

Valencia, Calif.-Based Company's Tools Trim Auto Racers' Prep Time.

By Evan Pondel, Daily News, Los Angeles.

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Apr. 25-VALENCIA, Calif.-Unlike the days when Nelson Cosgrove painstakingly pieced toy models together, his fingers are no longer covered in glue.

The chief engineer for Penske Racing now relies on technology to craft his car dreams. And when his ideas finally come to fruition on race day, he thanks the pit crew, the drivers and a little machine he calls "sla," short for stereolithograph.

What once involved months of preparation now requires a few simple commands at the computer, said Cosgrove, referring to his 18-month-old machine that can churn out a plastic rendering of just about any car part a person can conjure. The company responsible for this magic morph box - Valencia-based 3D Systems Corp.

One of three primary products the company sells, its stereolithograph machine essentially uses laser beams to sculpt plastic. But while the machine has the ability to sculpt a trove of shapes, Cosgrove makes models of hoods and radiators. The scaled-down renderings are then used to test the aerodynamics of a race car in a wind tunnel.

"I must say, it would be pretty painful to test some of these parts without this machine," Cosgrove said. "And it's easier to operate than a milling machine."

Some of the parts Cosgrove conceived will be put to the test this weekend at the California Speedway in Fontana. Two of the cars from Penske's NASCAR team, driven by Rusty Wallace and Ryan Newman, have parts that were designed using 3D Systems' technology. From plugs for the engines to the floor panels of the cars, Cosgrove said, many of the parts have plastic look-alikes long before they hit the track.

While brainstorming a creative nose design or wind-resistant hood is relatively inexpensive, sculpting a piece of plastic comes with a price tag. The machines Penske and other companies are now depending on cost anywhere from \$150,000 to \$800,000, said Mervyn Rudgley, director of product management for 3D Systems.

Of course, the size of the machine and the speed at which it can shape an image dictate the cost. Rudgley said the fastest machines can shape in four hours, while others need quite a bit more time. The device's dimensions vary, with the largest about the size of a 20-inch cube.

Some of Cosgrove's shapes have taken just a few hours, a mere fraction of the 50 hours it took the engineer to complete another project. Still, Cosgrove said, despite a few minor glitches when he first purchased the machine, he values its abilities far more than he minds being patient.

Cosgrove's workshop has also evolved as a result of 3D Systems. Instead of surrounding himself with workers who know how to chisel, there are now machinists who have been trained to operate the devices.

"We've completely changed out the people we work with," Cosgrove said. "It's so much easier now."

Aside from shaping parts for Penske, 3D Systems' machines are involved in a bevy of other businesses. The company makes another machine that uses technology similar to ink-jet computer printers.

Rudgley said instead of absorbing one layer of ink, this machine stacks about 1,000 layers "and then you end up with a shape."

Another product uses a powder base to sculpt different shapes. A laser hits the powder and instantly melts the material into a particular mold.

For more than 15 years, 3D Systems has been developing technology that could enable people to download three-dimensional images off the Internet. However, until then, the company remains focused on maintaining a profitable course amid a rough economy.

"We've had our share of difficulty in this economy. And I think we've stood better than many companies, but we're still looking for an upturn," Rudgley said.

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