

SITUATION

In mid-1996, snowshoe industry leader Tubbs sought to capitalize on market research which indicated would-be snowshoe enthusiasts had a strong demand for affordable, durable, recreational snowshoes with easy-to-use binding/crampon systems. Current snowshoe technology, although available, did not meet Tubbs' durability standards over extended use and time. Lacking an internal design staff and 3D CAD system, Tubbs contracted Eikon, an industrial design firm based in Vermont, to assist in the design of a new type of snowshoe.

OBJECTIVES

- ✓ Develop an innovative new product for international and U.S. markets that was rugged and affordable with above-average performance for recreation/sport use. The product had to fit in the \$99 to \$135 price range.
- ✓ Create a series of molded plastic snowshoes with an integrated frame structure to drastically reduce assembly costs and enhance flexibility and durability in very low temperatures.
- ✓ Design a product that met the performance and reliability characteristics required of outdoor products for recreational, family use in winter.

PROCESS VISION

- ✓ Integrate marketing, manufacturing and engineering teams.
- ✓ Utilize CAD to encourage a simultaneous design approach to the development process.
- ✓ Minimize risk through the use of virtual and rapid prototyping.
- ✓ Reduce time to market by linking CAD/CAM with these rapid technologies and the Internet.

ACTIONS

- ✓ Tubbs assembled a development team consisting of internal staff, Eikon designers, product graphic/stylists, and engineers from materials supplier, Bayer Corp., and Milfoam, the designated manufacturer.
- ✓ Based on size and shape parameters provided by Tubbs, Eikon used I-DEAS software to create a rough CAD model in two days. This model was plotted out and recreated in foam core for review by marketing, manufacturing and engineering. Recommended changes were reflected in the 3D CAD and subsequent physical models over the next few weeks.

Tubbs' Trekker Series Snowshoes Leap With I-DEAS™



"The Trekker Series project proved to us that an integrated design, prototyping, and tooling approach involving I-DEAS™ software is definitely the way to develop new products. We cut 50% off our development cycle on this design-to-market approach."

- Ed Kiniry, President,
Tubbs Snowshoes



**Get
There
Faster™**

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- ✓ With the overall parameters finalized, Eikon's designers worked on the many different parts of the product simultaneously. I-DEAS Team Data Manager™ capabilities enabled users to check files in and share data, greatly accelerating the design cycle and ensuring that designers were working with the latest versions of parts.
- ✓ Eikon designers were able to rotate and explode parts in a 3D environment to verify clearances with mating parts, permitting mechanical testing of the design prior to prototype fabrication.
- ✓ STL files were exported from I-DEAS and sent over the Internet to Protogenic for creation of an exact stereolithography master of the digital model. Tubbs had never previously undertaken such a thorough design verification process.

RESULTS

- ✓ Using I-DEAS Master Series™ software, Tubbs was able to bring a totally new product to market 50% faster.
- ✓ The advanced 3D design capabilities enabled the engineers to have the snowshoes come out of the mold with the tubular frame in place. As a result, the product requires approximately one-quarter the assembly time of conventional snowshoes.
- ✓ When a redesign of the Trekker shoe was mandated, Eikon was able to reflect those changes in the 3D model in under a week, which allowed the team to stay on its aggressive development schedule. Previously, Tubbs would have relied on costly tooling modifications for design revisions.
- ✓ Communication among team members was significantly enhanced because 3D solid models could be presented to manufacturing engineers up front in the design cycle, and modifications could be made early when the cost of change was small.
- ✓ The Trekker series offers Tubbs a high-quality product at an attractive price point. The molded traction and patent-applied-for design reinforced Tubbs' commitment to offering innovative new products.
- ✓ Eikon was recognized for the product design with the 1998 IDSA/ *Plastics News* Design Award.

PLANS

The Trekker project proved to Tubbs that an integrated design, prototyping, and tooling operation was possible, and the company plans to apply this approach in its future product development efforts.

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