

BrightMicrolaser

A BRIGHTSOLUTIONS COMPANY

Company Profile

April 2019

About us



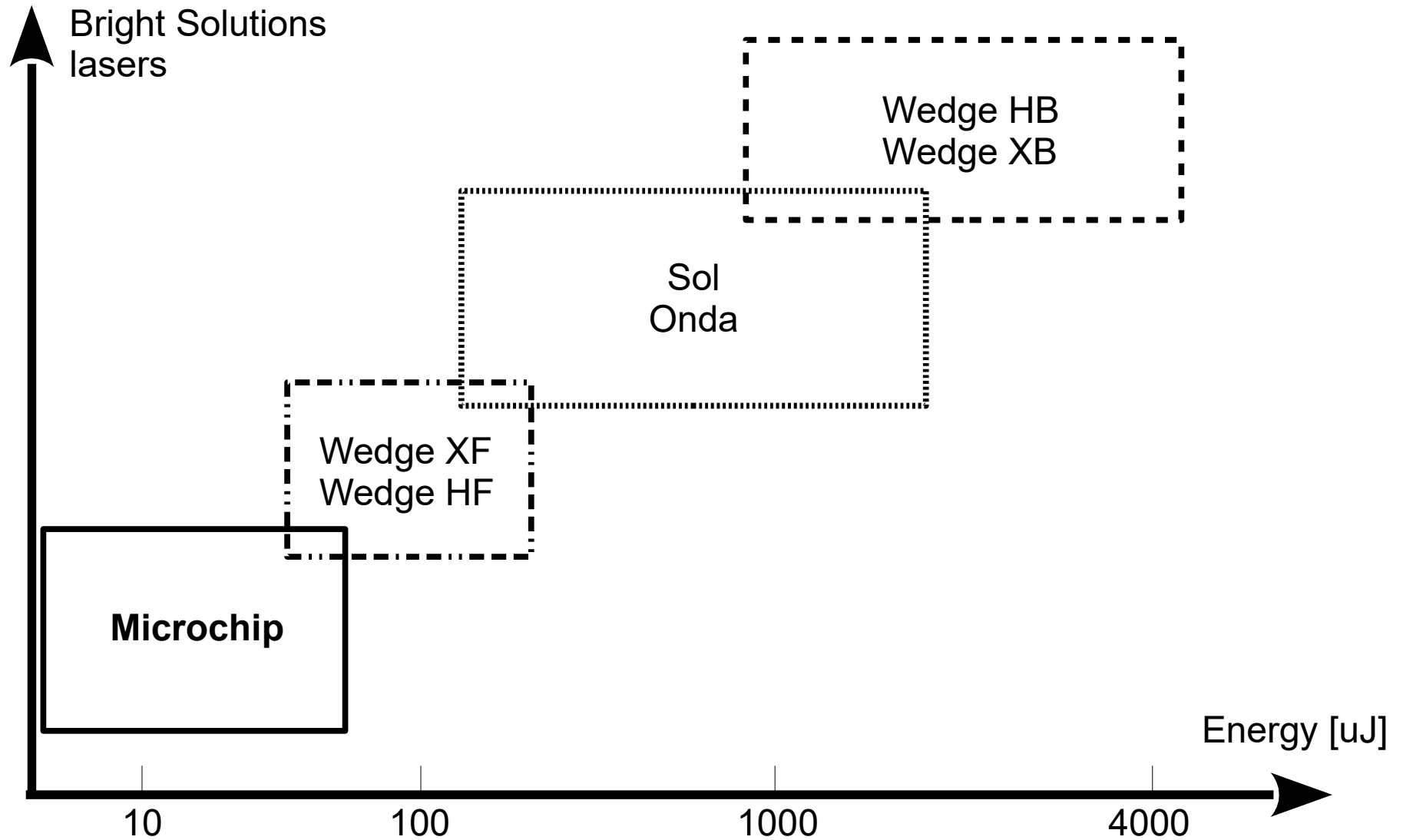
2016: Bright Solutions acquired the inventory and technology assets of Concepts Research Corporation (CRC), a leading US manufacturer of microchip lasers.

2017: Bright Solutions moved and set up the production completely in Italy and founded a new division entirely dedicated to the manufacturing and design of microchip lasers, called **BRIGHT MICROLASER**.

