

aeroPULSE

FS10

High-power femtosecond fiber laser

HAMAMATSU



Rugged and compact ultrafast fiber laser

Medical-grade femtosecond fiber laser

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



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Applications

Ophthalmic surgery

**Photostimulation
for optogenetics**

Flat panel display repair

Medical device manufacturing

Microelectronics

Femtosecond micromachining

**Femtosecond laser marking
and scribing**

Laser metrology

Reliable

Developed for demanding medical & industrial applications
Designed for the stringent reliability requirements of medical and industrial markets, the aeroPULSE FS10 is qualified to rigorous safety, mechanical & environmental standards.

Maintenance-free and OEM-ready

With no alignment required, the aeroPULSE FS10 guarantees high stability with 24/7 operation and is ideal for OEM integration.

The system configuration consists of a low-noise, air-cooled control unit and a very low-profile laser head that can be mounted either horizontally or vertically.

The complete system is air-cooled supporting straightforward integration in a variety of locations.

Features

Average power 10 W @1030nm

Pulse energy 20 μ J @1030nm

Variable pulse widths < 300 fs - 3 ps

Clean pulses with virtually no pedestal

Single-shot to 20 MHz

Excellent beam pointing stability

All-fiber design, industrial reliability

Maintenance-free 24/7 operation

Burst mode capable

Average power 5 W @515nm w/ SHG

Pulse energy 10 μ J @515nm w/ SHG

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CONTROL SOFTWARE

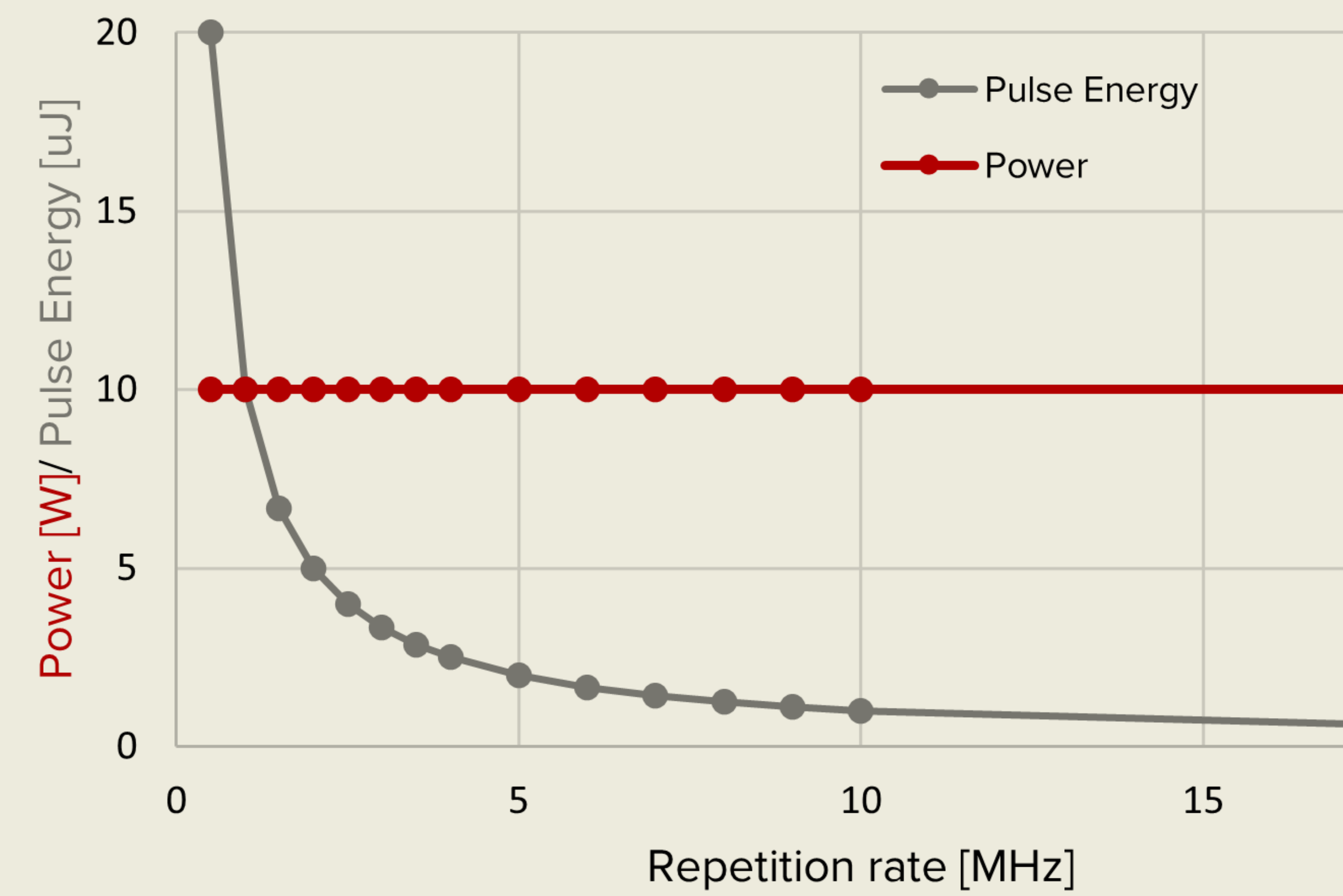
Using our CONTROL software, the aeroPULSE FS10 is easy to operate through the intuitive graphical user interface.

