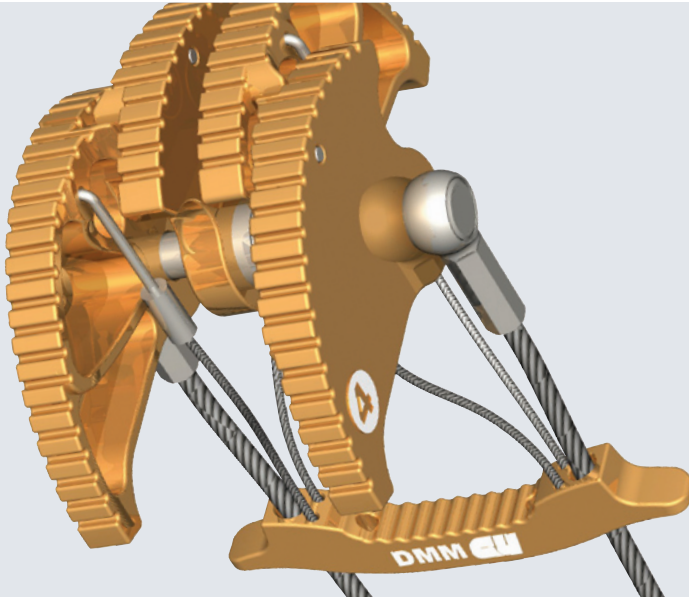


DMM Engineering Ltd.

TAKING MOUNTAINEERING PRODUCT DESIGN TO NEW HEIGHTS WITH SOLIDWORKS



Using PhotoWorks photorealistic rendering software with SolidWorks, DMM engineers were able to create a level of stylistic differentiation that sets the company's camming units apart in the market.

- Developed unique family of hoop-stemmed camming devices for mountain climbing
- Reduced design cycle by 50 percent
- Realized sales volume three times higher than initial estimates

DMM Engineering has produced innovative equipment for rock climbing, mountaineering, and industrial safety for two decades. In 1996, a group including directors of DMM purchased Wild Country, which held the original patents for camming units, devices that rock climbers use to provide a frictional anchor in rock features where no other method of fall arrest and protection is possible. The climber contracts the aluminum alloy cams by depressing a trigger, after which the device can be inserted into a crack in the rock. When the trigger is released, the cams open, securing the device. The climber attaches his or her rope to the device. If a fall occurs, the weight and impact is transmitted through the device to the cams, creating the frictional anchor.

Following the Wild Country acquisition, DMM Engineering faced the challenge of developing a new, technologically advanced product line that would complement Wild Country camming devices, which enjoy great brand recognition.

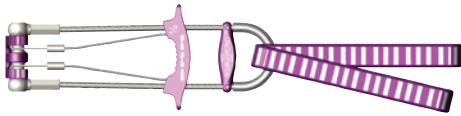
According to Fred Hall, technical managing director at DMM, management realized the company would have to invest in an advanced 3D CAD tool to provide the power and flexibility necessary to innovate a new product category. "We wanted to make a product that didn't compete with Wild Country's single-stem camming device," Hall explains. "We used the concept of a hoop-stem design but faced the challenge of making it lighter and stronger than anything that had been produced before. We knew we had to include 3D shapes in the manufacturing process to make them efficiently and support aggressive pricing requirements."

Design for manufacturing

DMM had used AutoCAD LT® for product design when Kevin Brown of Design Geometrics, Ltd. introduced DMM to SolidWorks® software. Impressed with the power and flexibility of the software, DMM purchased two seats of SolidWorks from SolidBase and engaged Brown to design the family of hoop-stemmed camming devices.

“That’s what I call design for manufacturing.”

Fred Hall,
Technical Managing Director



Using SolidWorks software, DMM Engineering accelerated the introduction of its innovative hoop-stem camming units, which provide frictional anchors for fall arrest and protection during rock climbing.

“SolidWorks has helped us from conception through production,” Hall says. “It allows us to model components step by step, as they would be manufactured, such as the machining of an extruded profile. SolidWorks also gave us the flexibility to consider many options during the design phase before committing to a final design. With the old 2D package we relied on prototypes, which were time-consuming, limiting, and expensive. With SolidWorks, we had very few changes once we entered production.”

Hall adds that 3D visualization provided by SolidWorks aided interactions between Brown, the designer, and manufacturing personnel. “The most beautiful design in the world is of no value if it can’t be manufactured efficiently. SolidWorks helped us address manufacturing issues, such as longer tool life and faster cutting paths, as part of the design process. This is key because you can’t manufacture something that costs more than anyone will pay. You want an aesthetic design that you can produce at a cost that the market will support. That’s what I call design for manufacturing.”

Using SolidWorks software, DMM was able to reduce its design cycle for the new line of camming devices by 50 percent.

Stylizing with shape and color

Designing strong, lightweight camming devices that are stylized and color-coded was another challenge. “In addition to the technical difference of using a hoop-stem, our camming devices also required a degree of stylistic differentiation to make them attractive in the marketplace,” Hall points out. “SolidWorks enabled us to take away as much redundant material as we could to produce a robust, long-lasting product. Lightness is a key feature. When you are climbing a mountain, you want to conserve energy.”

Using PhotoWorks™ photorealistic rendering software with SolidWorks, DMM developed a color indexing system for the 11 different sizes of camming devices. “The karabiners that accompany the camming devices are color-coded. You know the size of the camming unit by the color,” Hall says. The combination of software also provides graphics for promotional purposes.

Tripling sales estimates

Sales orders for the new line of camming units during the first year were three times initial estimates, and the “take-up” response from retailers was the highest ever for a new DMM product, Hall says. “Either our market research was wrong or the product was right, and I know the product was right.”

He adds that a large part of the success of a product is the ability of the Engineering Department to sell the product to the Sales Department and retailers. The 3D graphics and stylized components provided by SolidWorks created much enthusiasm for the product, Hall notes.



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