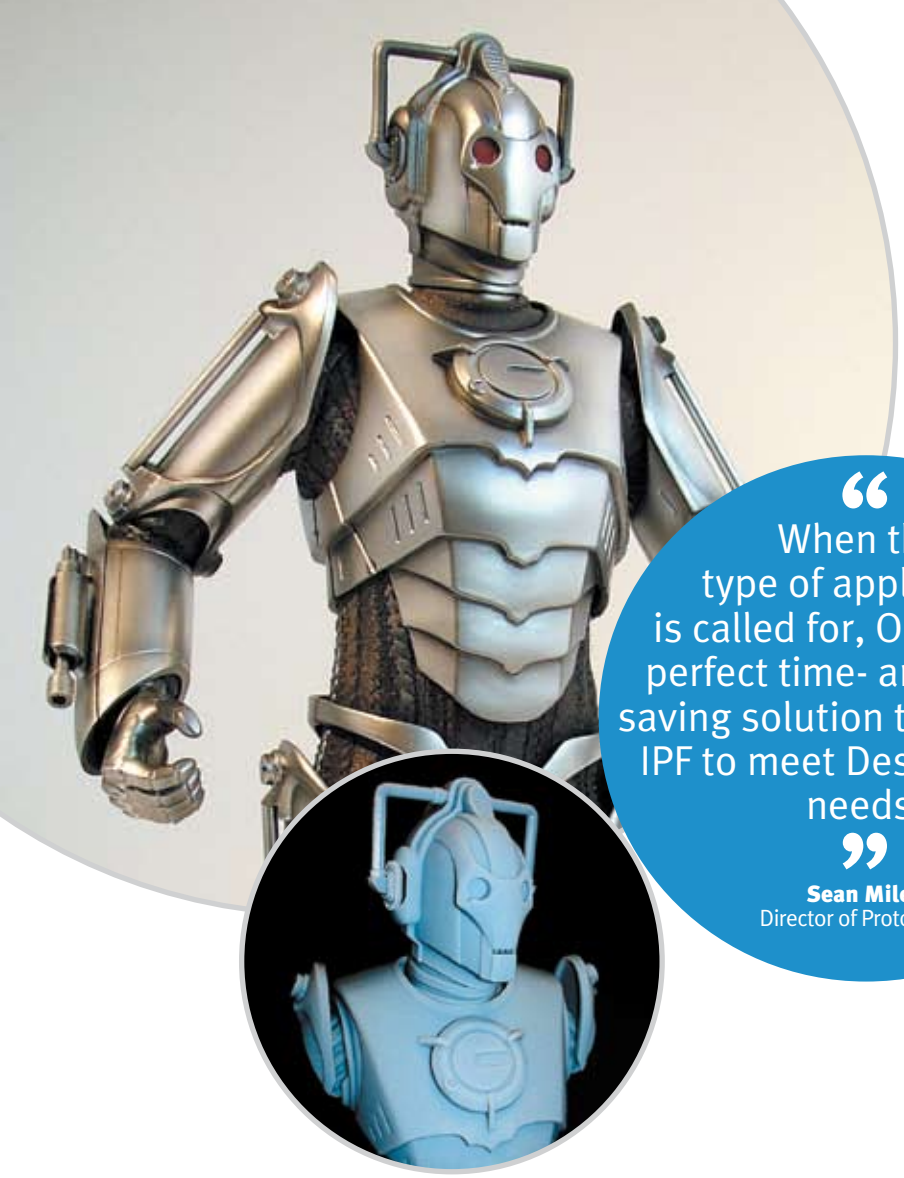

> When this type of application is called for, Objet is the perfect time- and money-saving solution that enables IPF to meet DesignWorks' needs.
>
> **Sean Miles**
> Director of Prototyping

Windsor based Product Development Agency – Designworks – uses Objet 3D Printing System to recreate Sci-Fi classic – The Cybermen

In the field of collectible licensed merchandise, product development time is a crucial factor. Manufacturers have to respond quickly to ensure that their products reflect up to date cultural trends. Anything that expedites the development process is a valuable tool in the developer's arsenal. The success of BBC Television's long-running science fiction series, Doctor Who, prompted a toy and collectible manufacturer to produce a range of highly detailed products depicting key characters from the series.

