



INTERFACES

THE NEWS LETTER OF 3D LASER SCANNING EXPERTS

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THE PRESIDENT'S MESSAGE



I am glad to present this first edition of our bimestrial news letter "INTERFACES".

This magazine offers an overview of measuring technologies and 3D processing, as well as 3D applications within other industries. You will also find out information on the activities of our company, Dynamic 3D.

In this first edition, the purpose is focussed on ship yard applications. The naval construction symbolises the successful merging between the traditional hand made fabrication and leading edge technologies. Because of their size, shape and technicity, boats nowadays have become an icon of human know-how : it is really a big challenge. In the 21st century, the 3D technology links two different universes : the digital object and the physical one. It also links the universe of the architect from design to simulation; and the one of the crafter from dexterity to the touch and the look. With Dynamic 3D, simulated objects and the physical ones speak the same language and exist in the same world. We are comparing and analysing them : we create the dialogue between them. Design, control and adjust digitally your production with the use of the existing CAO model whenever you want. We are close to you to accompany in this process.

Patrick BELLEGER, President

A new strategic implantation

2007 will be the year of new challenges.

As 2006 has been the year of Dynamic 3D's expansion and success in the coppersmith and museum sector, the company is now diversified to the naval industry, offering its expertise.

That is why, the company has decided to get closer to its clients by establishing a new production agency based in Marseille. This city, which history and activity is tightly bounded to the sea. A city that is also a focus point, which links all the other Mediterranean ports, making it possible for Dynamic 3D, expert in the 3D laser scanning and processing to propose its services in the heart of the French naval industry.



A scanner adapted for all requirements

It is the goal set by Dynamic 3D to provide its clients with the best possible solutions in all the aspects of their production process.

"We are prepared to face new challenges. Our teams are often required to successfully manage problems in extreme environments!" explains the president and the founder of the company Patrick Bellenger.

Faithful to its philosophy of rational usage of technologies, the company has recently equipped itself with new mobile 3D laser scanners. That allows the scanning of objects on site, without the necessity of transporting or disassembling them, with a

micrometric precision even if the object is not static. With these acquisitions, Dynamic 3D becomes one of the largest scanning platform in Europe through the variety and performances of its equipments. For this purpose, Dynamic 3D also provides 3D mobile long range scanning services based on "Trimble-GS101". This scanner is able to rapidly digitalize big-dimensioned objects.

At the same time, a strong partnership has been established with the Belgium Company Metris, one of the world leaders in commercialisation of 3D processing solutions. This partnership makes Dynamic 3D the French Service Bureau of Metris group.



Refit and refurbishment, new perspectives

The 3D laser processing allows architects and design departments to quickly achieve a three-dimensional copy, corresponding to the whole or a part of a boat.

This technology, tested in the leading edge industries, open new perspectives for boats' refit and reconstruction projects. For instance, Dynamic 3D has recently conducted an important refit project for CompositeWorks shipyard (article FOCUS). A part of the deck on an "M" class Yacht has been digitalized in order to design a high dimension metal superstructure. This has made it possible to perfectly manufacture and assemble the pieces for the boat in a few days. As a result of the scanning, Dynamic 3D has the capacity to also offer:

- An accurate 3 dimensional copy in all formats, compatible with the all C.A.O. softwares.
- The preparation of a 3D model to be used by digital tools machines.
- The rationalized drawings of all the digitalized elements.
- A physical mockup made of resin, plaster or other material.



A "global" solution



> Determined to provide competitive and innovative global solutions to its clients, Dynamic 3D has established a commercial partnership with the IPM Mondia Company in order to deploy an attractive service to the shipyards.

IPM Mondia is a company specialized in manufacturing structural composites or the so-called "sandwich panels" that are used in extreme environment. Being certified ISO 9001 version 2000 and meeting all marine and off shore requirements, their production line and digital cutting tools allow them to implement and design large dimensional panels.

The commercial partnership between the two companies makes it today possible to present to the naval industries a global solution, from 3D scanning of the interiors to the delivery of the ready to be assembled panels.

