

PHOTONIC PROFESSIONAL GT

The Photonic Professional GT is the world's highest resolution 3D printer. Based on two-photon polymerization (2PP), it allows for additive manufacturing and maskless lithography with the same device. Submicrometer resolution printing with feature sizes down to 200 nm and optical quality surface finishes are characteristic key features. Two powerful writing modes move the laser focus with respect to the photoresist: A piezo-mode for arbitrary 3D trajectories and a galvo-mode for ultra-fast structuring in a layer-by-layer process. With these unique features, the versatile system covers the broad demands encountered in nano-, micro- and mesoscale fabrication.

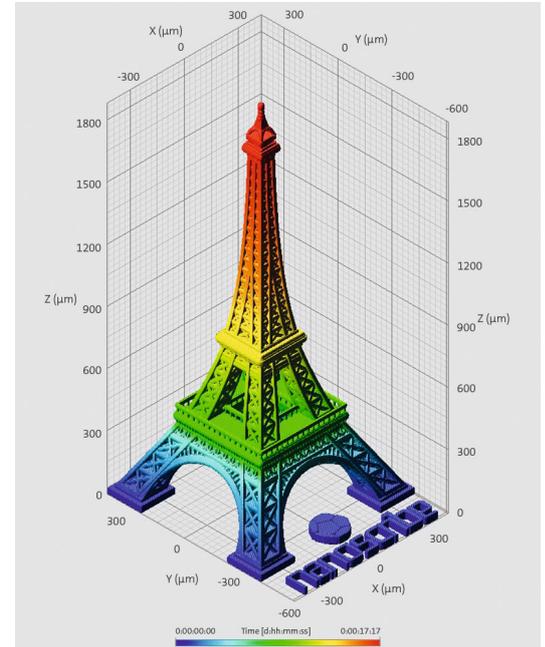
SYSTEM & COMPONENTS

The details of the turnkey system, its comprising components and available options are listed below and highlighted in the image.

OPTIONS, ACCESSORIES & CONSUMABLES

The following options, accessories and consumables are available to tailor the performance of the systems to application- and environment-specific requirements:

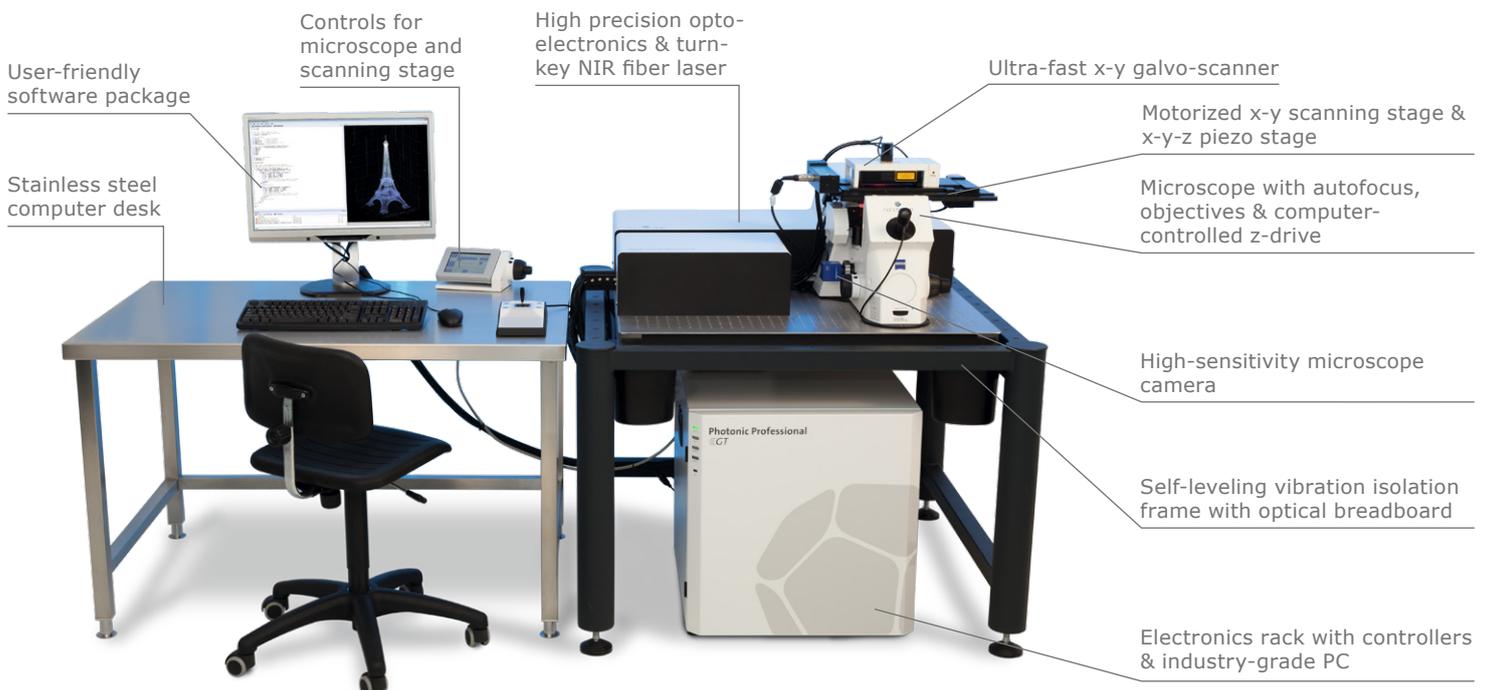
- Automatically exchangeable scanning objectives*
- Diverse substrate holders and substrates*
- Standard & cleanroom configuration*
- 2PP-optimized photopolymer resins from our IP product lineup



