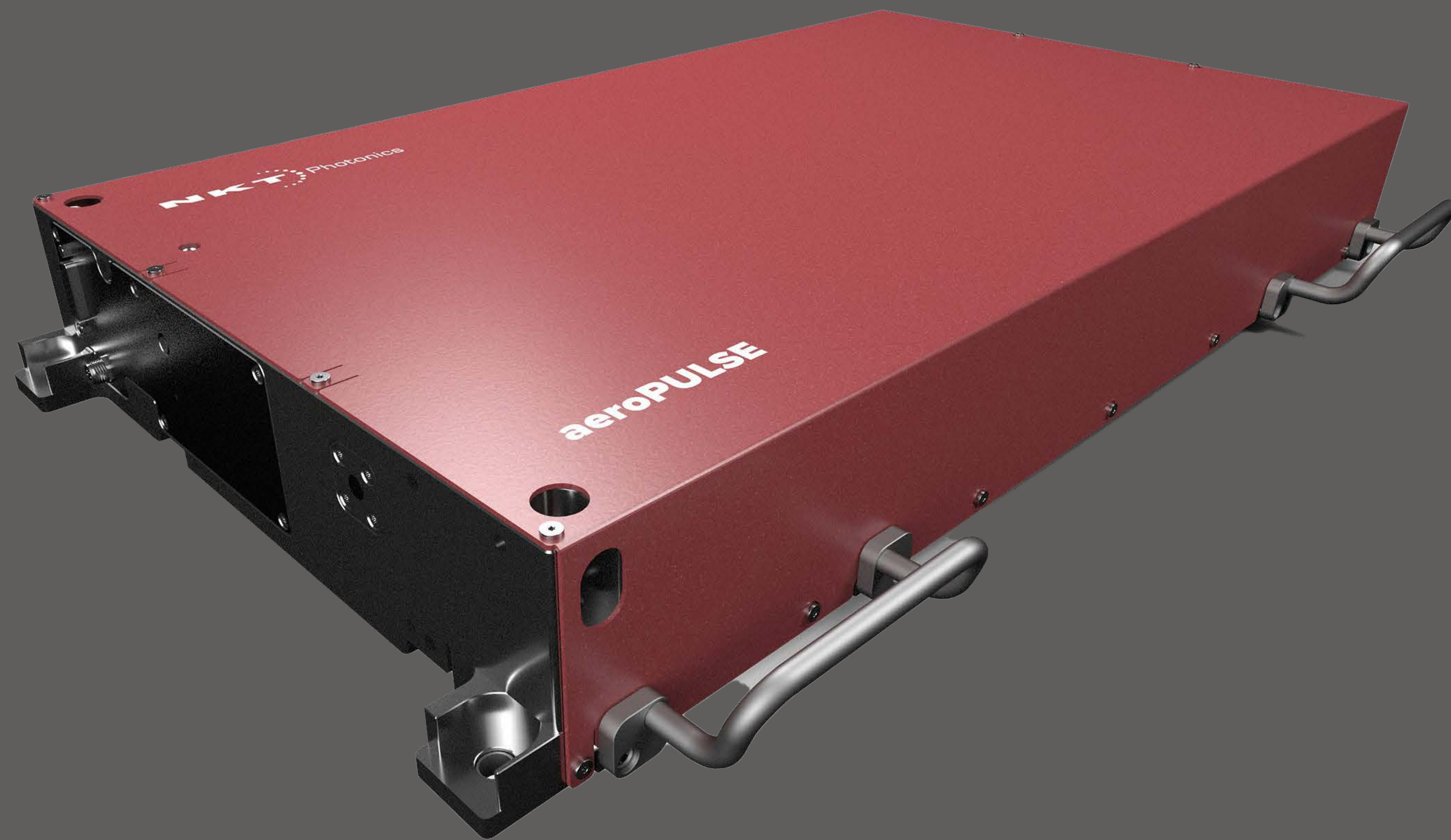


aeroPULSE FS20

High power femtosecond fiber laser



Rugged and compact OEM fiber laser

Industrial-grade femtosecond fiber laser

The **aeroPULSE FS20** industrial-grade femtosecond fiber laser is based on our renowned photonic crystal fiber platform.

