Zortrax Inkspire

RESIN UV LCD 3D PRINTER

Instrument of Precision

The UV LCD technology in Zortrax Inkspire relies on a high resolution LCD screen with UV LED backlighting to solidify photopolymers layer by layer. With 50x50 microns XY resolution and 25 microns minimal layer height it is up to 9x more precise than leading SLA 3D printers. Because the entire layer is projected onto the photopolymer's surface all at once, it is also up to 8x faster. Microscopic precision makes Zortrax Inkspire perfect for engineers, designers, jewelers or dental prosthetists. Due to the high speed of operation, the printer can work as a basic production unit in 3D printing farms offering low to medium scale manufacturing capabilities.

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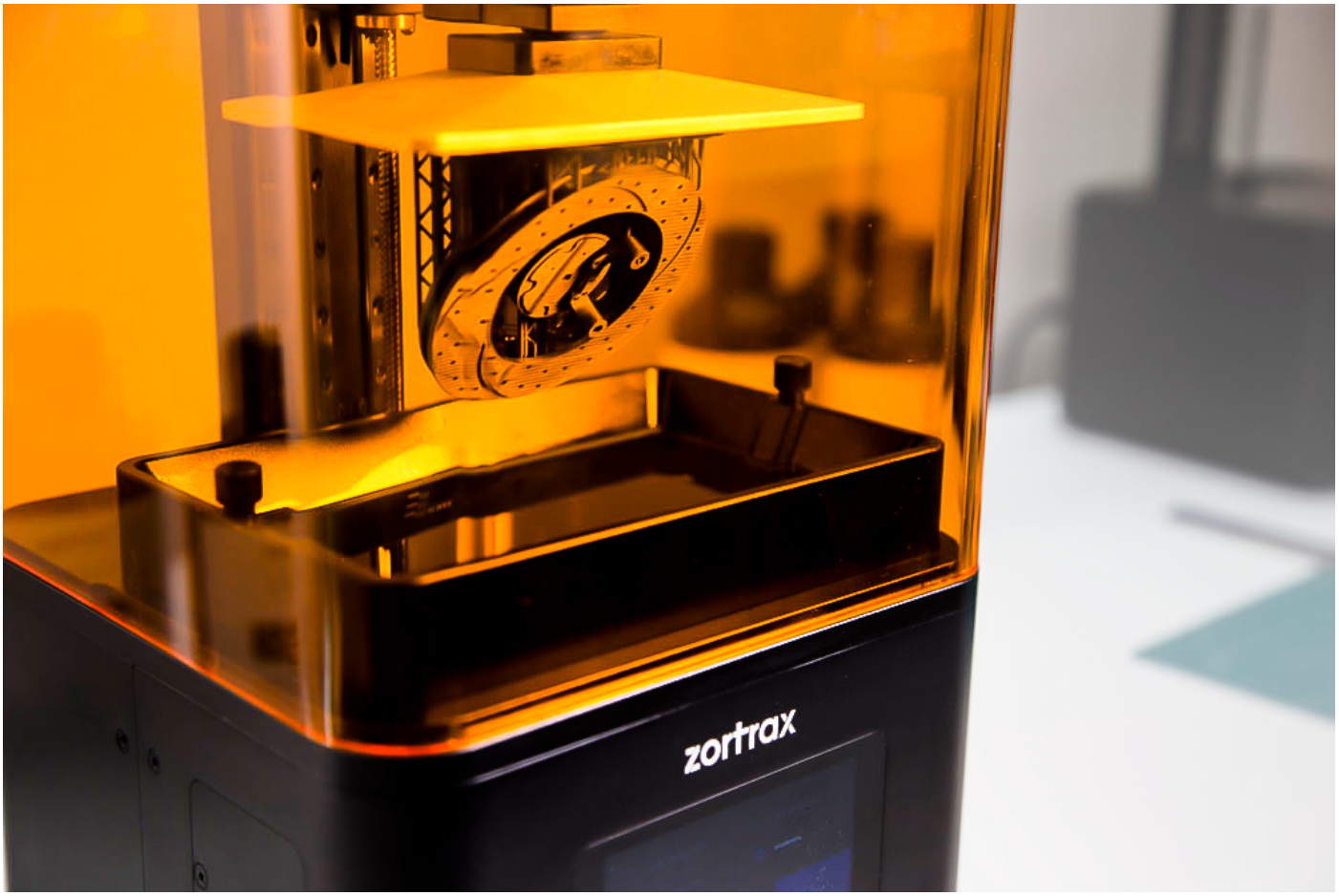
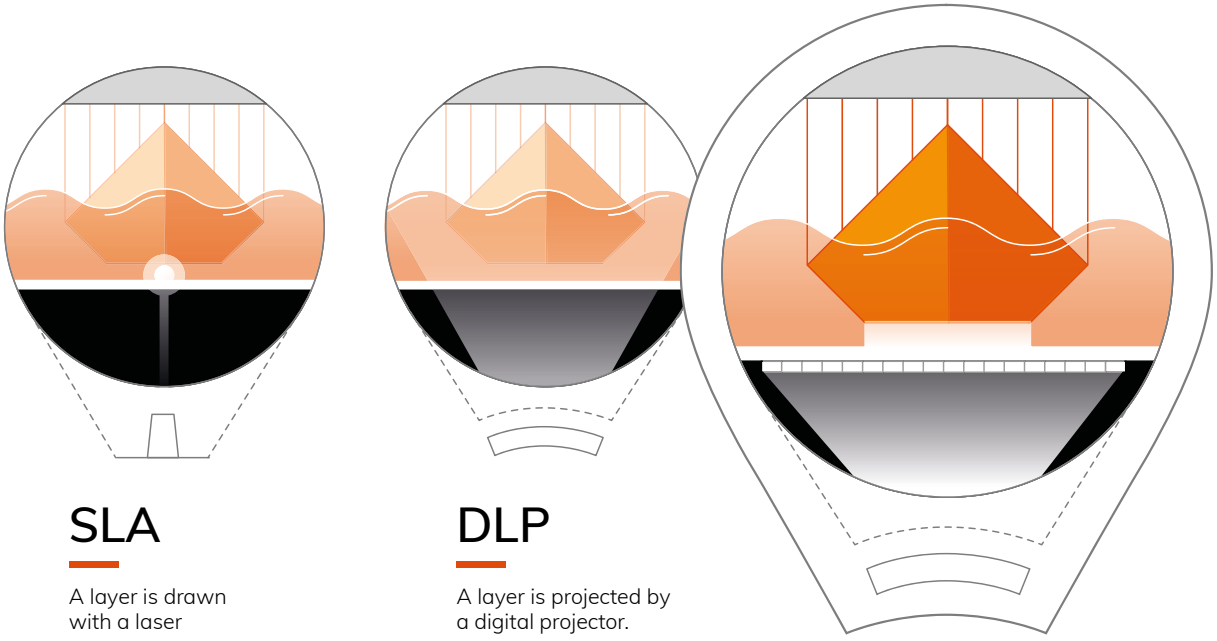


