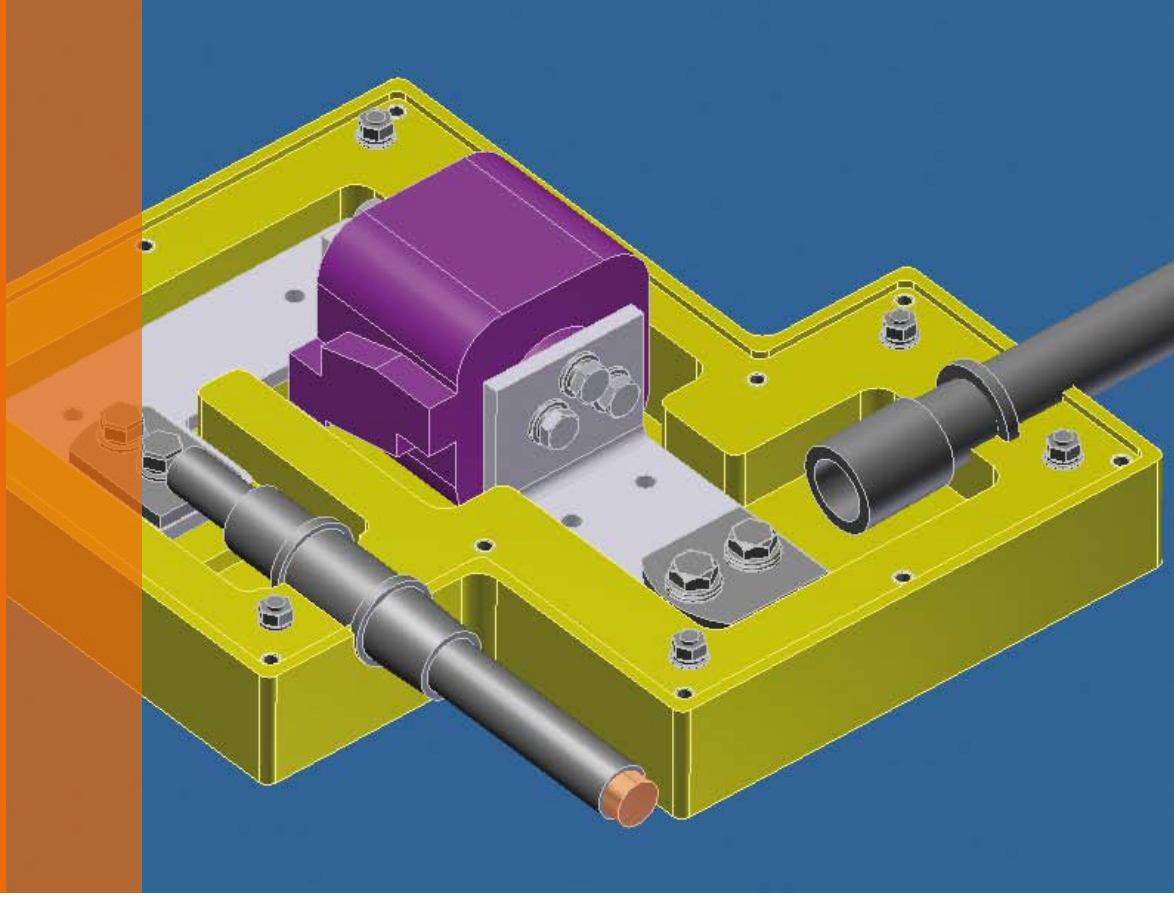
MICAM

Autodesk® Inventor®



Autodesk® Inventor® for Engineering Projects

"Inventor's 3D design capabilities have almost redefined our product development and production processes. We have discovered huge value in presenting design approaches to our customers and in collaborating with them for the most satisfactory final product design."

Ciarán Culligan,
Quality and Technical Manager, MICAM

MICAM was established in 1966 and is a privately owned Irish company based in Mallow, Co. Cork. It has grown to be a leading European contract manufacturer of specialist laminates, machined plastic components and prepregs (fabric or nonwoven sheet material pre-impregnated with resin for moulding).

A large part of the business consists of innovative design and fabrication of specific laminates and components to the clients' requirements as well as to precise specifications. The characteristics of the products include electrical, mechanical, thermal or fire performance while MICAM also offers wound tubes or part-cured prepregs suitable for subsequent moulding or lamination.

MICAM's products are used by the British Airports Authority (high fire resistance decorative wall panelling system), London Underground (electrical and fire resistant components) and for a range of other applications from aerospace to thin copper clad laminate for consumer products.

