Turning the Heat Up for Testing

Every year, the University of Connecticut's Formula SAE (Society of Automotive Engineers) race team builds a new car from the ground up. This group of enthusiastic engineering students is constantly seeking new and better ways to reduce weight and improve performance.

InterPRO Models has provided assistance to UConn's student team for several years, helping them design and build better, faster race cars using additive manufacturing and Somos® high performance materials.

Recently, the car's engine parts were experiencing sealing issues in the area of the engine block where the runner boots connect to the intake runners. With the Formula SAE regulations forbidding the use of rubber for this use, the team was tasked with finding an alternate means to resolve their problem to get them back on the track. Their challenge was to find a material that would withstand the heat of a 200°F engine head and also support the carbon fiber runners that soften as they approach 175°F.

InterPRO suggested using Somos® PerFORM, a new high-strength material that withstands high stresses and temperatures up to 500°F. By using this technology, the team would be able to reduce manufacturing time by printing the fuel injector bung directly into the part. The UConn team agreed.

InterPRO 3D printed the Somos® PerFORM parts overnight on a high-resolution SL Viper. They were bolted to the four-cylinder engine and dynamometer tests were run to measure horsepower and torque outputs. During hours of high RPM engine testing, the Somos® PerFORM parts performed perfectly. After a few design revisions, the 3D printed injector bungs were remade and the team integrated them into their final assembly.

UConn Formula SAE placed 19th out of approximately 120 teams at the Michigan International Speedway competition. It marked their most successful season as a team ever. This group of young engineers is expecting to race an even better and faster car in 2016 with the help of additive manufacturing and Somos® high performance materials.

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