



On-Demand and Cost-Efficient 3D Printed Air Ducts

Polypropylene utilized for durable parts designed for low temperatures

OVERVIEW

Peridot, Inc. was tasked to solve a problem on existing transportation equipment while meeting a very short timeline and working under the design constraints of retrofitting existing components in the field. The utilization of Additive Manufacturing (AM) and PP 1200 enabled by BASF Forward AM resulted in the ideal solution to ensure the 3D printed part met the outdoor temperature requirements of approximately -29 to 49 degrees Celsius as well as ability to withstand direct exposure to high pressure water, vibration standards for heavy duty trucks and road debris.

QUICK FACTS

Material:

- PP 1200 enabled by BASF Forward AM

Technology:

- Selective Laser Sintering (SLS)

Partner:



Peridot, Inc. is a full-service product development service bureau with broad capabilities and efficient prototyping technologies implemented to bring new designs to life both quickly and cost-effectively. Their solutions meet the customers' needs through design verification, marketing, and/or functional testing allowing for a tailored solution while also providing secondary operations such as machining, assembly or incorporating last minute design changes.

PERIDOTINC.COM



Avoided the 16-weeks of lead time required by traditional manufacturing



Produced a sustainable solution for less than \$30 per part saving \$35,000

Challenge: Find a product solution that would avoid the cost for a complex tool or capital expenditure

[PP 1200 enabled by BASF Forward AM](#) is an innovative material which harnesses the properties of polyolefins for Powder Bed Fusion (PBF) technologies, making the rapid printing of individualized and functional serial production parts a reality. By partnering with Forward AM, Peridot utilized this material to create an air duct with the durability and flexibility required by the end user while meeting all objectives regarding cost, function, and consistency. Working in collaboration with Prodways, Peridot utilized SLS technology which offers a large build platform and an unmatched flexibility to deliver top-quality industrial performance.

“This is an ideal application for using industrial level AM with a truly functional material like polypropylene, as it allowed Peridot to produce a viable end-use solution while providing our customer multiple levels of value in the way of cost and time savings as well as ample design latitude.”

-- Dave Hockemeyer, President of Peridot, Inc.



Challenge: Create a durable part to address issues in the field while also quickly responding to design changes.

By utilizing the principles of Additive Manufacturing, Peridot avoided the prolonged 16-week production process and a \$35K tool cost of traditional injection molding. This allowed for an expedited production process and minimal inventory overhead resulting in significantly reduced capital expenditures while offering a viable solution for less than \$30 per piece. In choosing PP 1200 enabled by BASF Forward AM, this innovative material met the stringent part requirements for use in the cold and harsh exterior temperatures in the northern U.S. while offering the durability needed to last in the challenging environments of the transportation and construction industries.

Learn more about PP 1200 enabled by BASF Forward AM:

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