

# Picosecond Micromachining Laser

50 kHz to 8 MHz pulse repetition rate

High energy, 15 W average power

## Applications

- Cold ablation
- High-speed precision micromachining
- Semiconductor processing
- Pulsed laser deposition
- Thin-film, solar cell structuring
- Glass welding
- High-harmonic generation
- High-energy physics
- Pump-probe experiments
- Material research
- OPG/OPA pumping

## Features

- 24/7 reliability
- Industrial grade packaging
- Turn-key operation
- Low maintenance
- Flexibility
- FlexBurst™

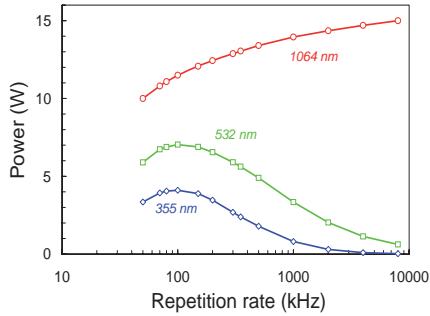


## Options

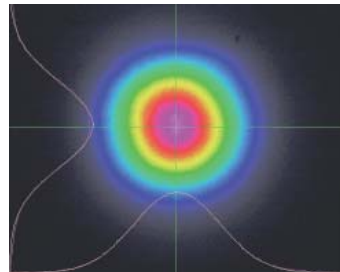
- 532 nm, 355 nm output
- Pulse on demand
- Remote control
- Clock synchronization

10 W – 15 W	output power
50 kHz – 8 MHz	repetition rate
up to 200 µJ	pulse energy
< 12 ps	pulse width
16 MW	peak power
1064 nm	wavelength
< 1.3	M <sup>2</sup> (TEM <sub>00</sub> )

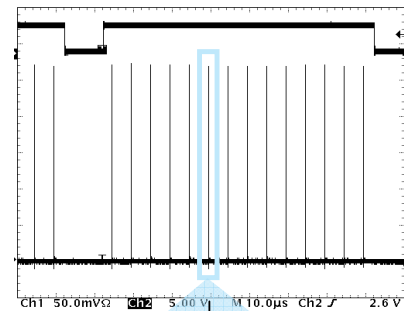
The DUETTO laser system is a versatile tool to process virtually any material with highest precision and reliability. The picosecond pulse duration results in cold ablation with minimum thermal side effects and thus superior quality. The DUETTO offers unmatched speed and flexibility with its very wide range of repetition rates, pulse energies, burst sizes and shapes. This enables the user to drive his application with the optimum process parameters at maximum throughput.



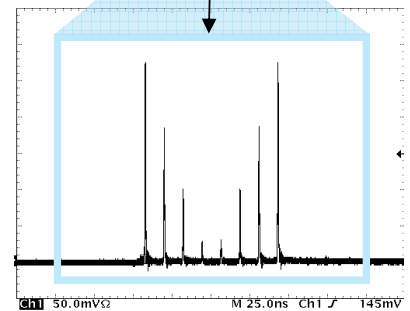
Typical output power versus repetition rate for 1064 nm, 532 nm, and 355 nm



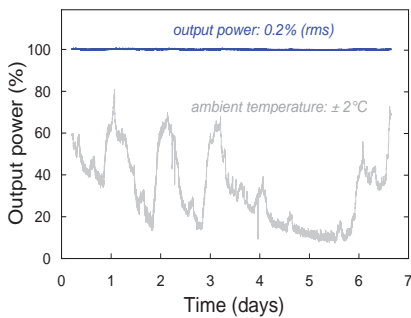
Output beam profile



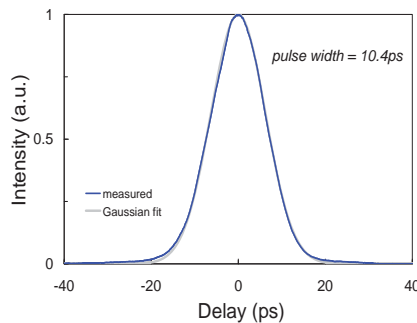
Zoom in



Top: 200-kHz train of single pulses or bursts. Bottom: example of an 8-pulse burst (12-ns pulse spacing) with freely adjustable shape (FlexBurst™ technology)



Long term stability. Output power and ambient temperature over one week showing power fluctuations of 0.2% rms



Autocorrelation trace

The pulse and beam quality as well as stability of the DUETTO is excellent and maintained over the full range of repetition rates, burst sizes, etc., without any adjustments. The thorough laser design and derated pump currents ensure long life and keep the system virtually maintenance free even in rough environments. It is simple to use, easy to install, fully system integrable, and offers a broad range of options to suit your particular requirements.

Additional specifications	DUETTO
turn-on time	< 15 min
pointing stability	< 40 µrad/°C
pulse energy stability (>1kHz)	< 0.5% rms
voltage	100 VAC – 240 VAC, single phase
frequency	50 Hz – 60 Hz
input power (single phase)	1450 VA
laser head (size, weight)	695 mm x 135 mm x 410 mm, 42 kg
power supply (size, weight)	435 mm x 139 mm (3 HU) x 483 mm (19"), 14 kg
chiller (size, weight)	640 mm x 267 mm (6 HU) x 483 mm (19"), 40 kg



Does the DUETTO laser system match your requirements? Please let us know the specifications of the laser you are looking for. A superior technology and a strong team enable us to tailor our products to your special needs.

All specifications are subject to change without notice. All numbers given in this datasheet are typical values and may depend on the specific laser configuration. SESAM is a registered trademark in the following countries: USA, Switzerland, United Kingdom, Germany, Austria, Netherlands, Belgium, Luxembourg, France, Italy, Russia, China, Liechtenstein, Estonia, and Lithuania. This product is protected by one or several of the following patents: US6,538,298, US6,466,604, US7,386,019