efi Sports Medicine

MODERNIZING THE TOTAL GYM EXERCISE SYSTEM WITH SOLIDWORKS

Using SolidWorks software, efi Sports Medicine has shortened manufacturing lead times, reduced prototyping costs, and accelerated time-to-market.

CHALLENGE:

Transform gravity-based exercise equipment to capture significant market share in the growing commercial club and private gym market.

SOLUTION:

Implement SolidWorks 3D CAD software to leverage surfacing tools, assembly capabilities, and greater automation.

RESULTS:

- Cut time-to-market by 50 percent
- Reduced the number of prototypes by 90 percent
- Realized 30 percent growth from new revenue generated in commercial fitness markets
- Established strong position in club/studio segment of commercial fitness market

efi Sports Medicine® manufactures incline resistance training exercise equipment, including The GRAVITY® SYSTEM and Total Gym® brands of rehabilitation training and fitness equipment. Since its founding as Total Gym, Inc., in 1974, the company has produced incline resistance training equipment, which uses the force of gravity and a person's own body weight for a wide range of exercises. Although Total Gym designers always paid close attention to form, fit, and function in developing their early systems, management wanted to reinvent the company as efi Sports Medicine and transform its innovative approach to exercise equipment to capture significant market share in the growing commercial club and private gym market.

"The company started out using just paper drawings to design equipment," explains Dan McCutcheon, senior mechanical engineer. "People drew up steel tubes, bent them, and welded them. It was pretty much the garage shop approach of using simple technology to just get the job done. There was a migration to AutoCAD® software, but the company's overarching goal of becoming the leading innovator in developing exercise equipment for the commercial fitness club market demanded the application of 3D technology. We needed to use 3D to take the company to the next level, modernize our systems, and create the attractive and stylish exercise equipment for which we are now known."

efi Sports Medicine chose SolidWorks® CAD software because of its ease of use, robust surfacing tools, and advanced visualization capabilities. The company also values the ability to integrate a design assembly fully in 3D software. Not only does this enable efi Sports Medicine to meet safety requirements, it also shortens manufacturing lead times, reduces prototyping costs, and accelerates time-to-market.

SolidWorks

"SolidWorks allowed us to take the evolutionary steps necessary to advance the product."

Dan McCutcheon,
Senior Mechanical Designer

With SolidWorks software, efi Sports Medicine can take advantage of plastic-molded shapes and a higher degree of curvature to create attractive products.

Enhancing aesthetics with complex shapes

With the surfacing capabilities of SolidWorks software, efi Sports Medicine was able to use geometrically complex and aesthetically pleasing shapes on its systems. This allowed the company to transform its traditional Total Gym product line into a more modern and more attractive product. "SolidWorks allowed us to take the evolutionary steps necessary to advance the product," McCutcheon stresses. "While they exercise, people want to look good on a nice-looking piece of equipment. We were able to use plastic-molded shapes, a higher degree of curvature, and greater levels of automation to develop an impressive-looking product that will stand out from other exercise equipment at the gym.

"Using top-down assembly in SolidWorks enables me to see the space that is available, assess the clearances with which I have to work, and think about the impact of tolerances on clearances," he adds. "I can move parts around in the assembly until I am satisfied that it all fits and works."

Faster time-to-market, better communication

Since implementing SolidWorks software in the development of the Total Gym, efi Sports Medicine has halved its time-to-market and reduced the number of prototypes produced from 10 to one. In addition to realizing productivity gains, the company is manufacturing a better, more sophisticated product. "With SolidWorks, we are at least 50 percent faster, which is significant when we are creating molds and making much more complex parts," McCutcheon points out.

With the RealView display design visualization capabilities in SolidWorks, McCutcheon can communicate and demonstrate design concepts to management and marketing professionals without building a prototype. "SolidWorks RealView visualization offers us the ability to evaluate our designs fully before building a prototype," he notes, "which is why we have been able to create impressive designs without cost overruns or rework."

Entry into the fitness market segment

The designs that efi Sports Medicine has produced with SolidWorks helped the company enter the commercial fitness market and quickly build the studio and club segment, adding revenue streams that translated into 30 percent growth beyond the company's existing market channels. The company has established a leadership position in small group training despite the competitive nature of the fitness industry and the price-point sensitivity associated with exercise equipment.

"We needed to add character, quality, and attractiveness to create an edgy look that could compete in the commercial club market," McCutcheon says. "We have succeeded in part because of the decision to use SolidWorks. Without SolidWorks 3D design, we could not have produced these kinds of surfaces as efficiently, built this type of product as cost-effectively, or penetrated this market segment as deeply."

SolidWorks

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