Besides the standard production, Bright Microlaser invests a lot in R&D projects. Bright Microlaser redesigned its own laser head and laser driver.



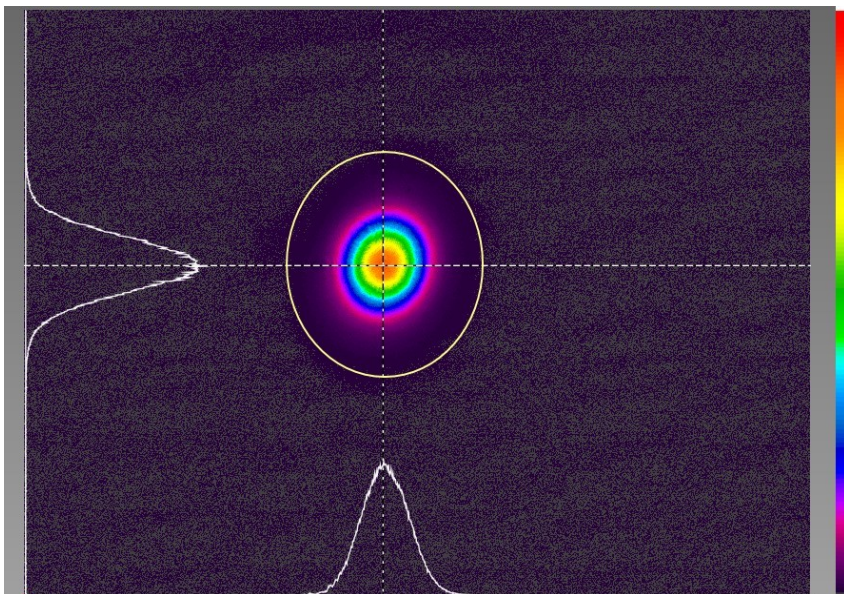
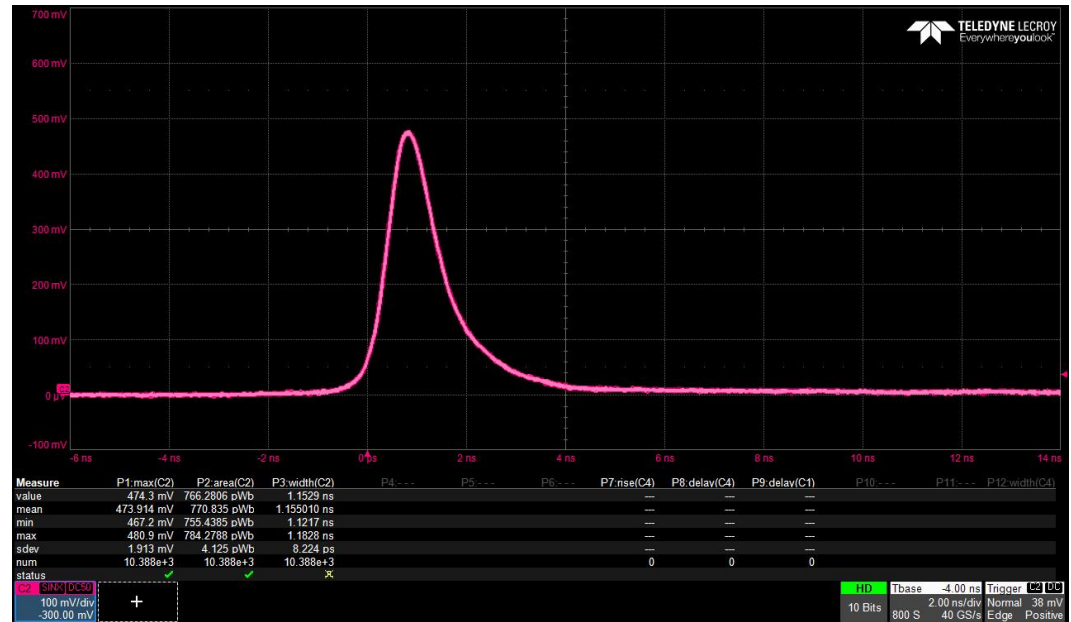
Why microchip lasers?



