

Small is beautiful

A tiny team of engineers and designers is making the running with big companies keen to improve the mechanics and the look of their products, writes **Lee Hibbert**

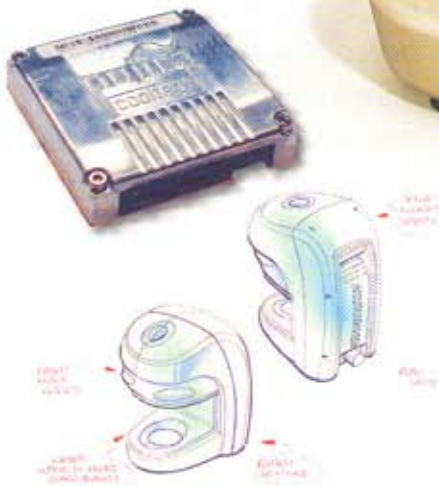
It's not always the case that biggest is best. Sometimes, a small firm can offer a unique sense of perspective and a more agile approach to problem-solving.

That is certainly the case at Design Edge, a four-man team of industrial designers and engineers based in the picturesque village of Stow-cum-Quy in Cambridgeshire. Despite its diminutive size, the company has been rubbing shoulders with the big boys, undertaking product development work for some of the best-known names in engineering. Most recently it has enjoyed a successful collaboration with the metrology company Renishaw, and has many similar projects in the pipeline.

Bruce Hutchison, one of the co-owners of Design Edge, says: "Even the largest companies don't necessarily have the resources in-house to do turnkey design solutions. They tend to be more focused on the working mechanisms of their products rather than the overall marketability. But there is a growing emphasis on aesthetic design – customers demand functionality and something that looks good too."

Design Edge provides industrial design and electromechanical engineering services and is capable of taking product ideas from concept sketch through to manufacture. It specialises in high-quality visuals and photorealistic representations, employing CAD modelling and document management software during the detailed design process. Prototype testing, tooling considerations and supplier sourcing can also be taken into account as the product moves towards commercialisation.

Design Edge's initial work with Renishaw saw it develop an attention-grabbing look for a dental scanner that creates 3D computer models used in the manufacture of dental crowns and bridges. More recently, Renishaw has developed a dental milling system which



Top: Renishaw milling system with the guard down; Bottom: The original sketches; Middle: The Nujira Coolteq component

enables laboratories to manufacture orthodontic zirconia frameworks in-house. The challenge for Design Edge was to come up with a product that was styled and sized to match the scanner and one that could be produced from the same mouldings to control manufacturing costs.

But the project was not just about aesthetics: the machining centre also required an integrated visor to act as guard. That required a design for a flip-up mechanism with a magnetic catch to hold it in place when in use. "We came up with some simple sketches and gave them a list of the features that we could build in," says Hutchison. "We put forward lots of options and ideas, agreed on a route and began the detailed design. It was a challenge but what we produced went down really well."

On the face of it, it might seem strange that Renishaw was so concerned about what a product such as a dental milling system

actually looked like. But Hutchison says that the medical and scientific instrument sectors now place a real emphasis on design. He says that firms have woken up to the fact that products sell better, and often perform better, if more attention is paid to issues such as ergonomics. Even in traditional, non-consumer industries, the days of clever electromechanical systems being hidden away behind ugly, white plastic boxes are finished. "These days, we are even doing design work on pieces of equipment that are buried away inside other products," says Hutchison.

An example of this is work the company carried out for Japanese firm Nujira on a module called Coolteq that can double the efficiency of the next generation of digital cellular base stations and broadcast transmitters. Prior to putting the product into volume production, Nujira asked Design Edge to give the module a more aesthetic appeal, while also resolving some complex mechanical issues.

Design Edge suggested a housing design that provided high thermal conductivity at a low price point for production. Initially, rapid prototypes were used to confirm fits prior to tooling. It was also required to design the parts to withstand high temperatures over long time periods without any creepage and to ensure that the unit required zero maintenance over its lifetime.

Hutchison adds: "Manufacturers see design as a way to offer a point of difference but they can be reluctant to involve designers in the more technical aspects. This is where our knowledge of mechanics, materials and manufacturing techniques helps."