TUMI RAISE BORING
REDUCING TIME TO MARKET AND SHARPENING COMPETITIVE EDGE WITH SOLIDWORKS FOR MACHINE DESIGN

Case Study

TUMI Raise Boring is a world-renowned Peruvian company specializing in the rock drilling and excavation industry with a focus on the mining, hydroelectric and civil engineering sectors. They specialize in design, manufacturing, equipment maintenance, machine and accessories sales and operating services, offering an integrated solution for your industry requirements. Currently, TUMI manufactures all parts of the drilling and excavation system, including raise boring machines with variations in size and capacity, drilling tubes, stabilizers, drills, heads and mills, and more.

Challenge:
Streamline the process of developing high-performance machines and apply continuous innovations to meet customer demands and provide a unique experience.

Solution:
Implement SOLIDWORKS Professional™ for projects and SOLIDWORKS Composer™ for technical documentation.

Results:

- Reduced design cycle by 40%
- Slashed bill of materials creation time by 50%
- Cut back on 2D documentation errors by 20%
- Located parts and designs 30% faster
- Gained better understanding of engineering designs
- Reduced human error by 70%

Founded in 1998 in the city of Lima, Peru, by Stu Blattner, TUMI has more than 20 years of drilling experience and more than 100,000 meters drilled. They currently have machines distributed across the globe in countries such as Argentina, Australia, Brazil, Canada, the United States, Indonesia, Italy, Mexico and South Africa. Their strategic alliance with Stu Blattner Inc. allows them to be very competitive globally in the raise boring industry.

Before deciding to implement SOLIDWORKS® as a platform for developing 3D designs, TUMI used 2D tools such as AutoCAD® in the project development stage and created 3D designs only for special cases and for some secondary purposes, such as interference detection, creation of 2D views and rendering.

TUMI engineering continuously strives to improve the quality of its products and the efficiency of its processes. However, creating projects only in 2D using a limited tool like AutoCAD made it very difficult to reach their goals. On top of this, they constantly struggled with delayed design cycles, unreliable bills of materials, high rework rates, design revisions, difficulty understanding 2D documents in the manufacturing stage, assembly problems and more.

To eliminate all these limitations, continuously improve the quality of its projects and be more competitive in its market, TUMI decided to implement SOLIDWORKS for project development. They got immediate results, reducing the design cycle by 40 percent on the first project completed using SOLIDWORKS.

According to Project Engineer Jorge Arizaca, using SOLIDWORKS allowed them to make quick decisions and meet TUMI's work standards, including in the production group. For this reason, TUMI sees SOLIDWORKS as a strategic business partner that it can rely on to achieve world excellence and to continue developing innovative projects that meet the requirements of its customers.

FASTER TIME TO MARKET

In the past, projects like the SBM 300 and SBM 700 SR drilling rigs took 10 months to complete. With SOLIDWORKS, the current project took only six months. In addition to all the benefits it gained with the significant 40 percent reduction in the project cycle, today TUMI is able to create more innovative products and reach the market much faster, making them even more competitive and successful in their business."

The implementation of SOLIDWORKS was the solution to take up the challenge of making improvements to the SBM 300-090 machine design and designing the SBM 700 SR-088 self-propelled machine. In 14 months, we were able to design, manufacture and deliver these machines to our customers. We have changed the design processes and procedures of our drilling machines. Thanks to the SOLIDWORKS environment, several people worked on both projects simultaneously and we were able to validate the final projects in a short time," explains Arizaca.

"Thanks to SOLIDWORKS, we were able to reduce the design time of a machine from 10 to six months. Now, the quality of our 3D designs, manufacturing drawings, technical documentation and marketing content is much more valued by our customers."

— Jorge Arizaca, Project Engineer

MORE AGILITY, QUALITY AND CONFIDENCE IN MANUFACTURING PROCESS

Before implementing SOLIDWORKS, TUMI experienced constant manufacturing problems due to the low quality of technical documentation created manually with AutoCAD. The bills of materials were unreliable and were often out of date, the 2D designs were unclear, a lot of time was spent clarifying manufacturing and assembly doubts, parts did not assemble because they were manufactured using drawings with wrong or obsolete information, among other problems. With the use of SOLIDWORKS to develop the SBM 300 and SBM 700 SR drilling equipment projects, the material lists are fully integrated into the 3D design and are updated automatically, halving the time spent on this task. Two-dimensional designs are also much better, since 2D views are also associated with 3D designs, achieving a 20 percent reduction in design errors and a drastic reduction in consultations to clarify manufacturing and assembly questions.

MORE ACCURATE TECHNICAL DOCUMENTATION AND HIGH QUALITY MARKETING CONTENT

Using SOLIDWORKS as a 3D design tool, TUMI engineering naturally creates all the 3D information needed to create its technical documentation and machine manuals. Using SOLIDWORKS Composer, TUMI uses this 3D information not only to create machine manuals, but also to create all parts manuals, maintenance guides, operation guides and marketing materials. This is a highly intelligent and integrated process. Any modification in 3D projects is automatically reflected in the technical documentation, keeping the information always up-to-date and avoiding problems due to the use of obsolete information.

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Drilling rig SBM 700 SR was fully created in SOLIDWORKS and completed in just six months, achieving a 40 percent reduction in the project cycle.

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