Developed for both demanding 24/7 OEM and academic applications, the **aeroPULSE FS20** delivers high unit-to-unit consistency and up-time, low cost of ownership, and ease of integration.



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Applications

- Micromachining**
- Scribing**
- Medical device fabrication**
- Optogenetics**
- OPA Pumping**
- LIDAR**

Reliable

Ultra-short pulses with long-term stability

This rugged and compact OEM fiber laser utilises state-of-the-art mode-locking technology to deliver ultra-short femto-second pulses with outstanding long-term stability, superior pulse-to-pulse stability, low noise, and excellent beam pointing stability.

Developed for cutting-edge applications

The aeroPULSE FS20 is designed for a diverse range of applications including: Material processing, optogenetics, and LIDAR.

As standard, the aeroPULSE FS20 is available with output powers up to 20 W at 1030 nm in a clean near-pedestal free pulse. With tuneable pulse duration and single-shot to 50 MHz repetition rates, the aeroPULSE FS20 is a flexible, cost-effective femtosecond laser.

Get the dual wavelength second-harmonic module

The attachable second-harmonic generation (SHG) module makes it possible to switch between 10 µJ at 515 nm and 20 µJ at 1030 nm. The wavelength is selected via software.

Maintenance-free and OEM-ready

With no alignment required, the aeroPULSE FS20 guarantees high stability with 24/7 operation and is ideal for OEM integration.

The system configuration consists of a 19” rack-mountable control unit and a very low-profile laser head that can be mounted either horizontally or vertically.

The complete system is water-cooled supporting a high output power performance.

