

Case Study

Linecross drive Innovation in the Transportation Industry
with the Creaform MetraSCAN Black Elite



www.measurement-solutions.co.uk



Introduction

Linecross are the UK's largest independent vacuum forming company and one of Europe's leading manufacturers of polymer and polyurethane composite products, with a particular focus on transportation sectors from the automotive industry through to construction equipment and the recreation vehicle market. With their expertise in plastics and composite materials, they are equipped to provide solutions that are lightweight and technically advanced. They transcend conventional creation by not only bringing their customer's concepts to life but also shepherding them through the entire journey from inception to production.

They have a wealth of seasoned technical managers proficient in diverse disciplines from vacuum forming, injection, compression and polyurethane moulding and offer comprehensive expertise from aiding in material selection to crafting the perfect tool design.

Objective

Linecross produce a range of components for interior, exterior, engine compartment and structural applications. This can include interior parts such as door panels and trim pieces, exterior components like body panels and spoilers, engine compartment parts such as covers and shrouds, and structural components made from composites to contribute to lightweighting and structural integrity. The primary objective in implementing 3D scanning technology was to enhance speed, precision, and efficiency across their operational processes.

In the competitive landscape of automotive manufacturing, companies strive to deliver not only high-quality products but also innovations that drive weight saving and sustainability. As a forward-thinking manufacturer, Linecross embarked on a transformative journey by integrating Creaform's MetraSCAN 3D scanning technology, along with the C-Track and VXmodel software into their processes.

This case study explores how these were utilised to achieve technical enhancements, resulting in lighter and more sustainable automotive parts, while simultaneously increasing measurement accuracy, efficiency, and speed.

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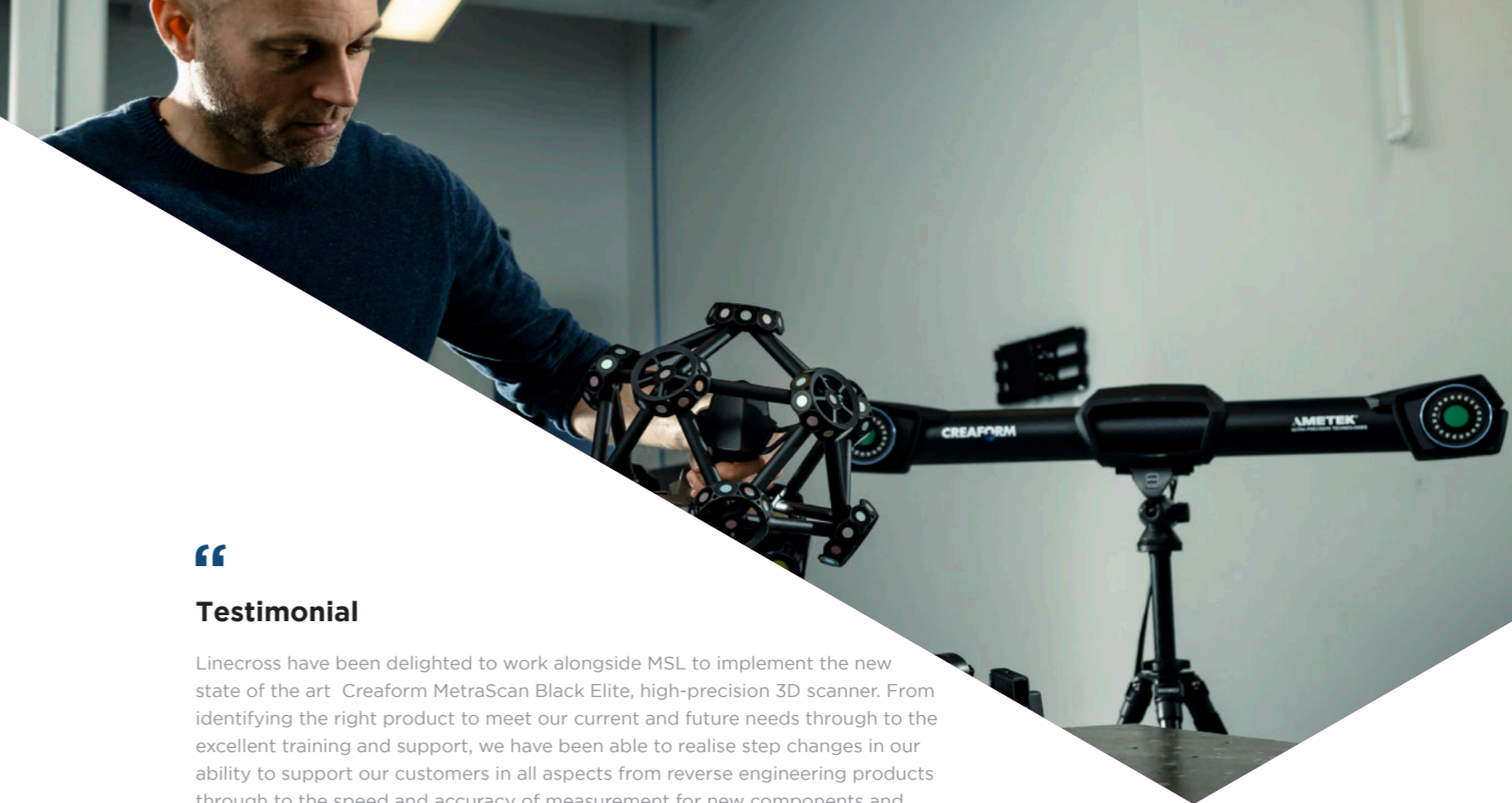


