

# newdesign

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## Handle with care

Dinner time  
Rapid service

Crime seen  
Judgement day

Fast forward  
Going for gold



Rapid prototyping | Sustainability | Packaging | Innovation | Sports technology

# Table manners

**Even companies steeped in history need modern technology. Tanya Weaver talks to Gary Hawley about Denby's successful investment in rapid prototyping technology**

Nestled in the heart of Derbyshire, Denby has been making pottery for almost 200 years. The company annually produces more than five million pieces of tableware from mugs and teapots through to noodle bowls and casserole dishes and although much of its present success is due to the skills of earlier generations of craftsmen, the company enhances these skills by continually investing in new technology.

A few years ago Denby realised that a large proportion of the designer's time was spent painstakingly creating prototypes by hand. In fact, it could take as long as four weeks to create a new design concept in plaster. So, in order to get the designers back in the design studio working on ideas for new products it looked into investing in a rapid prototyping system that could reduce

the time it took to produce a physical concept prototype and also take this part of the process, quite literally, out of the designer's hands.

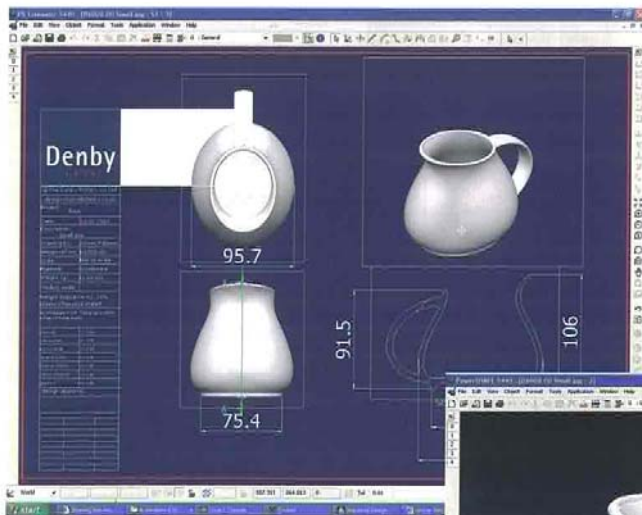
Denby investigated various rapid prototyping systems, eventually requesting a demonstration of 3D printing technology from Z Corporation, a manufacturer of 3D printers. In the same way that conventional desktop printers provide computer users with a paper output of their documents, 3D printers provide 3D CAD users a physical prototype of their objects. Although impressed with what the technology could offer especially in terms of the time it could save, the accuracy of the models it could produce and the fact that it was based on a plaster material and not a substrate like other rapid prototyping machines, Denby performed a cost comparison against contracting with a service bureau. "The bureau service proved to be quite costly and we

realised that it would be expensive to have the prototypes made elsewhere," says Gary Hawley, a designer at Denby. The company estimated a Z Corporation 3D printer would pay for itself in four years and having devised a business case for it, in September 2003 the company purchased the Zprinter 310 3D printer.

An initial fear, as Hawley explains, was that rapid prototyping was traditionally seen as an engineering technology and wouldn't 'fit' with a company steeped in tradition and skilled craftsmanship. However, the appeal of the Z Corporation printer was that it used a material that the designers were used to dealing with - their moulds are made of plaster and the machine is plaster/starch based. Additionally, it fitted really well with the DeskArtes 3D CAD software they used. "We have found that we are working in exactly the same way," says Hawley. "Using the same skills but adding a new bit of hardware into the mix." In fact, he sees 3D printer as a sketch book of sorts that can be used to refine the designers' design concepts.

A concept model now takes two hours to print versus up to four weeks it would take to hand carve. Due to this speed the designers find that they are using the machine constantly to produce visual samples

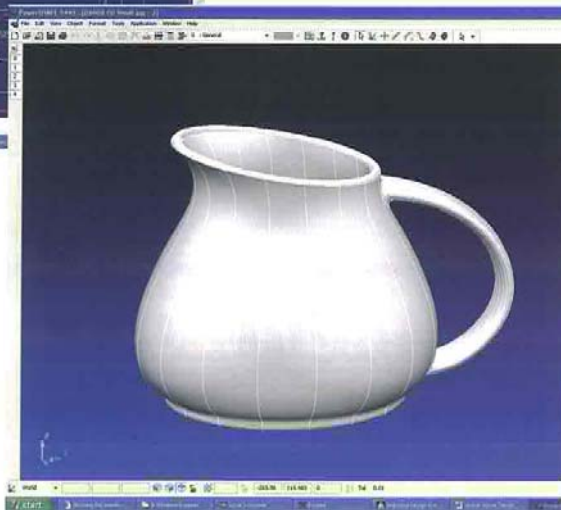




Other benefits include the fact that Denby can now freely share designs with large retailers that carry its product lines. It also reduces manufacturing costs due to the fact that problems can now be ironed out earlier on in the development process and also streamlines partner interactions. Denby works with partners in Thailand who manufacture its china products and partners in Portugal who manufacture its porcelain

products. The company used to send these partners flat, 2D technical drawings that were easy to misconstruct, however the 3D digital files have helped eliminate such mistakes and has also saved time.

In fact the investment has been so worthwhile that in December 2006 Denby invested in a second Z Corporation printer, the Spectrum Z 510, adding full 24-bit multi-colour capability and a large build area. Although the overall aim for Hawley



of their ideas. In fact, the printer cranks prototypes out all week and throughout the weekend, far busier than anticipated. "When we have a design we like we print it off there and then so, that we can see the samples straight away," says Hawley. These samples are used in the design studio but can also be shown to company directors and it's also easy to duplicate samples for additional audiences.

Although it was initially thought that the designers would use the machine in a very limited respect, it has caught the attention of other departments in the company too including both the engineering and marketing departments. It is used for a host of unanticipated applications including printing off prototypes for use in customer focus

groups. This form of market research enables the company to obtain feedback before committing to a new product line. Denby often revises designs during focus group sessions based on customer requests. "It helps us to make sure we are going down the right road," comments Hawley.

is to have a machine that can print off clay pots, currently the technology available can't produce a binder to hold the clay body together. "This is still a few years down the road but in the mean time the Z Corporation printer is doing exactly what we want it to do," he says. |