

# AEROPULSE FS10

High power femtosecond fiber laser



## 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.

### Applications

- Ophthalmic surgery (cataract & refractive)
- Photostimulation for Optogenetics
- Flat panel display repair
- Medical device manufacturing
- Microelectronics
- Femtosecond micromachining
- Femtosecond laser marking and scribing
- Laser metrology

# AEROPULSE FS10

## 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. Furthermore, aeroPULSE FS10 production follows ISO 13485 standards.<sup>1)</sup>

## 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.

Using the NKT Photonics ubiquitous 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.

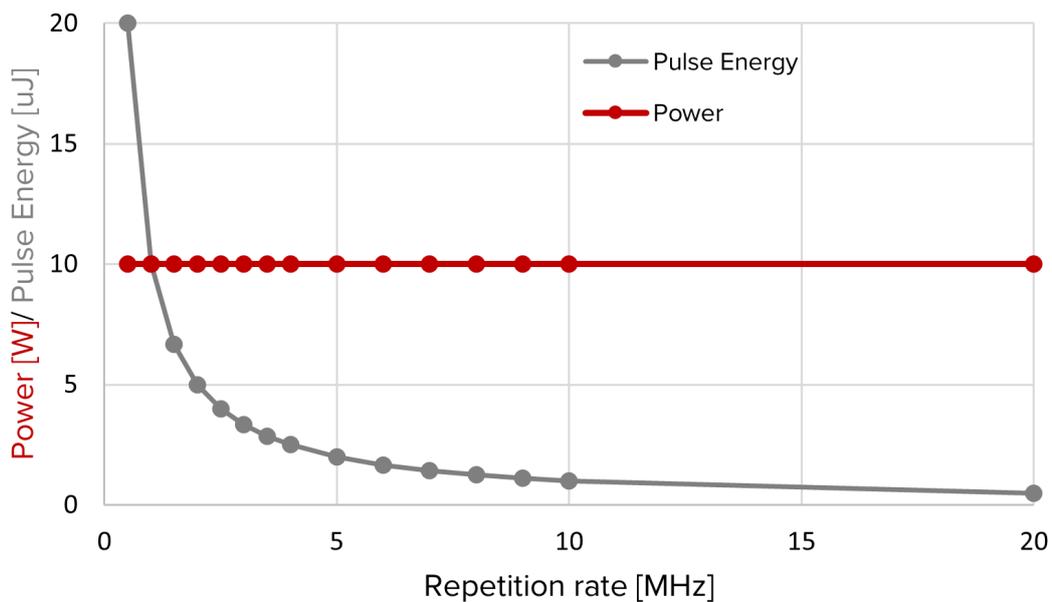
## Features

- 10 W average power
- 20  $\mu$ J per pulse @ 1030 nm
- Pulse width < 350 fs
- Up to 20 MHz repetition rate
- Excellent beam pointing stability
- Excellent pulse-pulse stability
- All-fiber design, industrial reliability
- Maintenance-free 24/7 operation
- SHG available on request