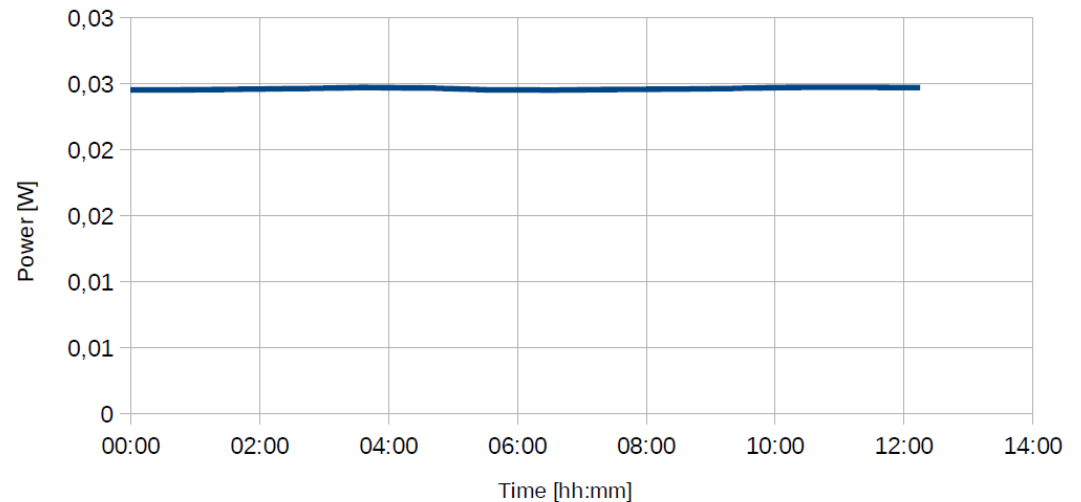
Microchip lasers

Typical features:

- pulsedwidth: down to 300 ps
- repetition rate: up to 100 kHz
- pulse energy: up to 80 μ J @ 1064 nm
- peak power: up to 50 kW
- wavelengths: 1064, 532, 355, 266 nm
946, 473, 236.5 nm
- $M2 < 1.3$
- single frequency – narrow line
- pulse to pulse instability: $< 3\%$



Long term stability



Microchip lasers



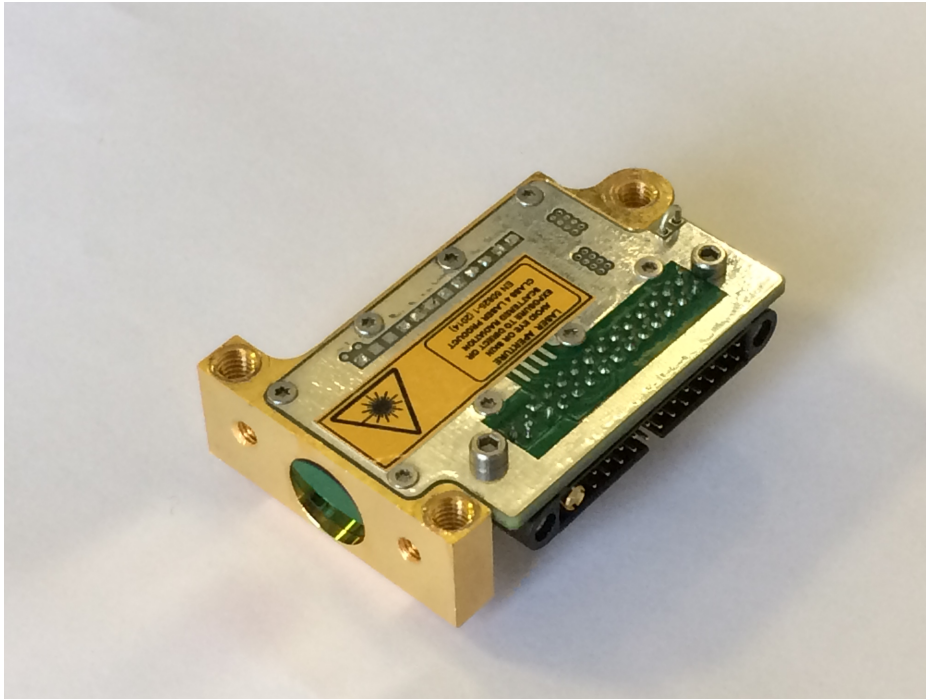
Standard and semi-customized versions are available and can be configured according to the customer's needs.