Features

Average power 20 W @1030nm

Average pulse energy 20 µJ @1030nm

Average power 10 W @515nm w/ SHG

Average pulse energy 10 µJ @515nm w/ SHG

Variable pulse widths <500 fs - 3 ps

Clean pulses with virtually no pedestal

Single-shot to 50 MHz

Excellent beam pointing stability

All-fiber design, industrial reliability

System monitoring via remote diagnostics

Very quick warm-up time

Plug and Play

Maintenance-free 24/7 operation

Burst mode capable

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Support and warranty

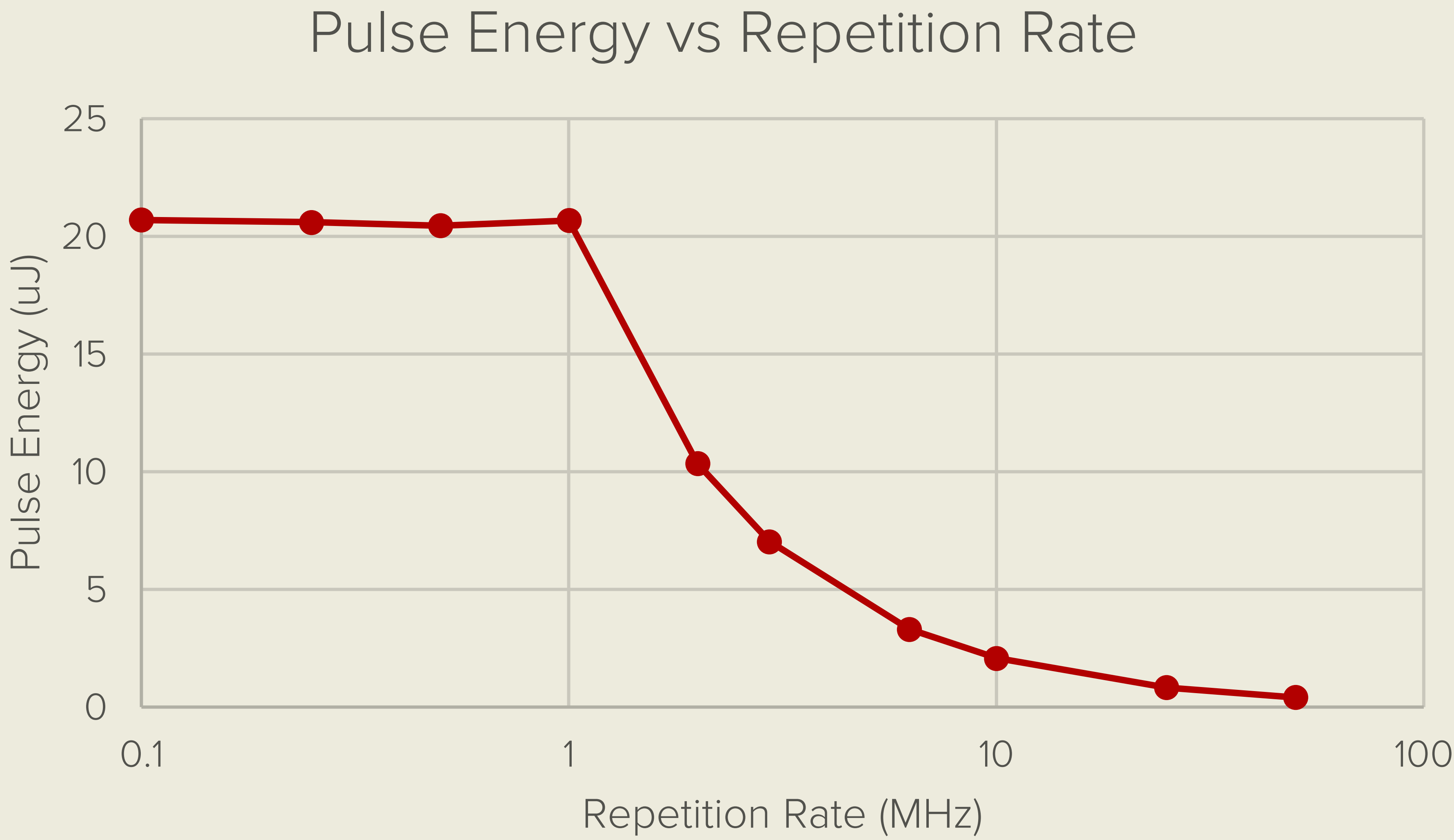
The product is covered by a comprehensive warranty. Service options are available. For details, please enquire.

All aeroPULSE lasers are completely maintenance-free and have an expected lifetime of more than 20,000 hours.

