

COMPANY

Warren Services

LOCATION

UK

SOFTWARE

Autodesk Inventor

Autodesk AutoCAD Electrical

Autodesk Vault Professional

Cadline AutoConnect

Autodesk Fusion Manage

Microsoft Azure

Autodesk Fusion 360 Manufacturing Extension

Warren Services

Driving innovation in design and engineering



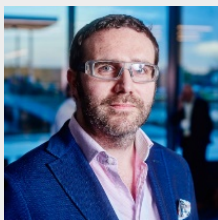
Cadline helped Warren Services maximise its ROI from Autodesk software

Warren Services is a Norfolk-based family-run engineering and manufacturing business, employing 115 people across two sites. Its capabilities extend from dynamic head water jet[®] cutting; EDM wire eroding and laser profiling to computer numerical control (CNC) milling and turning, through fabrication and finishing and electrical assembly and testing.

Warren Services is proud of its record of providing high-quality manufacture of components and mechanical/electrical sub-assemblies to agreed schedules, offering turnkey solutions in engineering and design. Autodesk software has long played a key role in its processes and workflows. The company initially took the decision to self-learn and implement the technology itself, using its own internal resource but, over time, ongoing engagement with Autodesk partner, Cadline, has paid dividends in ensuring Warren Services gains optimum value from its investment.

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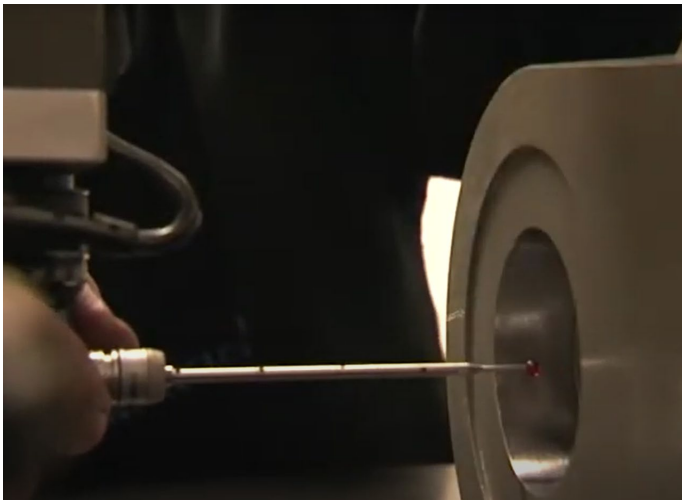
Will Bridgman
Chairman
Warren Services



Working together to achieve results

Warren Services' Chairman, Will Bridgman decided to work with Cadline, following a recommendation from a business contact. He was immediately impressed by the expertise the company had in Autodesk software and its ability to understand the industry challenges his company was facing.

Cadline initially ran a project to review data and process management in engineering and hosted an interactive Mural discovery session with key stakeholders to capture existing challenges and priorities within the business.



This process revealed that Warren Services needed to improve the management of its engineering data and to revision and version control project files as well as improving remote access to data via cloud hosting. It also identified a need to reduce the time taken to deliver projects and documentation; more securely manage access to data and its controlled release to manufacturing teams, and to automate the production of engineering data in multiple file formats.

Finally, the joint process uncovered a need to securely expand access to engineering data for non-CAD users; improve collaboration; digitise change management and approval processes and link back to engineering data in Autodesk Vault.

Cadline presented an implementation and training programme, together with a professional services package to ensure the robust delivery of Autodesk Vault,

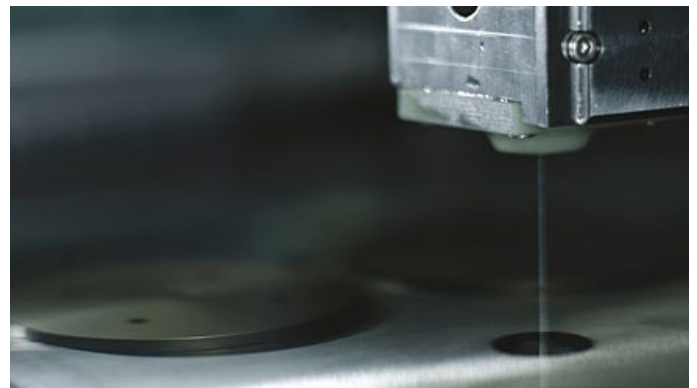
Cadline's AutoConnect tool and Fusion Lifecycle, that when utilised in combination, solved Warren Service challenges and provided an efficient environment, which was subsequently adopted by the mechanical and electrical design team.

