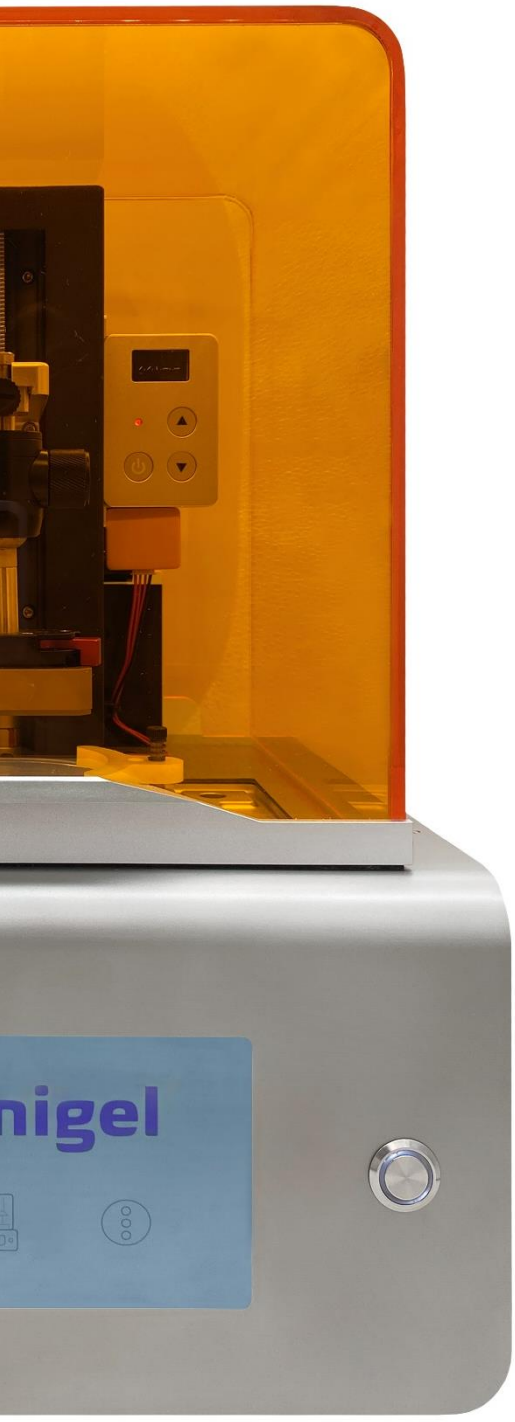
illumigel

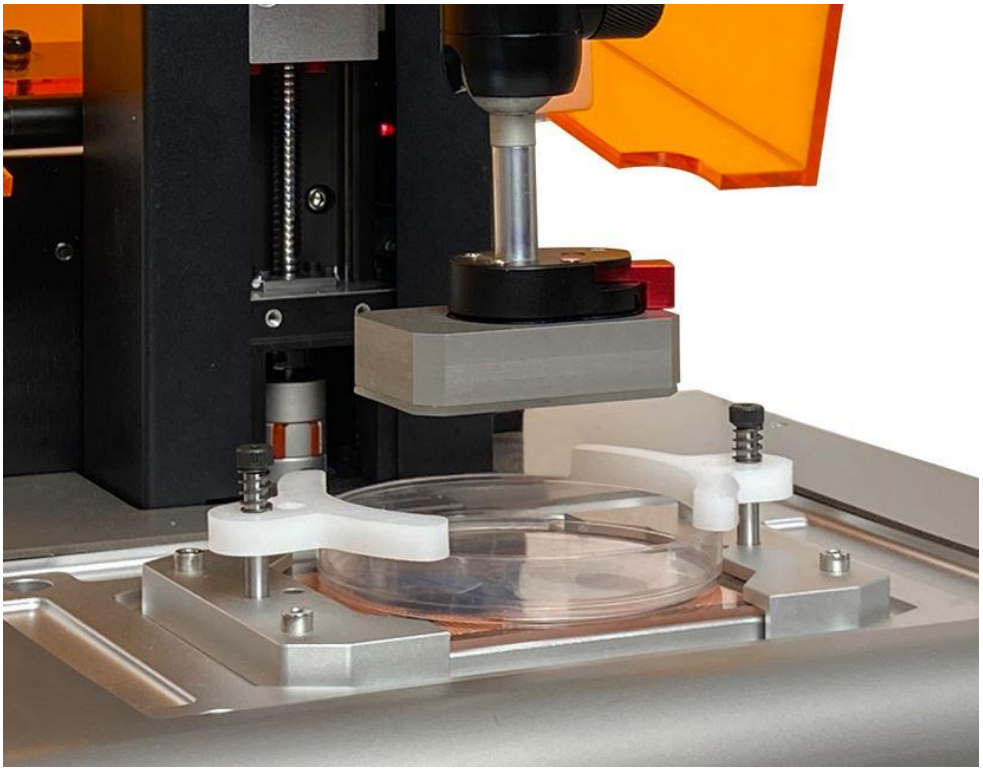


DLP 3D BIOPRINTER

Digital light processing brings unprecedented shape fidelity and resolution to 3D Bioprinting

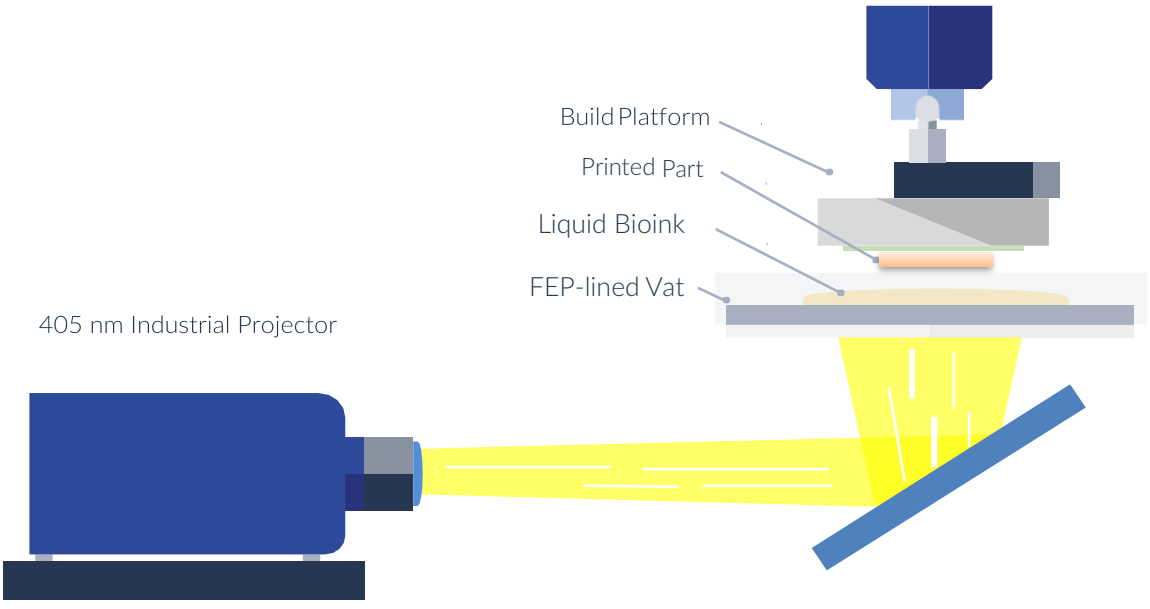
Illumigel DLP Bioprinter

The Illumigel DLP bioprinter, leverages digital light processing (DLP) printing to offer users high resolution, high throughput and high fidelity, enhancing applications in microfluidics, cell-laden hydrogels, macroporous structures and more. Designed to bioprint vasculature with visible blue light (405 nm), this bioprinter gives you a powerful advantage in achieving complex branching and tapering of vessels.



