



**CONNEX500**

The PolyJet Matrix™ System



## PolyJet Matrix™ Technology

PolyJet Matrix™ technology pioneers a new direction in 3-D printing. It opens up virtually unlimited opportunities for closely emulating final products by enabling simultaneous jetting of multiple model materials. This provides the technology foundation for cutting edge 3-D printing systems that can, in a single build process, print parts and assemblies made of several materials with differing mechanical and physical properties. Furthermore, it enables on-demand fabrication of Digital Materials™ created during the build process, of composite materials that have the specific combination of properties required for the specific application.



## Connex500™ 3-D Printing System

The Connex500™ is the first system that applies PolyJet Matrix technology. It jets two distinct Objet® FullCure® model materials in many preset combinations. These unique capabilities enable double injection products to be simulated early in the product design process, directly reducing the costs and risks associated with creating the complex molds for double injection.

### The Connex500 introduces:

- **Mixed Parts** – Parts printed with multiple FullCure model materials; eliminating the need to design, print and glue together separate model parts to make a complete model, leading to dramatic savings in printing and post-processing time.
- **Digital Materials** – Composite materials made up of two FullCure model materials integrated in specific concentrations and structures to provide the required mechanical properties. Digital Materials enable closely resembling the target product design and printing of a complete product, of virtually any complexity, in a single build process.

- **Mixed Trays** – Tray of parts printed with different model materials in a single build; saves time on materials replacement and provides an answer for multiple users.

### Part and assembly versatility, system productivity-

The Connex500 prints two model materials simultaneously and creates 21 types of Digital Materials, on demand during the build process. It features three printing modes:

- **DM Printing Mode** – for printing multiple model materials and for Digital Materials fabrication.
- **HQ Printing Mode** – high quality mode for single-material printing at 12 mm/hr/strip with 16 micron-layer thickness.
- **HS Printing Mode** – high-speed mode for single-material printing at 20 mm/hr/strip with 30 micron-layer thickness.



Printing 600 x 600 dpi in both the x and y axes, the Connex500 enables thin walls down to 0.6 mm, fine details in all dimensions, and a smooth surface finish assuring high quality for every part. Highly precise printing, with a maximum tolerance of 0.3 mm over large models, ensures repeatability and accuracy.

Connex500 users can select materials, printing speed and resolution, with easy switch between printing modes, offering a versatile answer for a virtually unlimited variety of applications. The large-size tray accommodates parts up to 500 x 400 x 200 mm (19.7 x 15.7 x 7.9 inch), saving gluing time and enabling printing of numerous small parts on a single tray.

### Objet Studio Software for Connex500

The Connex500 comes with a new Objet Studio Software designed to handle multi-material STL files and create files that include different material types, assemblies and more model characteristics.

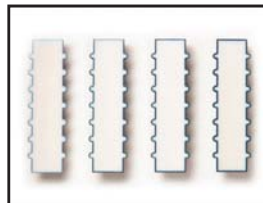
## Applications

The Connex500 features industry first capabilities and applications.

- **Over-molded parts and double injection process simulation** – Combining FullCure Vero™ and FullCure Tango materials is ideal for applications that have a rigid body with areas of flexible material for grips and protection of the mechanism.



- **Coating parts** – Printing FullCure Tango over FullCure Vero allows flexible moving parts, such as levers and hinges for close simulation of the look and feel of rubber-coated products, such as the hairbrush in the picture.



- **Biomedical and translucent parts** – Combining transparent FullCure720 and opaque FullCure Vero material makes it possible to print translucent medical models that show nerves, tumors, and other details. The same two materials combination creates parts with translucent elements, such as the built-in screens for MP3, mobile phone, GPS and other devices.