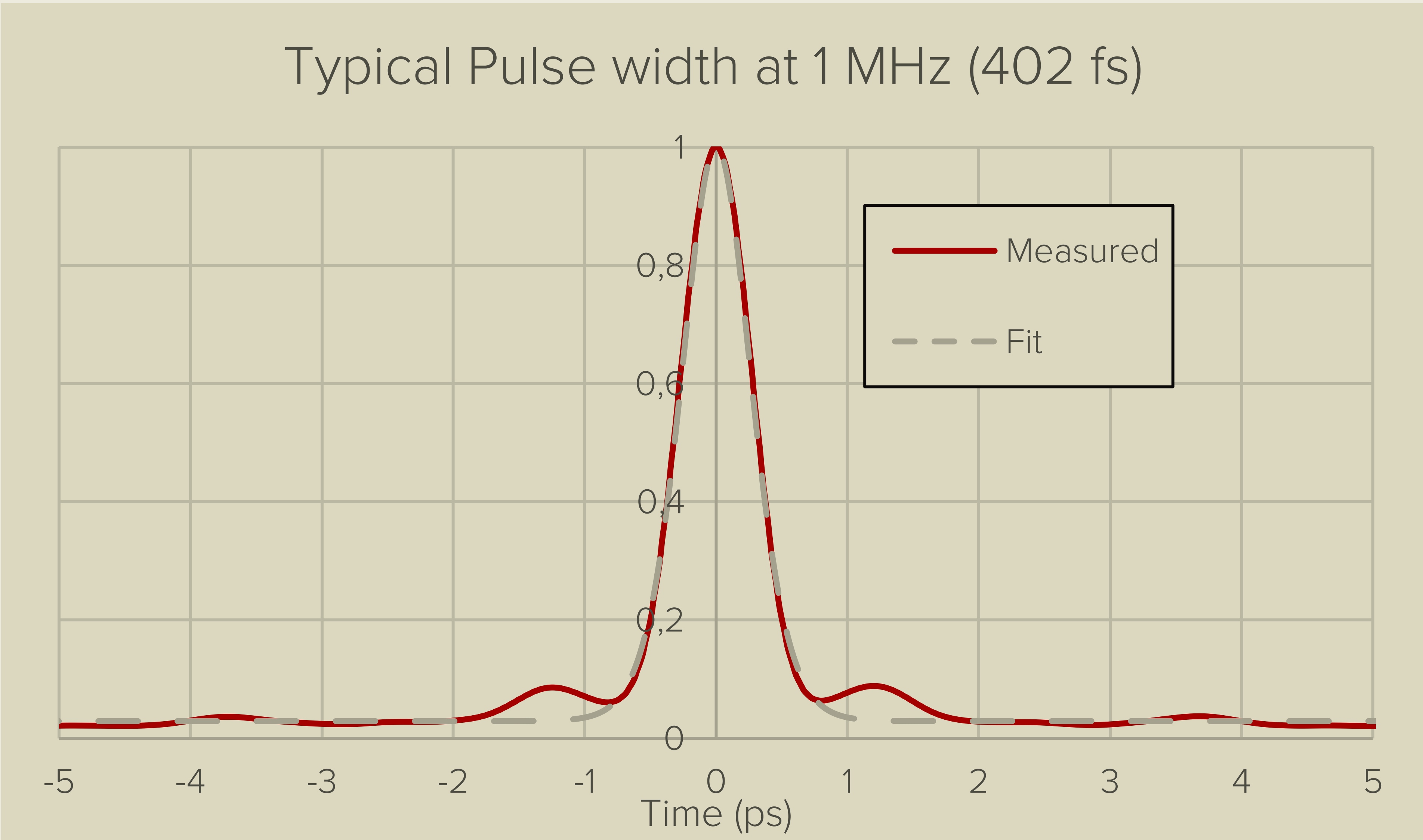
Typical Performance

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Pulse energy vs repetition rate



