World leader in mountain bike products

SRAM Corporation develops and manufactures bicycle and mountain bicycle components such as rear derailleurs, braking systems and propulsion systems - multi sprocket rear cassettes, etc. An example of a retail part marketed by RockShox, the marketing division of SRAM Corporation is shown below.

A mountain bike part marketed by RockShox Corporation.

SRAM/ROCKSHOX Division is an industry leader in the development and manufacture of premium cycle suspension products. The focus of the product line is high performance front suspension forks, rear shock products and suspension seat posts. The lower fork legs are precision castings of magnesium using state-of-the-art casting processes. The upper support structure (crowns) are precision aluminum forgings.

The development cycle begins with emphasis on industrial design using state of the art software products. The matured industrial design concepts are then integrated into PRO/Engineer CAD solid models for structural analysis and produce-ability. These developed products are then prototyped for ‘touch and feel’ evaluation and rigorous internal structural testing. Cost, ease of use, reputation and compatibility with the chosen CAM package drove the choice of the HAAS Super Mini Mill for this application.

Given the extensive industrial design and CAD tools available at ROCKSHOX, product development engineers John Reid and Russ Rose sought to find flexible and cost effective CAM software to facilitate rapid prototyping. The experience of John and Russ is vast in the CAD/CAM arena.

Several low to high cost CAM products were evaluated using the following parameters for the choice, file import robustness, ease of part manipulation within the package, and efficiency of machine tool path generation. VisualMill from MecSoft Corporation was the clear leader in all of these areas, particularly at the price point. "While others that were evaluated literally crashed when importing large Pro/e IGES surface files, VisualMill was able to handle all of them. The organization of the machining operations is very flexible and easy to manipulate and re-arrange due to the windows based architecture.

Additionally, the knowledge base function allows for previously programmed operations to be imported and applied to similar parts saving valuable programming time by avoiding redundancy” says John Reid. There is a wide variety of post processes included with VisualMill. The HAAS post processor is standard. If any post processor needs were required we found MecSoft Corporation to be very helpful. The host computer for this activity is networked to SRAM operations worldwide. The PC is connected to the HAAS using the serial communication port.
Machining of a bicycle suspension fork being done on a Haas vertical machining center

Various bicycle suspension forks machined using VisualMill