



Victory Lap

AUTO PARTS MANUFACTURER MEETS GRUELING RACE SCHEDULE WHILE CUTTING COSTS BY 50 PERCENT

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– Jon Jones, managing director at FTR Moto

CASE STUDY



Final side intakes featuring a number of 3D printed parts

With limited time between races – generally two weeks – the motorcycle racing industry demands rapid turnaround times and reliability of parts. Up to the challenge is Fabrication Techniques Racing Motorcycles (FTR Moto), which specializes in the design, production and development of motorcycle race machines and associated components, and supplies many of the world’s leading motorsport teams, including the Grand Prix and World Superbike teams.

In 2012, FTR Moto investigated how functional prototype parts and low-volume production parts for track testing – previously handmade in aluminium or composite materials – could be produced by 3D printing.

After determining that FDM® 3D printing materials and parts were accurate and durable enough to withstand these challenges, FTR Moto introduced 3D printing to its arsenal of tools right away.

Reduced Lead Time and Costs by 50 Percent

“Turnaround times were the obvious attraction to 3D printing,” says Jon Jones, managing director at FTR Moto, “But we also found it was a big step forward for our design and product options. We can design more intricate shapes without worrying about tooling issues, put the designs through aero simulation and still have them rapid prototyped ready for the next race weekend.”

Jones states that since introducing 3D printing into the company’s workflow, FTR Moto halved costs and turnaround times for prototyped parts. “And there are further savings because we haven’t had to tool-up for parts that don’t pass the test.”

Functional Materials

FTR Moto uses the Dimension 1200es™ 3D Printer to produce seat stops in black ABSplus™ material. The company also uses the Fortus® 400mc™ 3D Production System to manufacture air boxes in durable ULTEM 9085™ resin, and air intakes, aero parts, brackets and aerodynamic flick-ups in PC-ABS.

“ABSplus is an excellent all-around material,” says Jones. “It has fantastic impact strength, stiffness and overall durability. We use it for various functions including aerodynamic parts tested in a wind tunnel in real time.”

Jones adds that ULTEM 9085 resin is great for use in high-temperature environments. “We recently used it for airboxes which are mounted directly onto the engine.”

Personalized Seat Stops at 200mph

FTR Moto also uses 3D printing to create customized parts for individual riders. “The durability of PC-ABS material and its ability to mimic carbon fiber means we can use it to produce seat stops,” explains Jones. “Seat stops are designed to cushion the rider’s body, keeping them in position when they’re doing 200 mph down the straights. Personalizing them makes it that much more comfortable for the rider.”

Jones concludes, “Stratasys® has proved to be a big asset to the growth of FTR Moto and the performance of our bikes. We’re able to test our prototypes and showcase our ideas quicker than before, we’ve cut costs and our clients are hugely impressed with our reaction times. We’re looking forward to seeing what we can achieve together in the future.”



FTR Moto 3D printed this airbox in ULTEM 9085 resin.



A 3D printed air intake, built with PC-ABS, is fitted in place for testing.

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