

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:

- > Accelerators

Key Features

- > Up to 25 J
- > Highest contrast ratio better than $10^{10} : 1$
- > Up to 5 Hz repetition rate
- > Ultra-short sub-20 fs pulses
- > Advanced Monitoring System

Specifications

	Pulsar 500	Pulsar 500 HR	Pulsar 1000	Pulsar 1000 HR		
Repetition Rate (Hz)	1 shot / mn	0,1	1 to 5	1 shot / mn	0,1	1
Peak Power (PW) ¹	> 0,5		> 1			
Energy Per Pulse (J)	> 12,5		> 25			
Central Wavelength (nm)	800 ± 10					
Pulse Width (fs FWHM) ²	< 25					
Pulse To Pulse Energy Stability (% RMS)	< 1.0					
Nanosecond Contrast	> 10 ⁸ : 1					
Picosecond Contrast	> 10 ³ : 1 beyond 1 ps					
	> 10 ⁶ : 1 beyond 5 ps					
	> 10 ⁸ : 1 beyond 10 ps					
ASE Contrast	> 10 ¹⁰ : 1 beyond 100 ps					
Strehl Ratio ³	> 0.85					
Pointing Stability (μrad RMS) ⁴	< 5					

System dimensions

Pulsar 500	Pulsar 500 HR	32 m ²	344 ft ²
Pulsar 1000	Pulsar 1000	38 m ²	410 ft ²

Others

Max Total Electrical Power ⁵	20 to 40 kW
Max Water Cooling Capacity ⁵	12 to 20 kW
Laboratory Temperature Range	18 - 23 °C
Laboratory Temperature Stability	+/- 1 °C

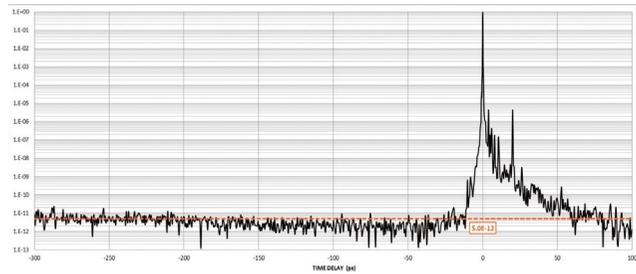
¹ Calculated at 25 fs pulsewidth

² Sub- 20 fs Ultra short pulse option available

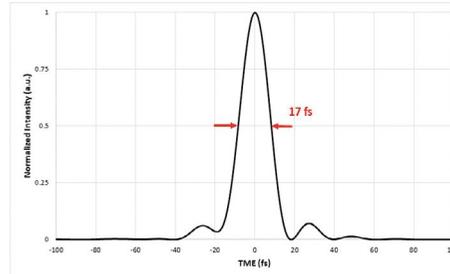
³ With Deformable mirror (in Option)

⁴ Under stable controlled environment

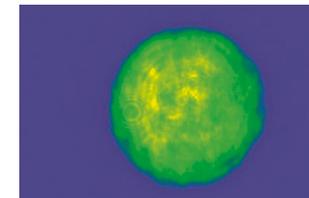
⁵ Depends on model



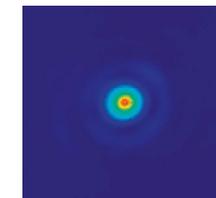
Pulsar 500 HR Sequoia
HD contrast measurement



Pulsar 1000 HR typical pulse width
measurement (with ultra short pulse option)



Pulsar 500 HR typical
Near Field beam profile



Pulsar 1000 HR typical
Far Field beam profile

