Jordan Stays on the Right Track with Solid Imaging Technology

Sector:	Automotive
Technology:	SLA® system

Effective aerodynamics account for as much as 80% of the performance of a Formula One Grand Prix car. Jordan Grand Prix takes this aspect very seriously, and is making significant investments in solid imaging technology to maximize its performance.

Most recently, the company invested in the SLA 5000 solid imaging system from 3D Systems. The machine is being used to produce extremely accurate and functional components for aerodynamic testing at Jordan's research and development facility in England, where the organization operates a 40% scale wind tunnel.

Producing Functional Components

Since installing the SLA machine in April 1999, Jordan Grand Prix has already produced over two hundred and fifty components, covering all aspects of the car. These components—such as front wing end plate assemblies and engine covers— play a key role in improving aerodynamics.

The components, which are produced from a highly durable, epoxy plastic, are manufactured to 40% scale and assembled on an aluminum test vehicle body frame. The frame is then finished with paint work to racing standard, so that the completed wind tunnel test vehicle provides an accurate, scaled representation of the real Formula One car.

Dr. John Davis, Head of Research and Development at Jordan Grand Prix, explains that, "Success in Formula One is about more than simply being the fastest on the circuit. It is about precision and accuracy in all aspects of research, development, testing, engineering and vehicle build. These factors, coupled with the continual and fast moving pace of development to both gain and maintain a competitive edge, are what led us to investigate technologies such as stereolithography. The technology is already proving itself by the speed and accuracy with which it enables us to produce functional test components."

Jordan Grand Prix uses the latest SDRC I-DEAS solid modeling software to produce component designs, both at the wind tunnel facility and at its headquarters, with the files being downloaded directly to the SLA 5000 system. The technology enables components to be built in layers as fine as 0.1mm, helping to ensure the highest accuracy, as well as minimizing finishing time.

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Dr. John Davis, Jordan Grand Prix

Rapid Prototyping

Reaping the Benefits

All of these factors combine to provide a system that meets the requirements of Jordan Grand Prix for the fast, accurate and repeatable production of functional test components— be it one-offs, multiple parts or complete families of components.

The excellent level of repeatability is of particular importance, as a series of identical components can often be required for accurate and reliable wind tunnel tests.

"Jordan Grand Prix has expanded significantly in the last two to three years, to a point where it now continues to climb the constructor's table—currently being in third place—despite significantly less funding than our competitors," comments Davis. "We are of the firm belief that it is the continual striving for improved performance, through investment in solid imaging technology, that has enabled the team to achieve this level of success. It will also enable us to maintain, and almost certainly improve, our position into the new millennium and beyond."

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