The Printing Principle

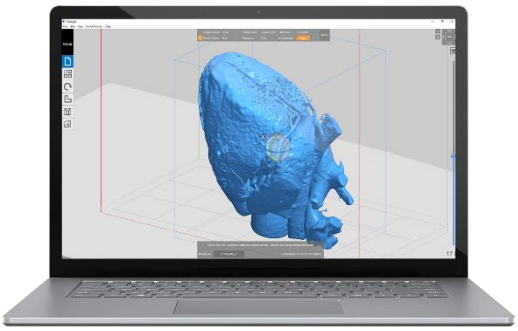
The Illumigel DLP Bioprinter builds hydrogels by beginning with a droplet of light-sensitive, liquid bioink in a vat. An industrial blue-light projector exposes a series of images onto the vat, like a slideshow. The areas of the droplet that are exposed will crosslink and solidify into a single layer. The build platform moves up to allow each layer to stack and build the part.



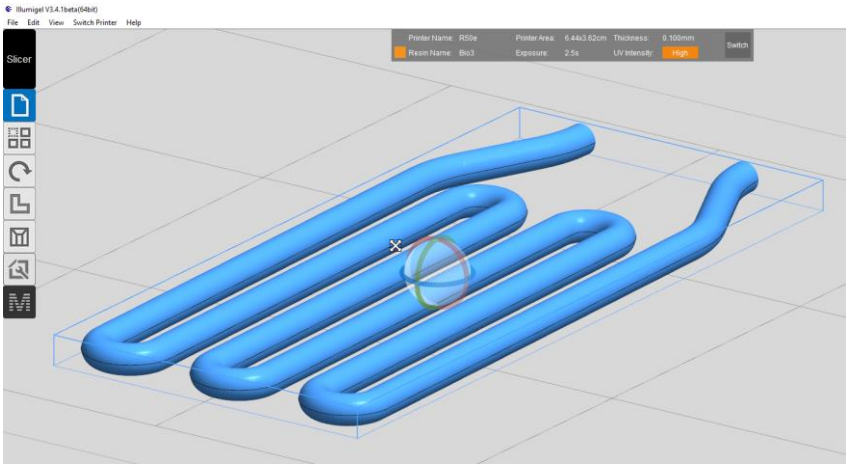
A software that is designed for user friendly operation

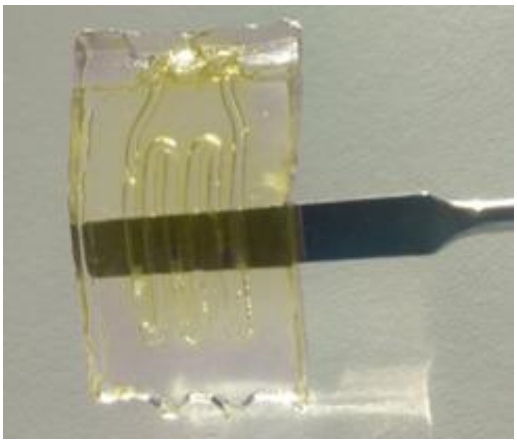
With the accompanying PC software, it is possible to adjust printing parameters, such as exposure time and layer thickness.
A special function and remodel solids to introduce internal cavities.
Remote printer control can be done using Wi-Fi connection.

Support Wall thickness Rotation Bulk copy



Print perfusable 3D gels with internal cavities





Construct microscopic features with speed, fidelity and precision.

Biocompatibility

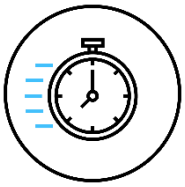
The Illumigel BioInk is biocompatible, so cells can be used with printed constructs and even be mixed into the BioInk. The built-in heater keeps GelMA liquefied and improves cell viability within the BioInk.

Open Materials Platform

The Illumigel DLP Printer allows users to develop and use their own materials without workarounds or extra fees, opening the door for the development of materials with unique properties or for novel tissue engineering applications.

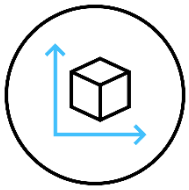
Easy operation

Touch screen controls are highly intuitive and clear. The info display is informative. The wifi connection allows for easy printer operation from one or more computers, using the Illumigel PC software.