Furthermore, the platform allows laser condition monitoring by virtue of in-built surveillance sensors ensuring optimum and safe laser operation.

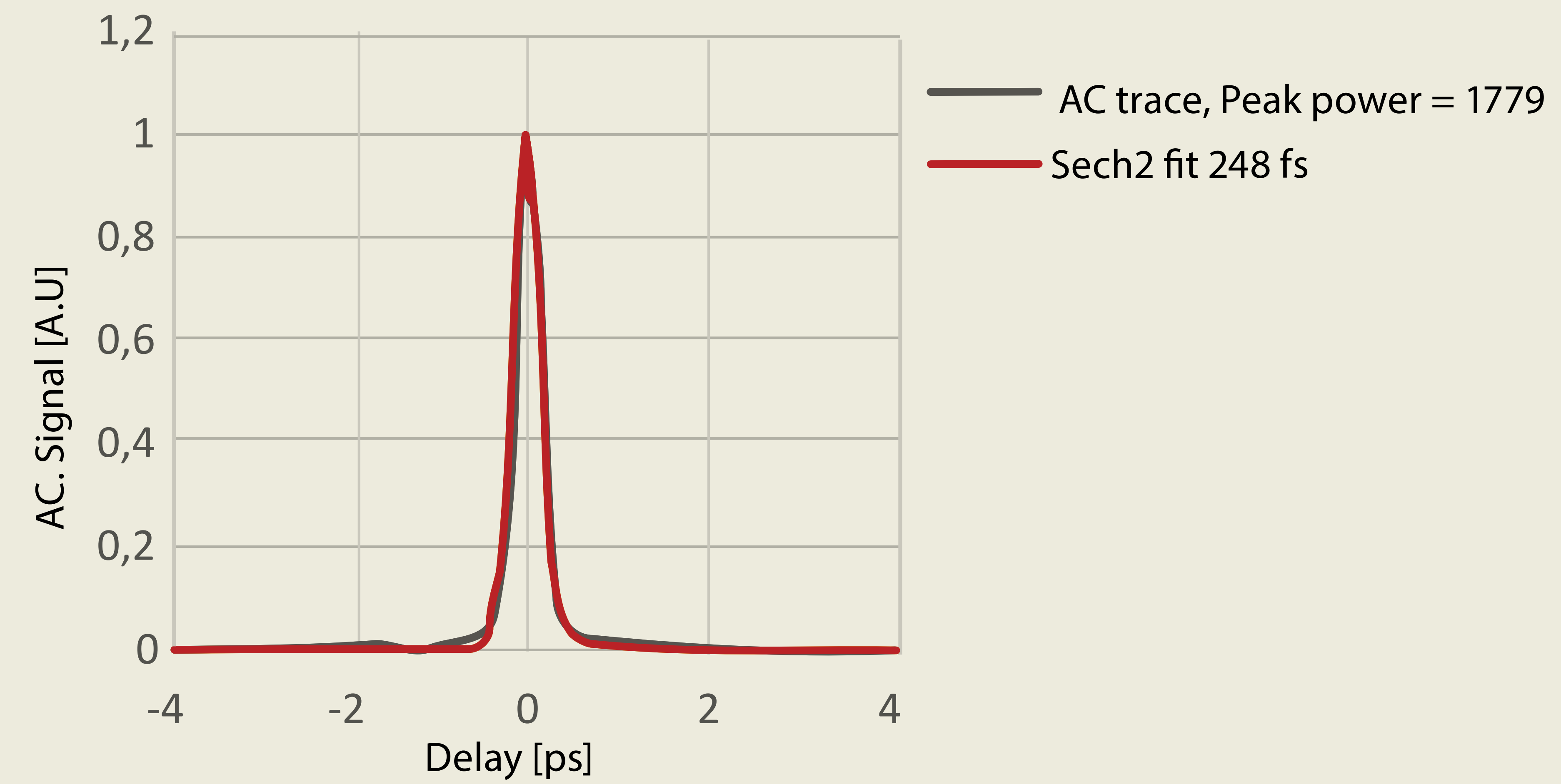
Typical Performance, IR

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FS10

Typical output power vs repetition rate



Typical pulse auto-correlation trace



Specifications

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Optical

Model	FS10	FS10-05
Center wavelength [nm]	1030 ± 5	515 ± 5
Power [W]	> 10	> 5
Pulse duration [fs]	< 300 - 3000	< 300
Pulse energy [μJ]	> 20 @ 500 kHz	> 10 @ 500 kHz
Repetition rate [MHz]	0.5 – 20	0.5 – 20
Output pulse picker	Single shot – 1 MHz	Single shot – 1 MHz
Beam diameter [mm]	1.5 ± 0.3	1.0 ± 0.3
Beam divergence [mrad]	1.4 ± 0.3	1.0 ± 0.3
Spatial mode, fundamental	$M^2 \leq 1.2$	$M^2 \leq 1.2$
Beam asymmetry/ellipticity [%]	< 15	< 15
Power stability (8 hours), RMS [%]	< 0.5	< 1
Pointing stability (8 hours) [μrad]	< 50	< 50
Polarization - linear, PER [dB]	> 25	> 25

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.

Specifications

Electrical/Mechanical

Model	FS10	FS10-05
Computer interface	RS-485, USB, ethernet	RS-485, USB, ethernet
Operation voltage [Hz]	100-240 VAC 50/60	100-240 VAC 50/60
Power consumption [W]	< 400	< 400
Operation temperature [°C]	15 - 32	15 - 32
Storage temperature [°C]	0 - 50	0 - 50
Laser head dimensions (WxHxL) [mm ³]	335 x 70 x 514	394 x 80 x 676
Laser head weight [kg]	18.5	23.8
Control unit dimensions (WxHxL) [mm ³]	170 x 360 x 400	170 x 360 x 400
Controller weight [kg]	16	16
Umbilical length [m]	1.3	1.3
Cooling	Air / passive	Air / passive

