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# ARC INTERNATIONAL

## shines bright in the glass and tableware market with CATIA V5 and SMARTEAM

Brilliant, sparkling, fragile – the beauty of glass has fascinated man for thousands of years. Today, leading glass and crystal manufacturer ARC INTERNATIONAL has developed an aggressive industrial and marketing strategy with CATIA V5 and SMARTEAM PLM solutions to enhance the quality and originality of its products, and to reduce costs. By boosting design productivity by 20%, ARC INTERNATIONAL is securing its future in an age-old industry undergoing 21st century change.



# Company overview



Founded in 1825, ARC INTERNATIONAL remains a family business after more than 175 years. With its headquarters in Arques, France, the group exports 83% of its production to 160 countries.

To reflect the international nature of its operations, the company replaced its former name, the Verrerie Cristallerie d'Arques, with ARC INTERNATIONAL in 2000. In addition to its facilities in France, the group has factories in Spain, Italy, U.S.A. and China.

The ARC INTERNATIONAL catalogue offers more than 8,000 products for the table, cooking, and decoration, including glass, crystal, stoneware, porcelain and cutlery. The product line is grouped under six brands, including Luminarc (day to day tableware goods), MIKASA (crystal and luxury articles), and Arcoroc (commercial and restaurant products).

Today, ARC INTERNATIONAL employs 16,000 people and has an annual turnover of 1.3 billion euros.

## Business challenges

- + Diversify the product line with more innovative products to meet customer requirements worldwide.
- + Improve new product development to cut costs and reduce time-to-market for greater reactivity and competitiveness.



Design productivity + 20%

## Situation

Competition in the tableware market is fierce. Prices are dropping due to outsourcing and globalization. In addition, demand is down due to saturated markets in the developed world and changes in consumer behavior.

"Strong downward pressure on prices forced us to diversify our product line, rethink our international distribution, and improve the performance of our industrial processes," says Philippe Durand, CEO, ARC INTERNATIONAL.

To address these challenges, ARC INTERNATIONAL launched a growth strategy. A key part of the plan focused on improving the performance of ARC INTERNATIONAL's industrial processes, and in particular, on product development. The objective was to cut development costs, deliver a wider range of innovative products in all its market segments from high-end to everyday articles, and improve time-to-market for greater reactivity and competitiveness.



*"Optimizing new product development is an integral part of improving our industrial processes."*

Philippe Durand, CEO, ARC INTERNATIONAL

# Solution

In 2001, ARC INTERNATIONAL launched a company-wide project to optimize its industrial tools. As part of it, the group selected a Product Lifecycle Management solution from IBM and Dassault Systèmes in 2002. The solution combines the advanced 3D product development capabilities of CATIA® V5 with the comprehensive data and lifecycle management features of SMARTEAM®.

"We chose CATIA V5 and SMARTEAM as a long-term investment and because we have an excellent relationship with MDTVision, our local IBM business partner, who implemented the project for us," says François Meurisse, Head of industrial reorganization implementation, ARC INTERNATIONAL.



*"With CATIA V5 and SMARTEAM, we are positioning ourselves with the best tools available."*

François Meurisse, Head of industrial reorganization implementation, ARC INTERNATIONAL

## Styling-to-Manufacturing Process Coverage

The CATIA-SMARTEAM solution gives ARC INTERNATIONAL the complete end-to-end product development capabilities it was looking for - from initial product conception in the Industrial Design Department, to product and mold design and analysis in the Mechanical Design Department, and finally to NC programming in the Machining Department.

The roughly 100 employees in these departments use specialized, task-specific modules in CATIA V5 and SMARTEAM including styling, mechanical design, NC manufacturing, and collaborative design.

## Progressive Implementation

Today, all new product designs are created using CATIA V5. Data from EUCLID, the group's legacy CAD tool, is progressively being transferred to CATIA V5.

An interface has been created between SMARTEAM and INGRES, the group's in-house legacy PDM tool. The ultimate goal is to use SMARTEAM to manage CATIA V5 design data and associated documents (images, NC files, PDFs), product analysis data, and project working documents (customer documents, reports).

"CATIA V5 and SMARTEAM provide us with a complete set of tools that enable us to cover our end-to-end product development process from styling to manufacturing," says Anne Moyaux, CAD Manager, ARC INTERNATIONAL.



Design modification time - 80%

# Results

CATIA V5 and SMARTEAM benefit ARC INTERNATIONAL in all three areas of its product development:

## Simplified Industrial Design

The Industrial Design Department is the creative heart of ARC INTERNATIONAL and contributes to the more than 2,500 new projects created each year. Of these, 400 are sent to the Mechanical Design Office for development.

Benefits of CATIA V5 and SMARTEAM:

- Elimination of interface and data conversion problems since the group's creative and mechanical designers now both work with the same tool.
- Immediate technical validation of projects since creative designers working with CATIA V5 are immediately aware of the technical constraints on their designs. This means the designs sent to the Mechanical Design team can be technically viable from the outset.



