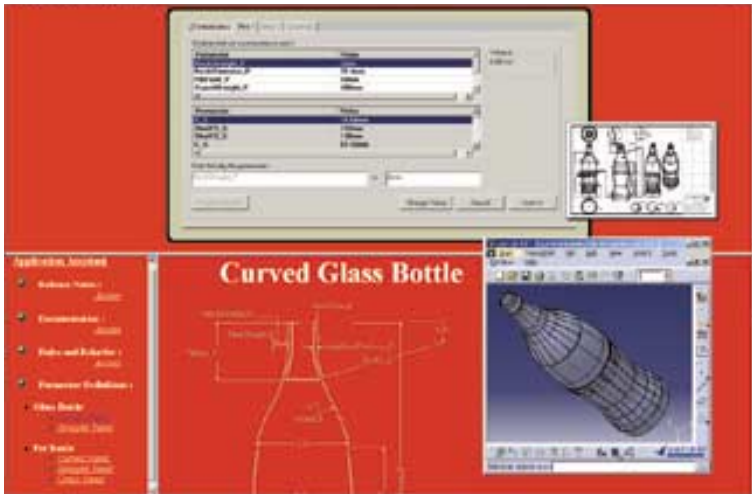
Coca-Cola selects CATIA V5 to meet new bottle design challenges



Overview

- ***The Challenge***
  Coca-Cola needed a CAD package with high-end surfacing capabilities, able to design complex bottle surfaces and quickly handle multiple design variations
- ***The Solution***
  CATIA was selected for its ability to handle complex designs and variations rapidly, as well as its open architecture and Web accessibility
- ***The Benefit***
  Coca-Cola was able to reduce design time by being able to quickly develop multiple variations for review and testing

Containers key to brand image

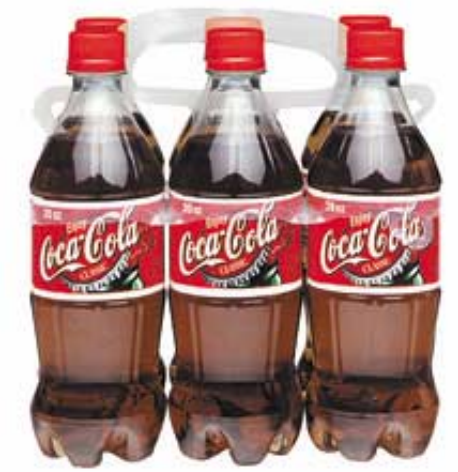
More than 230 Coca-Cola brands — from the well-known Coke, Sprite, Fanta, Dasani and Frutopia names, to the geographic-specific Inca Kola, Kapo and Thumbs Up brands — are sold by the world's leading manufacturer, marketer and distributor of non-alcoholic beverage concentrates and syrups.

The containers of these popular soft drinks are an important part of their brand image. The responsibility for designing bottles and cans for Coca-Cola rests with the company's Package Development and Design group at company headquarters in Atlanta.

A recognizable shape

Almost as familiar as the name Coke is the bottle that holds it. Behind the scenes, there's a complex process for conceptual design, manufacturing and filling to bring a bottle to market. A single half-liter bottle may have 50 variations throughout the world, due in part to different manufacturing facilities, each with unique requirements. Add various marketing nuances and cultural differences, and you have a large family of different bottles with basic design similarities.

> *"With CATIA V5 in place, Coca-Cola now has the software to meet our ongoing design challenges."*
>
> *Sterling Steward*
> *Coca-Cola Packaging Design Team Leader*



Not your father's Coke bottle

Coca-Cola's designer, Sterling Steward, leads a group of Computer Aided Design (CAD) designers and industrial designers. "Some of our challenges are very complex sculptured surfaces," he says. "In the past, glass containers — pressure vessels in particular — were very round, very simple shapes.

"Today we're looking for more complex shapes, with more creativity in the packaging, which means even higher-end surfacing capabilities. We need to be able to generate and highlight outlines on the packages with complex surfaces. Indentations, protrusions, blown lettering and graphics are incorporated into a lot of packages — PET (plastic bottles) as well as glass."

Collaborative design software needed

In considering high-end CAD packages, the Package Development and Design group was looking for software with strong surfacing capability, able to handle variations quickly. When marketing reviews a new package design, there could be anywhere from a half-dozen to 100 full 3D models generated for review and testing. The company prefers to develop the concepts as full 3D models. Once marketing reaches a decision, then the turnaround time to go into production tooling is dramatically reduced.

Coca-Cola also wanted a software platform that could easily share information internally and externally. Management wanted to enable designers to collaborate with each other and be fully compatible with the systems its suppliers and tooling vendors were using.

