

DEVELOP 3D

(TECHNOLOGY FOR THE PRODUCT LIFECYCLE)

SPECIAL REPORT: Solid Edge

JUICING UP DESIGN KEEPING PRODUCT DESIGN FRESH WITH SOLID EDGE



THREE FRESHLY SQUEEZED CUSTOMER STORIES

COOKE OPTICS

Delivering unsurpassed optical quality



ZUMEX

Squeezing productivity and innovation



TEN KATE RACING

World Championship winning design



COOKE OPTICS

Staying ahead of the game in the movie industry is what drives Cooke Optics. How does it use Solid Edge to help bring a director's vision to the big screen?

Cooke Optics is an Academy Award winning manufacturer of high-end, professional lenses for the motion picture industry. Its worldwide reputation is built on "The Cooke Look" and its products are at the centre of some of the movie industry's greatest achievements, from Charlie Chaplin to the latest Hollywood blockbusters.

Current hot topics in the movie industry include anamorphic wide format as well as the ability to begin shooting earlier and finishing later in the day to compress the production cycle and conserve budgets.

Its two main drivers are industry trade shows at either end of the calendar, so new prototypes and products are needed to both generate buzz and to drive future business.

Cooke's design process begins with optical design specialists who combine their knowledge of high precision lens design with Cooke's sales team's input on what customers are looking for.

Once the lens configuration begins to finalise, Cooke's engineering team get to work to create the mechanical packaging around the lens sets and to ensure that the product performs as needed in a high pressure environment.

Design work begins using 2D layout to drive the whole process. This allows the designers to build out a subsequent model of the lens, then move on to how those lenses are held in position and given the mechanical operation required.

As Stephen Pope, engineering manager, explains: "It's a question of holding lenses centred to each other, spaced at the right distances - it sounds easy when you say it like that, but all the tolerances are typically less than 20 microns."

The team moves into the 3D design phase, reusing components, features and sub-systems from previous generations of the product where possible and engineering new components where required.

Cooke's engineering team uses a mixture of both ordered and synchronous technology (depending on users preferences) to progress the design under, often tight deadlines.

Because of the iterative nature of the process, there are often design changes later in the process that require rework.

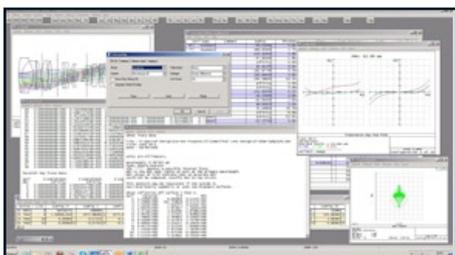
Here, Solid Edge's capabilities allow them to quickly rationalise these to achieve the perfect product.

Cooke Optics is continuing to use its mastery of the science to deliver a product that gives movie directors the tools they need to master their art - all driven and enabled by Solid Edge.

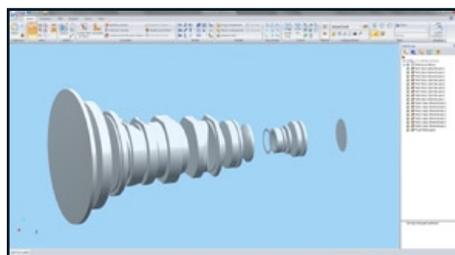
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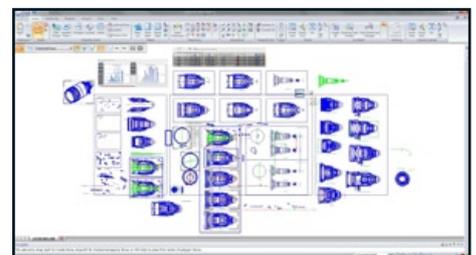
Cooke Optics: Delivering unsurpassed optical quality with Solid Edge



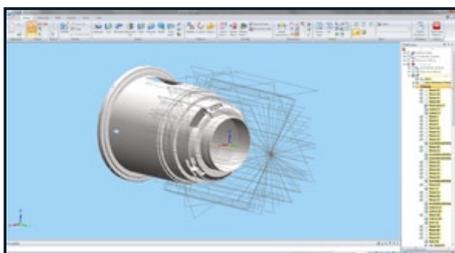
STAGE 1: Optical design using ray tracing software



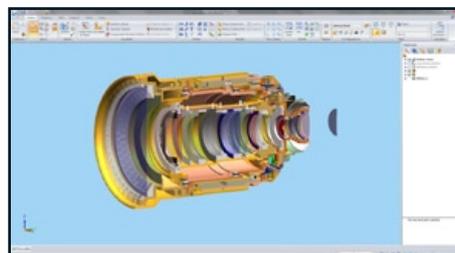
STAGE 2: Optical IGES file imported into Solid Edge



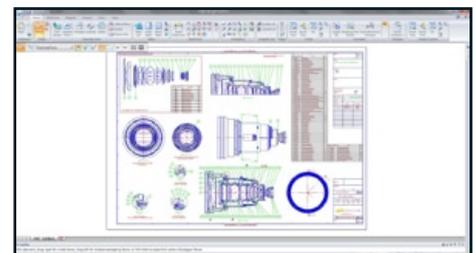
STAGE 3: 2D design layout conducted to achieve clarity



STAGE 4: Revolving of a 3D Solid Edge .par component



STAGE 5: A Full 3D assembly put together in Solid Edge



STAGE 6: 2D general arrangement with Bill of Materials

ZUMEX

Providing fruit and vegetable processing equipment to a truly global marketplace is challenge enough, but how does a market leader differentiate itself in a tough economic market?

