

ANNEX PRODUCTS PTY. LTD.

TAKING THE LEAD IN SMARTPHONE MOUNTING SYSTEMS DEVELOPMENT WITH SOLIDWORKS PROFESSIONAL



Annex Products leveraged SOLIDWORKS Professional design software to take its Quad Lock mounting system—for securing smartphones to bicycles, armbands, a car dashboard, or other locations—from a Kickstarter campaign to the market leader in its category.

Challenge:

Establish and grow a startup smartphone accessory products company through fast, effective new product design and production to support newly launched smartphone models more quickly than the competition.

Solution:

Implement SOLIDWORKS Professional design software.

Benefits:

- Grew annual revenue from zero to \$10 million
- Sold over a half million units in five years
- Turned new products around in mere weeks
- Improved interaction with moldmakers

With ideas for creating unique smartphone accessories, Chris Peters and Rob Ward founded Annex Products in 2012, off the back of two successful Kickstarter campaigns. The first was for an iPhone® case that doubles as a bottle opener (the Opena® Case), and the second was for a smartphone mounting system (the Quad Lock®) that supports active lifestyles. While the Opena Case made a big splash, with rave reviews, the success of the Quad Lock mounting system—for securing smartphones to bicycles, armbands, a car dashboard, or other locations—has exceeded expectations so dramatically that it has become the company's main consumer-facing brand.

The Quad Lock is the lightest, strongest, and most secure iPhone mounting system on the market. Its patent-pending, dual-stage locking mechanism makes it possible for a single case to provide a mounting solution for cycling, running, driving, and more. The Quad Lock is available worldwide with sales in more than 100 countries. Its market impact, innovative design, and high production quality have prompted Apple to put the product through its rigorous testing regimen and begin selling the Quad Lock alongside its iPhones.

"We pride ourselves on designing high-quality products and manufacturing them from the best materials we can find," Peters, now director at Annex, says. "Every product we produce is a solution to a problem we have personally experienced. To be successful, however, we needed to leverage a 3D development platform that provides the agility that we need to quickly respond to new smartphone models and bring new products to market faster than the competition."

Peters says he's used a variety of CAD packages in the past, including Pro/ENGINEER®, Unigraphics®, and SOLIDWORKS® software. "When the Kickstarter funding came in, we needed to choose a 3D design platform that supports the nature of the business: responding to new smartphone model introductions with the development of new products as quickly as possible," Peters explains.

"In my experience, I'd always found SOLIDWORKS design software to be the solution that's the easiest to use and that produces the fastest results, which is the primary reason why we chose it. We also liked the fact that SOLIDWORKS Professional includes the PhotoView 360 rendering application for generating compelling visuals."

FROM KICKSTARTER TO MARKET LEADER

Using SOLIDWORKS Professional design software, Annex quickly developed Quad Lock designs for every new iPhone model since 2011—as well as Samsung Galaxy smartphones—designing, testing, manufacturing, and delivering new products in a matter of weeks. The company's design agility has helped it increase annual revenue from zero in 2011 to \$10 million in 2016. Annex has received several awards for the Quad Lock design, and with more than half a million units sold, the company has grown from a startup to a market leader.

"We work with a variety of smartphone design data—including 2D drawings, scan data, and limited 3D geometry—to turn products around much faster than with conventional approaches," Peters notes. "With SOLIDWORKS software, our Ultimaker 2+ FDM (fused deposition modeling) 3D printer, and a Form 1+ stereolithography (SLA) machine, we can iterate on designs and physical prototypes very rapidly, which has been an important part of our success."



"To match the continual curvature of today's smartphones, we use a hybrid of surface and solid modeling in SOLIDWORKS. We find the fill and boundary surface tools give us the best results for controlling tangency and curvature to obtain the right shape. Creating the blends and transitions in our products is only possible using the powerful surfacing tools in SOLIDWORKS Professional."

— Chris Peters, Director of Product Development

TAKING ADVANTAGE OF SOLIDWORKS SURFACING TOOLS

Because iPhones and other smartphones incorporate curvature into a phone's shape and housing, Annex heavily leverages the advanced surfacing capabilities of SOLIDWORKS Professional software to precisely and efficiently emulate the phone's profile in the company's protective cases. "To match the continual curvature of today's smartphones, we use a hybrid of surface and solid modeling in SOLIDWORKS," Peters explains.

"We find the fill and boundary surface tools give us the best results for controlling tangency and curvature to obtain the right shape," Peters adds. "Creating the blends and transitions in our products is only possible using the powerful surfacing tools in SOLIDWORKS Professional."

PREPARING FOR INJECTION-MOLDING PRODUCTION

Annex also utilizes the mold development and analysis tools in SOLIDWORKS Professional software—particularly the draft analysis tools—to ensure the manufacturability of its parts, most of which are injection-molded by a moldmaker and manufacturing partner. "SOLIDWORKS draft analysis is critical for us to not only guarantee that our parts will pop out of the molds but also to work out where the parting lines and injection points should go. It's a key tool for assessing the manufacturability of our products," Peters says.

"SOLIDWORKS mold development tools enable us to reduce iterations and streamline interaction with our moldmaker," Peters continues. "SOLIDWORKS Professional has definitely allowed us to accelerate time-to-market."

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With SOLIDWORKS Professional software, Quad Lock can take advantage of advanced surfacing design tools to precisely and efficiently emulate a smartphone's profile, and use visualization tools like PhotoView 360 to create compelling design imagery.

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 210,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.

