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Automotive dies

When you think of a major player in the race motorcycle business like Team Valvoline EMGO Suzuki, you probably think that the company that builds racing components for its frames and engines must also be a major manufacturing company. However, Anderson Race Engineering, the company that builds these components for motorcycles such as the Suzuki GSXR1000 (**see Figure 1**) has only four employees, a CNC Vertical Milling Center and a compliment of support machines that include manual lathes and mills. For Don Anderson, its chief design engineer and CNC programmer, all he needs is some help from his two sons and another employee to produce low-volume custom parts for the Suzuki race team (**see Figure 2**).

Figure 1 – The Suzuki GSXR1000

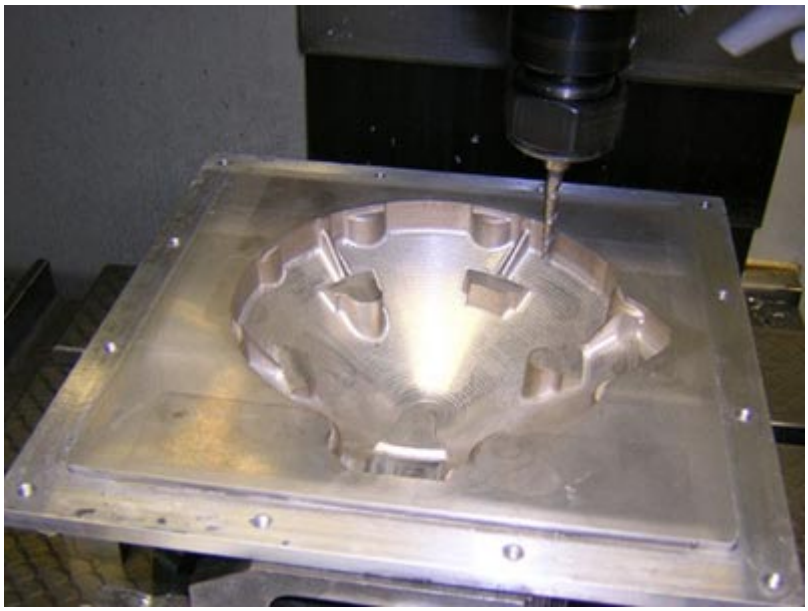

Figure 2 – The mold for some of the custom parts created by Anderson Race Engineering

I had a chance to talk to Anderson how he is able to achieve this. He started by giving me a little background on his company's CNC history. They started on a UNIX-based CAD/CAM system over 18 years ago called Intergraph EMS Maxmill. When support of this software ceased over six years ago, Anderson knew it was time to replace it, while at the same time make the move to the easier and more popular Windows operating system.

Moving On

His research began by looking into several well-known and expensive manufacturing programs such as MasterCAM (CNC Software), Virtual Gibbs (Gibbs and Associates) as well as a lower priced system from OneCNC. MasterCAM was just too expensive and although Gibbs and Associates did offer a lower priced introductory CAM system, "but by the time the Parasolid modeling support was added the price was back up to about $12,000," recalls Anderson. And while the software from OneCNC was less expensive, Anderson felt it was too hard to use and his questions, such as how the regioning was handled, were never answered to his satisfaction.

While conducting his search, he heard about VisualMill from MecSoft, which was being offered at about 20% of the cost of the other products. However, its lower price is not what got Anderson's attention, "it was how much better the system was at providing visual feedback on the part to be cut," he noted. Since Anderson Race Engineering is not a large volume production shop – they may make only 1 to 20 of these specialized components – they needed a program that would quickly generate the toolpaths with the minimal amount of pre-cut geometry generation (the creation of additional regional geometry for tool path generation). VisualMill's speed and comprehensive command set really impressed him, so early in 2003 we decided to go with them," Anderson said.

So without any formal training, Anderson began teaching himself VisualMill. Although there was a few times that he needed phone support, it wasn't long before he was cutting metal. He contributes this to the fact the user interface was similar to what he was already used to.

Since getting the software, the support has continued to be excellent. When Anderson emails problems or questions to MecSoft, he gets answers in a few hours rather than a few days. He has even emailed a problem file to them and they worked on it until the problem – in one case the result of a poorly created feature in model file – was fixed. Anderson pointed out that the direct Solid Edge translator (**see Figure 3**) works very well – no error-prone IGES files are needed. He noted that he has brought in scores of models, some with as many as 250 features, with no problems.