Speed

By curing entire layers simultaneously, the DLP bioprinter can build structures **10 mm** tall in GelMA in 30 minutes (up to **50 times** faster than other printing methods). This translates to better cell viability and higher throughput when model building.

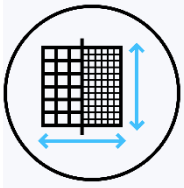


Isotropy

Compared to extruded scaffolds, Illumigel scaffolds are significantly more isotropic, allowing users to control mechanical properties with geometry in all dimensions. Inner cavities do not deform in the same manner as in extruded bioprinting.

Clarity

The photo-absorbing dye that gives the BioInks their color will wash out of printed structures in a matter of hours, allowing structures to be imaged via bright-field or fluorescence imaging techniques.



Resolution

DLP technology allows you to build intricate geometries that are far more biomimetic than what extrusion methods could achieve. This makes it possible to craft cavities in X Y and Z dimensions that can be used to model vasculature, intestines, lungs etc.

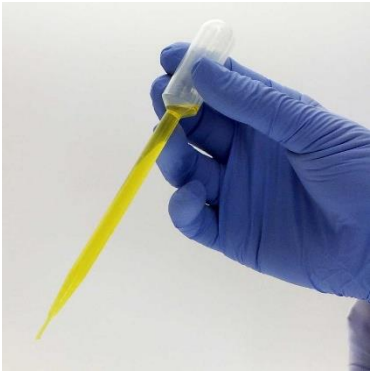
Tunability

Adjust parameters such as exposure time, layer thickness and light intensity to match a broad variety of bioinks available on the market or custom made in your lab.

BioInks and Consumables

GelMA

GelMA BioInk is an optimized gelatin-based biodegradable bioink. Because fabricated hydrogels can be cured with little-to-no impact on cell viability, the GelMA BioInk can be mixed with cell pellets. It can also resolve intricate vascular networks and channels that offer endothelial and epithelial cells the essential properties of their native environments. The Illumigel DLP printer has a built-in heating function that is crucial for generating complex GelMA-based hydrogels.

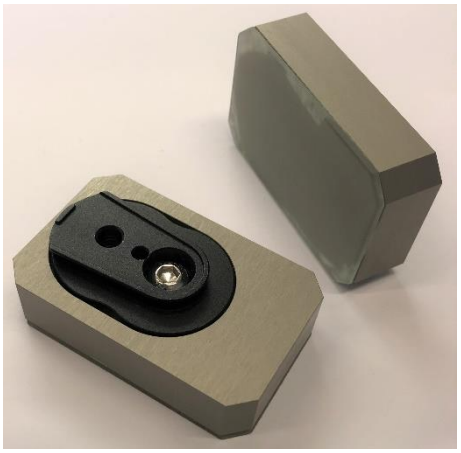


Vats

DLP printing Dishes are lined with a thin FEP layer to enable the gentle separation of cured BioInk layers while printing. Sterile packaging is available for bioprinting with mammalian or bacterial cells, while nonsterile vats can be rinsed with 70% IPA or ethanol and used for multiple prints. When printing larger objects, a fresh vat is highly recommended to optimize printability.

Build Platform

Build Platform holds prints for the duration of the build. Its small size minimizes the amount of BioInk required per build, conserving material and cells alike. Each one is precisely machined, so that platforms can be swapped quickly and easily with little downtime between prints. Offered in glass for better adhesion to hydrogel constructs and in metal for better adhesion to resin-based constructs.



Technical Specifications

Dimensions (L x W x H)	270 x 250 X 380 mm
Power supply	AC 100-240V, 50/60Hz, 2,5A
Weight	20 kg
Projected image	1280 x 800 pixels
Pixel resolution (XY)	50 µm
Z-precision (motor-driven)	5 µm
Max build volume	64 x 36 x 50 mm
Projected light wavelength	405 nm
Intensity range	10–30 mW/cm2
Deviation from mean	<1%
Electrical power input	100–265 VAC, 50–60 Hz, 100 W
Compatible file type	STL (stereolithography file)
Connectivity	Wifi, USB