

Wedge

Short Pulse Q-Switched DPSS Laser



Features

Up to 4mJ pulse energy

4MW peak power

400ps to 3ns pulsewidth

Single shot to 100kHz

@1064 @532 @355 @266nm

MOPA configurations

Monolithic design

Air cooling

Low heat waste



Applications

Micromachining of glass

Specialty marking

Thin film removal

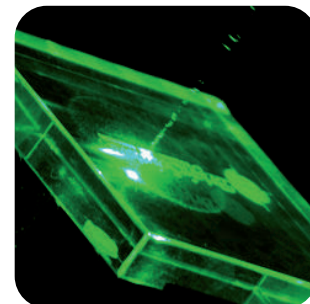
LIDAR and bathymetry

Non-linear spectroscopy

Harmonic and parametric generation

Visible to IR OPO pumping

TeraHertz generation



The Wedge family has been renewed in terms of performances and available models.

Wedge HB and XB feature high pulse energy in the kHz range; they can provide a peak power up to 4 MW at 1064nm and a pulsewidth of about 1 ns.

Wedge HF and Wedge XF models - available in a very compact footprint – can work from single shot to 100 kHz with a Pulse Width between 400 ps and 3 ns.

Wedge is also a flexible platform for realizing customized units where high power amplifiers are added to standard oscillators in order to fit the most demanding industrial and aerospace applications.

Several Wedge based MOPA lasers are currently employed as “engine” in high-demanding field applications, both industrial and Mil-spec.

Based on a proprietary fast active Q-Switching technology, these compact sealed DPSS lasers are insensitive to vibrations and harsh environments and have been designed for

OEM applications like micro-machining of hard and soft materials, specialty marking, glass and crystals engraving, LIDAR, LIBS, Spectroscopy and medical diagnostics.

High output peak power, with relatively low energy and heat generation, allows efficient ablation and non-linear interaction with most materials. The compact and lightweight package represents a great benefit in LIDAR and other aerospace applications, while short pulses give extremely precise time-of-flight measurements, also for “eye-safe” applications.

Second, Third and Fourth Harmonic (532, 355 and 266 nm output) and wavelength conversion option (1.5 and 3.3 μm) widen the product application range.

A wide range of customized solutions based on Wedge platform is available under request, e.g. meeting specific time / energy performances, vibrate and shock requirements, extreme environmental conditions and compliance to Mil-specifications.



***Wedge HF / XF standard footprint**

OPTIONS AVAILABLE:

- Beam expanding and collimating optics
- Fiber coupling
- Low jitter option
- Extended operating temperature range
- Pulse energy modulation
- IP68 package
- 28 V DC Input for airborne installation
- Circular polarization
- Monitoring photodiode
- Red aiming beam
- Remote control box and software interface
- AC-DC power supply



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Wedge

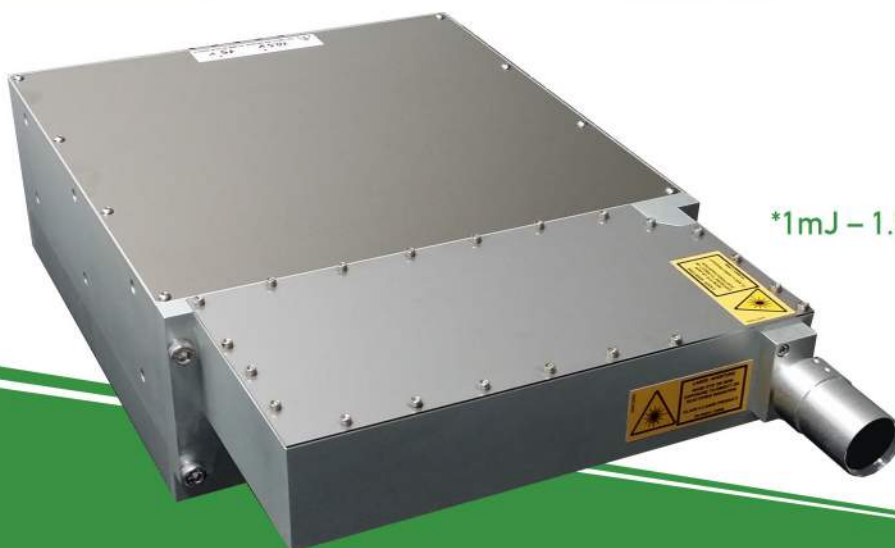
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*IP 68 MOPA configuration



In the following table the main features of standard Wedge models are presented; for a complete description of laser performances at 1064, 532, 355, 266 nm please refer to product datasheets.

1064nm Wedge models	High energy		Sub-ns	
	Wedge HB	Wedge XB	Wedge HF	Wedge XF
Max pulse energy	2mJ	4 mJ	180 μ J	60 μ J
Repetition rate	Single Shot to 2 kHz	Single Shot to 1 kHz	10 kHz to 100 kHz (option: down to single shot, up to 200 kHz)	
Harmonics / Wavelength conversion	532 nm – 355 nm – 266 nm 1.5 μ m – 3.3 μ m			
Pulsewidth	< 1.5 ns		down to 600 ps	down to 400 ps
Peak power	up to 2 MW	up to 4 MW	up to 250 kW	up to 100 kW
Polarization	Linear 100 : 1 (option circular polarization)			
Beam quality (M^2)	< 2	< 2.5	< 1.3	
Cooling	Air-cooled (option: water cooling and contact cooling)			
DC voltage IN	Dual 8V - 15V	Dual 12V - 15V	24V	
Overall mechanical dimensions	26 x 22 x 8 cm ³ (10 x 9 x 3 in ³)	26 x 25 x 10 cm ³ (10 x 10 x 4 in ³)	19 x 10 x 8 cm ³ (7 x 4 x 3 in ³)	
Weight	< 10 kg (< 22 lbs)	< 12 kg (< 27 lbs)	< 2.5 kg (< 5.5 lbs)	



*1mJ – 1.5 μ m – 1kHz Eye-safe

BDL - BFP



International distributors:

North America
Canada
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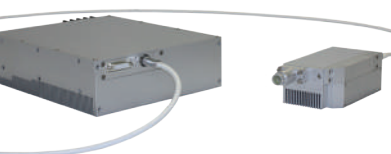
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