Scoping the Solution

Many of these challenges are addressed through the Autodesk software and optimising the way it is used. Warren Services uses Autodesk® Inventor® for general design and analysis and to take design ideas through to the manufacturing side of the business. The company also makes use of Autodesk® AutoCAD® Electrical for designing electrical systems for machines the company develops for its customers.

Moving on to engineering, Warren Services uses Autodesk Vault Professional to manage project data, and Autodesk Fusion Lifecycle to support the digitisation of engineering processes. The teams on the shop floor extract data from models in Fusion and use it for their computer-aided manufacturing (CAM) programming.

Fusion is also fundamental to the computer numerical control (CNC) machining side of the business. All the data used in Autodesk Inventor is managed through Autodesk Vault Professional, which is hosted in the cloud by Cadline. That's in line with Warren Services' push to move to a more flexible browser-based way of working, in which compute power is in the cloud and people can work from anywhere on any device. Bridgman said: "ideally we want our work to be in the cloud using clean, open and well-documented APIs. And we want it to be browser-based. It won't happen overnight, but we are moving to that way of working. That's the journey we are on."



The collaboration that Warren Services has already achieved in the cloud has been key to its ongoing success through the pandemic, with the use of Autodesk Vault, in particular, providing the collaborative engagements and streamlined workflows that are especially key to project efficiency, with key stakeholders working from home.



Reaping the rewards

Warren Services was quick to buy into the vision that Autodesk Fusion supported. Bridgman said: “I believe in Autodesk’s approach to building a common user interface for the whole Fusion side of the business. Autodesk is adding functionality to it all the time. You can see how Fusion is going to develop and that is a story I really like.”

Bridgman also pays tribute to Cadline’s role. “The quality of the training delivered, and the way in which Cadline set up and configured the system has really supercharged the adoption of new tools for us,” he said. All works were successfully completed, despite having been conducted from start to finish through the lockdown period.

“We were delighted with the technical experience and expertise that Cadline brought to the table and the training and support they have delivered,” he added. “We wish we had done this sooner because we could have been up and running in weeks and months rather than years.”

In recent months, in addition to embedding the existing software even more into the business, Warren Services has made further investments in Fusion 360 to drive computer numerical control (CNC) machine strategies and outputs with its milling team, with Cadline

instrumental in validating the workflows and digitising them from design to CNC right through to production. Warren Services is now focussed on achieving the same throughput using Fusion 360 Manufacturing extensions with its turning teams. Warren Services has further Invested in AutoCAD Electrical training skills to improve utilisation and develop electromechanical workflows with its Autodesk Inventor and AutoCAD Electrical design teams.

Looking to the future

Cadline has continued to be open and transparent about what is coming downstream from Autodesk, sharing details of the latest Autodesk Fusion 360 updates for example. Warren Services is now looking to start using Fusion on CNC turning in addition to CNC milling processes.

Cadline is putting in place training for Warren Services’ turning team. It also plans to ask Cadline to run training for managers in how they can use Fusion to efficiently develop fixtures in their own areas without burdening the design office. It is also now looking to enhance integration and ensure that Autodesk AutoCAD Electrical and Autodesk Vault work seamlessly together to make the whole process even more streamlined.

“We are also excited as a business to be working directly with Autodesk on machine probing; measurement, inspection and data extraction,” added Bridgman.

Moving forwards, Cadline sees its role as being an advisory partner, developing a best-in-class process and workflow for Warren Services to the point where it can create a digital end-to-end story, based on standard Autodesk tools out-of-the-box, precisely configured to its environment. Warren Services has a real commitment to the Autodesk technology and actively investing in it. And with Cadline by its side, the manufacturing business is already reaping the rewards.