Pulse width trace



Specifications

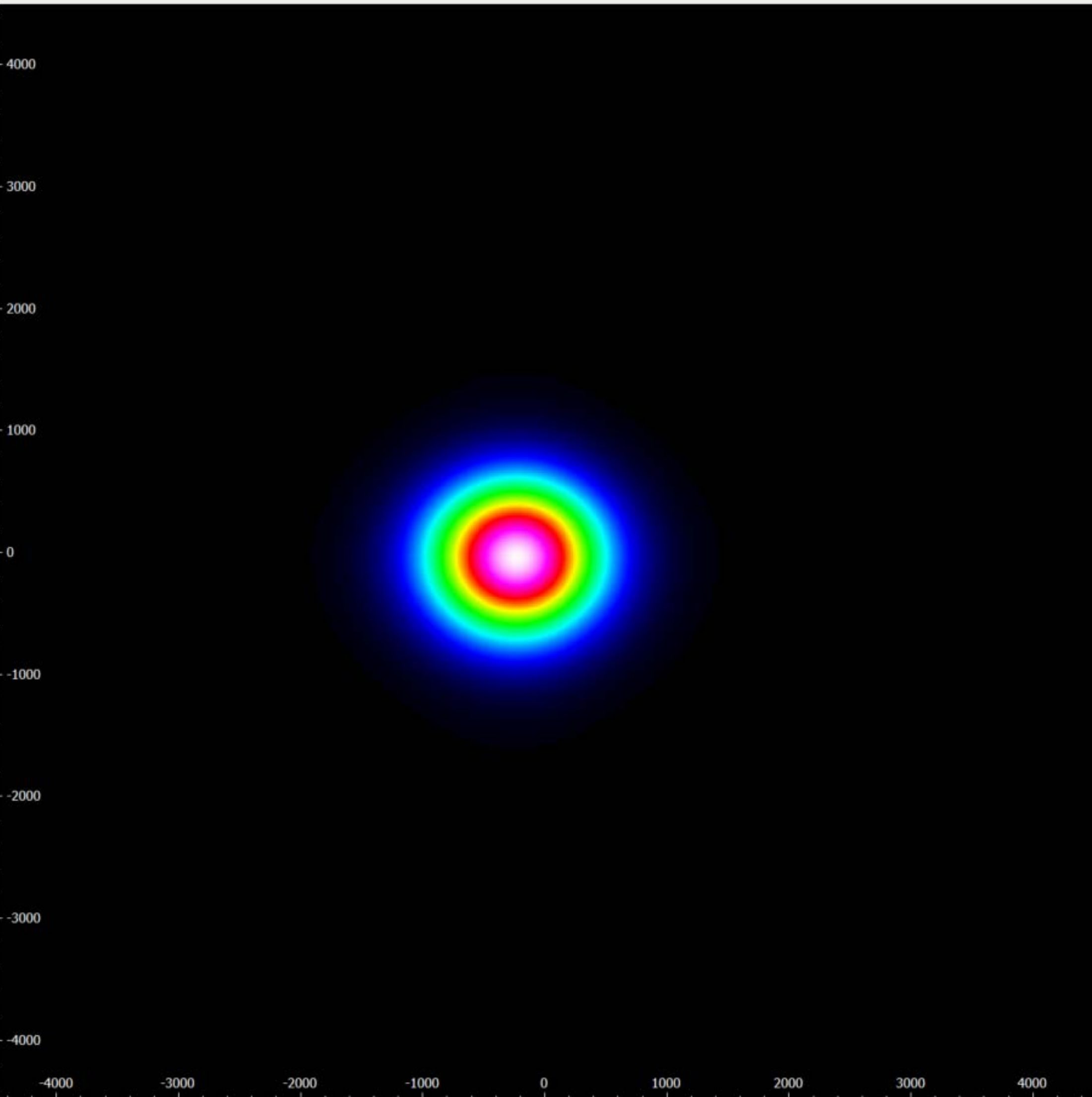
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Optical

		With SHG wavelength module
Model	FS20	FS20-05
Center wavelength [nm]	1030	515
Power [W]	20	10
Pulse duration [ps]	< 0.5 - 3	< 0.5
Pulse energy [μJ]	20 @ single shot – 1000 kHz	10 @ single shot – 1000 kHz
Repetition rate [MHz] ¹	Single shot – 50	Single shot – 50
Beam diameter [mm]	1.0	1.0
Beam divergence [mrad]	< 1.6	< 1.0
Spatial mode, fundamental	M ² ≤ 1.2	M ² ≤ 1.2
Beam asymmetry/ellipticity [%]	< 15	< 20
Power stability (8 hours), RMS [%]	< 0.5	< 1.0
Pointing stability (8 hours) [μrad]	< 50	< 50
Polarization - linear, PER [dB]	> 25	> 25