The Challenge

The automotive industry faces constant pressure to reduce vehicle weight, enhance fuel efficiency, and improve sustainability without compromising safety and performance. Traditional manufacturing methods and materials often struggle to meet these demands, leading companies like Linecross to seek innovative solutions.

Linecross's Vision

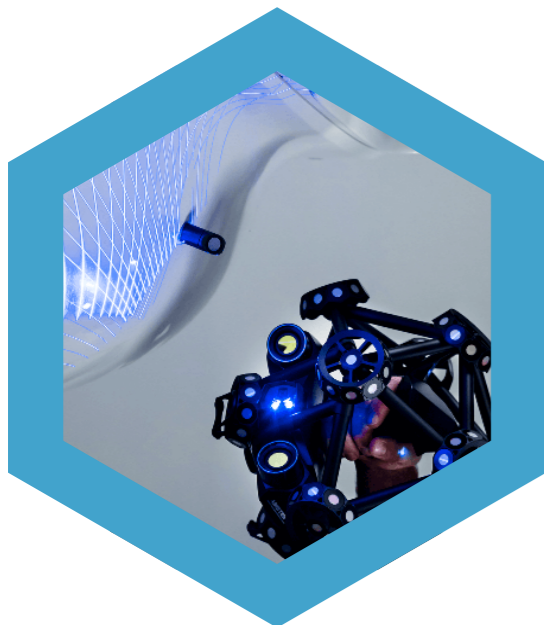
Linecross envisioned a future where they could offer not only lightweight components but also contribute to sustainable practices in the industry. To achieve this, they recognised the need for advanced 3D scanning technology that could provide precise measurements and accelerate their product development processes.



Testimonial

Linecross have been delighted to work alongside MSL to implement the new state of the art Creaform MetraScan Black Elite, high-precision 3D scanner. From identifying the right product to meet our current and future needs through to the excellent training and support, we have been able to realise step changes in our ability to support our customers in all aspects from reverse engineering products through to the speed and accuracy of measurement for new components and tooling.

Stuart Fry, Managing Director, Linecross



Application

Linecross adopted the Creaform MetraScan Black Elite, a high-precision 3D scanner renowned for its speed, accuracy, and versatility paired with the C-Track dynamic referencing system, the scanner provides real-time position information, ensuring precise measurements. The VXmodel software complements the hardware, offering powerful tools for data processing, analysis, and model generation.

For the Linecross engineering team, the power of 3D scanning technology is invaluable. This cutting-edge technology enables the capture of physical objects in three dimensions, generating a digital representation that can be used for a variety of purposes.