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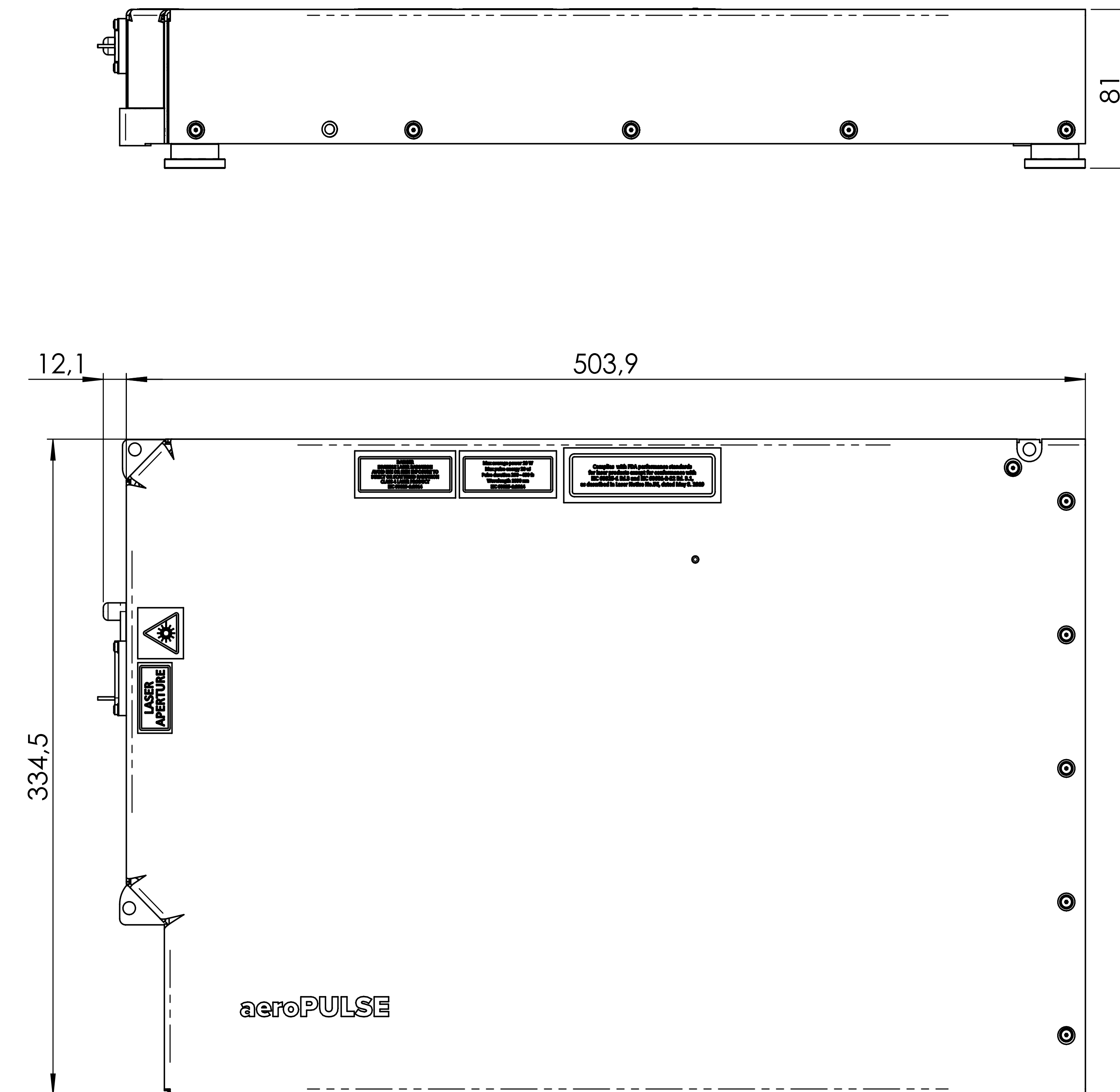
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