

Case Study

Dash-CAE: Innovating Composite Component Manufacturing



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Dash-CAE is a long-standing family business with a 17-year history, dedicated to providing cutting-edge services in the analysis, simulation, tooling, and manufacturing of composite components.

Their expertise spans across various industries including motorsport, aerospace, automotive, and marine. They are committed to continuous innovation, ensuring they always remain at the forefront of their field.

Introduction

One of their key innovations is the integration of state-of-the-art LFAM (Large Format Additive Manufacturing) technology into their operations. This advanced technology enables them to offer rapid response times and competitive costs for composite moulds, while also prioritising environmental sustainability through recyclable materials. By leveraging LFAM technology, Dash is in a position to provide its clients with high-quality, cost-effective solutions that meet the demands of modern industry standards.

Objective

Dash introduced the TR01 monocoque as an innovative solution to cater to the needs of companies in various industries. The TR01 serves as a versatile and cost-effective off-the-shelf chassis option, that provides customers with a solid foundation for their projects.

Many companies in industries such as motorsport, aerospace, automotive, and marine often encounter challenges when seeking a chassis solution.

These challenges include:

Cost-Effectiveness: Developing a chassis from scratch can be expensive due to the high costs associated with designing, manufacturing, and testing.

Time Constraints: Building a chassis from the ground up requires a significant amount of time, delaying overall project timelines.

Safety Compliance: Ensuring that the chassis meets safety standards, such as Euro NCAP and the American IIHS safety standard, is crucial but can be a complex process.



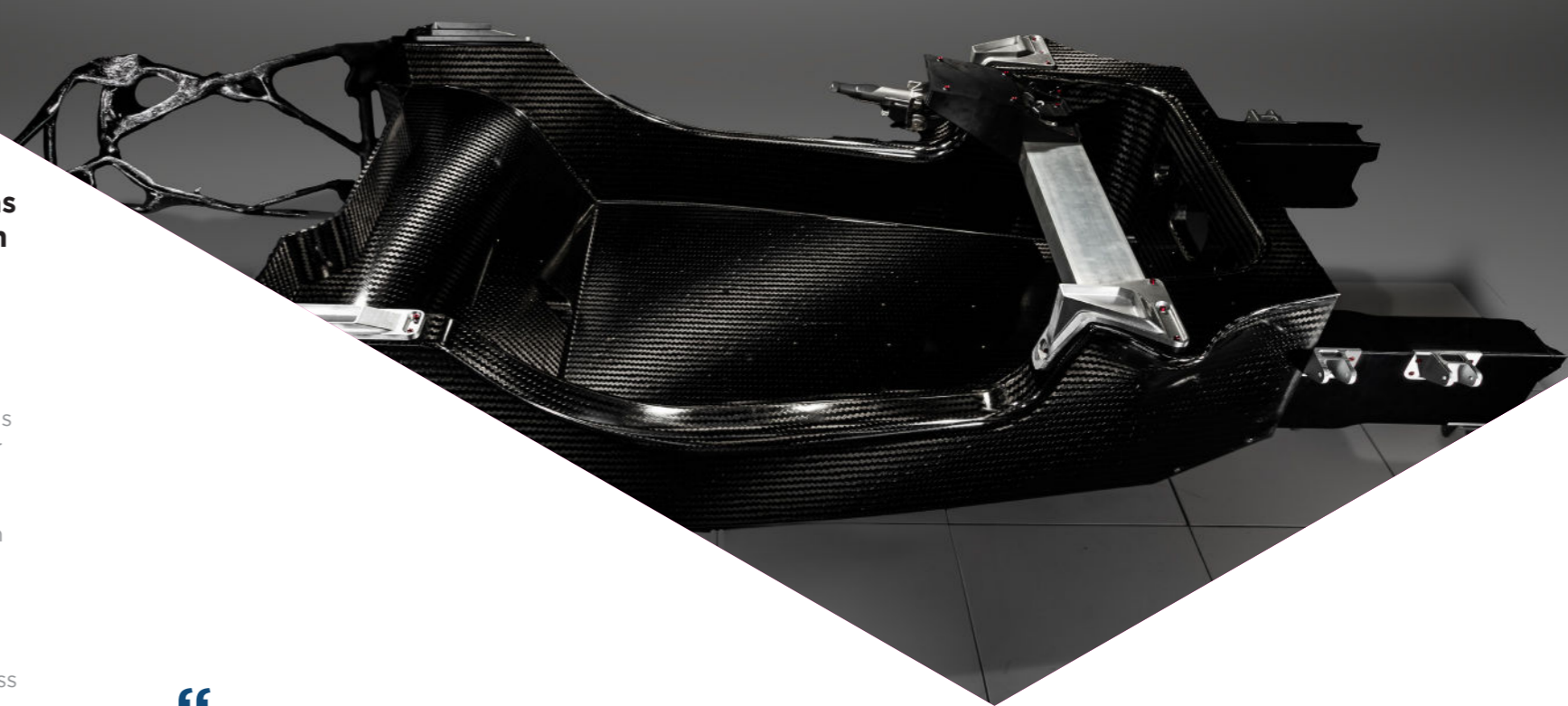
To address these challenges, Dash created the TR01 monocoque as a blank canvas, offering customers an off the shelf chassis solution at a competitive price point.

