SUCCESS STORY | **AUTOMOTIVE**

REDUCING AUTOMOTIVE FUNCTIONAL PARTS SERIES CUSTOMIZATION COST BY 90% WITH FARSOON FLIGHT TECHNOLOGY

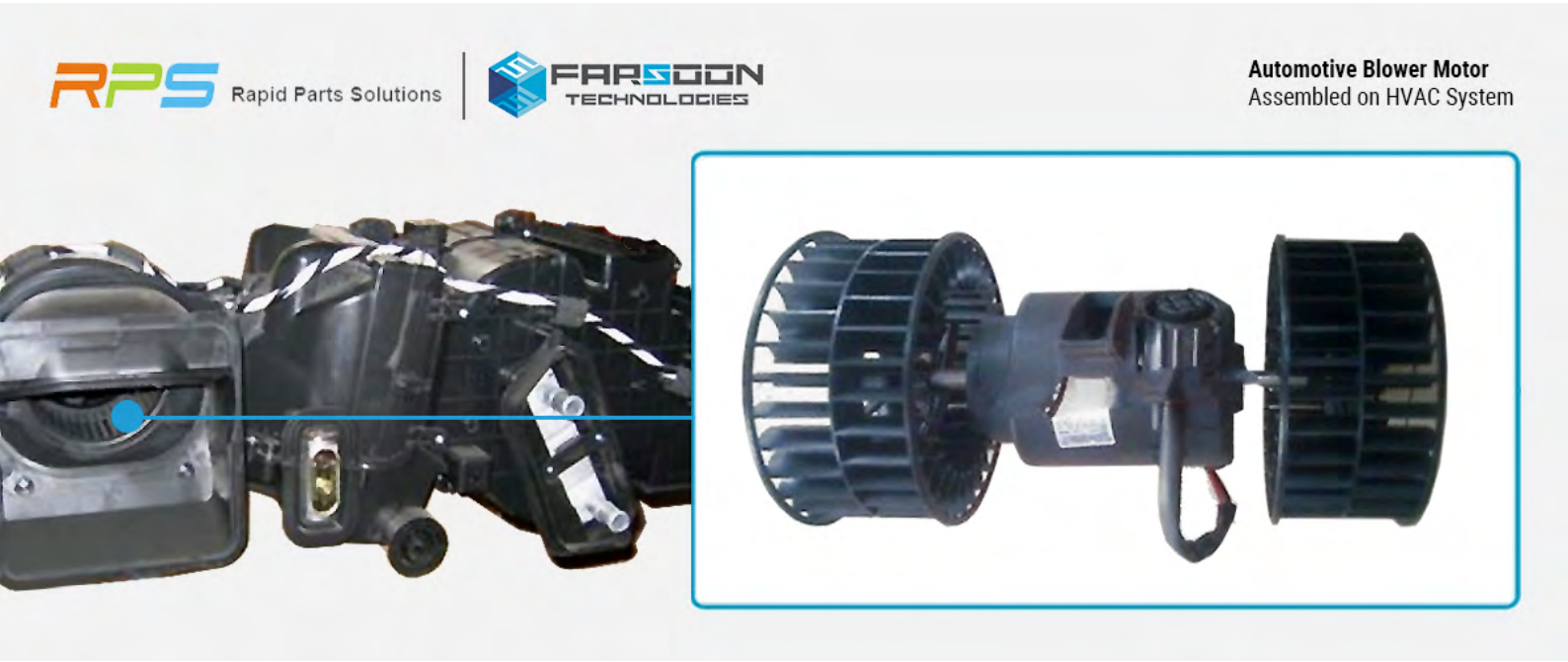

Figure 2: Automotive blower motor Assembly. Image courtesy: RPS

Project Overview

CHALLENGES

Development process of automotive functional parts becomes technology & design intensive
Demand for end-use part series customizing
Faster lead times for on-demand part production

SOLUTION

Farsoon plastic LPBF system Flight HT403P offering rapid prototyping to series production

KEY BENEFITS

Optimized part performance and durability
Higher production yield & accelerated lead-time for on-demand production
Significantly reduced cost of manufacturing

FARSOON TECHNOLOGIES

Accelerating Innovation & on-demand Series Production on Key Automotive Functional Parts - Through Additive Manufacturing.

Customer Profile

RPS team is composed of over 200 professional technicians with more than ten years' experience in the rapid prototyping industry. We have advanced equipment including the industrial-grade 3D printers, SLA, SLS, CNC machines, vacuum casting machines, injection molding machines, autoclaves, automatic measuring instruments, etc. RPS offer global customer comprehensive, high-quality manufacturing services from prototyping fabrication to batch series production, to accelerate new design to market time.