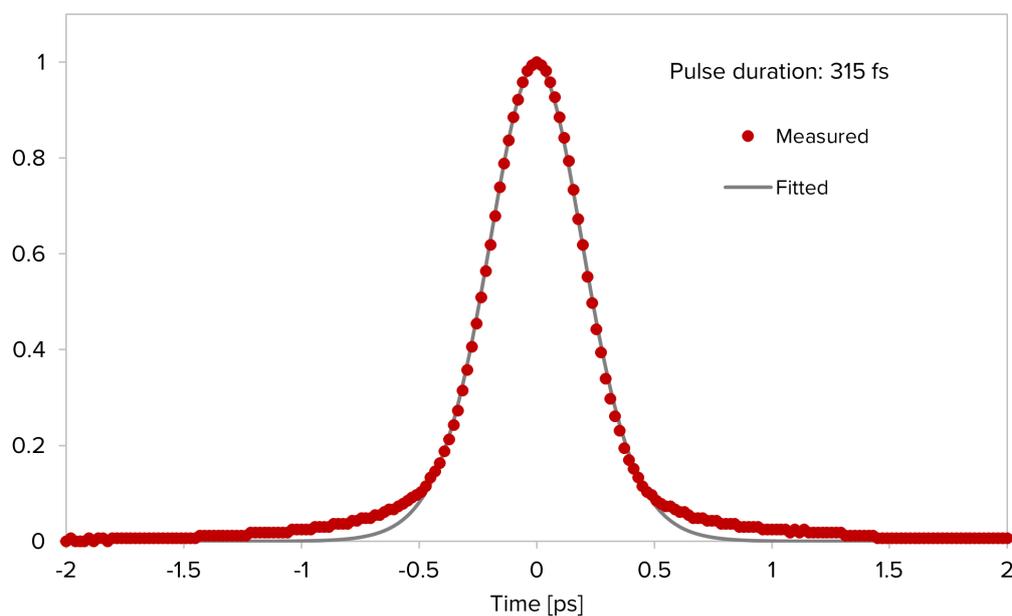
<sup>1)</sup> All aeroPULSE FS10 products are produced under our quality management system certified in accordance with the ISO 9001:2015 and ISO 13485:2016 standard.

# PERFORMANCE

## Typical output power vs repetition rate



## Typical pulse auto-correlation trace



# SPECIFICATIONS

## Optical

|                                     |                      |
|-------------------------------------|----------------------|
| Power [W] <sup>1)</sup>             | > 10                 |
| Center wavelength [nm]              | 1030 ± 5             |
| Pulse duration [fs]                 | < 350                |
| Pulse energy [μJ]                   | > 20 @ 500 kHz       |
| Repetition rate [MHz]               | 0.5 – 20             |
| Output pulse picker                 | Single-shot – 1 MHz  |
| Beam diameter [mm]                  | 1.0 ± 0.15           |
| Beam divergence [mrad]              | 1.6 ± 0.2            |
| Spatial mode, fundamental           | M <sup>2</sup> ≤ 1.2 |
| Beam asymmetry/ellipticity [%]      | < 15                 |
| Power stability (8 hours), RMS [%]  | < 0.5                |
| Pointing stability (8 hours) [μrad] | < 50                 |
| Polarization - linear, PER [dB]     | > 25                 |

1) Other values available upon request.

## Mechanical/Electrical/Environmental

|                                      |                       |
|--------------------------------------|-----------------------|
| Computer interface                   | RS-485                |
| Operating voltage                    | 100-240 VAC, 50-60 Hz |
| Power consumption [W]                | < 300                 |
| Operation temperature [°C]           | 15 – 30               |
| Storage temperature [°C]             | 0 – 50                |
| Laser head dimensions (WxHxL) [mm]   | 333.0 x 69.5 x 521.9  |
| Laser head weight [kg]               | 16                    |
| Control unit dimensions (WxHxL) [mm] | 360.0 x 170.0 x 400.0 |
| Control unit weight [kg]             | 18.5                  |
| Umbilical length [m]                 | 1                     |
| Umbilical weight [kg]                | 1                     |
| Cooling                              | Air                   |

