Radford Motors

Use Case – Custom Automotive Manufacturing

Customer Profile

Radford Motors builds exclusive luxury automobiles, focusing on high craftsmanship, limited-run production, customization and performance. The company traces its lineage back to the original Radford Motors, a British coachbuilder established in 1948 that built custom bodies for automakers such as Bentley, Aston Martin and Austin Mini Cooper.

Challenge

Radford Motors' first model run of only 62 units precludes the ability to use conventional manufacturing approaches that rely on mass production's economy of scale. Faster, more economical means of prototyping than the conventional method of CNC machining foam and clay are necessary. Costs and logistics to furnish a full complement of factory tooling are not viable with this highly customized, limited-production business model.

Solution

To prototype and build the Radford Lotus Type 62-2 production vehicle, the company relied on additive manufacturing to enable an agile development and production process. Radford uses large-format Stratasys F770™ and F900™ printers that offer 13 and 18 cubic feet of build volume, respectively. Thermoplastics such as ABS-CF10 (carbon fiber) and ASA offer the right strength-to-weight properties needed for making tooling and production parts.

Impact

The combination of printer capacity and strong but lightweight materials give Radford Motors the capability to design, iterate and build the tooling and components for each custom vehicle much faster and more economically than conventional production methods. The capabilities afforded by additive manufacturing help make Radford Motors' business model of low-volume, highly custom auto production economically viable.

Prototype wheel centers in the 3D printer made with black ASA material.

ASA heating/cooling duct production part ready for under-dash installation.

The 3D printed dashboard instrument panel will be covered with leather before installation.

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