¹ Up to 100 MHz available

Beam cross-section



Specifications

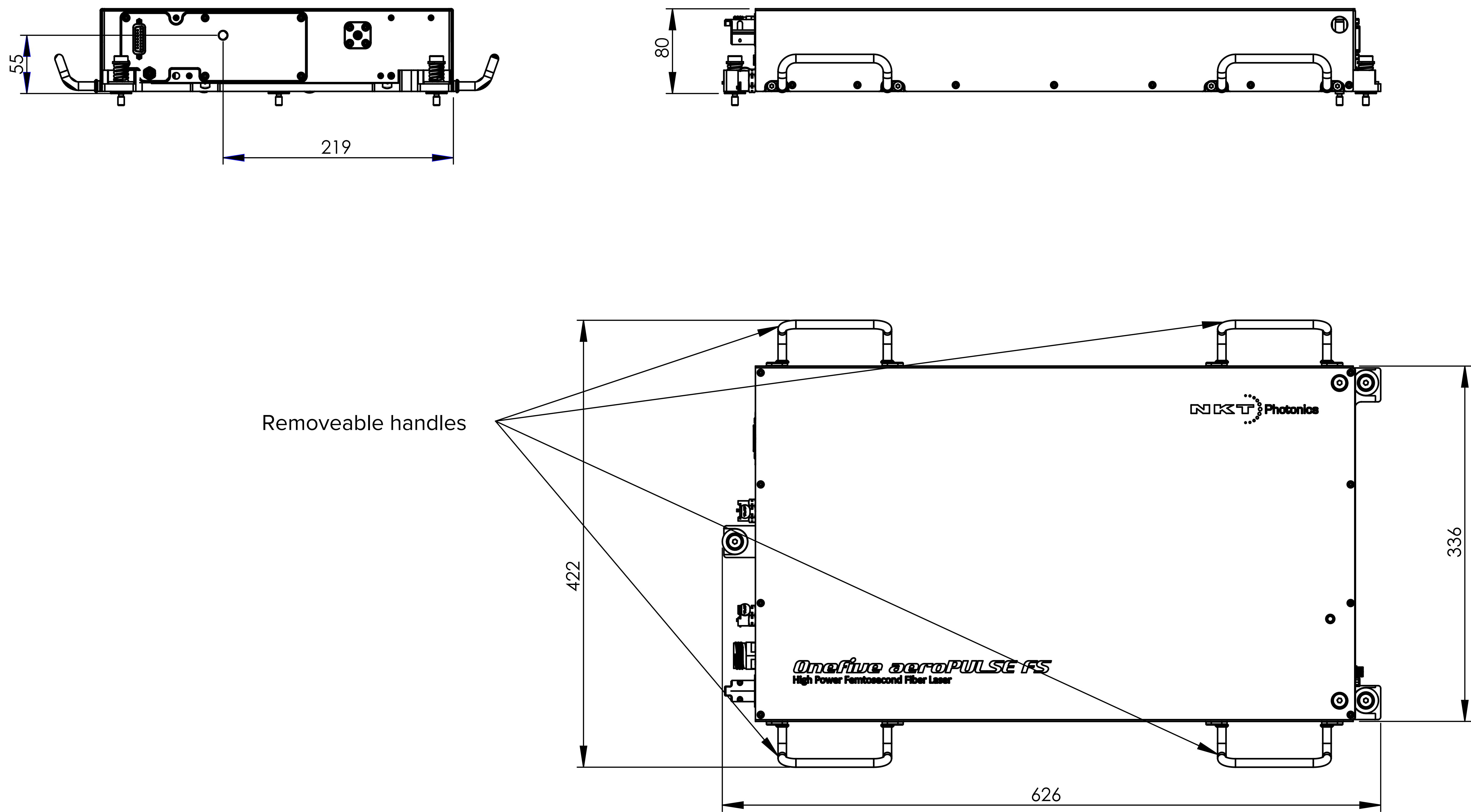
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Electrical/Mechanical

		With SHG wavelength module
Model	FS20	FS20-05
Computer interface	USB 2.0/RS-232/Ethernet	USB 2.0/RS-232/Ethernet
Operation voltage [Hz]	100-240 VAC 50/60	100-240 VAC 50/60
Power consumption [W]	< 250	< 250
Operation temperature [°C]	18 - 30	18 - 30
Storage temperature [°C]	-10 - 60	-10 - 60
Laser head dimensions (WxHxL) [mm³]	336 (422w/ handles) x 80 x 626	336 (422w/ handles) x 80 x 763
Laser head weight [kg]	19	24
Controller dimensions (WxHxL) [mm³]	442 x 168.5 x 375 (4U 19")	442 x 168.5 x 375 (4U 19")
Controller weight [kg]	< 15.5	< 15.5
Umbilical length [m]	4	4
Chiller dimensions (WxHxL) [mm³]	483 x 310 x 570	483 x 310 x 570
Chiller weight [kg]	41	41
Cooling	Water-based	Water-based

