

# Versatile Fiber Lasers for Welding

Integrated plug-and-play fibers for flexible metal processing solutions



The nLIGHT® WFL series integrates an optional fiber coupler or 2- or 4-channel beam switch within a high-power fiber laser. Versatile and dependable, this laser was designed for high productivity solutions in welding, cladding, heat treating, brazing, or other materials processing applications requiring removeable process fibers. Based on two decades of high-power laser innovation, the WFL series features a reliable industry-leading fiber laser architecture enabling exceptional processing range and consistent part quality. The optional beam delivery system is ergonomically placed for simple and quick fiber exchanges and increased uptime.

## Features

- **3 to 15 kW**  
Wide range of power options to ensure the right solution for each application
- **Optional Fiber Coupler or Beam Switch**  
Integrated fiber coupler, 2- or 4- channel beam switch, or 50/50 beam divider
- **Unparalleled Serviceability**  
Modular design simplifies repairs to maximize uptime and productivity
- **Designed for Rugged Durability**  
Ensures continuous operation in harsh manufacturing environments
- **Plug-and-Play Process Fibers**  
Process fibers with output core sizes from 100  $\mu\text{m}$  to 1 mm in either QBH or QD format
- **Ergonomic Design**  
Designed based on user input to support high-volume manufacturing

**nLIGHT**

## nLIGHT Welding Fiber Laser Specifications

Models	WFL-3000	WFL-4000	WFL-5000	WFL-6000	WFL-8000	WFL-10000	WFL-12000	WFL-15000
<b>Optical Specifications</b>								
Mode of Operation	CW/Modulated							
Polarization	Random							
Maximum Power	3 kW	4 kW	5 kW	6 kW	8 kW	10 kW	12 kW	15 kW
Power Tunability	5 to 100%							
Power Variation, 8-Hour	≤ 0.5%							
Modulation Frequency	≤ 100 kHz							
Rise / Fall Times	≤ 5 μs							
Process Fiber Beam Quality <sup>1</sup>	100 μm process fiber 2.6 mm-mrad, typical			150 μm process fiber 5.4 mm-mrad, typical				
				200 μm process fiber 7.2 mm-mrad, typical				
Wavelength	1070 ± 10 nm							
<b>Electrical Specifications</b>								
Supply Voltage	400 to 480 VAC 3P+PE, 50/60 Hz							
Standard Control Interfaces	External hardware control, analog power control, analog monitors, GUI							
Optional Control Interfaces	EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus							
<b>Mechanical Specifications</b>								
Dimensions (W x D x H)	1004 x 804 x 1334 mm							
Beam Delivery	Water-cooled fiber coupler, 2- or 4-channel beam switch (time sharing), 50/50 beam divider (power sharing)							
Process Fibers	100 to 1000 μm core options in standard lengths, QBH and QD available							
Cooling Method	Water							
<b>Environmental Specifications</b>								
Operating Temperature <sup>2</sup>	10 to 40°C							
Storage Temperature	-10 to 60°C							
Relative Humidity	10 to 80%							

<sup>1</sup> With 1.0x magnification, measured using 86.5% power method. Larger fiber core sizes are available.

<sup>2</sup> Non-condensing at sea level.

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