years, the company has continued to expand and now serves a wide range of industries both domestically and internationally. "Since the earliest years of our foundation, we have provided top-quality forgings for the defense, aviation, and automotive industries and have only grown since," said Lefavire. "Currently, we also provide forged aluminum components for the medical, motorsports, archery, safety, and construction industries in addition to an abundance

of specialty forgings for a diverse range of other industries, manufacturers, and niche markets" (Figure 1).

### Forging Operations

Anchor Harvey operates a 100,000 sq ft state-of-the-art forging and machining facility in Freeport, which is able to provide a full range of capabilities. This includes design and engineering, tool and die manufacturing, material sourcing, closed-die aluminum forging, heat treating, inspection, and supply chain management.

Over the past ten years, the company has fully upgraded their forging process, switching its batch and queue process lines to five one-piece, cellular flow process lines, turning the separate stages of the forging process (cutting, hot forging, deburring, trimming, and inspection) into one continuous workflow. This was accomplished through the purchase of five new forging presses from Weingarten in Germany, as well as solution heat treating furnaces that process forging on the line and state-of-the-art aging ovens from Wisconsin Oven in East Troy, WI. The five new forging lines are designed with redundant capacity built-in, enabling the company to move jobs between the units should the need arise. In addition to its main lines, the facility also has two additional presses for legacy components or jobs that might not be conducive to the one-piece lines.

New data monitoring technologies and process control systems have been implemented throughout the entire facility in the last few years. Information screens mounted on equipment allow for constant supervision of the order, status, and numbers of a specific forging to ensure top-quality components, logistics, and service. This data acquisition



Figure 1. Examples of forged parts manufactured by Anchor Harvey.

is used in coordination with the company's statistical process controls to ensure machine stability and verify part consistency. According to Lefavre, the new digital monitoring systems have also enabled the company to maintain its industry-leading safety and production records.

In the engineering department, the company updated their simulation and design software and have added 3D printing capabilities for when such needs arise.

### Aerospace Certification

Forgings for the aerospace and defense markets demand superior levels of quality and consistency due to the numerous facets and complexities of the requirements. AS9100 is the internationally recognized quality management standard specific to the aerospace and defense industries. The certification requires that a company have proven product development processes, risk management, and product safety procedures necessary to meet the rigorous demands of major aerospace OEMs, the defense industry, and general aviation manufacturers.

Anchor Harvey received AS9100 certification in March 2020, an achievement that complements the company's existing ISO 9001 and CQI-9 certifications. In the process of working towards certification, the company was able to draw on their several decades of experience, producing high quality forged components for aerospace and defense OEMs and Tier 1 and 2 manufacturers. Upgrades to some of its equipment and processes were made in preparation. In particular, they updated their risk management and accountability systems.

In addition, the company had to document all of their internal processes, personnel records, and previous certifications, which involved comprehensive preparation and detailed work by the human resources department. They also needed to show their ability to meet specialized component requirements.

With all the requirements involved, the process of becoming AS9100 certified typically takes one to two years. "We were able to complete the certification in only 11 months, thanks to the hard work of our quality manager, Holly Helfinstine, and plant manager, Martin Bondar, as well as all the members of our incredible team," said Lefavre. "The AS9100 certification reflects our continuous improvement efforts and commitments aimed at delivering the highest quality aluminum forged components."

Anchor Harvey is now in a position to better support current and new clients in the aerospace sector by opening up manufacturing bottlenecks, clearing component backlogs, and delivering the quality and complexity needed to help OEMs get their products off the ground. "Our outlook on the aerospace industry remains exceedingly positive," said Lefavre. "Despite recent industry troubles, we have continued to see trends of increasing demand for civilian air travel, a steady resurgence in the business jet sector, and an existing multi-year backlog for new aircraft orders from major commercial airlines."

The company is particularly excited about the opportunities beyond the Earth's atmosphere as the U.S. enters a new era of space exploration. On May 30<sup>th</sup>, NASA astronauts Robert Behnken and Douglas Hurley lifted off from Kennedy Space Center in Florida in a SpaceX Dragon spacecraft aboard a Falcon 9 rocket. This is the first American-launched manned mission to space since the conclusion of the Space Shuttle Program in 2011.

"Since our founding, we have been a technology-driven company and we are already anticipating being a part of the next great step forward for the aerospace industry," noted Lefavre. "For nearly 100 years the company has proudly served American industries with our U.S.-based

supply chain, and we look forward to the coming resurgence in space travel, explorations of the cosmos, and the inherent challenges and opportunities therein."

### COVID-19 Response

Anchor Harvey has been supplying a variety of forgings to the medical industry for several years—ranging from leg braces to prosthetics, hip stabilizers, and respirator valves. As the novel coronavirus pandemic began to create a strain on the supply of necessary medical components, the company decided to take a proactive approach. They reached out to existing customers and other manufacturers, enabling them to join forces with businesses across the country in order to expand and meet the growing needs of the medical industry.

Achieving the AS9100 certification helped the company in providing this support. The efficiencies and processes that were put in place during certification enabled the company to quickly and smoothly ramp up production. In addition, it demonstrated the company's commitment to quality and attention to detail, which is vital for the production of medical components.

"Our entire team rose to the challenge in the face of COVID-19," said Lefavre. "Some of the team in the engineering department proposed ways to modify our previous regulator valve designs for fire suppression as part of self-contained breathing apparatuses in order to adapt them for use as respirator valves in ventilators. Others volunteered to work additional hours, so we could run around the clock seven days a week to keep up with the increased demand. The desire and drive of our employees to come to America's aid in a time of crisis was, to me, nothing short of inspiring."

Continuing to operate, the company took the health and safety of their employees into account. They quickly implemented social distance rules, put remote work options into place where possible, and cancelled all non-essential travel. Increased cleaning and sanitation was performed throughout the facility and face masks and hand sanitizer were made readily available.

The company has also been working to support their local community in Freeport. "Throughout the coronavirus pandemic, we have been blessed to be in a position to offer our backing and assistance to local businesses and family-owned restaurants by regularly purchasing meals for our entire team and providing each employee with gift cards for local businesses," said Lefavre. "I am proud that Anchor Harvey cares as much about the health, safety, and well-being of employees on the shop floor, as we do when they're out in our community."

### Conclusion

Anchor Harvey foresees a bright future for the aluminum forging market—from aerospace to ground-based industries, such as automotive, defense, medical, and more. The company will continue to improve its operations, investing in new equipment, advanced technologies, upgraded systems and processes, and the expertise and talents of their employees in order to provide new, technical advancements for their clients.

"In three short years, we will officially be 100 years old," stated Lefavre. "Since our earliest days, Anchor Harvey has held a tradition of continually improving the forging process and reinventing our manufacturing techniques. We have always planned for future expansion and growth, and we have been successful in doing so for nearly a century. We plan to continue doing so for the century ahead and beyond." ■