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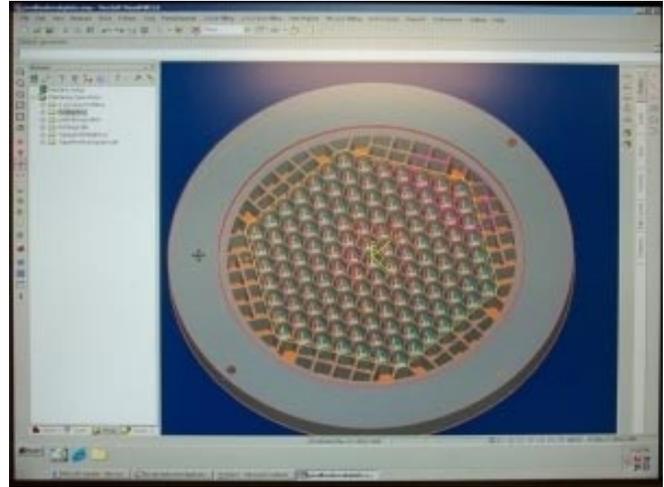
## VisualMill in Aerospace & Defence

The [Ensign-Bickford Aerospace & Defense Company](#) is a global leader in energetic systems used in diverse market segments including; minefield and obstacle breaching, military demolition, vehicle protection, tactical weapons, and space & strategic systems. The company was founded in 1836 by William Bickford, the inventor of safety fuse, and has grown over the course of more than a century and a half with dozens of pioneering innovations. Today, EBA&D is a world class manufacturing and engineering company committed to doing things right the first time, and delivering on time.

Dan Sutula, a Senior Design Engineer at EBA&D has been using VisualMill since 2001 (version 1.0). George Rebmann, a Tool Design Engineer at EBA&D, is responsible for manufacturing related tooling and equipment. With Dan training him, George was up and running VisualMill in a few days, and he has been honing his VisualMill skills and experience for more than a year now.



Stainless Steel Plate - 12" diameter x 1.25" thick. Approximately 190 holes with stress optimized webs - Approximately 2-hours programming (and test cuts), 8-hours machining time. Outstanding Results!



"VisualMill is easy to learn and fast to use. A wide variety of machining strategies and control settings makes programming even complex parts a pleasure"

EBA&D's first CAM package was CAMAX CAMAND a high-end (\$25,000) UNIX based system which was discontinued later. Being left "CAMLESS" they evaluated several mid-ranged products including SurfCam, MasterCam and EdgeCam and a new product called VisualMill. "Initially", says Dan, "we were expecting to see a decrease in capabilities and performance in 'downgrading' from CAMAX but we were pleasantly surprised. The ease of use, speed, 3D simulation, editing and optimization capabilities of VisualMill was impressive. VisualMill 1.0 was a bit limited with respect to creating CAD geometry, but on a value basis the decision was a low risk no-brainer decision. We figured if we outgrew VisualMill, we could buy a better package later. The need never arose, VisualMill evolved quickly and exceeded our expectations. When it came time for another seat of CAM, we bought another seat of VisualMill."

EBA&D uses VisualMill for their low-volume high-complexity 3D jobs that would require long lead times and significant expense to sub-contract. Some of their parts have small features and require small diameter cutters. Due to the geometry of the parts, they are often forced to rough parts with small diameter cutters and miles of toolpath. VisualMill's quick calculation speed is an asset in these instances.

Many of the parts that are machined are milled from sheet stock from both sides; pattern commands for arrays of parts are frequently used. Dan says "I have had many occasions to use almost every one of the advanced VisualMill machining strategies, but I have had only a few occasions were I could not do exactly what I wanted to do without editing. The Knowledge Base functionality is a huge time and brain-memory saver." Dan typically does not bother saving "NC" files. He stores his jobs as VisualMill session files (.vmp) files so he can go back and repeat a job. "Information in the session file helps refresh our memories by reviewing the setup and simulating the toolpaths. Re-posting the NC files is a breeze."

Occasionally VisualMill is used as a tool for estimating the machining associated with "bid and proposal activities". In several cases they have actually machined and shipped prototypes along with the proposals itself.

With respect to payback, the EBA&D group has realized that the cost of VisualMill is small in comparison to the cost of purchasing the HAAS TM-2 CNC milling machine and tooling. The conservatively calculated payback on the entire project was less than 3-years and is deriving more value faster than anticipated. While comparable machine tools are available at essentially the same price as the HAAS, VisualMill is less than half the cost of the competitive CAM packages. "At EBA&D, we believe in buying the right tools for the job at hand. VisualMill has proven itself as a great tool for our mission."

Dan has trained himself and has found VisualMill very easy to learn and use. He has trained the other users in about 1-2 days, depending on their previous knowledge with CNC and CAM. They use CoCreate OneSpace Designer and SolidWorks CAD packages and find that VisualMill's IGES translator works well with files from a variety of sources.

At this time EBA&D uses VisualMill exclusively. Extremely satisfied with the performance of VisualMill, the team has evaluated VisualTurn, and anticipates purchasing it along with a new CNC lathe in the near future.