They are using 3D scanning to unlock a wealth of opportunities, such as reverse engineering, quality control and inspection, prototyping, customisation and modification, and digital documentation.

Solution

The Creaform MetraSCAN Black Elite provides Linecross with:

High Precision

The MetraSCAN's advanced laser scanning technology ensures sub-millimetre accuracy, allowing Linecross to capture intricate details critical for automotive part design and manufacturing.

Rapid Scanning Speed

The MetraSCAN's high-speed data acquisition capability significantly reduces scanning time, enabling Linecross to streamline its production processes and meet tight deadlines.

Versatility

Linecross benefits from the MetraSCAN's ability to scan a wide range of materials, accommodating the diverse materials used in automotive part production.

Portability and Flexibility

The handheld and lightweight design of the MetraSCAN facilitates ease of use on the shop floor, promoting flexibility in scanning various parts of different shapes and sizes.

For the Linecross team 3D Scanning technology has become invaluable



The MetraSCAN

MetraSCAN 3D is the most accurate combined scanning and probing solution on the market today. Creaform's TRUaccuracy technology ensures highly accurate measurements, regardless of the operator's skill or the measurement environment - instability, vibration, thermal variation, etc.

Scanning up to 1,800,000 million points per second. The system is handheld and armless, so it is easy to learn and quick to use.

- » Accuracy & Speed
- » Dynamic Referencing & Auto Alignment
- » Scan any surface
- » Portable and Flexible

Accurate From 0.025 To 0.04mm

Resolution Of 0.025mm



16.6m3 Volume

Auto Alignment



Benefits

Lightweight Automotive Parts

By leveraging the MetraSCAN's precision and speed, Linecross successfully optimises the design of automotive parts, achieving significant weight reduction without compromising product integrity. This not only contributes to fuel efficiency but also aligns with global initiatives for sustainable and eco-friendly manufacturing practices.

Increased Measurement Accuracy

The MetraSCAN's high-precision capabilities enhance Linecross's measurement accuracy, ensuring that every component meets stringent quality standards. The improved accuracy minimises errors in design and manufacturing, ultimately reducing waste and associated costs.

Accelerated Development Time

The rapid scanning speed of the MetraSCAN expedites Linecross's product development cycles. By significantly reducing the time required for data acquisition, giving Linecross a competitive edge in bringing new automotive parts to market faster, meeting consumer demands and staying ahead of industry trends.

Business Growth and Competitiveness

The integration of Creafom's MetraSCAN technology has positioned Linecross as an industry leader in delivering lightweight, sustainable automotive parts with uncompromised quality. This has translated into increased market share and strengthened partnerships with automotive OEMs seeking innovative solutions.

Sustainability

Linecross Carbon Management Plan sets out their ambitions for 2030, and a roadmap for progress. Linecross has already achieved offsets and deductions totalling 570 tCO₂e from on-site solar power generation and closed-loop recycling of raw material waste. Reducing carbon emissions is not just about their commitment to the environment. The same processes used to identify carbon emissions reductions are also used to identify and realise financial savings through improved efficiency in the procurement and operation of our machinery, buildings and transport. The lightweight and sustainable components contribute to fuel efficiency in vehicles, aligning with environmental sustainability goals and regulatory requirements.

Enhanced Customer Satisfaction

The technical enhancements achieved with the MetraSCAN have translated into improved customer satisfaction, and Linecross's ability to deliver high-quality, lightweight, and sustainable automotive parts has garnered positive feedback from customers and strengthened long-term relationships.





The final outcome

The successful integration of the Creaform MetraScan Black Elite, C-Track, and VXmodel software showcases the transformative impact of advanced 3D scanning technology on automotive part development and manufacturing at Linecross.

The achieved technical enhancements not only make components lighter and more sustainable but also results in increased measurement accuracy, reduced development time, and enhanced overall efficiency. This case study serves as a testament to Linecross's commitment to innovation and its proactive approach to embracing state-of-the-art technologies in the pursuit of excellence.



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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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