CATIA — the choice of Coke

Coca-Cola's choice was CATIA V5 from IBM, running on Windows NT.® The selection was heavily influenced by the company's ongoing drive to implement more productive and efficient systems. Steward estimates that during the past 10 - 15 years, Coca-Cola has increased its design capabilities three times using one-third as many people. And, CATIA's ability to run on the lower-cost Windows NT platform was an added bonus.

Multiple design variations — faster, easier

CATIA V5 is helping Coca-Cola's Package Development and Design group achieve a vital objective — reducing their design execution phase (consisting of modeling, drafting and image generation) — so they can spend more time creating innovative concepts. Using a custom Web-based application developed with an IBM Business Partner, a designer can enter a few principle design parameters (such as shape, height, diameter and volume) and quickly generate 3D CAD models and drawings.

Key to this process is CATIA V5's ability to design with or without parametrics. When asked about using CATIA V5, John Wargo, a designer in the Package Development and Design group said, "the ability to parametrically drive your models and the ability to control your models with mathematical equations is a huge advantage to the designer." With CATIA V5, designers can develop a basic model and then create multiple variations in a few minutes' time.

"Coca-Cola's goal with their Web-based application is for someone with little or no CAD experience to accomplish in minutes what use to take a designer hours." The key

to reaching this goal is CATIA V5's next generation technology, open architecture, Web accessibility and scripting solution.

Easy to learn — and compatible

The packaging group found CATIA to be a design tool that was easy for their team to learn, as well as easy to communicate electronically outside of Coca-Cola. It is also compatible with the company's internal processes.

Jay Gouliard, Director of Package Development and Design, explained "CATIA is a software platform that is compatible with what our suppliers and some of our tooling vendors use. This makes it easy for us to translate drawings from vendor to supplier or other bottle manufacturers, very quickly and efficiently."

Because of internal changes within the Coca-Cola design group, it was important that the conversion to CATIA V5 be done rapidly, using newly-hired designers. CATIA V5's ease-of-use was described by John Wargo as "a fairly straightforward package. The icons are intuitive. Things are where you would expect them to be. It was a fairly easy transition for me."

Lotus Notes ties it all together

Coca-Cola utilizes a Lotus Notes application to track and manage the workflow associated with requests for new packages that come from package engineers all over the world. The designers use Notes to transfer PDF and DXF files of the 3D parts drawings and rendered images. Then they use it to communicate status and gain approvals from the originator, as well as approvals from patents, trademarks, engineering and marketing. All of the essential elements of the package development process are linked together through Lotus Notes.

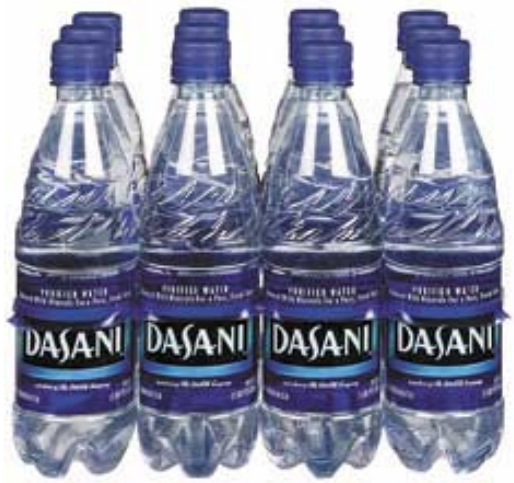
The right tool for the job

The design and manufacturing of soft drink bottles is more challenging than ever, and hundreds of new Coca-Cola containers are created each year. Sterling Steward said, "with CATIA V5 in place, the company now has the software and platform to make meeting these ongoing design challenges possible."

CATIA V5's proven architecture helps process-oriented companies of any size build their products using digital definition and simulation. CATIA V5 supports their requirements, including standard parts catalogs, complete sheetmetal design integration and structure design, as well as large assembly and bill of materials management. Assembly, part and wireframe designs, as well as generative and interactive drafting, are all optimized to provide enhanced 2D/3D integration, supporting the production of 2D drawings while applying the benefits of 3D design to complex part creation. CATIA V5 provides leading edge solutions to support 2D-centric fabrication and assembly customers in re-engineering toward 3D end-to-end processes.

For more information

Contact your IBM Marketing Representative, IBM Business Partner or visit the IBM PLM Web site at: **ibm.com**/solutions/plm



IBM Corporation
2900 Charlevoix Drive S.E.
Grand Rapids, MI 49546

Printed in the United States of America
11-01

Printed in the United States on recycled paper containing 10% recovered post-consumer fiber.

G121-7301-00