

## RAPID PROTOTYPING CAPABILITY

The Machined Components Centre has invested in a rapid prototyping system. The Objet Eden 250 system uses Pro-Engineer file information to produce fully cured 3D models in acrylic-based resins.

A physical 3D model can:

- Drive design for manufacture
- Play a vital role in functionality testing, assembly trials and final design verification
- Assist in securing new business.



### APPLICATIONS

The system can give a wide variety of benefits, including:

#### Manufacture

- Improved fixture design
- Rapid production of jigs for cable forms
- Design driven by manufacture.

#### Design

- Forms and fits
- Reduced design iterations
- Design for manufacture.

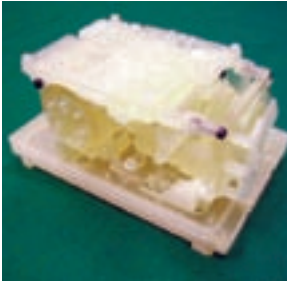
#### Marketing and Business Winning

- Use on trials, demonstrations and bids
- Improved visualisation.

## Rapid Prototyping

### VARIETY OF MATERIALS

A range of materials are available with varying benefits:



#### FullCure®

- Transparent general purpose resin
- Acrylic-based photopolymer
- Surfaces readily absorb paint
- Good impact strength
- Visualisation of internal details.



#### Vero

- Opaque models
- Enhanced visualisation of details
- Good impact strength
- Ability to withstand bending
- Available in blue, white and black.

### OUTSTANDING ACCURACY, SURFACE FEATURES AND FINE DETAILS

- Typical tolerance of 0.1mm
- High resolution of 16µm horizontal layers
- Minimum wall thickness 0.6mm
- Smooth surface finish
- Robust models
- Can be milled, drilled, tapped for inserts, painted, electroless nickel plated
- Maximum build size (XYZ) 250 x 250 x 200mm – larger parts can be built in sections.

### CASE STUDY

When designing SELEX GALILEO's latest thermal imaging camera, SLX Hawk, the design team wanted to save time and money by producing a series of rapid prototype models for design verification purposes.

The Machined Components Centre produced the models on the Objet Eden machine with a turn-around time of two days. Benefits to the project included:

- Verification of forms and fits
- Short turn-around time
- Ability to cost-effectively produce scale models.

### MATERIAL PROPERTIES

Properties	Fullcure	VeroWhite	VeroBlue
Tensile Strength, MPa	60.3	49.8	55.1
Elongation at break, %	15-25%	15-25%	15-25%
Modulus of elasticity, MPa	2,870	2,495	2,740
Flexural strength, MPa	75.8	74.6	83.6
Flexural modulus, MPa	1,718	2,137	1,983
Izod notched impact, J/m	39.6	37.5	42.5
Compression strength, MPa	84.3	-	79.3
Rockwell (M)	81.0	81.0	81.0
Heat distortion temp, °C	48.4 <sup>a</sup> 44.4 <sup>b</sup>	47.6 <sup>a</sup> 43.6 <sup>b</sup>	48.8 <sup>a</sup> 44.8 <sup>b</sup>
Tg, °C	48.7	58.0	48.7
Ash content	<0.01%	<0.40%	<0.30%

a @0.45 MPa      b @1.82 MPa

Source: Objet Geometries Ltd datasheet



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INVESTOR IN PEOPLE

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