Key features and solutions include:

Pre-Designed Moulds and Crash Simulation: Dash invested in the design and manufacture of the moulds, as well as crash simulations to ensure compliance with safety standards. This saves customers both time and resources, allowing them to focus on other aspects of their projects.

Flexibility in Design: Dash provides customers with the flexibility to design the suspension and subframes according to their specific requirements. This empowers customers to unleash their creativity and tailor the chassis to suit their unique needs.

Lightweight and Sturdy Construction: The TR01 is one of the lightest tubs on the market, weighing in at just 48kg. Despite its lightweight construction, it boasts high flexural stiffness at 35kNm/deg, ensuring structural integrity and performance.



The HandySCAN Black allows Dash to efficiently scan complex composite moulds and components at an incredible pace with ease. Our customers can easily understand the scan reports and the class-leading resolution of detail allows for precise reverse engineering in short time frames”.

Ryan Muller, Sales Director, Dash-CAE



The Challenge

In their pursuit of excellence particularly within the marine and aerospace industries, Dash-CAE encountered significant challenges related to the size and intricacy of components required for tooling and part manufacture.

The primary issues faced included:

Large Component Scanning: Traditional scanning methods were unable to effectively capture the details of larger components, limiting the ability to achieve accurate scans for tooling and part manufacture.

Limited Reach and Accessibility: Conventional inspection arms were cumbersome to use and unable to reach certain areas within complex parts, leading to incomplete scans and potential quality issues.

Efficiency and Ease of Use: Their existing scanning solutions lacked user-friendliness and efficiency, resulting in slower processes and increased production times.

To address these challenges, Dash-CAE sought a scanning solution that offered:

- Extended reach capabilities to effectively scan larger components.
- High-resolution and detailed scans to ensure accuracy in tooling and part manufacture.
- User-friendly software to streamline operations and improve manufacturing efficiency.

After evaluating various options, they determined that the Creafom HandySCAN Black met their requirements, offering a reach of up to 4 meters with industry-leading resolution and detail.

Additionally, the user-friendly software allowed their operatives to quickly adapt and ensure high levels of manufacturing efficiency within the business. This acquisition marked a significant step forward in overcoming their scanning challenges and enhanced their capabilities within the industries they operate in.



Application

Dash utilise the Creafom HandySCAN Black to enhance various aspects of their operations, here's how they apply this cutting-edge technology to their processes:

Scanning 3D Printed Moulds and Parts:

The HandySCAN Black allows them to precisely scan 3D printed moulds and parts, this capability is invaluable in ensuring the accuracy and quality of their components, enabling them to identify any imperfections and make necessary adjustments.

Scanning Patterns and Carbon Moulds:

With the scanner, they can efficiently scan patterns and carbon moulds, which helps to streamline their manufacturing processes by quickly capturing detailed information for replication or modification.



Scanning First Off Parts:

Dash uses the scanner to scan first-off parts, enabling them to perform detailed inspections and validations. This ensures that their initial parts meet the required specifications before proceeding with larger production runs.

Scanning Reflective Polished Aluminium Moulds:

The scanner's blue light technology allows them to scan highly reflective polished aluminium moulds with exceptional accuracy, and this capability gives them a considerable advantage over traditional red light technology, ensuring precise measurements and detailed scans.

Scanning Painted Parts:

Additionally, they utilise the scanner to scan painted parts, which provides detailed insights into surface finishes and ensures quality control throughout the production process.