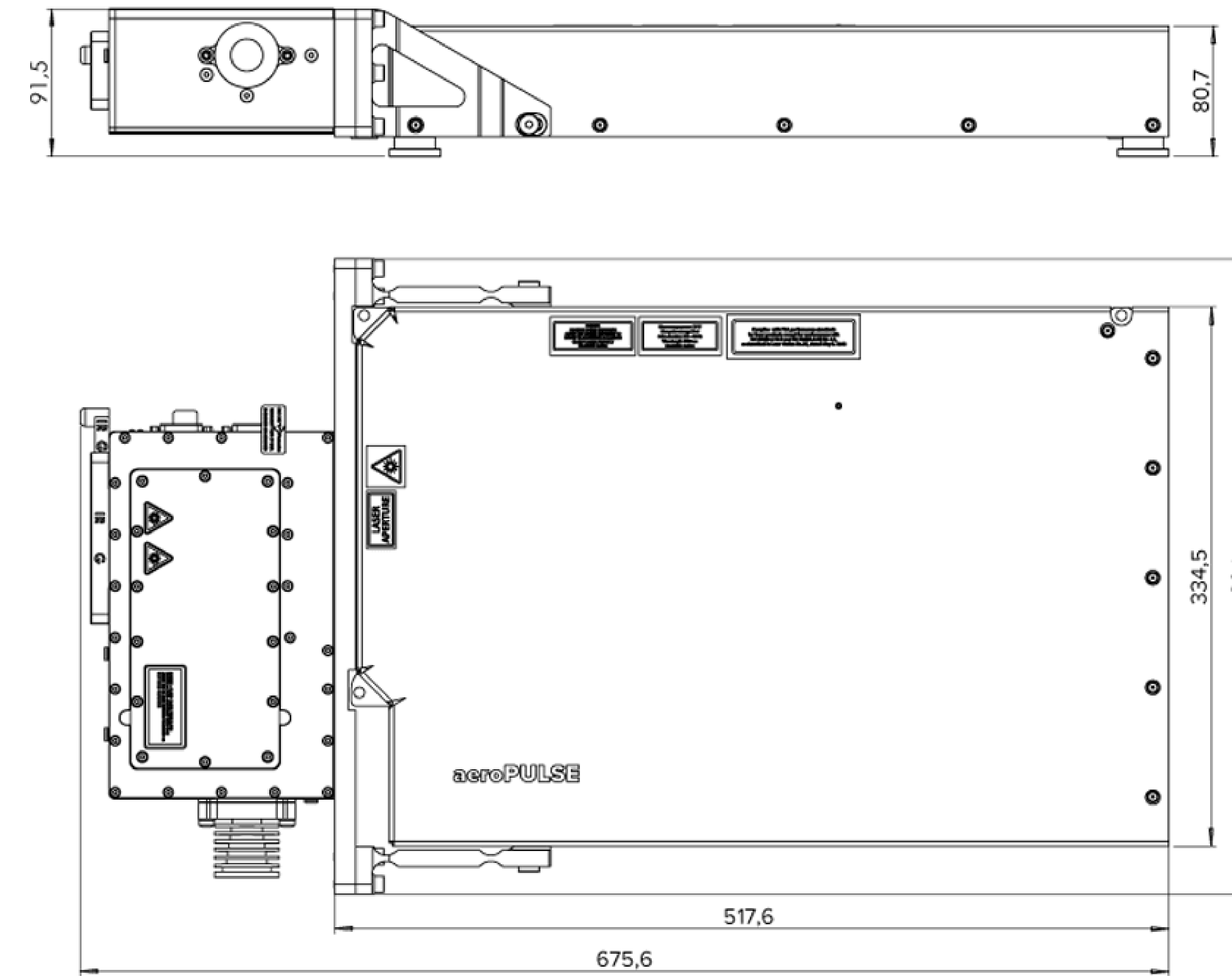
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Technical Drawings

