



Amplitude  
SYSTEMES

# Tangerine



## A new generation of ultrafast lasers

**Tangerine** is an exceptional high energy, ultrafast fiber laser with high average power.

**Tangerine** is a high average power ultrafast fiber laser. It benefits from Amplitude Systemes extensive experience in ultrafast laser technology and simultaneously offers a high average power and high output energy.

Thanks to groundbreaking, patented technological advances in fiber design and amplifier technology, **Tangerine** is the first ultrafast fiber laser offering high average power as well as high output energy. With its extremely high repetition rate and excellent beam quality, **Tangerine** combines the high quality of ultrafast laser micro-machining and the processing speed required for industrial applications.

**Tangerine** is built on a hermetically sealed monolithic housing for improved stability. It features advanced optical performances, complete set of diagnostics and simple control electronics.

**Tangerine** is an ideal tool for ultrafast micro- and nano-machining, non-linear optics, nanophotonics, and life science applications.

## High power ultrafast fiber laser

### Features:

- > High average power
- > High energy per pulse
- > Pulse width sub-100 fs up to 10 ps
- > Excellent beam quality

# Tangerine

High power  
ultrafast fiber laser

## Technology:

### Ultrafast fiber amplifiers

Fiber amplification has been widely recognized as an attractive technology to achieve high optical power and excellent beam quality: Beam guiding in the fiber core maintains a high quality TEM<sub>00</sub> beam. Efficient heat extraction through the fiber periphery allows for high average power operation.

However, a challenge in the development of high energy, ultrafast fiber lasers has been the confinement of the laser beam in the fiber core. Due to the high intensity in the fiber, the output energy was limited by non linearities in the fiber core.

Extensive development at Amplitude Systemes led to a breakthrough in fiber technology. A patented design for large mode area photonics crystal fibers decreases the beam intensity in the fiber core, resulting in high energy, high reliability operation. Furthermore, a proprietary, advanced amplifier design, instead of fighting non linear effects, integrates them to offer short duration, high quality pulses.

**Tangerine** is the first ultrafast laser offering high energy and high average power operation, while maintaining a high industrial reliability.

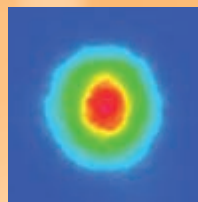
## Specifications:

	Tangerine ps	Tangerine fs	Tangerine sp
Average power	20 W	20 W	15 W
Pulse duration	< 10 ps	< 500 fs	< 100 fs
Pulse energy	> 10 μJ	> 50 μJ	> 0.5 μJ
Repetition rate	0 to 2 MHz	0 to 2 MHz	30 MHz
Wavelength	1030 nm	1030 nm	1030 nm
Beam quality	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
Dimensions	120 x 42 cm	120 x 42 cm	120 x 42 cm

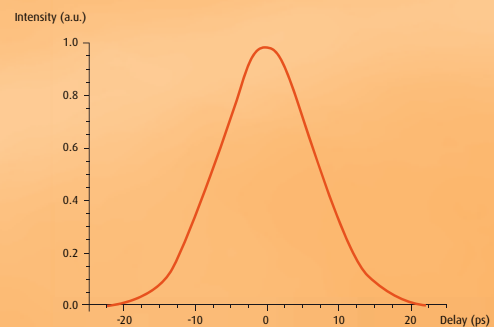
Other specifications available on request. Please contact us.

## Typical data:

### TEM<sub>00</sub> beam profile



### Pulse duration

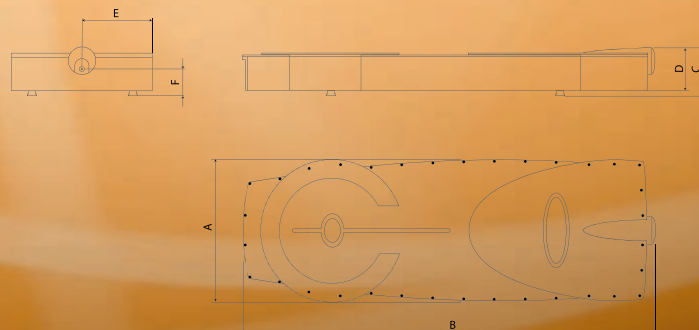


## Flexibility:

Tangerine fs offers a full range of adjustable parameters without any need for realignment:

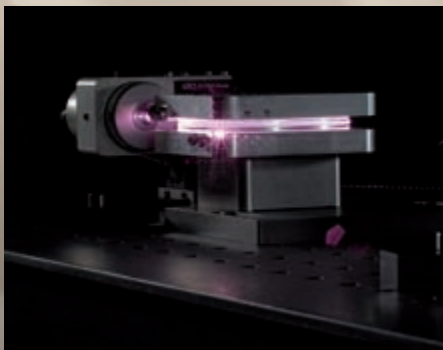
- Adjustable repetition rate
- Adjustable pulse duration up to 10 ps
- Adjustable energy

## Mechanical interface:



A	B	C	D	E	F
420 mm	1220 mm	144,25 mm	126,75 mm	210 mm	81,50 mm

[www.amplitude-systemes.com](http://www.amplitude-systemes.com)



## Amplitude Systemes

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