SPFL 532 Fiber Lasers

High Pulse Repetition Rate With Tunable Short Pulse Width For Fine Material Processing

Spectra Physics' SPFL 532 series of pulsed green fiber lasers (532 nm) incorporate cutting edge technology to provide top performance for such precision-intensive applications as those required for solar cell manufacturing, micro machining, silicon scribing, fine processing, glass processing, thin film cutting and more.

The SPFL 532 lasers are comprised of linearly polarized Ytterbium fiber lasers in a smart and flexible MOPA configuration utilizing a second harmonic generation (SHG) module to provide an output power of up to 40 W with a near-diffraction-limited output beam in the green wavelength.

SPFL 532 lasers offer high pulse repetition rates (up to 2 MHz with PRF on-the-fly), tunable short pulse durations (down to 3 nsec) and high peak power to enable high system throughput for maximum process efficiency. Combined with its pulse-on-demand capabilities the SPFL 532 brings remarkable agility and flexibility to the most demanding of applications.

Enclosed in a robust yet compact assembly that meets industrial standards and fitted with metal armored fiber cable, the ultra-flexible SPFL 532 lasers deliver a compelling combination of quality, reliability and performance.

The SPFL 532 Advantage

- Up to 40 W average output power
- 3–50 nsec (tunable) pulse width
- Up to 180 µJ pulse energy (up to 150 µJ for 40 W version)
- High beam quality (M^2<1.2)
- Single shot triggering up to 2000 kHz (tunable) pulse repetition rate
- Internal generator for pulse generation up to 2000 kHz
- Pulse-on-demand (PRF on-the-fly) operation with fast gating-on
- Complies with the industry standard (RS232 and TTL interfaces)
- Air cooled Engine with water cooled optical head option for maximum power stability (40W versions incorporate a water-cooled head unit option only)

Applications

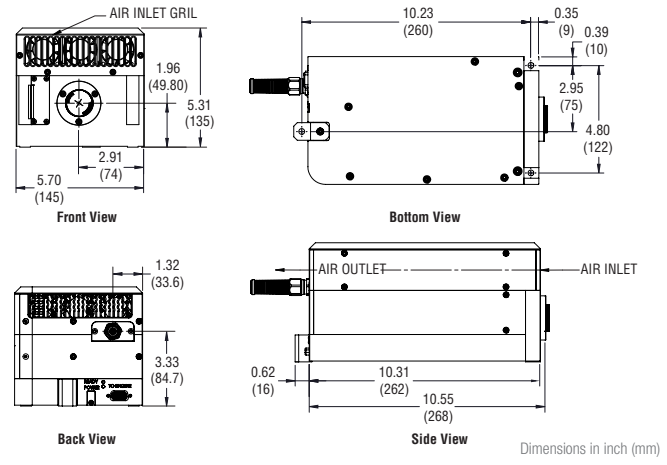
- Solar cell, silicon scribing and processing
- Glass processing
- Marking
- Fine materials processing
- Micro-machining
- Scribing
- Thin film cutting
- Gold and copper processing
- Medical
- Entertainment and display
- Security and defense

SPFL 532 Fiber Lasers Specifications[1, 3]