## Connex500 Technical Specifications

### Tray size (X x Y x Z)

500 x 400 x 200 mm  
(19.7 x 15.7 x 7.9 inch)

### Net build size (X x Ya x Z)

490 x 390 x 200 mm  
(19.3 x 15.4 x 7.9 inch)

### Layer thickness (Z-axis)

Horizontal build layers down to 16-micron

### Build Resolution

X-axis: 600 dpi  
Y-axis: 600 dpi  
Z-axis: 1600 dpi

### Printing Modes

Digital Material (DM): 30-micron (0.001 inch)  
High Quality (HQ): 16-micron (0.0006 inch)  
High Speed (HS): 30-micron (0.001 inch)

### Accuracy

0.1 – 0.3 mm (0.004 – 0.01 inch) typical  
(accuracy varies according to geometry, part orientation and print size)

### Supported Model Materials

- FullCure@720 Model transparent
- VeroWhite Opaque material
- VeroBlue Opaque material
- VeroBlack Opaque material
- DurusWhite Opaque Material
- TangoGray, rubber-like flexible material
- TangoBlack, rubber-like flexible material

### Digital Materials

21 types of composite materials fabricated on the fly

### Support Type

FullCure705 Support  
Non-toxic gel-like photopolymer support easily removed by WaterJet

### Materials Cartridges

4 sealed 3.6 kg (7.9 lb.) cartridges  
Two different model materials loaded  
Front loading for quick replacement

### Power Requirements

110 – 240 VAC 50/60 Hz  
1.5 KW single phase

### Machine Dimensions (W x D x H)

1420 mm x 1120 mm x 1130 mm  
(55.9 x 44.1 x 44.5 inch)

### Machine Weight

Net 500 kg.  
(Net 1102 lb.)

### Operational Environment

18°C to 22°C (64.5°F to 71.5°F)  
Relative Humidity 30 – 70%

### Input Format

STL, ODF and SLC File

### Software

Objet Studio™ for Connex500 features:

- Easy selection of materials including Digital Materials
- Part separation into subassemblies
- Suggested build orientation and speed, auto-place
- Automatic real time support structure generation
- Slicing on the fly
- Network version

### Special Facility Requirements

None

### Jetting heads

SHR (Single Head Replacement),  
8 units

### Network Communication

LAN – TCP/IP

### Compatibility

Windows XP, Windows 2000



## About Objet Geometries

Objet Geometries, the photopolymer jetting pioneer, develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-dimensional printing solutions for rapid prototyping and rapid manufacturing.

The market-proven Eden line of systems is based on Objet's patented office-friendly PolyJet™ technology. Objet's FullCure® materials create accurate, clean, smooth and highly detailed 3-dimensional models, enabling even the most complex 3-D models to be printed with exceptionally high quality, accuracy and speed.

Connex500™, Objet's latest innovation, is based on Objet's PolyJet Matrix™ technology, which offers jetting multiple model materials

simultaneously. PolyJet Matrix jets Digital Materials™ creating composite materials which are fabricated on the fly.

Objet's solutions enable manufactures 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.

### Objet Geometries Ltd.

#### Headquarters

2 Holtzman st.,  
Science Park,  
P.O Box 2496,  
Rehovot 76124, Israel  
T: +972-8-931-4314  
F: +972-8-931-4315

### Objet Geometries Inc.

#### North America

5 Fortune Drive  
Billerica,  
MA 01821  
USA  
T: +1-877-489-9449  
F: +1-866-676-1533

### Objet Geometries

#### GMBH

Im Leuschnerpark 4,  
64347 Griesheim  
Germany  
T: +49-6155-605-346  
F: +49-6155-605-344

### Objet Geometries AP

#### Asia Pacific

13th floor, Unit52A,  
HITEC  
1 Trademart Drive  
Kowloon Bay, Hong Kong  
T: +852-217-40111  
F: +852-217-40555

### Objet Geometries AP

#### Limited China Rep Office

Rm 1220, CIMIC Tower,  
1090 Century Blvd,  
Pudong Shanghai  
2000120 P. R. China  
T: +86-21-5836-2468  
F: +86-21-5836-2469

info@objet.com www.objet.com

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