Zumex markets products in more than 80 countries. With more than 25 years of experience in fruit and vegetable processing and manufacturing juicers, the company is headquartered in Valencia, Spain.

Solid Edge enables Zumex to make smarter decisions that lead to better products; in this case commercial and consumer juice-making machines, or juicers.

"We aim our products at premium customers, so it is important for us to maintain a high level of quality in all our marketing, design and production processes," says Eloy Herrero, manager of marketing at Zumex. "Our goal is to offer the best products to the most demanding customers."

The company has exceptional market presence. Herrero notes, "Zumex has 50 percent of the worldwide juicer market." He points out that the creative foundation of the company is the workforce at the company's headquarters, where new products are developed from an immersive focus on the end-user.

According to Antoni Flotats, director of innovation and development, this product development focus is essential to the success of Zumex: "At the start of every project, we work separately on three main concepts: context of use, technical requirements and functional requirements.

Then, we work together to integrate these concepts during the technical and aesthetic design phases."

Zumex was one of the first companies in its industry to test the use of 3D design tools. The company acquired its first license of Solid Edge in 1998. The use of Solid Edge soon became a key element in helping Zumex develop more innovative juicers.

"The juicer is becoming more of an appliance, which means the contexts of use proliferate as well as product functionality, quality, technical and aesthetics.

As a consequence, we incorporate more plastic or injected metal parts, which is why a 3D tool is essential to us," says Flotats.

tinyurl.com/D3DSiemensZumex



Know you got soul: How Zumex redefined its consumer products with Solid Edge

In 2013, Zumex engineers were tasked with creating a completely new machine that would be 50 percent smaller, 60 percent more versatile, use less than 65 percent of the parts in prior machines and incorporate revolutionary - yet inexpensive - new juicing technology.

The new juicer was positioned somewhere between an industrial product and a home appliance. That's when the company expanded the number of its licenses of Solid Edge with synchronous technology.

"Solid Edge allows us to make a cultural change, generating lots of ideas, contexts of use, functionalities and techniques that can be quickly and easily shaped on prototypes before the application of the best ideas concerning the technical and aesthetic design," says Flotats. "Solid Edge allows us to evaluate all the concepts from the points of view of both marketing and engineering, step-by-step, ensuring that the end-product will meet all expectations."

The result of this cultural change was "Soul," a new Zumex juicer that combines innovative juicing techniques with the look of a commercial appliance.

Zumex advertising extols the Soul as "The result of always wanting to keep a step ahead. Soul is evolution, achieving the best in the least possible space, capable of squeezing oranges, limes and lemons with a wide range of calibers. Natural innovation designed to make your life easier."

Soul is the result of the intense collaboration between the engineering division and the marketing department.

"With Solid Edge, we can tangibly visualise all developments, contexts of use, functionalities and technology to enable us to give our opinion, which is important for our marketing department," says Flotats.

"The 3D file generated using Solid Edge enables us to present the machine both internally and commercially long before it is manufactured."



TEN KATE RACING

With Michael van der Mark taking 2014's FIM World Supersport Championship, it's clear that Ten Kate Racing is leading the pack. Solid Edge is helping it get to the top of the podium

Netherlands-based Ten Kate Racing runs the Pata Honda World Championship team, transforming high-performance Honda motorcycles into finely tuned racing machines. The team has won eight World Supersport titles and one World Superbike title.

Running a competitive race team for the world's largest and most successful motorcycle manufacturer requires dedicated attention to detail. Ten Kate Racing's associates include experienced engine builders as well as experts specialising in data logging, suspensions and electronics.

During the 20-week racing season, 15 events take place around the world and Ten Kate Racing maintains a laser-like focus on optimal performance.

"This is a top sport and our success is all about results," explains Pieter Breddels, technical co-coordinator for Ten Kate Racing. "If we happen to have two or three poor results in a row, there is obviously more pressure on us because we have to explain to Honda why this is happening."

For the design team, time is of the essence. While the winter is spent on developing a

new motorcycle, development continues throughout the season. Components are often redesigned and tested in the short period between races.

"Everything I design has to be finished yesterday," says Jan van der Tol, designer and crew chief. To support such demanding timescales, Ten Kate Racing uses Solid Edge software from Siemens PLM Software.

"We were making the transition from a 2D system and, although the move to 3D was quite a step forward for us, we found Solid Edge to be much more intuitive and friendly than the previous system," says van der Tol.

The in-house team designs certain parts for the Superbike, such as brackets and links, while other parts are designed by external suppliers.

"Our designs are relatively straightforward. The triple clamps are probably the most advanced parts," says van der Tol.

"However, designs change quite a bit as we go through the season. In some cases, we need an instant response to a problem that crops up during a race. We cannot make mistakes. Each part needs to be absolutely correct when we fit it on a bike. For this reason, we use assembly simulations more and more to ensure that



everything works together perfectly."

Using assembly simulations enables the designers to gain more insight into individual parts.

"We can understand their particular attributes, which means we can improve quality," says van der Tol.

"For example, we can confirm that a part meets the exact weight criteria and does not either fall below or exceed the specification. Using Solid Edge, we can work at a fine level of detail. Overall, this means that we get the design right the first time."

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