

# Pulsar PW

*Ultra intense ultrafast laser*

## *State-of-the-art Ultra Intense Ultrafast Lasers*

Pulsar PW is the ultimate light source dedicated to high field science, offering the best-in-class performance and bringing industrial-grade reliability to Science. Drawing on our large portfolio of pump lasers and solutions for effective thermal management, the Pulsar PW systems are designed for low (1 shot/min to 0.1 Hz) or high (1-5 Hz) repetition rates. This laser family has been designed to ensure the highest temporal quality at both femtosecond and picosecond timescales with optimized beam quality. Pulsar PW reaches the highest intensities with unsurpassed energy and pointing stabilities.

Pulsar PW comes with an embedded, flexible and user friendly monitoring and control software to further enhance the user experience and long term reliability.

The system versatility is augmented by a large offer of instrumentation and options for user specific needs.



### Applications

#### Medical:

- > X-Ray Imaging
- > Protontherapy

#### Science:

- > Particle accelerators
- > Secondary Sources

### Key Features

- > Up to 60 J
- > Highest contrast ratio better than  $10^{10} : 1$
- > OPCPA seeder
- > Ultra-short sub-20 fs pulses
- > Advanced Laser 4.0 HE system control software
- > Data logging

# PULSAR: PW Class

## Specifications

	500 HR	1000 HR	1000	1750	2500
Repetition Rate (Hz)	1 to 5	1		1 shot / mn	
Peak Power (PW)	> 0.5	> 1		> 1.75	> 2.5
Energy Per Pulse (J)	> 12	> 22		> 40	> 60
Central Wavelength (nm)	800 ± 10				
Pulse Width (fs FWHM) <sup>1</sup>	< 23 fs				
Pulse To Pulse Energy Stability (% RMS)	< 1%	< 2%		< 1.5%	
Nanosecond Contrast	> 10 <sup>8</sup> : 1				
Picosecond Contrast	> 10 <sup>3</sup> : 1 beyond 1 ps				
	> 10 <sup>6</sup> : 1 beyond 7 ps				
	> 10 <sup>7</sup> : 1 beyond 20 ps				
ASE Contrast	> 10 <sup>10</sup> : 1 beyond 100 ps				
Strehl Ratio <sup>2</sup>	> 0.85				
Pointing Stability (μrad RMS) <sup>3</sup>	< 5				

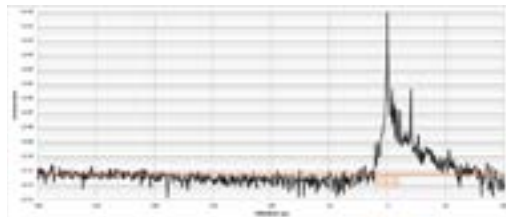
## Options

- Down to 20 fs pulse durations
- External synchronization
- Laser 4.0 HE system control software
- Reduced repetition rate / single shot
- Energy attenuator
- Isolation of experimental reflected beam
- Diode beam alignment

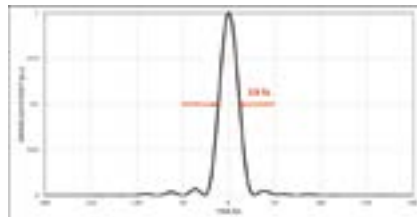
<sup>1</sup> Sub- 20 fs Ultra short pulse option available

<sup>2</sup> With Deformable mirror (in Option)

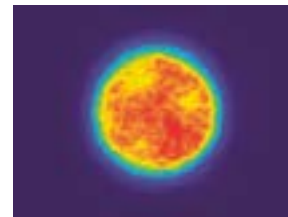
<sup>3</sup> Under stable controlled environment



Pulsar 500 HR Sequoia HD contrast measurement



Pulsar 250 typical Wizzler pulse width measurement



Pulsar 60 typical Near Field beam profile at full energy



2.5 PW vacuum compressor