	Nanoseconds		Picoseconds
Pulsewidth Ranges	< 2 ns	< 1.3 ns	< 400 ps
Pulse Energy	up to 35 μ J	up to 80 μ J	up to 2 μ J
Repetition Rates	up to 10 kHz	up to 15 kHz internal and external triggered	up to 100 kHz
Output Peak Power	up to 20 kW	up to 50 kW	up to 5 kW
Package	FP3, P4	FP3, P4	FP3, P4
Output Wavelengths	946, 473, 236.5 nm	1064, 532, 355, 266 nm	
Beam quality (M^2)	< 1.3		
Electrical Requirements	DC power supply 15V, < 3 A		
Size	FP3: 35x50x16 mm ³ P4: 39x60x19 mm ³		
Weight	FP3: < 0.15 kg P4: < 0.20 kg		
Operating Temperature	+10 to +40 °C		
Storage Temperature	-20 to +60 °C		

Options:

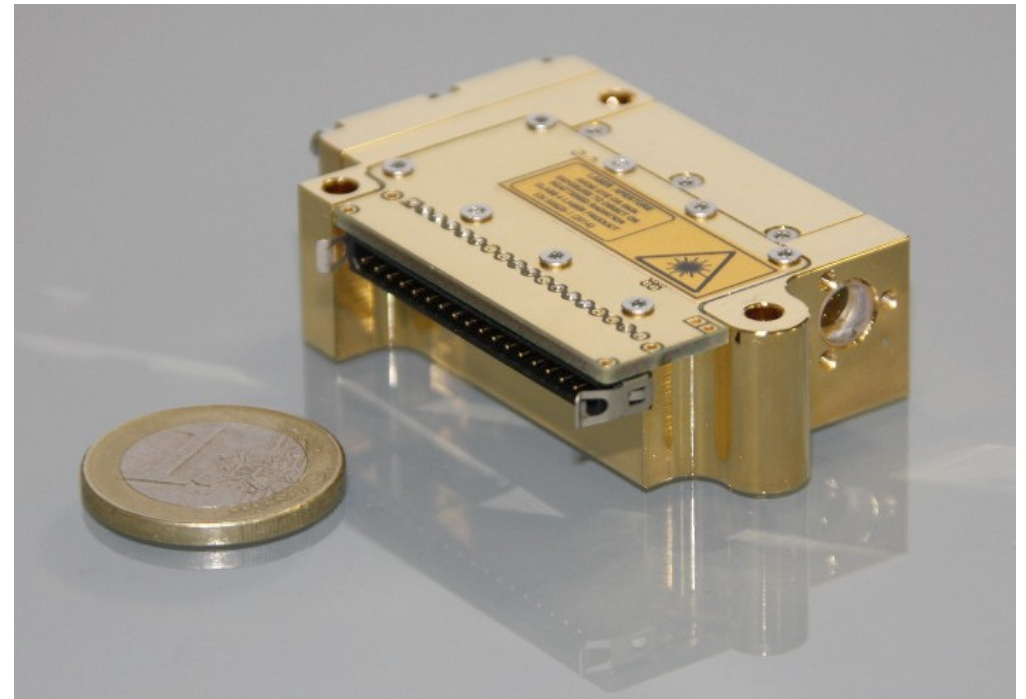
- Energy monitor photodiode (not available yet)
- Heat-sink
- Control box kit
- Beam expander and collimator

FP3 and P4 packages



FP3 package:

- Size: 35x50x16 mm³
- IR & SHG Laser models: 1064, 946, 532, 473 nm



P4 package:

- Size: 39x60x19 mm³
- UV Laser models: 355, 266, 236.5 nm

Laser driver / MLD-019



In the last months Bright Microlaser launched the new smart laser driver. The device has been designed taking into account customers' needs of high performance solutions with reduced size, weight and power consumption (SwaP), demanded in many applications, such as UAV LiDAR, biophotonics, instruments, automotive and handheld LIBS.



- Size: 58x115x20.5 mm³
- Smarter laser operation
- Higher degree of monitoring and control
- Real time feedback with a remote-control connection
- New and improved GUI software.

