## n L I G H T High-Performance Industrial Fiber Lasers

Fiber lasers for productivity and efficiency in a small form factor.



The all-new nLIGHT® CFL-3000, CFL-4000, and CFL-5000 are the highest power fiber lasers available in this form factor, allowing for better utilization of your shop floor. Available as 3, 4, or 5kW models, these versatile fiber lasers are suitable for a wide range of materials processing applications.

Based on nearly two decades of high-power laser innovation, these lasers feature the latest in optical technology to improve your productivity and part quality. Designed with trusted and durable components for maximum uptime, and high operating efficiency to lower your production costs.

## Key Features & Benefits

3, 4, and 5kW

Delivers excellent productivity for advanced cutting and welding applications

**Back-Reflection Protection** 

Hardware-based back-reflection protection allows uninterrupted processing of even the most reflective metals with no damage to the laser

**Unparalleled Serviceability** 

Modular design simplifies repairs maximizing uptime

- Designed for Rugged Durability
  - Ensures continuous operation in harsh manufacturing environments
- Advanced Electronic Design

Provides faster piercing and processing of fine features with smaller heat-affected zones

Multiple Fiber Options

Choice of feed fiber sizes from 50-200µm enables a diverse range of applications

## nLIGHT 3, 4, and 5kW Fiber Laser Specifications

Optical Specifications         Mode of Operation       CW / Modulated         Polarization       Random         Maximum Average Power, CW       3kW       4kW       5kW         Power Tunability       5 – 100%         Power Stability, 8-Hour       ≤ 1%         Modulation Frequency       ≤ 50kHz         Rise and Fall Times       ≤ 10µs         Beam Quality       50µm fiber ≤ 2.8mm-mrad 100µm fiber ≤ 4.3mm-mrad 200µm fiber ≤ 4.3mm-mrad 200µm fiber ≤ 11.0mm-mrad         Wavelength       1070 ± 10nm         Electrical Specifications         Supply Voltage       380 – 480VAC 3P+PE, 50/60Hz         Control Interfaces, Standard       External hardware control, analog power control, analog moning Ethernet control, GUI, and API         Control Interfaces, Optional       EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus         Mechanical Specifications         Dimensions, W x D x H       685 x 800 x 560mm         Optical Fiber       10, 20, 30m, QBH connector standard         Cooling Method       Water         Environmental Specifications         Operating Temperature¹       +10 to +40°C	Models	CFL-3000	CFL-4000	CFL-5000
Polarization  Maximum Average Power, CW  3kW  4kW  5kW  Power Tunability  5 − 100%  Power Stability, 8-Hour  Modulation Frequency  Rise and Fall Times  50µµ fiber ≤ 2.8mm-mrad 100µµ fiber ≤ 4.3mm-mrad 200µµ fiber ≤ 4.3mm-mrad 200µµ fiber ≤ 11.0mm-mrad  Wavelength  1070 ± 10nm  Electrical Specifications  Supply Voltage  380 − 480VAC 3P+PE, 50/60Hz  Control Interfaces, Standard  External hardware control, analog power control, analog monifications  Ethernet control, GUI, and API  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W × D × H  685 × 800 × 560mm  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Water	Optical Specifications			
Maximum Average Power, CW  Power Tunability  Power Stability, 8-Hour  Modulation Frequency  Rise and Fall Times  Soµm fiber ≤ 2.8mm-mrad 100µm fiber ≤ 4.3mm-mrad 200µm fiber ≤ 11.0mm-mrad Wavelength  1070 ± 10nm  Electrical Specifications  Supply Voltage  Control Interfaces, Standard  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W × D × H  Optical Fiber  Cooling Method  Environmental Specifications  Water	Mode of Operation	CW / Modulated		
Power Tunability  Power Stability, 8-Hour  Modulation Frequency  Rise and Fall Times  Soµm fiber ≤ 2.8mm-mrad 100µm fiber ≤ 4.3mm-mrad 200µm fiber ≤ 11.0mm-mrad  Wavelength  1070 ± 10nm  Electrical Specifications  Supply Voltage  Control Interfaces, Standard  Control Interfaces, Optional  Mechanical Specifications  Dimensions, W × D × H  Optical Fiber  10, 20, 30m, QBH connector standard  Environmental Specifications  Environmental Specifications  Water	Polarization	Random		
Power Stability, 8-Hour  Modulation Frequency  Rise and Fall Times  Soµm fiber ≤ 2.8mm-mrad 100µm fiber ≤ 4.3mm-mrad 100µm fiber ≤ 4.3mm-mrad 200µm fiber ≤ 11.0mm-mrad  Wavelength  1070 ± 10nm  Electrical Specifications  Supply Voltage  Control Interfaces, Standard  Control Interfaces, Optional  External hardware control, analog power control, analog moni Ethernet control, GUI, and API  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W x D x H  685 x 800 x 560mm  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Environmental Specifications	Maximum Average Power, CW	3kW	4kW	5kW
