

CASE STUDY: GROOVELINER

THE BRIEF

Groovelineer are a new SME created to manufacture a novel car mounted bicycle rack. The small, highly motivated team at the heart of the company have a great deal of practical experience within automotive engineering, manufacturing techniques and processes outside of the formal engineering environment but no experience with regard to quality control practices, document control or engineering design.

The product had been progressed to the stage of existing as a refined prototype, with informal but unlogged functional and endurance testing having taken place, when Groovelineer approached an insurance company to provide a policy covering use of the bike rack by the public. The insurance company stipulated that a Finite Element Analysis (FEA) of the complete rack would have to be successfully undertaken to validate the design before cover would be provided.

THE APPROACH

Cheshire and Warrington Growth Hub referred Groovelineer to CW4.0 to help them access a formally signed off FEA in support of their product, as requested by the insurance company. Although it would fulfil the request, a CAD based FEA would not in fact provide the validation required, leading to the need for alternative solutions. This was put to the Groovelineer team during the initial meeting and basic strategies for achieving a suitable level of validation explored.

Further discussion with Groovelineer revealed where in-house knowledge was lacking in regard to providing traceability and control of design and manufacturing. It became apparent that introducing technology based industry standards related to data management would not only underpin the activities in support of demonstrating fitness of purpose, as per the original request, but also increase efficiency and add value to the company generally.

CW4.0 provided an accelerated pathway to understanding core documentation requirements and the benefits these bring to a manufacturing company. The processes put in place are based around ISO9001 philosophies with regard to traceability and data handling as well as aspects such as a formalised company structure and allocated roles with associated sign-off authorities. The level of collaboration achieved with Groovelineer at this stage, and its value, is reflected in an e-mail from Janice Ratter stating "***we are delighted with the level of understanding you have shown for the project...it's given us a real start in getting things done.***"

The use of established data management techniques (enabled by digital technology) was identified as being crucial to fulfilling the original requirement. The principles of configuration control, both the function and the requirements for assigned authorisation, and overall traceability were introduced to the Groovelineer team. This has led to the rapid and effective establishing of the controlled formalised documentation and industry standard processes that are essential for a viable engineering quality control system, ultimately ensuring that the product as manufactured meets all applicable requirements.

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THE BENEFITS

When CW4.0 was approached by Grooveliner they had a working prototype of a high quality product but lacked the knowledge to support production and subsequently introduce the matured item to the marketplace. Although the original request was erroneous it allowed a dialogue to be opened that has led to the rapid establishing of processes and, more importantly, an understanding of the overall philosophy behind quality control and why it is needed within a very short timeframe.

The fundamental change within Grooveliner's approach to documentation and data control, directly attributable to CW4.0's help, has been remarkable in its breadth and depth. Their wholehearted embracing of the information passed on is such that Grooveliner are now entirely independently progressing and building their quality and documentation systems to levels of sophistication more normally associated with larger, well established companies.

The most compelling evidence regarding the effectiveness of CW4.0's support comes via another quote from Janice; ***"with the processes we have put in place I feel we are well placed to demonstrate the robustness of our product testing."***

Grooveliner are looking to launch their product within Q4 2023. Although there was always an aspiration to certificate to TuV standards later, they are now also pursuing VCA certification as a part of their pre-launch quality assurance programme.