CATIA V5 from Dassault Systèmes For the shipbuilding

The complete software solution which offers to the actors of the nautical industry the tools that allow them to manage complex projects with simplicity.

"An increasingly healthy and competitive market is forcing the yachting industry to move from craftsmanship towards more industrial processes. We have demonstrated that the specific solutions we offer for the yachting industry mean that, by reusing know how and with digital mockups, our customers can rapidly introduce new models, styles or innovations. This in a 3D collaborative environment. Customers have reduced time to market and can better manage costs, becoming more competitive," explains François Mathieu, Yacht Market Development Manager, Dassault Systèmes.

With a multitude of designs, construction models, cabin arrangements, materials, and complex products, the yacht building industry needs scalable solutions able to address different and complex topics seamlessly. CATIA V5 is the only software solution which allows wide multiple process coverage within a unique platform drawing on cutting edge technologies. Benefiting from a vast experience in other industrial sectors, including shipbuilding, Dassault Systèmes offers modules specifically developed to answer the

current and future business challenges of yachting companies.

Today, over 50 companies in the yachting industry are using Dassault Systèmes solutions based on CATIA V5. Customers include market leaders such as Beneteau, Jeanneau, Hallberg-Rassy, Poncin Yachts, Elan Marine and Hanse Yachts in the small yacht space. In the large yacht market, shipyards like Heesen Yachts and CMN, while in engineering and design, customers include, Berret-Racoupeau Yacht Design, Vaton Design, LNM, Rivoyre Ingénierie, Humphreys Yacht Design and Judel & Vrolijk.





Compositeworks

Dyn3D. Good Morning, Mr. Salman, I would like to thank you first for being here with today. You are the “happy father” of a fast developing company that creates and renovates exceptional boats of composite material. Could you please tell us a little more about CompositeWorks?

Mark Salman. CompositeWorks was established in 1998, after years of collaboration with its co-founder Ben Mennem. Our company is settled in an old shipyard in the city of La Ciotat, which is located 20 minutes from Marseille. Today, CompositeWorks regroupes 70 employees. We have two main activities.

First of all – the naval construction; We are specialised in producing efficient competition sail-boats, manufactured by technologically advanced composite materials.

And secondly – renovation or “refit” of boats, thanks to our high quality harbour infrastructure. Our facilities allow us to work with boats with a length up to 100 meters.

Dyn3D. Speaking about your activities as a constructor, how do you succeed in implementing boats with such a high quality of assembling and finishing?

M.Salman. Besides the conception phase, which is done entirely by computer, all other stages, from the manufacturing to the assembling, are handmade by our highly qualified and experienced teams. This allows us to maintain an extremely high quality level throughout the entire production line and therefore to delivers boats “without compromise”.

Dyn3D. What are the restraints that come with these production methods?

M.Salman. No matter how much one is willing to achieve perfection or how

high his capacity is, man could still improve. We have always wanted to offer our clients the best that could be done in terms of quality, reliability and efficiency. These are our key words. That is why we are constantly experimenting with new tools, compatible with our production methods, which allows us to improve even more the quality of our boats.

Dyn3D. What is the contribution of Dynamic 3D in this matter?

M.Salman. We have been searching since a long time for a way to precisely control the geometry of boat elements in each stage of the production process. Dynamic 3D is a well known expert in this field, especially in the industrial sectors. What’s more, the company uses 3D mobile acquisition equipments, which allow to digitalize the elements on site without interfering with our current construction. Dynamic 3D has already proven its high efficiency as it provides us rapidly with dimensional analyses with a level of precision yet unseen in the naval industry. This allows us to improve our productivity and at the same time prevents all eventual geometrical defaults.

Dyn3D. Do you think you are getting closer to a “zero fault” quality?

M.Salman. This is our goal. That’s why we have chosen the services of Dynamic 3D each time it had been possible. We would be able now to offer our clients even more exceptional boats.