Technical Drawings

Laser head



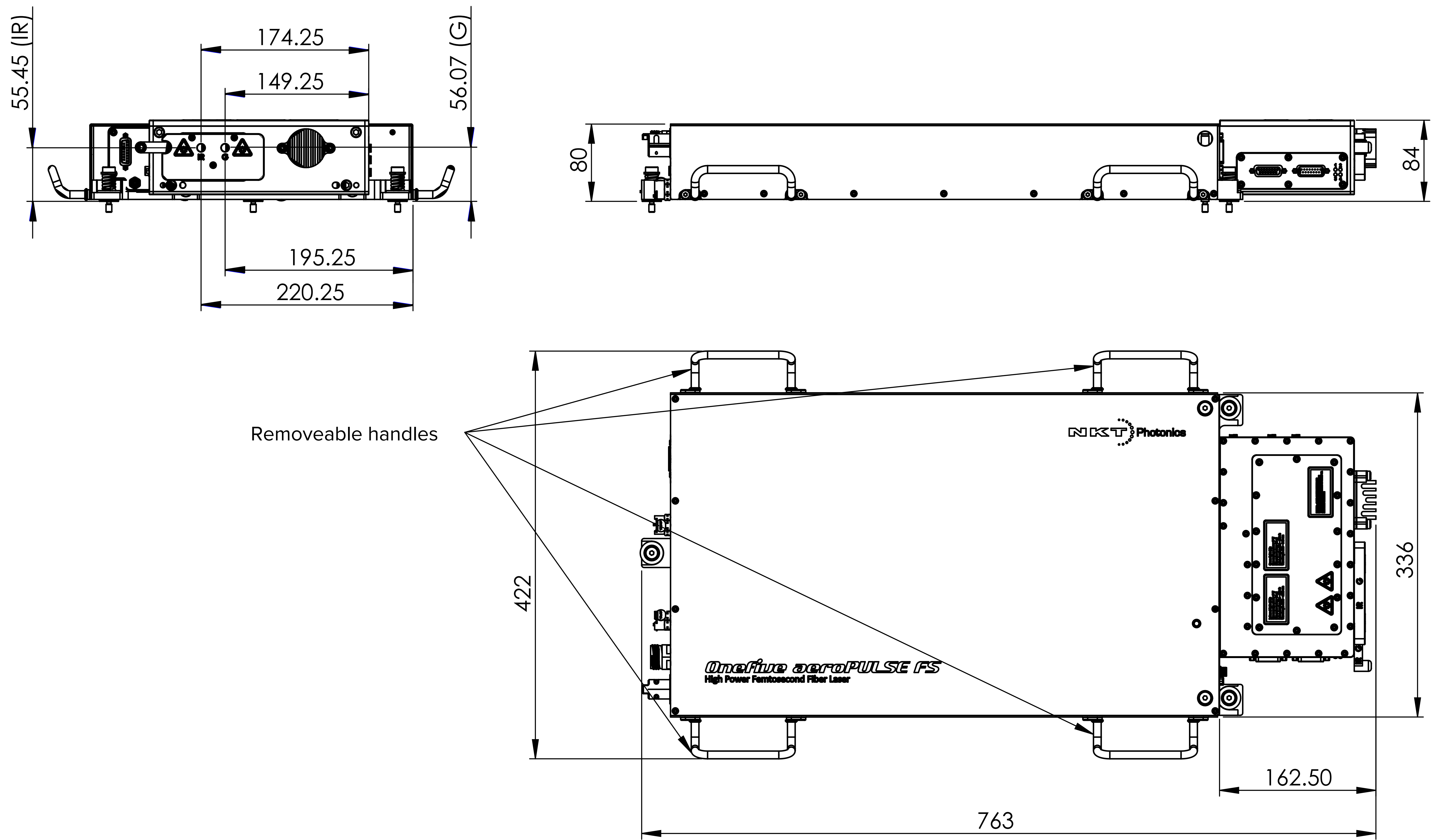
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Technical Drawings

