

2006 - 2013 Corvette Z06: Technical Article: Robotic trimming radically shortens Corvette fender production cycle



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Plasan USA (Bennington, Vt.) molds the Chevrolet Z06 Corvette's front fenders with hand layed, autoclave-cured carbon/epoxy prepreg. Until recently, however, manual deflashing, trimming and drilling of the demolded parts consumed more than an hour to meet requirements for edge quality and fastener hole location accuracy. When Plasan, until recently part of Vermont Composites, canvassed vendors in search of a robotic system to shorten the trim and drill cycle, the company tried several methods offered by KMT Robotic Solutions Inc. (Auburn Hills, Mich.). Formed in December 2006 by the union of KMT Cutting Systems (Ronneby, Sweden) and Robotic Production Technology, the company demonstrated several trimming methods at its Auburn Hills Solution Center, including abrasive waterjet and router trimming. Plasan decided that KMT's RoboTrim robotic router trimming system and a companion set of software tools offered the best solution for trimming and drilling. After installation, KMT provided comprehensive training and part-specific software programming services.

Today, when a demolded fender is loaded into one of RoboTrim's two part-shaped vacuum fixtures (see near photo), its two-sided servo-controlled table rotates the part 180° into the enclosure in less than three seconds. The floor-mounted AccuTrim R-99 robot uses a 3-hp motor to provide the power to machine the notoriously hard-to-cut carbon, drilling the holes and slots with a

titanium-coated carbide drill bit, then changing the tool to a similar router bit for the trimming step. After the part is trimmed, the table rotates the finished part out for unloading as an untrimmed part is rotated inside. The fully enclosed system keeps the environment clean. Most important, the new system, operated by an all-female staff, can process a fender every 13 minutes — a more than 75 percent reduction in postmold processing time. Says Plasan USA's general manager Dalton Blackwell, "We found the right tool combination to achieve superior edge quality without excessive tool wear."

For additional KMT Robotic Solutions product information, visit www.compositesworld.com/showroom/864 .



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