*"The real value of our CATIA V5 and SMARTEAM solution is its completeness."*

Anne Moyaux, CAD Manager, ARC INTERNATIONAL

## Streamlined Mechanical Design

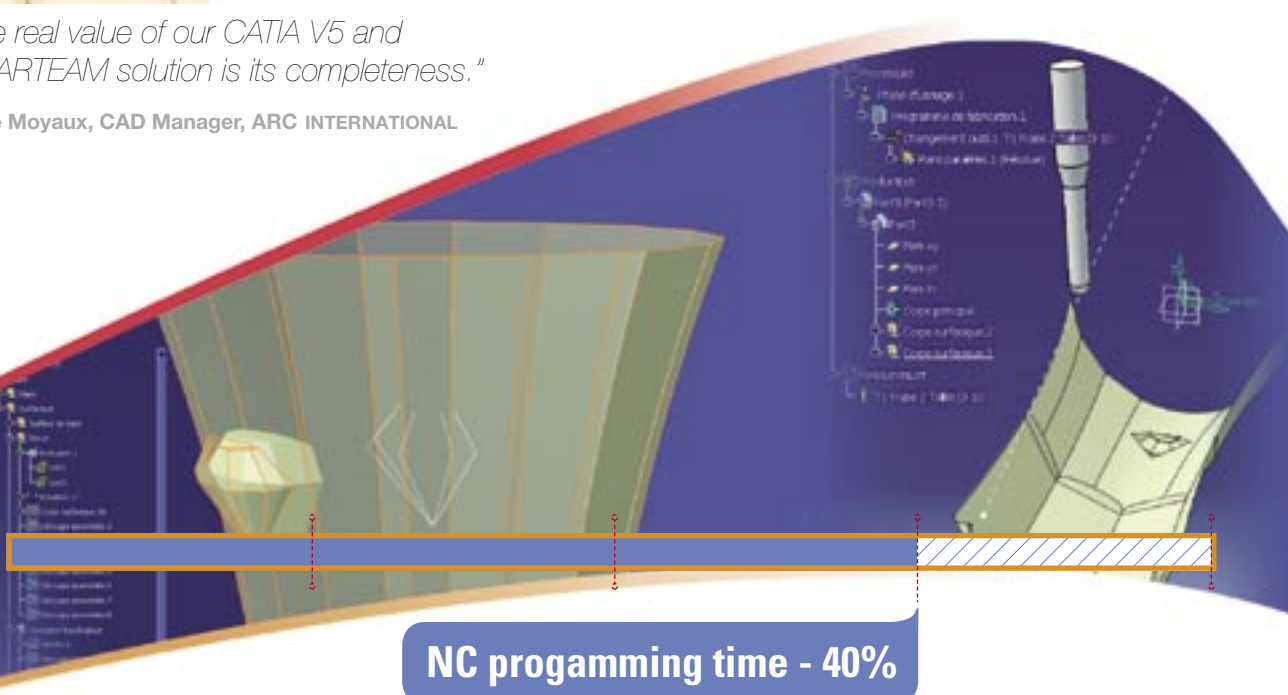
The Mechanical Design Department is responsible for the design and analysis of ARC INTERNATIONAL articles and their associated molds. The 20-person team uses CATIA V5 and SMARTEAM to develop the projects it receives from the Industrial Design team.

Benefits of CATIA V5 and SMARTEAM:

- 15-20% increase in design productivity (265k€ savings per year).\*
- 50-80% reduction in the time required to modify a complex design. Since CATIA V5 contains the design history of an object, updates can be made quickly and efficiently.\*

\*findings based on an independent study performed by CIMdata.

"Modifying the engraving on a glass is a good example," says Frédéric Daumas, Expert Designer, ARC INTERNATIONAL. "In CATIA V5, there are only two parameters to change, whereas in our former tool, I would have to start over from zero."



## Improved NC Manufacturing

The Machining Department at ARC INTERNATIONAL uses CATIA V5 NC manufacturing tools to automatically define the NC programs dedicated to the machining of parts.

Benefits of CATIA V5 and SMARTEAM:

- 25-40% reduction in the time required for NC programming according to complexity (123k€ savings per year).\*
- 10% reduction in the actual machining time required to tool molds due to highly efficient NC programs generated with CATIA V5 (40k€ savings per year).\*
- Improved quality of finished molds that facilitates the polishing stage.

\*findings based on an independent study performed by CIMdata.

“We achieve significant cost and time savings in the finishing phase of mold machining when the drill bit makes its final passes,” says Philippe Beugin, Director Machining Department, ARC INTERNATIONAL. “With other software, the bit retraces areas that have already been milled. With CATIA V5, it only traces the remaining areas to be removed.”