Laser head FS10



Laser head FS10-05



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All Hamamatsu Photonics A/S products are produced under our quality management system certified in accordance with the ISO 9001:2015 standard.

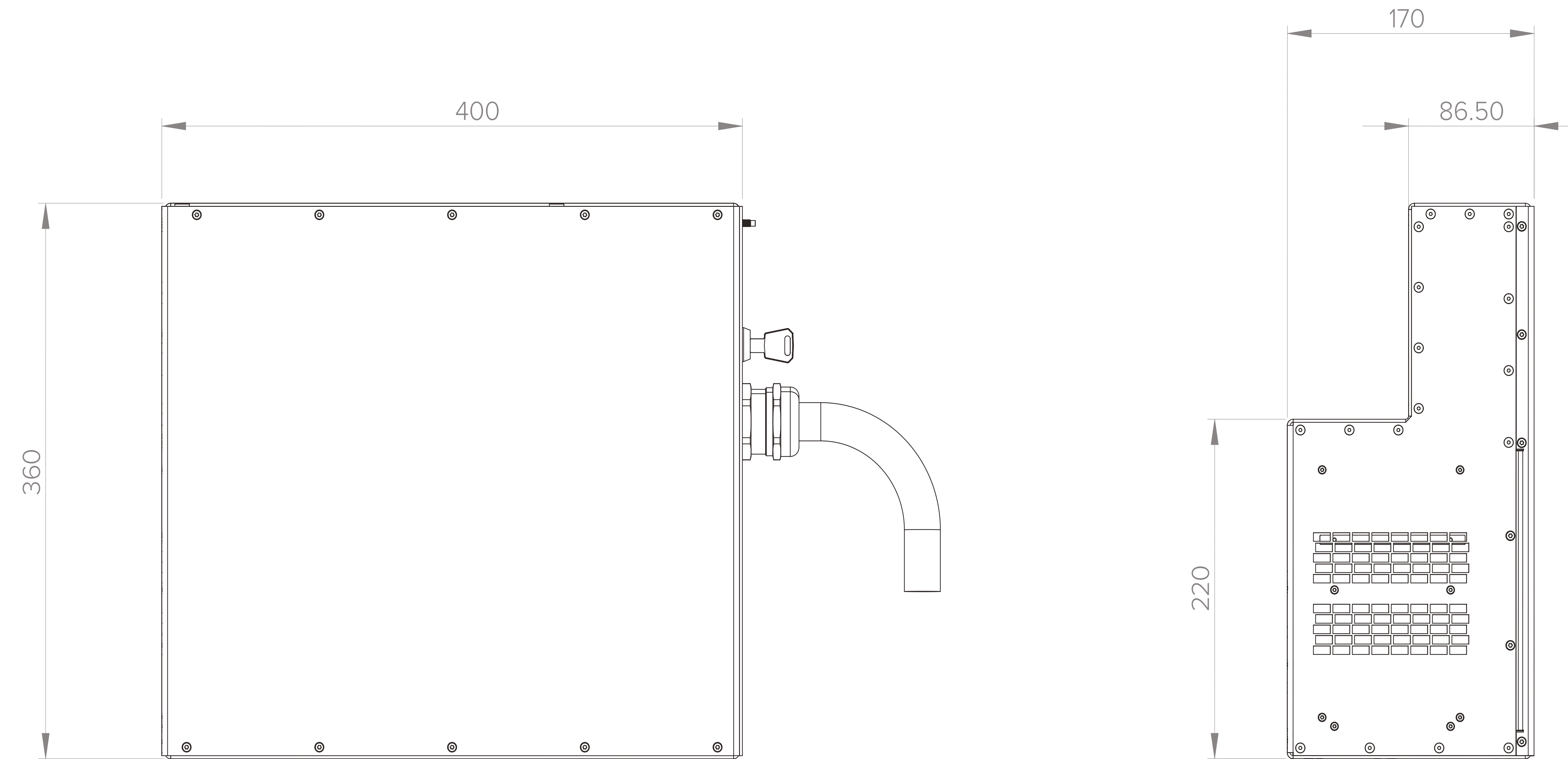
We're switching from NKT Photonics to Hamamatsu. Some documents and products still say NKT Photonics, others say Hamamatsu. The transition takes time, so please bear with us.

And rest assured, we're still the same people delivering the same high-quality fibers and lasers.



Technical Drawings

Control unit



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