By leveraging the capabilities of the Creafom HandySCAN Black, Dash-CAE are enhancing the efficiency, accuracy, and quality of its processes, ultimately delivering superior products to their customers.



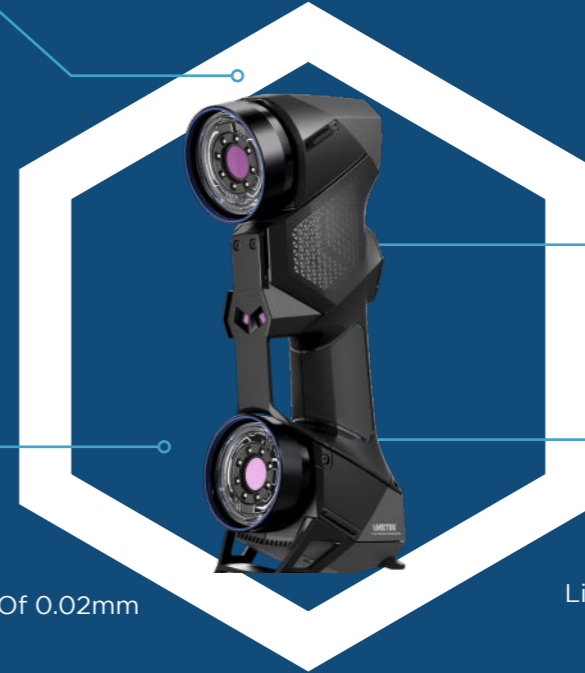
HandySCAN Black

The HandySCAN 3D BLACK Series scanner has been optimised to meet the needs of design, manufacturing and metrology professionals looking for the most effective and reliable way to acquire accurate 3D measurements of physical objects anywhere.



Large Scanning Area

Resolution Of 0.025mm



Volumetric Accuracy Of 0.02mm

Light weight- 0.94kg (2.1lb)



Benefits

Why the HandySCAN Black Series was the right choice for Dash-CAE

Choosing the HandySCAN Black Series was a strategic decision for Dash-CAE, and it has proven to be the perfect fit for their needs.

Here are the key advantages that made it the right choice:

Flexibility in Scanning: The HandySCAN Black provides them with the flexibility to scan a wide range of materials and finishes, this versatility is crucial for their operations, as they often work with diverse materials across different projects.

User-Friendly Software: The software associated with the HandySCAN Black generates easy-to-understand inspection reports and colour gradient charts. This feature has been greatly appreciated by their customers, as it simplifies the interpretation of scan data, instead of sifting through extensive inspection point data, customers can quickly grasp the results and make informed decisions.

The HandySCAN Black offers Dash the flexibility and user-friendly features required to efficiently carry out scanning tasks and deliver high-quality results to their customers.