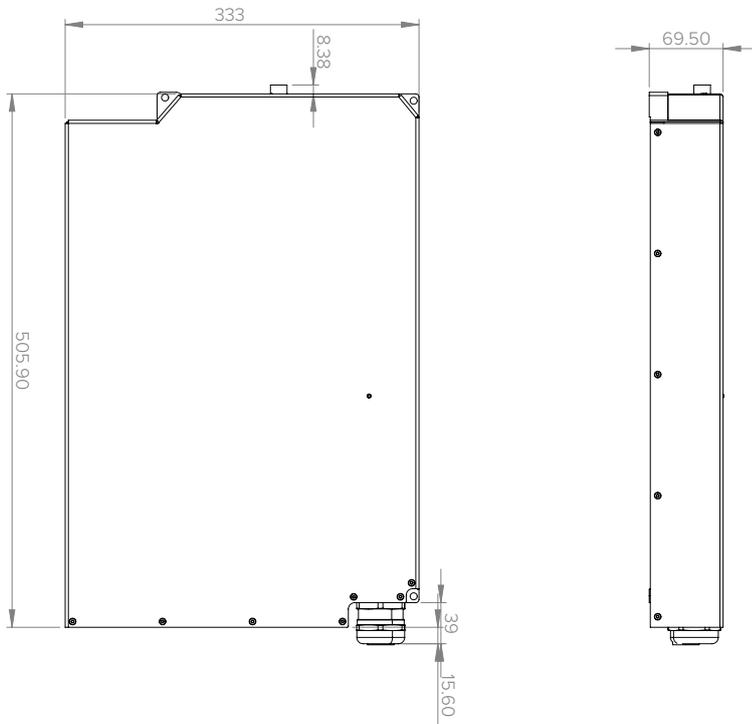
## Support and warranty

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

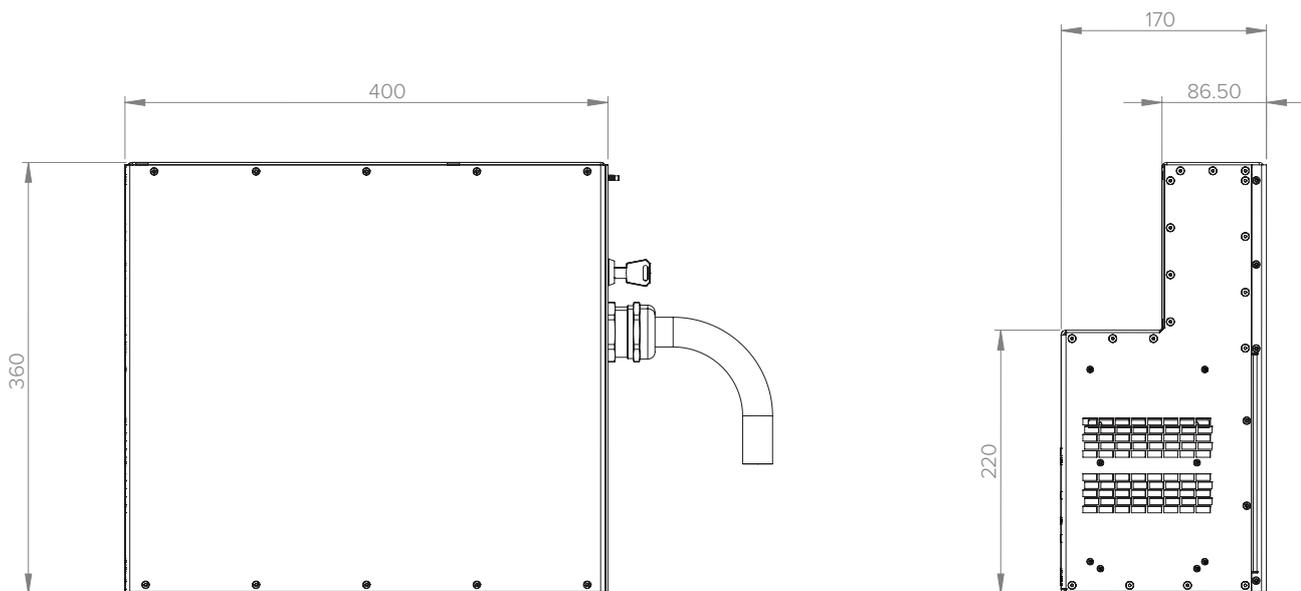
All aeroPULSE lasers are completely maintenance-free and have an expected lifetime of more than 20,000 hours.

# TECHNICAL DRAWINGS

## Laser head



## Control unit



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