

SPFL 532 Fiber Lasers

Versatile, high power pulsed green fiber lasers for 24/7 micromachining



Spectra-Physics SPFL 532-40 pulsed green fiber lasers provide high power and pulse energy with versatile TimeShift™ programmable pulse capability for demanding manufacturing applications. The laser produces average output power >40 W and pulse energy >180 μJ at 520 nm, and with a near diffraction-limited output beam and excellent power stability, the laser delivers high quality and high throughput micromachining results.

The laser's TimeShift programmable pulse capability provides flexible burst mode operation with adjustable pulse widths, pulse separation and number of pulses in a burst. Pulse widths for single pulses or sub-pulses in a burst are adjustable from <3 to 50 ns. The SPFL 532-40 lasers offer additional flexibility with adjustable repetition rates from single shot up to 2 MHz.

The SPFL 532-40 laser is housed in a robust mechanical assembly and fitted with a metal-armored fiber cable for rugged industrial operation. The laser uses an air-cooled engine for flexible, easy system integration and a water-cooled laser head for improved temperature and, hence, output power stability. The SPFL 532-40 line is designed and tested to ensure long-life operation with low cost of operation and is proven in demanding 24/7 manufacturing applications. Lasers are manufactured in a six-sigma Lean factory and undergo 100% testing and burn-in prior to shipment.

The SPFL 532-40 Advantage

- >40 W average output power
- >180 μJ pulse energy
- TimeShift programmable burst mode operation
 - 3–50 ns adjustable pulse width
 - Adjustable number of pulses in a burst
 - Adjustable pulse separation
- Single shot to 2 MHz adjustable repetition rate
- High beam quality ($M^2 < 1.2$)
- Air-cooled engine, water-cooled head



Applications

- Solar cell, silicon scribing and processing including PERC (passivated emitter rear contact)
- Glass processing
- Marking
- Fine materials processing
- Micro machining
- Scribing
- Thin film patterning
- Gold and copper processing
- Medical
- Security and defense

SPFL 532 Fiber Lasers Specifications^{1, 5}

	SPFL 532-40 HF	SPFL 532-40 AF	SPFL 532-40 FG	SPFL 532-40 HE
	High Frequency	All Frequency	Fast Gating	High Energy
Optical Parameters				
Wavelength	532 nm			
Average Output Power	Up to 40 W			
Repetition Rate (Max)	2000 kHz			400 kHz
Repetition Rate (Min)	75% of max PRF, each WF	Single shot		
Pulse Width	3–6 nsec ²			9–50 nsec ²
Pulse Energy (Max)	100 µJ			180 µJ
Pulse-to-Pulse Energy Variation ³	<2% RMS @ 1000 kHz			<2% RMS @ 400 kHz
Polarization	Vertical			
Output Beam Diameter	2.8 ±0.5 mm			
Output Beam Parameters	M ² <1.2			
Advanced Pulse Features				
TimeShift™	Yes			
Gating Rise Time	Zero rise time	0–20 us, user adjustable ⁴	Zero rise time	0–20 us, user adjustable ⁴
Leakage (Max)	0.5 W or adjustable per risetime			
Number of Pulses in a Burst	1 to 5, preset values			1 to 10, preset values
Mechanical and Environmental Parameters				
Operational Voltage	24 VDC			
Operating Temperature	15–35 °C			
Laser Dimensions	130 x 224 x 299 mm			
Output Head Dimensions	123 x 145 x 284 mm			
Laser Engine Weight	6.8 kg			
Conversion Head Weight	7.1 kg			