The development process of functional parts in new car models, especially with the rising popularity of electric vehicles, is technology and design intensive with a need for high performance and accuracy. There is also an increasing demand for end-use part series customizing. Faster lead times and on-demand production is a challenge many automotive manufacturers are facing. These challenges are amplified with traditional part manufacturing, resulting in a large financial burden from labor, cost, minimum number of parts required, and supply chains.

Rapid Parts Solutions, or RPS, is located in Shenzhen, China, the capital of commercial passenger car manufacturing. As part of the automotive ecosystem, RPS is the chosen part supplier for many Tier 1 car manufacturers, offering rapid fabrication of prototyping to series production. RPS added two Farsoon Flight HT403P machines as an expansion of their manufacturing capabilities, offering comprehensive solutions of digital models, production, post-processing, and final products.

Figure1: Automotive blower motor produced by Farsoon Flight HT403P. Image courtesy: RPS

Optimized production performance with Laser Powder Bed Fusion technology

Before the introduction of Laser Powder Bed Fusion technology, RPS was equipped with traditional machines including CNC, casting, injection molding, and 3D Printing technology including SLA and DLP technologies. Because of the outstanding performance and durability of the functional parts built by plastic Laser Powder Bed Fusion Technology, they decided to add the industrial laser sintering machines in their portfolio.

Due to the improved production capacity achieved with the Flight HT403P, RPS has been receiving increasing series customization orders from car manufacturers. RPS is able to deliver much higher production yield and accelerated lead-time for on-demand production. This results in lower cost per part and optimization of the cost-volume curve using additive manufacturing versus conventional manufacturing. Each printed part has more details and a smooth surface finish with very little need for post-processing such as sand blasting. Also, thanks to Farsoon's truly open platform, RPS is able to adjust processing parameters to achieve industrial quality and part performance to fit the functional requirements for end-use parts.

Reduced cost of manufacturing

Take an example of the Automotive blower motor: it powers the fan in the HVAC system to stabilize airflow and defroster efficiency. Part strength, durability, and high-temperature performance are all functional requirements for this part. Due to the varying directions of the part components, traditional manufacturing of this part usually requires a 5-axis CNC machining or sand-casting process; which is time consuming, labor intensive, and expensive when compared to the on-demand parts numbers.

Using Farsoon's Flight technology, the part production can be done in one single process and ready for delivery in just two days, compared to 10 days with traditional manufacturing. The production cost can be reduced at an average of 90% for small batch series customizing. The built part features high strength, which passes the impact and durability test.

About Flight Technology

Farsoon's Flight Technology™ or Fiber Light Technology takes advantage of powerful fiber lasers in place of the standard CO lasers found in standard laser sintering systems. A fiber system is capable of delivering greatly increased power to the powder bed. Due to the more robust and stable nature of a fiber laser system as compared to a CO system Flight Technology™ also provides increased laser longevity which is key when considering ROI for manufacturing applications. In addition, with its increased power and energy absorption characteristics Flight Technology™ will be capable of accessing a much different range of process-able materials and operational flexibility as compared to standard laser sintering systems, which allows for increased freedom for future AM material and application development.

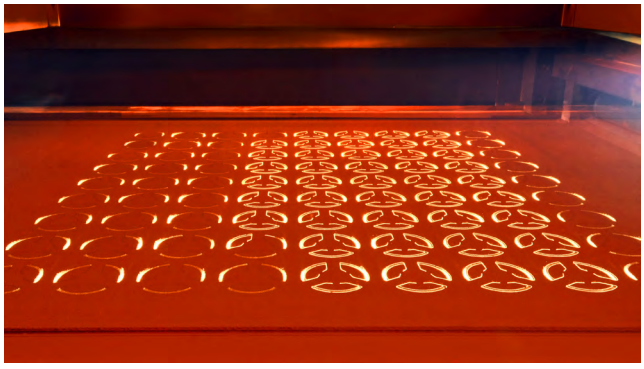

Figure2: Ultrafast "Flight Technology" Laser Sintering process on Flight HT403P system. Image courtesy: Farsoon

> *"We are excited to have Farsoon as our partner in powder bed fusion technology; the simplicity of the machine operation and competitive price of the Farsoon materials helps us achieve true economy production. With the increasing on-demand orders we have received since the two Flight 403P installations, we are now planning to add more systems to further expansion of our plastic laser sintering production capabilities."*

---- Mr. Deng, Head of RPS Additive Manufacturing Business Unit

Farsoon's Plastic Laser PBF Systems

HT1001P | 403P Series | FLIGHT 403P Series | FLIGHT 252P Series | 252P Series | eForm

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