Laser head with SHG module



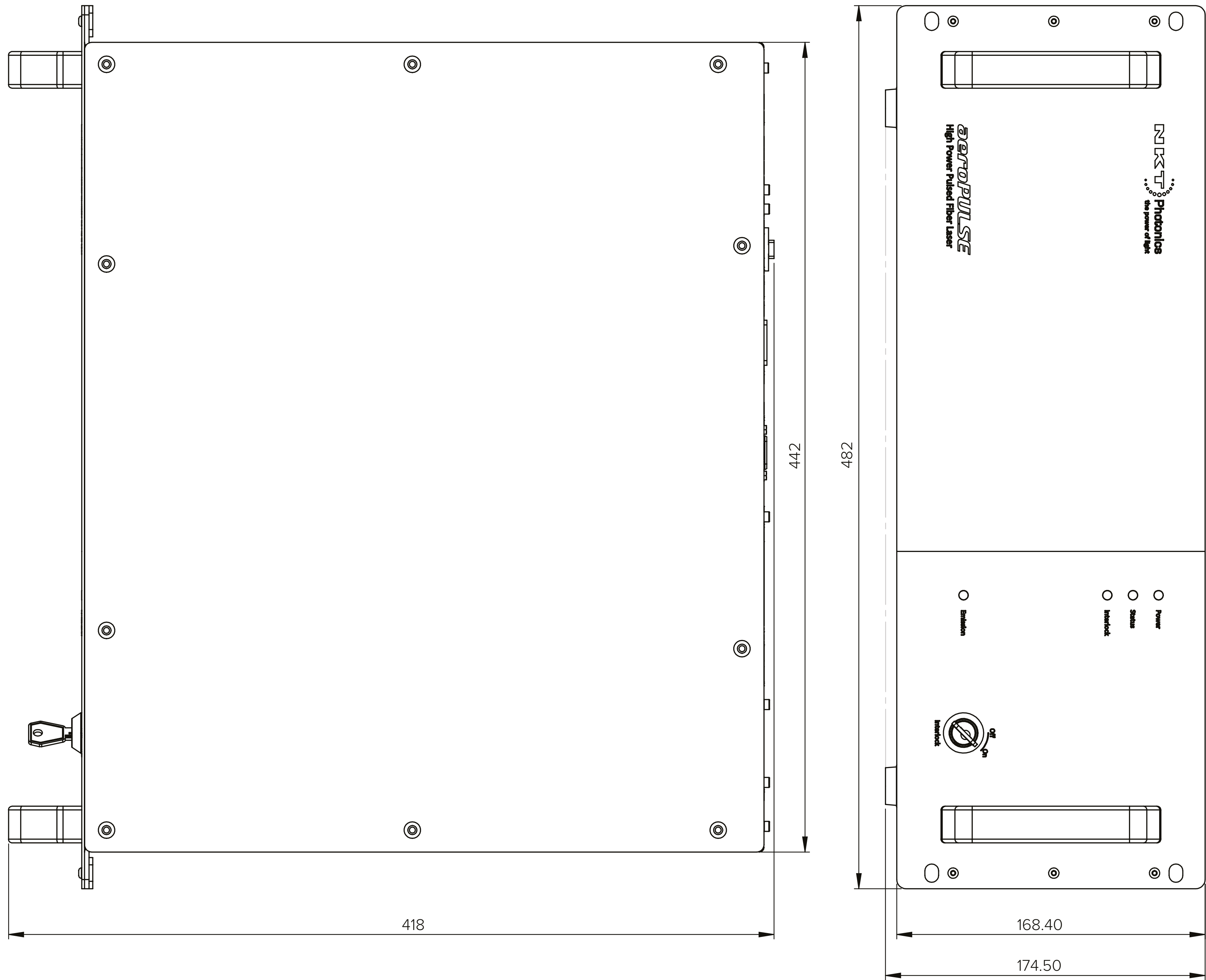
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Technical Drawings

Controller



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