A new way of thinking

Step inside Rob Barrow's workshop to see how 3D printing can help you see difficult dispensings in a new light

We have been hearing much about 3D printing recently. Will this change the industry and the world of manufacturing? Or will it encourage home users to experiment and market their own designs? We simply do not know at this stage, but indications are certainly strongly favouring the latter.

Let's face it, everyone is talking about 3D printing and it seems that there is a technology race going on to make professional grade printing available to the consumer. For me, I still engage with the expressions of my workshop visitors when they can see this plastic alchemy unfold before their own eyes. Shapes and colours have rarely been so interesting; we can now unlock creativity with a touch of a button. In this article, we will take a step in to my workshop and see how this technology is applied on a micro scale to help people in a way never-before possible.

FROM DESIGN TO PRINT

Broken frame requiring a new central mount

To better explain the design-to-print process, we will work though a basic example. On inspection, we can see the bridge of the folding frame is fractured. This is a major stress baring component, so we must choose an appropriate material that will have superior mechanical strength and durability. The preferred material here is ABS, which is the same material as used in the manufacture of Lego.

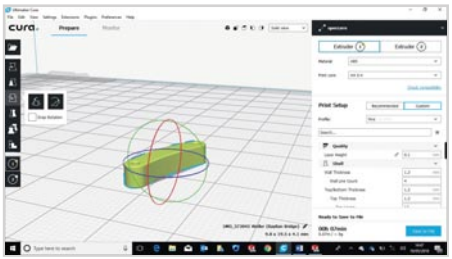
1. The design process first requires us to model a precise two-dimensioned shape.

After the shape has been modelled, we can revert-back at any time to make changes to dimension, curves and details. Any retrospective changes we make will affect the final model. This is very important when we consider multiple bridge sizes. We can simply design one model and make dimension changes as required.

2. Next, we thicken the shape to form a 3D object.

This process is called 'extruding'. The model is thickened from a point we call the mid plane. By controlling the position of the mid plane, we can cut sections of excess material from the design or introduce more complex extruded geometry.

3. The file is saved in a format that is compatible with the printer software and uploaded. Material types, printing resolution and settings must be programmed.



The printer software gives us full control to input our own preferred settings. We can set the print speed, build layer heights and material density to manipulate print times and generate support materials to prevent large over-hanging prints from falling over.

4. The finished part is fitted after visual inspected for flaws and testing for mechanical strength.

Let us now consider the application of the technology on general adaptions, such as eyecups. It is my observation that many frames requiring such adaptions are low value, this inevitably means that, as professionals, you might be spending more time on the lowest value supply of services. My aim was to design a new cupped shield, that would clip on to the rim of the frame: a product that could be fitted easily by the wearer when required and doesn't cause damage to the frame. Patients can be confidently dispensed higher value frames, knowing the addition of 3D printed side shields will not cause irreversible cosmetic damage to the frame.

Our new range of cups can be tweaked and printed from stock designs with the clips made to fit each frame perfectly, even if it's a rimless!

With all new projects, we must have a goal and this project is no different. At Spec-Care, we use technology and engineering to enhance technical services. I would like to think that the work we are now undertaking will help the profession to see difficult dispensing situations in a new way. As a business, we can now help people show off their differences, instead of hiding them. We are at the start of a very exciting journey and we regularly share our advances on Facebook and Instagram, so join us today to see for yourself **@speccareltd**

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