

Micro Concepts & Inventor put Anglia Design & Draughting in the driving seat



As someone who has spent the major part of his career in engine design for the motor sport industry, Terry Slipper knows that the difference between winning and losing can be measured in one hundreds of a second. And success is not just measured by speed on the track, but in the speed of design development, both before and during the racing season.

As a result, Slipper has been at the forefront of using mechanical design technology, moving from drawing board to the earliest Autodesk CAD systems back in the 1980s through to the latest in 3D modelling technology with Inventor today. Similarly, he was one of Micro Concepts' very first customers - having previously worked with sales manager, Mark Mills – and

has remained with the Autodesk Manufacturing Solutions Partner throughout its 17-year history.

For 24 years, Slipper worked with St Neots-based design and manufacturing facility, Titan Motorsport, latterly as design manager, working with Renault, Lola and Lotus, before setting up his own engineering design consultancy in 2005. He designs engine components including, for example, cylinder barrels, cam carriers and cam drives: current clients include Motopower, with whom he is working on a V8 engine based on two 4-cylinder motorcycle engines for road and motor sport, in cars such as the Caterham RSTV8.

Integration

Slipper uses Inventor for all his design work, utilising its 3D modelling capability 'intensively' throughout the design phase and 2D drawing facility to produce accurate engineering drawings for manufacture.

In designing a new cylinder barrel and cam carrier for example, both made from aluminium castings, Slipper has had to work closely with the pattern maker. "Due to Inventor's ideal integration capability, I was able to email the 3D model and the pattern work could be manufactured directly from the model," he confirms.

"At the same time, I could supply 2D drawings to the machine room for manufacture. Increasingly, for those engineering shops with a CAD facility, I can also email a 3D machine-detailed model, so that they can have the model on-screen for the purposes of clarification".

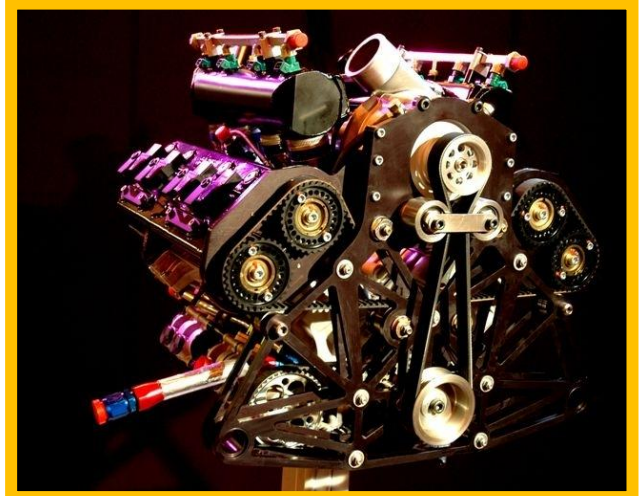
Not only does Inventor make such exchange of data easy but it also speeds up the design process considerably. In working on a supercharger installation for the Freestream T1 sports car, designed by two ex-McLaren F1 engineers, Slipper was able to work with the engineers throughout to ensure that the



supercharger and plenum installations fitted within the very tight dimensions of the engine bay.

“The Freestream T1 was the first road-going car of its class to exceed 1000-bhp per tonne, which demanded an extremely compact, lightweight design,” confirms Slipper. “Using Inventor, I was able to convert the model of the engine bay supplied from the designer’s high-end CAD/CAM system and ensure from the outset that the components fitted within the tight envelope.”

As Micro Concepts’ Mills confirms: “For Terry, the real benefit of Inventor is its ability to translate and exchange information in a wide variety of formats without the loss of data. It means that, as a one-man business, he can operate on an equal design footing with large companies using highly sophisticated systems, without the risk of mistakes occurring as a result of data transfer.”



Partnership

Just as Slipper needs to work closely with his clients throughout a design projects, so he is highly complimentary about the relationship with Micro Concepts developed over many years. “The company fully understands the pressures of my business and provides me with highly flexible, responsive and proactive support which ensures I get the most out of my Inventor investment,” he says.

“The annual User Conference is valuable in keeping me apprised of the latest functionality, provides a useful forum for exchanging views and advice with other users and enables two-way communication in feeding back our ‘wish list’ to Autodesk. I also take full advantage of the excellent training provided by Micro Concepts with each upgrade – critical to making sure I get best use of Inventor’s 3D modelling capability”.

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For example, unlike previously, Slipper is able to design in 3D, extract a 2D view using Inventor’s first class 2D drawing facility and retains all the associativity related to the original 3D design and this remains the case even when using derived components, a feature which Slipper regularly uses. “This is extremely important, both during the initial design of each component and in implementing improvements throughout the racing calendar,” he says, “as it saves precious time and money in implementing change.”

“Equally, Inventor is invaluable at the start of any design project, in that within just two or three hours I can create on the screen a model which clearly represents what the finished product will look like. I can then print it off or email it to the customer and the pattern shop for their comments and can then easily and rapidly incorporate any proposed changes or updates.”

Core tool

Slipper is unequivocal about the value of Inventor in his ability to operate in a fiercely competitive and fast-changing motor sport business. “For me it is *the* core IT product,” he says. “Without products like Inventor, I simply would not have been able to set up on my own and provide a viable, timely service.

“All major companies use CAD and, as a supplier you must be able to communicate with them. Designs typically use a large model of the complete car and the designer of each component must be able to import that element into the virtual model to ensure there are no clashes. Doing this manually just isn’t an option”.



“The goal in motor sport of course is not just to survive but to thrive,” he concludes. “And, by combining Inventor’s leading-edge functionality with Micro Concepts’ proactive design support, I have been able to stay on the front row of the grid in component design.”

To learn how Micro Concepts, together with Autodesk Inventor, can help make your company become Number 1 in your market – call 01223 716200 or visit www.microconcepts.co.uk