

## Cobolt Tor™ Series

### High performance Q-switched lasers

- High performance Q-switched lasers at 355 nm, 532 nm and 1064 nm
- Up to 1.0 W average output power
- 7 kHz pulse repetition rate
- 3-5 ns pulse width
- Up to 150  $\mu$ J nominal pulse energy



The Cobolt Tor™ Series lasers are high performance Q-switched diode pumped lasers. The sophisticated cavity design of these lasers provides a unique combination of high pulse repetition rates, short pulse lengths and exceptional pulse-to-pulse stability in a high quality TEM<sub>00</sub> beam.

The lasers are manufactured using Cobolt's proprietary HTCure™ technology and packaged into a sealed laser head, offering an outstanding level of robustness and reliability and making these lasers highly suitable for OEM integration into demanding environments.

The lasers are equipped with a pulse-count feedback loop to ensure minimum drift in output power and repetition rate, and also provide a pulse-trigger output signal for convenient synchronisation of detection systems.

The combination of compact format, high level of robustness, high average power and pulse energy performance make the Cobolt Tor™ Series lasers ideal light sources for a large variety of industrial and scientific applications, including LIBS, micro-dissection, MALDI-TOF, range-finding, Raman-LI-DAR and micro-machining.

## Cobolt Tor™ Series Specifications

Wavelength (nm) <sup>1</sup>	354.8 ± 0.3	532.1 ± 0.3	1064.2 ± 0.6
Average Power	125 ± 20 mW	420 ± 35 mW	> 1.0 W
Pulse Energy	18 ± 3 μJ	60 ± 5 μJ	> 150 μJ
Peak Power <sup>2</sup>	> 3 kW	> 11 kW	> 30 kW
Pulse Width	3 - 5 ns		
Repetition Rate	7 kHz		
Pulse-to-Pulse Jitter	< 1 μs		
Long-term stability (8 hrs ± 3°C)	< 3 %		
Spatial mode (TEM <sub>00</sub> )	M <sup>2</sup> < 1.3		
Beam symmetry at aperture	> 0.65:1	> 0.85:1	> 0.90:1
Polarization ratio (linear, vertical)	> 100:1		
Total system power consumption	< 63 W, typical < 30W		
Operating temperature	10-40 °C		
Maximum laser head baseplate temp.	50 °C		
Recommended heat sink thermal resistance	0.2 K/W		
Operating modes	Constant current Burst Constant Repetition Rate (OEM Only)		
Output trigger signal	Pulse trigger output via SMA		
Laser head dimensions [mm]	125 × 70 × 45		
[inches]	4.9 × 2.8 × 1.8		
Controller dimensions [mm]	190 × 72 × 28		
[inches]	7.5 × 2.8 × 1.1		
Communication	USB or RS-232		
Warranty	12 months or 5000 hrs	12 months	

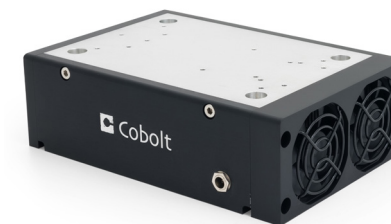
1. The wavelength is specified in air.

2. Assuming a top hat profile, peak power (kW) = pulse energy (μJ) ÷ pulse duration (ns).

Model number structure	CDRH/CE (key-switch for on/off)	OEM (auto-start mode)
RS-232 Controller	wavel-05-71-pwr-500	wavel-05-71-pwr-600
USB Controller	wavel-05-71-pwr-700	wavel-05-71-pwr-800

### Options & Accessories

- Customized controller cable
- Laser head heatsink (HS-04)



Heat sink with fans



This device is sensitive to Electrostatic Discharge (ESD). Always handle diode lasers with extreme care to prevent electrostatic discharge, the primary cause of unexpected diode failure.



WARNING VISIBLE AND INVISIBLE LASER RADIATION!

Avoid exposure to beam.  
Class 3B Laser Product  
Classified per IEC 60825-1:2014



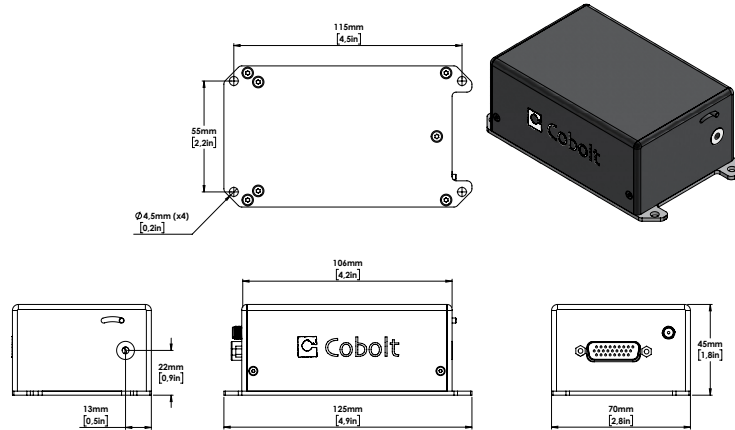
Wvl (nm)	Max.Pwr (mW)	Max Pulse (μJ) / (ns)
355	300	15 / 1-5
532	600	15 / 1-5
1064	1000	15 / 1-5



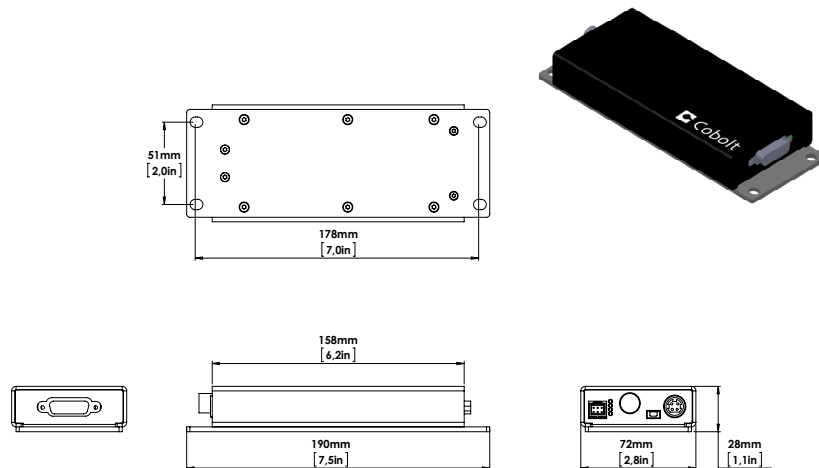
# Cobolt Tor™ Series Specifications

## Mechanical Specifications

### Laser Head



### Controller dimensions



## Electrical Interface

Interfaces	Connector	Function
Input power	Kycon KPJX-45, 4-pin	Power supply to Controller
Laser Head to Controller	HD-sub 26-pin, male	Connection to Laser Head
Controller to Laser Head	HD-sub 26-pin, female	Connection to Controller
Data port	USB-type mini B	Control and monitoring via control commands
Remote interlock & Analog signals	Molex 90130-3206	Analog input 5 – 12 V => Laser ON Analog input < 2.7V => Laser OFF
Trigger signal output	SMA female.	Output signal from pulse monitor
Warm-up time		3 min

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