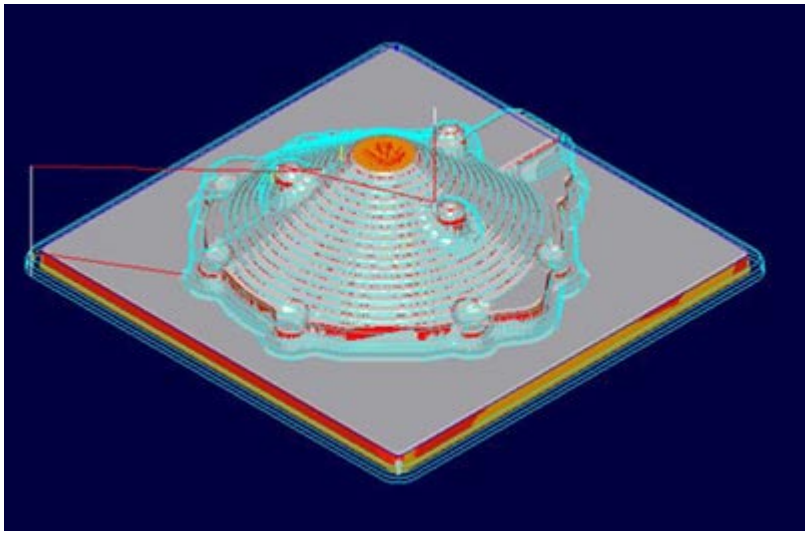

Figure 3 – This model was created in Solid Edge and imported directly into VisualMill without a problem.

Time Saving Tools
Since getting proficient with the software, Anderson now realizes other benefits, such as how much VisualMill reduces the amount of handwork. For example, he noticed how after the cavity for the molds are roughed out, the software's rest milling saves time because "you don't have to manually define a lot of regions as in other systems," Anderson said. He also mentioned how well the software handles detailed areas of complex molds (**see Figure 4**).

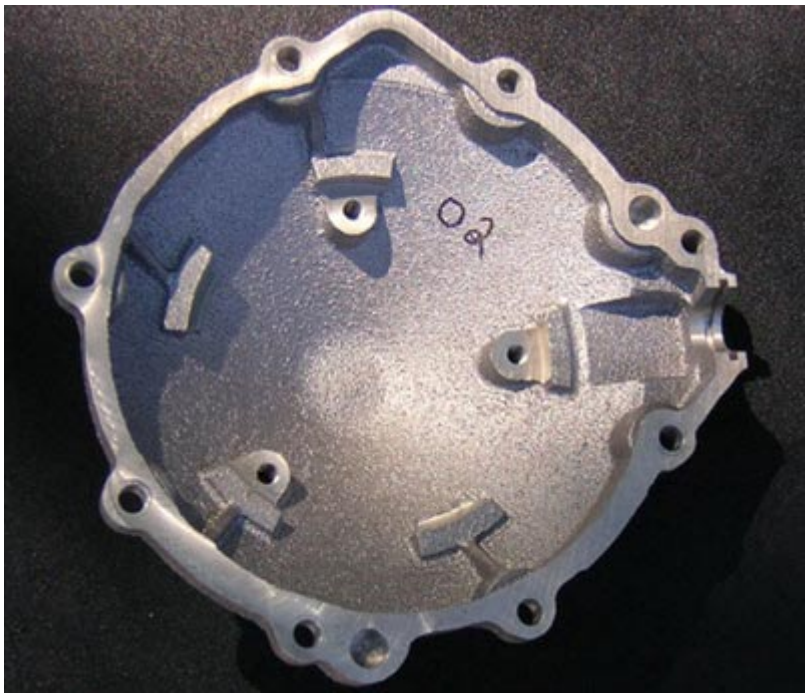

Figure 4 – Details in the mold created using VisualMill are very accurate.

He also has found the Region command to be a big time-saver as "it breaks up regions of a model automatically – without having to create new geometry. In a lot of other systems you have to redraw the component you want to cut and that becomes very tedious," Anderson described. He also likes how "you can limit a region if it is more than you need to cut."

Anderson also points out that in other systems if you want to perform a limited number of cuts then reposition the part and continue cutting, it would have to be done with multiple files. This limits tool path verification and hard to visualize the entire cutting program output. However, in VisualMill this can be done in a single file by creating all the required tool paths, then selecting the tool paths that comprise an output program segment and posting it until all the segments have been output into as many post file as desired.

Conclusions

So how does a small manufacturing company act as a big time supplier for companies like Team Valvoline EMGO Suzuki? Simple. They use the right manufacturing software, which makes things easy, fast and accurate.