Since founder Clyde McMillan drew his design for an automatic nozzle for firefighting on a paper napkin in 1968, Task Force Tips Inc. (TFT) has developed a range of products that make firefighting more effective and safer for firefighters around the world. TFT’s success has resulted in eight expansions, and associated moves into larger facilities, over its four decades in business. Today, firefighters in more than 30 countries rely on the company’s products to fight fires and save lives.

Much of TFT’s success stems from its commitment to staying on the leading edge of technology, and continuing research and development, allowing the manufacturer to become one of the frontrunners in the global fire industry. TFT focuses on leveraging design technology and computer automation to increase efficiency and create innovation. By providing its talented product development team with effective design and engineering tools, management believes the company will maintain and advance its position as the market innovator.

TFT’s strong technology focus prompted its Development Group to evaluate its product design platform in 2001. The firefighting nozzle manufacturer had used Pro/ENGINEER® software on the UNIX® platform to design its products, but wanted to shift development work to the Windows® computing environment, according to Senior Design Engineer Dave Kolacz.

“The design solution that we had used was cumbersome, and we needed development tools that were not only easier to use and more stable, but also more robust,” Kolacz recalls. “TFT manufactures many products that require stress and dynamics analysis. The desire for an integrated suite of tools that were easy to use led us to SolidWorks® software.”

**Challenge:**
Advance firefighting nozzle development by expanding its product line, compressing design cycles, and increasing innovation.

**Solution:**
Implement SolidWorks Professional design and SolidWorks Premium design and analysis software to boost efficiency and innovation in product development.

**Results:**
- Reduced design cycles by 30 percent
- Doubled number of products
- Cut molded parts cycle by 50 percent
- Improved quality, increased innovation

Using SolidWorks Professional design and SolidWorks Premium design and analysis software, Task Force Tips has efficiently doubled its number of products and has continually introduced industry innovations.
TFT moved to SolidWorks and now relies on its 20 licenses of SolidWorks Professional design and SolidWorks Premium design and analysis software to develop quality, innovative products. “Roughly 50 percent of our projects require SolidWorks simulation tools,” Kolacz notes. “In addition to using SolidWorks modeling to develop castings, injection-molded parts, and sheetmetal components, we rely on SolidWorks Motion and design visualization capabilities to validate new concepts and reduce development time.”

**Shorter design cycles double product line**

After migrating to SolidWorks design solutions, TFT saw its development effort take off. Over the past 10 years, the company has doubled the number of products that it manufactures and has introduced a number of product innovations. These achievements are due in part to a 30 percent reduction in design cycles since the SolidWorks implementation.

“In our market, if you are not constantly innovating, you’re losing ground,” Kolacz stresses. “TFT made the move to SolidWorks to support our product line expansion, and we have not been disappointed. We are saving time, developing innovative products, reducing design errors, and working more efficiently with vendors and manufacturing partners.”

**Faster casting and mold development**

One area where TFT has realized dramatic benefits from using SolidWorks is in the development of castings and molds. The company designs aluminum sand castings and stainless steel investment castings for its parts, and works closely with its mold-making partner to produce injection-molded components. The casting process is now less work-intensive and more accurate, and TFT has cut its molded parts cycle in half by eliminating one or two iterations from the mold development process.

“SolidWorks has really eased the path to getting castings done,” Kolacz explains. “Instead of undertaking a huge effort to produce a print and dimensions, we just send a model out to manufacturing. Our mold-maker is also very proficient using SolidWorks. In addition to being a lot faster, our quality has improved because SolidWorks enables us to be more accurate with fewer errors.”

**Simulating innovative products**

Using SolidWorks Simulation tools, TFT continues to bring innovative products to market. For example, on the Monsoon Monitor Series, a manually operated fixed station or truck-mounted monitor with manual or electric remote control of rotation and elevation angle, the company developed a unique patented segmented waterway to control rotation without impeding flows of 2,000 gallons per minute at 200 psi. The company also developed an innovative planetary worm gear drive for use in its large valves.

“Developing the planetary gear drive was challenging because compactness requirements led to the use of nonstandard gear teeth,” Kolacz points out. “The ability to visualize how the mechanism functions with SolidWorks Motion was a real advantage in creating a compact gearbox. It allowed us to validate performance and introduce a breakthrough concept to our firefighting customers.”

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Dave Kolacz
Senior Design Engineer