

Premiumlite-Glass

Flashlamp-pumped lasers

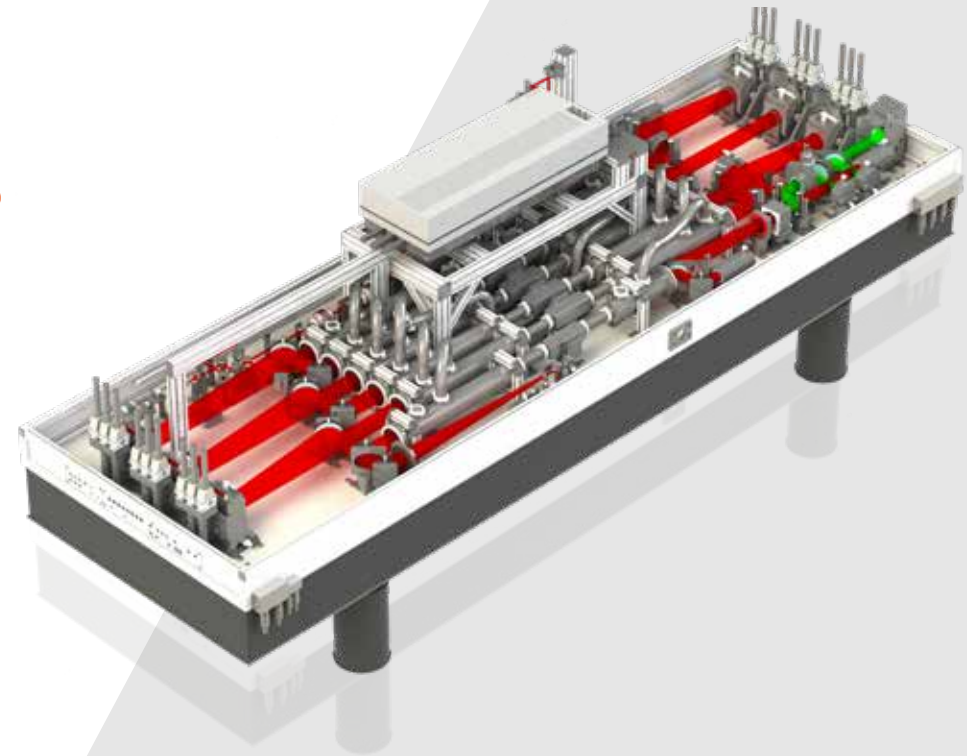
High repetition rate glass laser

The Premiumlite product line is based upon a Pseudo Active Mirror Disk Amplifier Module (PAMDAM). Unprecedented high energy together with a high repetition rate are available on the market for the first time. In a single box, a single beam and a single pulse with up to > 250 J at 0.1 Hz can be proposed. Noble materials such as stainless steel, gold and ceramic have been selected to ensure long-term reliable operation. The high homogeneity of the gain deposition in the PAMDAM results in a smooth top-hat beam profile.

For the first time, the Premiumlite in Glass version makes it possible to upgrade TW- and PW-class Lasers to multi-PW level while keeping advantage of 0.1 Hz operation.

The modular approach of the design permits easy upgrade of your laser in a short time schedule:

- any additional PAMDAM might increase your energy.
- a set of options is available to match your special requirements.



Applications

Science:

- > Ti:Sapphire pumping for PW and multi-PW Laser systems
- > Laser driven shock applications

Key Features

- > Greater than 250 J at 1053 nm
- > Greater than 200 J at 527 nm
- > Up to 0.1 Hz repetition rate
- > Ns pulsewidth
- > Unprecedented repetition for a high energy glass Laser

Specifications

Premiumlite 75 Premiumlite 120 Premiumlite 150 Premiumlite 200

Beam Profile	Round, Supergaussian order ≥ 20			
Beam Diameter @ $1/e^2$	80 mm $\pm$ 2.5			
Disk Amplifier Modules (DAM)	3	4	5	6
Divergence	$\leq 500 \mu\text{rad}$			
Energy Per Pulse at 1053 nm	> 100 J	> 150 J	> 200 J	> 260 J
Energy Per Pulse at 527 nm	> 75 J	> 120 J	> 150 J	> 200 J
Long Term Mean Energy Stability	$\leq 5 \%$ P-V over 8H (after warm-up time)			
Pulse To Pulse Energy Stability	< 1.5 % RMS at 1053 nm and < 2.0 % RMS at 527 nm			
Pulse Width FWHM	20 ns $\pm$ 5			
Jitter RMS	≤ 1 ns RMS			
Polarization	Linear or circular			
Pointing Stability	$\leq 50 \mu\text{rad}$ (at fixed rep-rate)			
Repetition Rate	Up to 0.1 Hz			



Image relay telescopes: high level of standardization



General view of the laser



Dimensions

Optical Table LxW	6.4 x 1.5 m	21.0 x 4.9 ft
Table Thickness	30.5 cm	1 ft
Cabinet For Each DAM (HxLxW)	200 x 62 x 71 cm	6.6 x 2.1 x 2.4 ft
Cabinet For Front-end (HxLxW)	200 x 62 x 71 cm	6.6 x 2.1 x 2.4 ft

Weight

Table Weight	2 x 1700 kg	2 x 3748 lb
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Others

Frequency	Up to 0.1 Hz
Water Flow	1 x 10l/min + 10l/min per pair of DAM
Pressure	4 bars max
Temperature	15 - 20 °C
Electrical Plugs	1 (single phase + neutral + ground, 20 Amp) for each DAM, 2 (single phases + neutral + ground, 20 Amp), 1 (single phase + neutral + ground, 30 Amp) for front-end