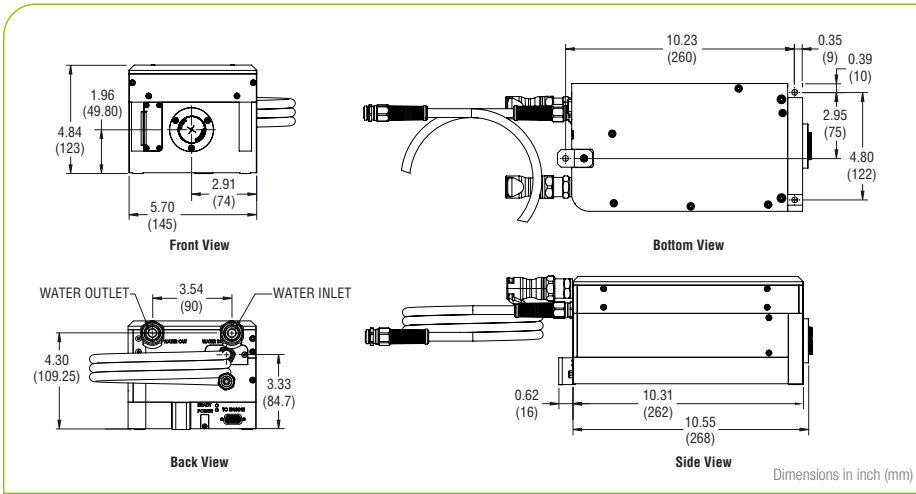
Parameter	SPFL 532-20	SPFL 532-40
Wavelength	532 nm	
Average Output Power	20 W	40 W
Repetition Rate	Single shot to 1200 kHz	Single shot to 2000 kHz
Pulse Width	3–20 ns (preset values) @ 100 µJ 3–50 ns @ 150 µJ	
Pulse Energy (Max)	180 µJ	150 µJ
Pulse to Pulse Energy Instability[2]	<2% RMS @ 600 kHz	<2% RMS @ 1000 kHz
Polarization	Vertical	
General Parameters		
Operational Voltage	24 VDC	
Cooling Method for Head Unit (engine is air-cooled)	Air	Water
Operating Temperature	10–35 °C	15–35 °C
Laser Engine Dimensions	130 x 210 x 299 mm	130 x 224 x 299 mm
Laser Head Dimensions	135 x 145 x 283.7 mm	123 x 145 x 284 mm
Laser Engine Weight	6.5 kg	6.8 kg
Laser Head Weight	4.5 kg	7.1 kg
Fiber Length	300 cm	
Output Beam Diameter	2.8 ± 0.5 mm	
Output Beam Parameters	$M^2 < 1.2$	

1. Due to our continuous improvement, all specifications are subject to change without notice.
2. After 30 minute warm up.
3. SPFL 532 is a Class IV -- High Power Laser, whose beam is, by definition, a safety and fire hazard. Take precautions to prevent exposure to the direct and reflected beams. Diffuse as well as specular reflections can cause severe skin or eye damage.

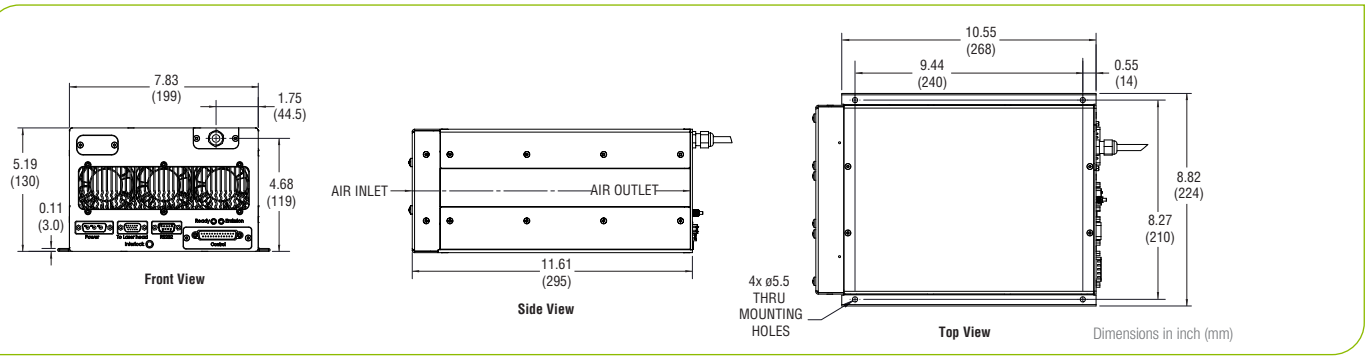
SPFL 532 Fiber Lasers



SPFL 532-20 Laser Head Dimensions



SPFL 532-40 Laser Head Dimensions



SPFL 532 Laser Engine Dimensions

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