

# Supercar wing mirror aerodynamics improved with 3D printing

British supercar maker Briggs Automotive Company (BAC) worked with DSM to improve the aerodynamic design and production of its custom-made mirror brackets for the exterior of their BAC Mono R supercar. Pairing BAC's design knowledge and DSM's materials, application and 3D printing expertise transformed automotive manufacturing. 3D printing more than forty car parts saves BAC time and money.

#### Customer

Briggs Automotive Company (BAC)

#### Challenges

- Improve aerodynamic design of mirror brackets
- Lack of flexibility for design iterations
- Costly and time-consuming part production

#### Solution

- Novamid® ID1030 CF10 and Somos® Taurus
- Collaboration with DSM and 3D printing ecosystem

#### Benefits

- Improved aerodynamic design and manufacture
- Design and production flexibility

- Lightweight, custom placement for driver
- Proves additive manufacturing as a viable solution for automotive part production



*“On the Mono R, the shapes and forms we need on prominent parts like wing mirrors best lend themselves to additive manufacturing and materials like those from DSM. Some of these parts would be difficult - if not impossible - to achieve any other way.”*

Ian Briggs, Design Director, BAC

## Challenges

Managing aerodynamics is a challenging aspect of high-performance car production. On the Mono R supercar, Briggs Automotive Company (BAC) partnered with DSM to improve the aerodynamic design and production properties of the car’s wing mirrors.

Since air flow and pressure need to be considered when designing a car like the Mono R, BAC realized additive manufacturing would allow the freedom to refine and improve wing mirror designs - to improve performance, but also to provide customization to the car’s owner.

## Solution

Using Novamid® ID1030 CF10, a carbon fiber filled copolymer filament ideal for stiff, tough applications in harsh environments, DSM and BAC printed mirror struts to improve airflow and wind resistance. Novamid® ID1030 CF10 produces strong, durable structural parts with high dimensional stability, no warpage and very good surface appearance.

Somos® Taurus, a DSM stereolithography material, was used to manufacture the prototype body structures that hold the mirrors. This material has superior strength, durability and high temperature resistance.

## Benefits

BAC reduced manufacturing time, cost and overall car weight by utilizing additive manufacturing. By collaborating with DSM and using 3D printing technology, BAC maximized the aerodynamic properties of Mono R’s wing mirrors.

To create the optimal design, many design iterations were completed, and multiple prototypes needed to be printed - a costly, time-consuming feat with traditional manufacturing. Additive manufacturing reduced production time and gave BAC the advantage of interacting with each design, refining and quickly producing another.

Briggs says, “We got to see and feel each new part, which helped advance the design a step further.” Using traditional manufacturing, Briggs estimates a six- to



eight-week period from CAD design to final production. With additive manufacturing, BAC can have parts produced in two days.

Additive manufacturing allowed the wing mirrors to be lightweight so as not to impede the Mono R’s performance. Additionally, the mirror struts can be tuned to the driver’s height and position in the driver’s seat - something easily achievable with 3D printing.

Briggs says, “After spending time with DSM, it opened our eyes to the versatility and possibilities of a collaborative approach to additive manufacturing. For everything we thought of doing, DSM had a solution and it has enabled us to manufacture parts throughout the car.”

The Mono R won the prestigious Design & Innovation Award at the 2019 Northern Automotive Alliance Awards, a testament to BAC’s excellence in the automotive industry. DSM’s materials and application expertise and ecosystem paired with BAC’s automotive knowledge paved the way for the innovative Mono R. The result is a road-ready supercar that utilizes 3D printing for peak performance and handling - a testament to the use of additive manufacturing in the automotive industry.

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