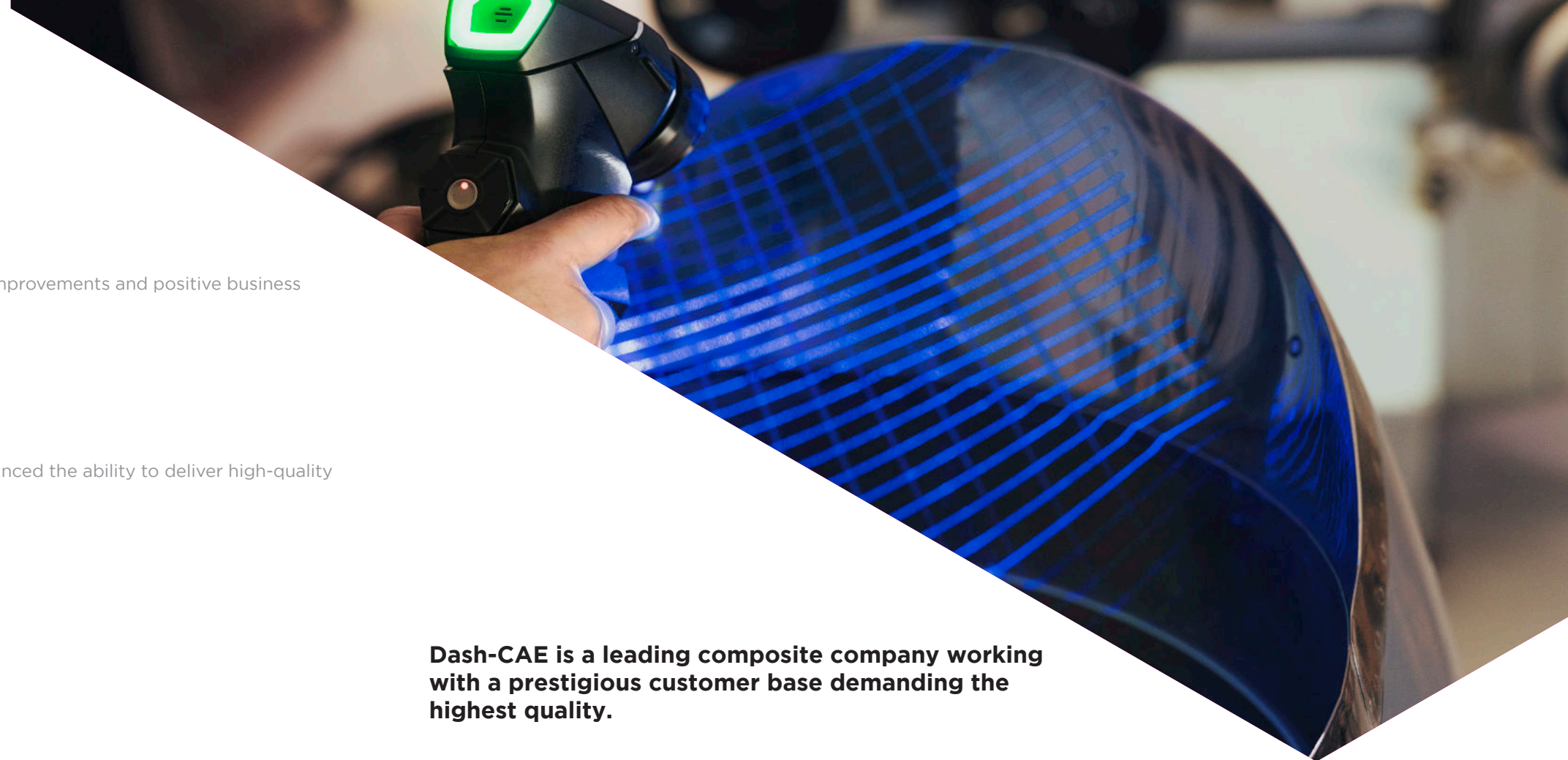


The Results

Since adopting the HandySCAN Black, Dash have witnessed significant improvements and positive business outcomes:

- Ease of Use
- Increased Inspection Efficiency
- High Resolution Detail
- Reverse Engineering Capabilities

These outcomes have not only streamlined their operations but also enhanced the ability to deliver high-quality products and services to their customers.

A close-up photograph showing a hand holding a black 3D scanner with a green light. The scanner is positioned over a curved, dark-colored surface, which is overlaid with a blue grid pattern representing the scanned data. The background is blurred, suggesting an industrial or workshop setting.

Dash-CAE is a leading composite company working with a prestigious customer base demanding the highest quality.



The Final Outcome

Since adopting the Creaform HandySCAN Black, Dash has achieved several significant outcomes, which have transformed their workflow and capabilities:

With the HandySCAN Black Series, Dash has experienced a notable decrease in inspection times. The scanner's advanced technology allows for quicker and more accurate data capture, streamlining their quality control processes and improving overall efficiency.

As mentioned previously, one of the key benefits of the HandySCAN Black Series is its user-friendly interface and intuitive software. This has made the onboarding process for new staff members much smoother, as they can quickly grasp the scanning procedures and software functionalities. As a result, their team can seamlessly integrate new members and maintain productivity levels without extensive training periods.

The HandySCAN Black's versatility has enabled Dash to scan larger parts, which has particular benefit for industries such as marine and aerospace. This capability allows them to capture detailed scans of entire components or structures, facilitating more comprehensive analysis and design processes.

Overall, the adoption of the Creaform HandySCAN Black has brought about positive changes in Dash's operations, enhancing efficiency, flexibility, and the ability to deliver high-quality solutions to their clients.



3D Scanning, Inspection, and Metrology

With over 25 years' experience, MSL brings a wealth of engineering experience to metrology, combining tools and software from leading manufacturers to create integrated systems for your workflows.

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