1. Due to our continuous improvement, all specifications are subject to change without notice.

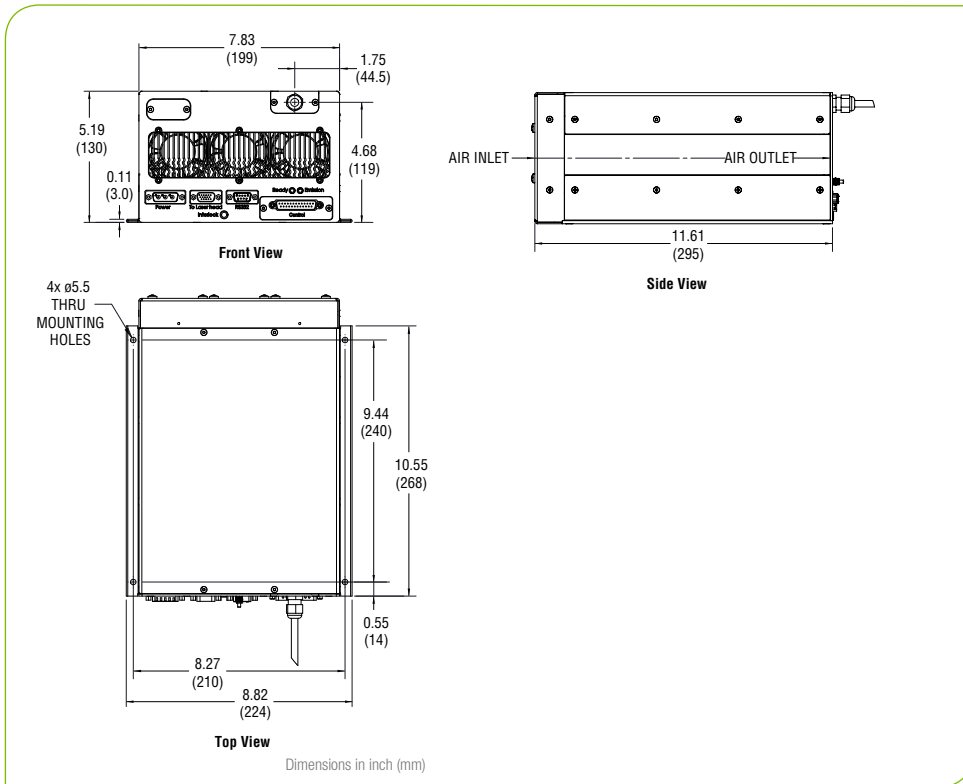
2. Preset values with burst capabilities.

3. After 30 minute warm up.

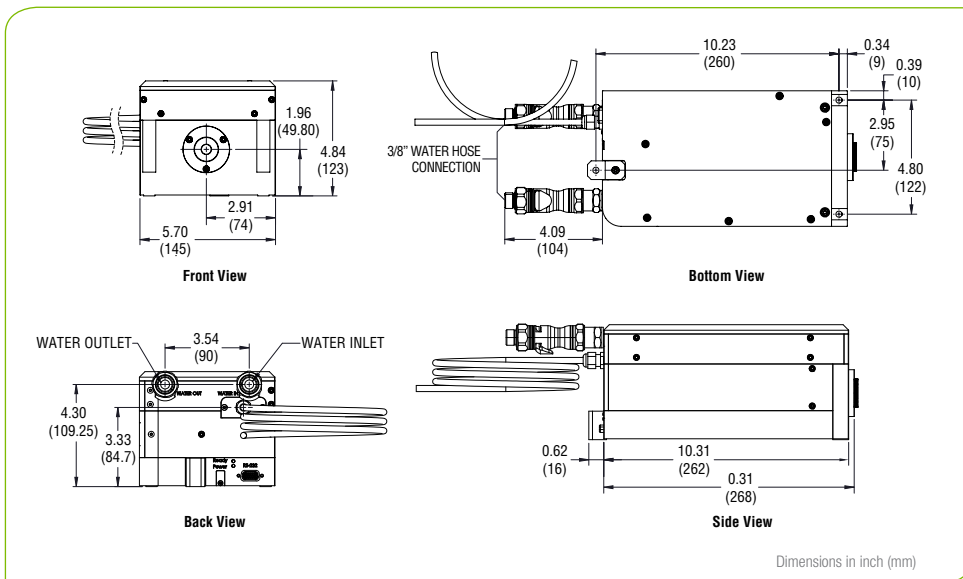
4. Gating rise time controlled by leakage.

5. SPFL 532-40 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 532-40 Laser Engine Dimensions



SPFL 532-40 Laser Head Dimensions



www.spectra-physics.com

3635 Peterson Way, Santa Clara, CA 95054, USA

PHONE: 1-800-775-5273 1-408-980-4300 FAX: 1-408-980-6921 EMAIL: sales@spectra-physics.com

Belgium	+32-(0)800-11 257	belgium@newport.com	Korea	+82-31-8021-1600	korea@spectra-physics.com
China	+86-10-6267-0065	info@spectra-physics.com.cn	Netherlands	+31-(0)30 6592111	netherlands@newport.com
France	+33-(0)1-60-91-68-68	france@newport.com	Singapore	+65-6664-0040	sales.sg@newport.com
Germany / Austria / Switzerland	+49-(0)6151-708-0	germany@newport.com	Taiwan	+886-3-575-3040	sales@newport.com.tw
Japan	+81-3-3556-2705	spectra-physics@splasers.co.jp	United Kingdom	+44-1235-432-710	uk@newport.com