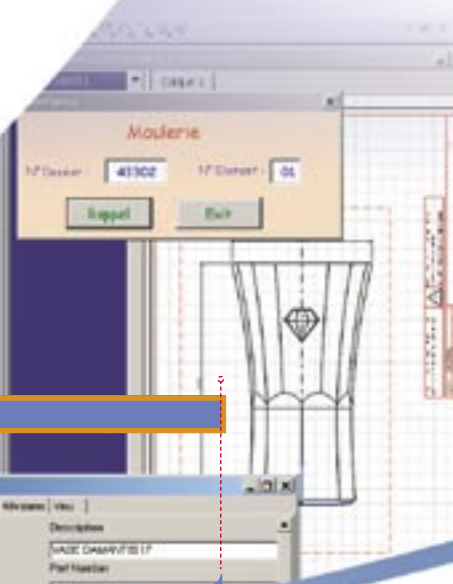
Other benefits identified by CIMdata:

- Reduced bid preparation time: 5.9% (125k€ savings per year).
- Faster preparation and execution of validation meetings: 40% (60k€ savings per year).
- Quicker search time for past projects' data: 81% (32.4k€ savings per year).



*“Strong ROI is crucial in a tight marketplace. Our PLM solution from IBM and Dassault Systèmes has come through with flying colors. In less than a year, the solution will have already paid for itself.”*

**Guillaume de Fougères, Director of Finance,  
ARC INTERNATIONAL**



**Machining time - 10%**

# Challenges met

CATIA V5 and SMARTEAM enable ARC INTERNATIONAL to meet and surpass its business challenges. By improving the group's product development process, IBM and Dassault Systèmes PLM solutions help ARC INTERNATIONAL to increase innovation, reduce development costs and improve time-to-market for greater reactivity and competitiveness.

## + 20% Design productivity

Design productivity has improved up to 20% with CATIA V5 and SMARTEAM (265k€ savings per year)

## – 80% Design modification time

Design modification time has been cut by 80% for complex designs

# Future

Other benefits ARC INTERNATIONAL can achieve by implementing additional capabilities from IBM and Dassault Systèmes' PLM solution are:

- Simplified product analysis by enabling designers to do first-level analysis of materials with CATIA V5, and easy integration with specific analysis applications (ANSYS).
- Faster and more accurate bidding on new projects with SMARTEAM BOM management capability.
- Improved communication between preliminary studies and design office via SMARTEAM workflow capabilities.

- Impact analysis of changes at any stage of the project with SMARTEAM workflow capabilities.
- Increased re-use of existing and standard parts thanks to CATIA V5 Knowledgeware and catalogue of standard parts support functions.
- Improved communication with customers (B2B) with SMARTEAM.

# Return on investment

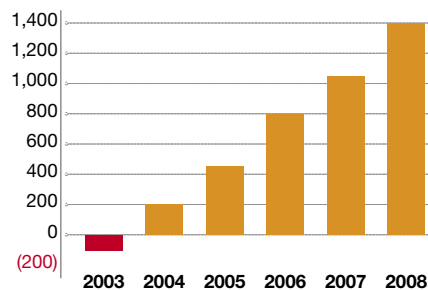
## CIMdata performed an independent ROI study at ARC INTERNATIONAL

CIMdata performed an independent Return On Investment (ROI) study on ARC INTERNATIONAL implementation of IBM and Dassault Systèmes PLM solution. The study was based on interviews with ARC INTERNATIONAL executives, and on data about the benefits of the PLM solution as well as the cost of its implementation (Software, Hardware, Training, Maintenance, and Administration). CIMdata's ROI model calculated the overall ROI for a six-year period. ARC INTERNATIONAL's overall ROI is impressive with a reasonable payback period and a very high internal rate of return.

### The findings are as follows:

- the pay back period is 10 months
- the net present value of the investment (the cumulative discount cash flow) over 6 years is 1,362k€
- the internal rate of return is 339%.

Cumulative Discounted Cash Flows - k€



Nov 2003 CIMdata

## — 40% NC programming time

NC programming time has been reduced up to 40% depending on part complexity (123k€ savings per year)

## — 10% machining time

Machining time required to tool molds has been reduced by 10% due to highly efficient NC programs generated with CATIA V5 (40k€ savings per year)

# Conclusion

IBM and Dassault Systèmes are helping ARC INTERNATIONAL to stay true to its philosophy of making affordability and attractiveness available to everyone.

“Tuning up our industrial tools was part of our five-year plan to guarantee growth and profitability,” says Guillaume de Fougères, Director of Finance, ARC INTERNATIONAL. “CATIA V5 and SMARTEAM enable us to offer competitive prices without

compromising our deep-rooted tradition of innovation, creativity, and beauty – the hallmark of ARC INTERNATIONAL designs.”

In an increasingly competitive glass and tableware market, the importance of providing the right tools to meet the needs of the group and its customers remains crystal clear.

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