Modulation Frequency       ≤ 50kHz         Rise and Fall Times       ≤ 10μs         Beam Quality       50μm fiber ≤ 2.8mm-mrad 100μm fiber ≤ 4.3mm-mrad 200μm fiber ≤ 11.0mm-mrad         Wavelength       1070 ± 10nm         Electrical Specifications         Supply Voltage       380 − 480VAC 3P+PE, 50/60Hz         Control Interfaces, Standard       External hardware control, analog power control, analog monit Ethernet control, GUI, and API         Control Interfaces, Optional       EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus         Mechanical Specifications       Dimensions, W × D × H       685 × 800 × 560mm         Optical Fiber       10, 20, 30m, QBH connector standard         Cooling Method       Water         Environmental Specifications	Power Tunability	5 – 100%		
Rise and Fall Times  50µm fiber ≤ 2.8mm-mrad 100µm fiber ≤ 4.3mm-mrad 200µm fiber ≤ 11.0mm-mrad  Wavelength  1070 ± 10nm  Electrical Specifications  Supply Voltage  380 − 480VAC 3P+PE, 50/60Hz  Control Interfaces, Standard  External hardware control, analog power control, analog monif Ethernet control, GUI, and API  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W × D × H  685 × 800 × 560mm  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Water  Environmental Specifications	Power Stability, 8-Hour	≤ 1%		
Beam Quality  50μm fiber ≤ 2.8mm-mrad 100μm fiber ≤ 4.3mm-mrad 200μm fiber ≤ 11.0mm-mrad  1070 ± 10nm  Electrical Specifications  Supply Voltage  380 − 480VAC 3P+PE, 50/60Hz  Control Interfaces, Standard  External hardware control, analog power control, analog moning Ethernet control, GUI, and API  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W × D × H  685 × 800 × 560mm  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Water  Environmental Specifications	Modulation Frequency	≤ 50kHz		
Beam Quality  100μm fiber ≤ 4.3mm-mrad ≤ 11.0mm-mrad  Wavelength  1070 ± 10nm  Electrical Specifications  Supply Voltage  380 − 480VAC 3P+PE, 50/60Hz  Control Interfaces, Standard  External hardware control, analog power control, analog monifications  Ethernet control, GUI, and API  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W × D × H  685 × 800 × 560mm  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Water  Environmental Specifications	Rise and Fall Times	≤ 10µs		
Supply Voltage  Control Interfaces, Standard  Control Interfaces, Optional  External hardware control, analog power control, analog monit Ethernet control, GUI, and API  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W × D × H  Optical Fiber  Cooling Method  Water  Environmental Specifications	Beam Quality	100µm fiber ≤ 4.3mm-mrad		
Supply Voltage  Control Interfaces, Standard  External hardware control, analog power control, analog moning Ethernet control, GUI, and API  Control Interfaces, Optional  EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus  Mechanical Specifications  Dimensions, W × D × H  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Environmental Specifications	Wavelength	1070 ± 10nm		
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Mechanical Specifications  Dimensions, W × D × H  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Water  Environmental Specifications	Control Interfaces, Standard	External hardware control, analog power control, analog monitors, Ethernet control, GUI, and API		
Dimensions, W × D × H  Optical Fiber  10, 20, 30m, QBH connector standard  Cooling Method  Water  Environmental Specifications	Control Interfaces, Optional	EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus		
Optical Fiber 10, 20, 30m, QBH connector standard  Cooling Method Water  Environmental Specifications	Mechanical Specifications			
Cooling Method Water Environmental Specifications	Dimensions, W x D x H	685 × 800 × 560mm		
Environmental Specifications	Optical Fiber	10, 20, 30m, QBH connector standard		
	Cooling Method	Water		
Operating Temperature <sup>1</sup> +10 to +40°C	Environmental Specifications			
	Operating Temperature <sup>1</sup>	+10 to +40°C		
Storage Temperature -10 to +60°C	Storage Temperature	-10 to +60°C		
Relative Humidity 10 to 80%	Relative Humidity	10 to 80%		

<sup>&</sup>lt;sup>1</sup> Non-condensing or with use of CDA.







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