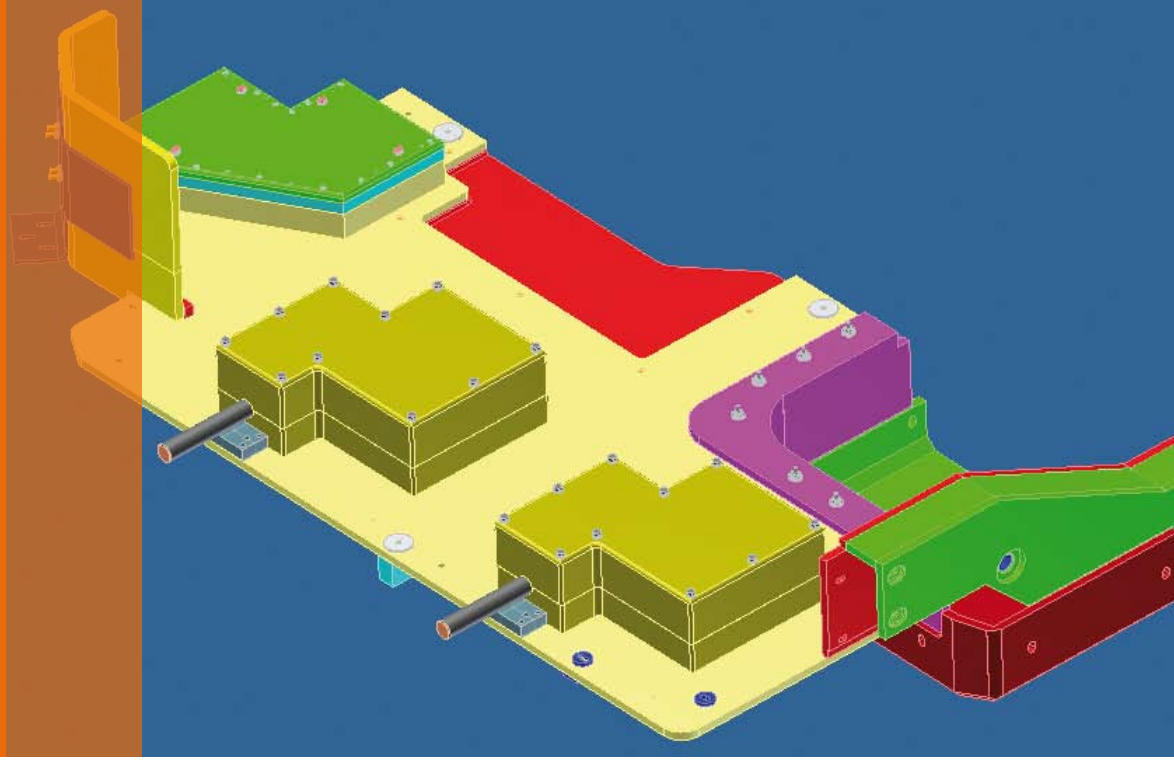
Research and development is one of MICAM's core competencies. "We are continually developing new combinations of resins, reinforcements and other materials," explains Ciarán Culligan, Quality and Technical Manager, "because we need to meet the varying specifications and properties that our customers demand from our materials. Our reputation over many years has been built on mass producing specific, high specification laminates and prepregs. Today we are also increasingly involved in contract manufacture and the design of components based on our materials as well as prototype products."

"We invested in Autodesk® Inventor® 11 last year principally because that bespoke design element is becoming such a significant part of our business. We wanted to enhance our overall mechanical design capability and to improve the cycle time between design and machining of components. We chose Inventor particularly for the ease of 3D modelling and the ability to generate engineering drawings directly from the final 3D model. The move to Inventor has been a big step forward in our design and production capability, previously constrained by the limitations of 2D CAD systems."

"We have now used Inventor on several projects, notably the design of an electrical insulation component for the under-body of London Underground trains." The software is also beginning to be used regularly for projects involving the MICAM Slickfit wall panelling, now a regular feature of airport construction and extension in the UK because it is BAA-recommended. "We can very easily import drawings from the building contractors, design the

Autodesk®

MICAM



required panel shapes and then export these to our MasterCam software to generate CNC programs for the production machines."

Another development is that MICAM has begun to interface directly with some customers which produce designs in Autodesk compatible formats such as .dwg and .dxf. "We have been provided for some projects with a 3D design envelope within which MICAM will design a component in collaboration with the client's engineers. In other cases the customer will provide the finished design, again in a format we can use to work through Inventor to the production system."

"A feature we find especially useful is that 3D design concepts can be produced, explored and visualised in many different ways in the early stages of a design," Ciarán Culligan says. "This makes it much easier to explain and demonstrate proposed designs to clients. In addition the 3D design concepts and visualisations can be emailed in a picture format like JPEG and communicated to any customer with a PC—or presented in print form. In some of our products, colour and form can be very important." In all of these instances, collaboration and discussion of design modifications is greatly enhanced by capabilities of Inventor.

Ciarán Culligan is himself the principal user of Autodesk Inventor in MICAM and concedes that his learning curve is still rising: "We are still in many ways just discovering the possibilities of Inventor. We envisage using it much more in the future, for example in the production of step by step visual assembly instructions for our more complicated assemblies." In a similar way it has also been very useful already in pre-production planning, where the visualization assists in establishing the machineability of elements of a design or deciding where joins will be positioned for later assembly. "We can also enter elements such as the density of materials, calculate where the centre of gravity will be and explore 'What if..?' calculation for mechanical characteristics. In other words, we can anticipate and counter design or production snags at the on-screen stage."

In less than a year the investment in Autodesk Inventor 11 has more than fulfilled its promise for MICAM. "It really has given us the return in two respects," Ciarán Culligan says. "The 3D design capabilities have almost redefined our product development and production processes. We have also discovered huge value in presenting design approaches to our customers and in collaborating with them for the most satisfactory final product design."

For more information

To learn more visit us on the web at www.autodesk.co.uk/inventor

Autodesk®