Laser driver / MLD-019



- The laser driver accepts two separate DC voltage supplies:
 - 12V to 28V for supplying the diode lasers
 - 12V to 28V for supplying the control, cooling and monitoring electronics
- Recommended supply voltage: 15V
- Electronics interface can be accessed through a 26 pins connector
- The customer has to provide the “Electronic_Shutter” and “Enable” signals (TTL-high level, +5V) in order to fire the laser.
- The driver provide a “Sync_Out” signal, that is a TTL signal emitted when laser pulse is detected from the internal photodiode.
- The pulse train (“Pulse_In” signal) can be generated either internally or externally by a pulse generator.

Control box kit



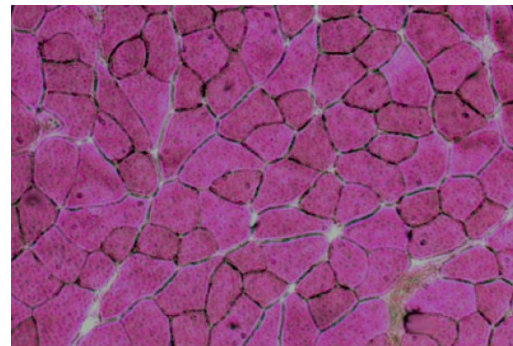
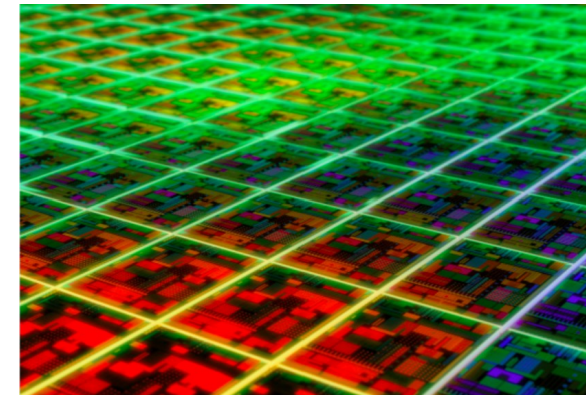
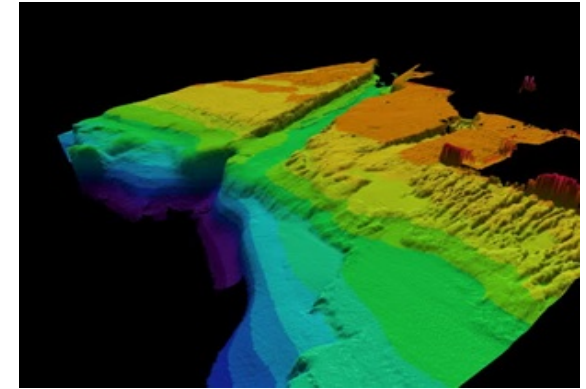
The control box kit includes:

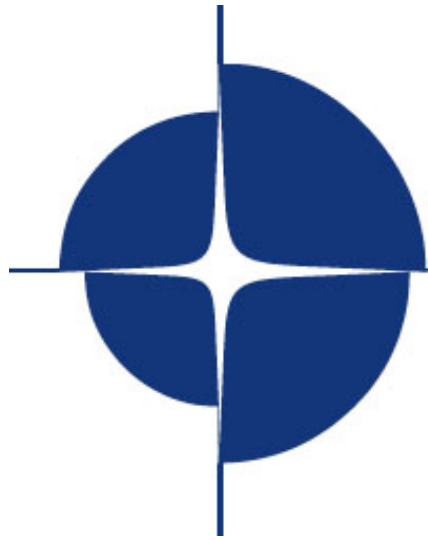
- the control box interface
- a connection I/O cable to the laser driver
- a USB connection cable to the personal computer
- a universal AC/DC switching adapter
- the software driver and application

The control box kit allows the user to turn on a microchip laser in an easy way, check the functional parameters of the laser, connect “Trigger_In” and “Sync_Out” signals with BNC connectors, switch the pulse “Trigger_In” signal from internal to external, override “Electronic_Shutter” and “Enable” electrical signals by using the software interface and make available a red panic button.

Applications

- Micromachining
- UAV LiDAR, Telemetry
- Handheld LIBS
(laser-induced breakdown spectroscopy)
- Nonlinear optics, Raman spectroscopy
- PIV (particle image velocimetry)
- Imaging mass cytometry
- Biophotonics





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THANK YOU