Some some of the numerous realizations of the CompositeWorks company.



Creation of the event

The technology is in service of the emotion.

The “communication and multimedia” department of Dynamic 3D rationalises the use of 3D models made by scanning, in order to present highly valuable communication tools. Realistic photo imagery, high definition video, multimedia interactive models, immersion in 3D real time, the company can provide a large range of complementary services in the heart of its activities.



Production under digital environment

The five steps of a successful project with BlackFlag Composite.

> Step 1 - Dimension measurement:

The first step of the project consisted in measuring the dimensions of the hull with a Laser Tracker in order to retrieve a cloud of points. This operation lasted one day. The sampling was made of one point every 100mm and one point every 10mm for the details.

> Step 2 - Surface reconstruction:

When the dimensions were taken, BlackFlag Composite started reconstructing the surfaces. "From the cloud of points, the CATIA V5 reverse engineering modules enabled us to rapidly recreate the real surfaces of the boat hull" adds Charles Pourreau, BlackFlag Composite studie manager.

> Step 3 - Digital mockup and validation by the client:

Thanks to the parametered digital mockup, BlackFlag Composite was able to create a simulation model which enabled it to validate the shape of the hull. "The digital model is an asset for our clients as it allow them to see their product in 3 dimensions".

> Step 4 - Digital mockup of tooling:

After the model had been validated by the client, the company made a digital mockup of the tool. The cutting of the templates making the mold and the developed shape of the mold surfaces.

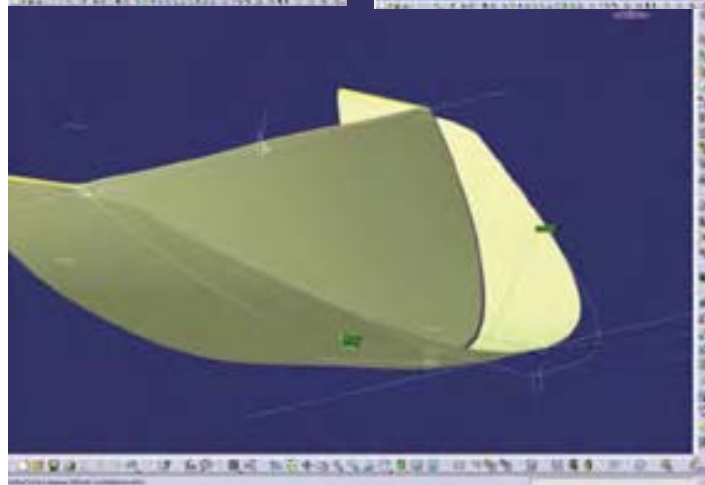
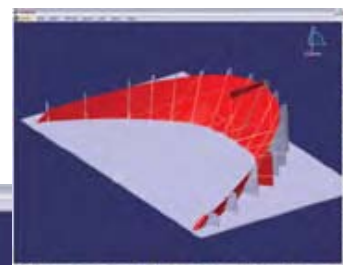
> Step 5 - Manufacturing in the workshop and final assembly:

When the mold was made, the hull was laminated, then coated beforehand in the workshop before beeing assembled on the client's boat: fitting of the hull, lamination on the boat then finishing coat to ensure a perfect junction. "We were able to fix this hull on the boat in 4 days thanks to CATIA V5. I discovered the product functionalities through-out the project, without having followed any training and with the advices given by Dassault Systèmes. I was able to appreciate how easy it is to learn to use CATIA. The asset of this software is the direct exploitation of the design data for the manufacturing, which thereby considerably reduces the design/manufacturing cycle".

Dassault Systèmes ambition is to help the boat industry to modernize its tools and processes by proposing solutions adapted to the requirements of this industry.

This project is materialized today by specific software packages enabling all the partners to have acces to these technologies and rapidly make them cost-effective while applying business methodologies which have been validated.

Thanks to these solutions based on the collaborative development of products. Dassault Systèmes enables the yacht industry to meet its new challenges.



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Our nautical industry partners



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Compositeworks

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