Meet the UV LCD Technology

Resin 3D printers typically work in either SLA (stereolithography) or DLP (digital light processing) technology. In SLA, the precision is constant, but the speed of operation is in inverse proportion to the amount of workspace taken by the model. It is so because an entire layer has to be drawn with a laser. In DLP, the speed of operation is constant, but the precision falls as the amount of used workspace increases. Because they are designed around digital projectors, popular DLP 3D printers can work with a relatively small pixel size provided the projected layer's image is limited to a small part of their available workspaces. But when the projected image is enlarged to fill all of the workspace, pixels grow dramatically to 70 microns or larger. Zortrax UV LCD offers constant high speed and constant high XY resolution regardless of how much of the workspace is used.

In Zortrax UV LCD technology, UV light is processed in three distinct stages. First, it hits a polarizing film arranged along a horizontal axis. Only a part of the spectrum vibrating horizontally gets through. Such horizontally polarized light then goes into an array of liquid crystals. Each crystal can let it pass unchanged or rotate it 90 degrees. In the last stage, the light hits another polarizing film, this time arranged vertically. If a liquid crystal between those two films does not rotate the light, the pixel is off because the horizontally polarized light can't get through the vertically polarized film. But if the light is rotated, it can pass through both films and the pixel is on.

Comparison of Resin 3D Printing Technologies



SLA

A layer is drawn with a laser

DLP

A layer is projected by a digital projector.

UV LCD²

A layer is projected on a high-res LCD screen with UV LED backlighting.

Flexible Manufacturing

Zortrax Inkspire maintains constant high speed of operation and accuracy regardless of how much of the workspace is used. Working with relatively small models like HDMI cover caps, one Zortrax Inkspire can 3D print 77 of them in 1h 30min. 30 printers working together in a 3D printing farm can offer an approximate monthly output of 360,000 to over 500,000 parts, depending on how many shifts per day are scheduled. This is how Zortrax Inkspire can take a business way into medium or even high scale production territory.

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Z-SUITE Inkspired

Z-SUITE is a dedicated slicing and 3D printing farm management software that comes free with every Zortrax 3D printer. Now it has a number of additional functionalities to make working with Zortrax Inkspire an effortless experience. It calculates how much resin is needed to print each layer of the model and allows to schedule a pause precisely when a refill is necessary. Times of exposure to UV light for the model and support structures can be set independently to make the support structures harder and therefore easier to remove. Z-SUITE can also remotely pause, resume, and monitor progress of prints on each Zortrax Inkspire connected to the same Wi-Fi network.

Compatible Resins

Zortrax Inkspire works with a dedicated Zortrax Resin Basic, a photopolymer designed to guarantee impeccable accuracy of details and great mechanical properties of prints at the same time. External resins compatible with Zortrax Inkspire include special purpose photopolymers made for applications in dental prosthetics or jewelry design among others. All resins cured by light with 405 nm wavelength are supported.

Zortrax Ultrasonic Cleaner

Zortrax Ultrasonic Cleaner is a device that automatically cleans models using high frequency sound waves propagated in a cleaning liquid.

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Zortrax Inkspire Main Features

- UV LCD is up to 8x faster than SLA.
- UV LCD is up to 9x more precise than SLA.
- The speed of operation is 20-36 mm/h.
- The XY resolution is 50x50 microns.
- The minimal layer height is 25 microns.
- Has an intuitive touch interface.
- Capable of serial production.
- External 405 nm resins are supported.
- External slicing software is supported.
- .zcodex and .cws file formats are supported.
- Workspace measures 74x132x175 mm.
- Has Wi-Fi and Ethernet connectivity.

Technical Data

Printing	
Technology	UV LCD
Pixel size	50 microns (0.05 mm)
Layer thickness	25, 50, 100 microns
Print speed	20-36 mm/h

Device	
Build volume	74 x 132 x 175 mm (2.9 x 5.2 x 6.9 in)
Support	Mechanically removed - printed with the same material as the model
Light source	UV integrated light (wavelength 405 nm)
Connectivity	Wi-Fi, Ethernet, USB
Operating system	Android
Processor	Quad Core
Touchscreen	4" IPS 800 x 480
Available materials	Zortrax Photopolymer Resin Basic
External materials	Applicable

Software	
Software bundle	Z-SUITE
Supported file types	.stl, .obj, .dxf, .3mf
Supported formats	.cws, .zcodex
Supported operating systems	Mac OS X / Windows 7 and newer versions

Temperature	
Ambient operation temperature	20 - 30˚ C (68 - 86° F)
Storage temperature	0 - 35˚ C (32 - 95˚ F)

Electrical	
AC input	110 V ~ 5.9 A 50/60 Hz 240 V ~ 2.5A 50/60 Hz
Maximum power consumption	50 W

Weight and physical dimensions	
Device (W x D x H)	210 x 210 x 420 mm (8.3 x 8.3 x 16.5 in)
Shipping box	315 x 312 x 530 mm (12.4 x 12.3 x 20.9 in)
Net weight	7,6 kg (16,8 lb)
Device weight	9.2 kg (20.3 lb)
Shipping weight	10.5 kg (23.1 lb)

Additional information
All information contained in this brochure and specification is subject to change without notice.

In the box
3D Printer, Z-SUITE, Starter Kit, Zortrax Photopolymer Resin Basic (500 ml)

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