

## Technical details

### Electrical properties

Rated voltage range	AC 100–240 V
Rated frequencies	50/60 Hz
Rated current max.	3 A / 230 V respectively 6.3 A / 100 V
Max. power consumption	630 W, typically < 400 W
Main supply overvoltage	Category II
Grounding equipment conductor	Required
Electrical safety	In accordance with IEC 61010-1:2010
Laser safety	Class 1, internal laser class 4 according to IEC 60825-1:2014

### Ambient conditions

Operating conditions	Indoors
Operating temperature	21°C ± 2°C
Temperature stability	± 1°K/h
Maximum relative humidity	60%
Sound pressure level	55 dB
Air pressure for internal vibration isolation	Not required



### Weights and measures

Total weight	124 kg
Dimensions (W x L x H)	58.5 x 71 x 65 cm <sup>3</sup>
Minimum back wall clearance	10 cm

### Femtosecond laser

Max. average power	400 mW
Pulse length	90 fs
Center wavelength	515 nm
Repetition rate	80 MHz

### Software

THINK3D

Specifications			
Accessible writing area	Up to 120 x 100 mm <sup>2</sup>		
Horizontal and vertical stage resolution	≤10 nm		
Max. travel distance z-axis	49 mm		
<b>Objectives</b>	<b>40x</b>	<b>20x</b>	<b>10x</b>
Numerical aperture	1.4	0.7	0.4
Working distance <sup>(1)</sup>	0.13 mm	0.35 mm	3.1 mm
Immersion medium	Oil	Water	Air
Horizontal feature size <sup>(2)</sup>	<220 nm	<420 nm	<740 nm
Vertical feature size <sup>(2)</sup>	<550 nm	<2.9 μm	<9.2 μm
Highest resolution XY <sup>(3)</sup>	<100 nm		
Highest resolution Z <sup>(4)</sup>	<100 nm		
Field of view diameter <sup>(5)</sup>	0.5 mm	1 mm	2 mm
Typical writing speed	150 mm/s	300 mm/s	600 mm/s
Throughput fine mode	0.025 mm <sup>3</sup> /h	0.125 mm <sup>3</sup> /h	2 mm <sup>3</sup> /h
Throughput coarse mode	0.125 mm <sup>3</sup> /h	1.13 mm <sup>3</sup> /h	20 mm <sup>3</sup> /h

<sup>(1)</sup> The working distance is the physical distance between the objective and the focal plane. However, the effective optical path length can vary due to refractive index mismatches and the numerical aperture (NA).

<sup>(2)</sup> Calculated Full Width Half Maximum (FWHM) for printing power twice the threshold, see Zipfel et al "Nonlinear magic" doi:10.1038/nbt899.

<sup>(3)</sup> Smallest free hanging line.

<sup>(4)</sup> By submerging voxel in substrate.

<sup>(5)</sup> Based on a field number of 20.