Cards Inc's developmental partner; Designworks Windsor, were responsible for producing the product prototypes. In order to achieve the clean crisp lines of the latest incarnation of Doctor Who's Cyborg foe, the Cybermen, Designworks digitally modeled them using Sensable Technologies' "Freeform" system. The Haptic technology-based Freeform system provides the interface between the user and the computer, applying a tactile sensation to human interaction with computers by using a jointed arm with a stylus attached to its end

Freeform allowed Designworks to create digital objects with a more organic feel than conventional CAD systems, making it the perfect choice for the mechanical humanoids. Key to this process is the emergence of three dimensional printing machines for rapid output of extremely complex three dimensional forms.

CASESTUDY

AT A GLANCE

Company: Designworks Windsor
URL:
www.designworkswindsor.co.uk
www.ipfl.co.uk
Location: Windsor, UK
Industry: Toy manufacturing

Challenges

> Identify an accurate, cost effective solution for producing a large complex model
> Ensure 3D model stability, avoiding common deformation issues
> Build model parts that could be put together without post processing or cleanup

Solution

> Eden™ 3D Printing System from Objet Geometries

Results

> Reduced costs due to shorter fabrication time and less finishing work compared to other methods.
> Shorter lead times due to fast printing process and no cleanup.
> High-quality models that meet the highest levels of accuracy and finish.

OBJET

Objet 3D Printer — First Choice for a Perfect Model

DesignWorks worked with Industrial Plastic Fabrications (IPF) and its Objet Eden330™ 3D Printer. Objet's PolyJet™ Technology was the first choice to output the Cyberman Bust as the form was too complex even for five-axis machining. IPF Rapid Prototyping produced the Cyberman bust for Designworks Windsor in less than two days, enabling an unrivalled quality and turnaround time that was not available via other methods. "IPF and Objet offer Designworks the perfect solution when this type of application is called for, saving valuable time and money, said Sean, the Director of Prototyping at Designworks.

Objet provides a level of detail perfect for a model of this size and has distinct advantages over its competitors in the stability of larger models. Unlike other 3D Printing Systems, Objet's printers remain true to the source file even when outputting parts within an envelope of 70 × 90 × 170 mm (the Cyberman's chest) – the sort of scale that leads to sunken areas and build errors on most other systems.

The quality and accuracy of the Objet's builds are apparent in the fact that each Cyberman bust was constructed in five parts, all of which fitted together perfectly in their 'raw' state with no cleanup required other than support structure removal.

The final model, built with FullCure® VeroBlue™ material, was easily cleaned to a production finish by spraying a light coating of sand-able primer over the sculpture's surface and sanding it back with a 3M flexible sanding pad. Another coat of primer finished the model beautifully, making it ready for silicon molding for the creation of the final tooling pattern and decorated samples.

Highest Quality Model at a Lower Cost

The use of Objet within the development process affects the three critical elements necessary for a successful outcome:

- Lower costs – Achieved through time saved in finishing time.
- Significantly reduced lead times – The product can be sculpted and output by Objet in less than half the time it would take to fabricate it in the traditional way by hand.
- High-quality models – With the highest levels of accuracy and finish.

With all factors taken into consideration there is no more preferable method to develop a product of this sort than a digital workflow that involves Objet as the method of output.

3M Coated Abrasive Sheets were used to polish the area where shininess was desired. Primer coat was sprayed and finer abrasive sheets were then used for smoothening surface.

A coat of gloss black paint is then applied, followed by a 'metal-filled' chrome lacquer.

Tinted lacquer was applied using an airbrush to add depth h to the model.

About Objet Geometries

Objet Geometries Ltd., the innovation leader in 3D printing develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-Dimensional printing systems and materials that utilize PolyJet™ Polymer Jetting technology, to print ultra-thin 16-micron layers.

The market-proven Eden™ line of 3D Printing Systems and the Alaris™30 3D desktop printer are based on Objet's patented office-friendly PolyJet™ Technology. Connex500™ is based on Objet's PolyJet Matrix™ technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet's FullCure® materials to create accurate, clean, smooth and highly detailed 3-dimensional models.

Objet's solutions enable manufacturers and industrial designers to reduce cost of product development cycles and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as automotive, electronics, toy, consumer goods, and footwear industries in North America, Europe, Asia, Australia and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Europe and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions.

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