Screenshot of print job editor DeScribe

STARTER KIT

All systems are delivered with a starter kit consisting of a supporting rack for the convenient placement of sample holders, beakers with a substrate holder for wet-chemical development, and a selection of Nanoscribe's IP photopolymer resins.



* more data available on request

Photonic Professional GT

| Technical details | Photonic Professional GT |
|---|---|
| Printing performance* | |
| minimum 3D lateral feature size | 200 nm (spec.); 160 nm (typ.) |
| finest 2D lateral resolution | 500 nm (spec.); 400 nm (typ.) |
| finest vertical resolution | 1,500 nm (spec.); 1,000 nm (typ.) |
| beam scanning speed** | 10 mm/s (typ.) |
| piezo scanning speed** | 100 µm/s (typ.) |
| accessible print area by motorized stage | 100 x 100 mm ² |
| x-y-z piezo range | 300 x 300 x 300 µm ³ |
| x-y galvo scan range | 200 - 600 µm Ø dependent on scanning objective*** |
| maximum object height fine | 300 µm |
| maximum object height coarse | 3 mm |
| Laser source & safety | |
| laser source | NIR femtosecond laser |
| laser safety | class 1 as complete system according to EN 60825-1:2007 |
| Software package | |
| NanoWrite | graphical user interface controlling the system |
| DeScribe | print job editor including STL/DXF import and process preview |
| Electrical properties | |
| rated voltage range | AC 100 - 240 V |
| rated frequencies | 50 / 60 Hz |
| rated current | 5 A (max.) |
| average power consumption | < 500 W |
| main supply overvoltage | category II |
| grounding equipment conductor | required |
| electrical safety | in accordance with EN 61010-1:2010 |
| Weights and measures (w/o working desk) | |
| total weight | 320 kg |
| dimensions (W x L x H) | 90 x 90 x 142 cm ³ |
| weight (system w/o electronics rack) | 225 kg |
| dimensions (electronics rack) (W x L x H) | 56 x 60 x 64 cm ³ |
| weight (electronics rack) | 95 kg |
| minimum wall distance | 30 cm |
| Ambient conditions | |
| altitude | 2,000 m (max.) |
| operating temperature | 22° C (± 4° C) |
| temperature stability | ± 1° C |
| storage temperature | 20° C (± 10° C) |
| relative humidity | 60 % (max.) |
| air pressure supply for vibration isolation table | 4 - 6 bar |
| room lighting | yellow light required**** |

* Optimum achievable performance depends not only on the machine and its configuration but also on the photoresist used. Please contact us for more specific information regarding your process.

** Effective printing time depends on more aspects than merely the piezo's or the laser beam's scanning speed; smart software and control features as well as process tailored materials make the Photonic Professional GT the fastest and most precise 3D printer on the nano-, micro-, and meso-scale; please consult us for more details.

*** More data available on request; please consult us for the proper choice of scanning objectives that match your application.

**** Light tubes (e.g. OSRAM L 36 W/62 Yellow) or UV-filter tubes (e.g. ASR-LY5-UV (Metholight)) or any alternative yellow light sources

CONTACT

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