

High-Power Corona Fiber Lasers

Programmable beam technology to maximize factory productivity and capability



The all-new nLIGHT® Corona™ CFX-12000 and CFX-15000 are the first high power fiber lasers on the market to give users the ability to tune the beam profiles in the fiber based on their application. With a single Corona fiber laser, users can rapidly select from high-intensity, small-spot-size beams to large, donut-shaped beams, and everything in between. This dramatic advance enables optimal thick and thin metal cutting, higher cutting speed, superior edge quality, and improved piercing time with a single tool.

End users get the best of all worlds—the speed of high-power fiber lasers for thin sheet, the quality of CO2 lasers for thick mild steel, and the high uptime and lower operating costs of a fiber laser.

Features

- **12-15kW**
Delivers excellent productivity for more parts per day and increased profits.
- **Optimized Tuning of Beam Size and Shape**
Maintains fiber laser performance, stability, efficiency, and reliability with spot sizes and beam shapes from small top-hat to large donut mode.
- **Rapid Beam Switching**
Beam adjustments in less than 30 ms allows for real-time optimization of each process step while maintaining full-power operation.
- **Back-Reflection Protection**
Hardware-based back-reflection protection allows processing of even the most reflective metals with no interruptions or damage to the laser.
- **Innovative All-Fiber Beam Shaping**
All-fiber technology does not use complex, performance limiting hardware such as; free-space optics, zoom process heads, and external fiber-to-fiber couplers.
- **Unparalleled Serviceability**
Modular design simplifies repairs maximizing uptime.

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nLIGHT Corona 12-15kW Fiber Laser Specifications




Models	CFX-12000	CFX-15000
Optical Specifications		
Mode of Operation	CW/Modulated	
Polarization	Random	
Maximum Average Power, CW	12kW	15kW
Power Tunability	5 – 100%	
Power Variation, 8-Hour	≤ 1%	
Modulation Frequency	≤ 20kHz	
Rise and Fall Times	≤ 10μs	
Beam Quality	100μm fiber ≤ 5mm-mrad 200μm fiber ≤ 11.0mm-mrad	
Wavelength	1070 ± 10nm	
Electrical Specifications		
Supply Voltage	400 – 480VAC 3P+PE, 50/60Hz	
Control Interface, Standard	External hardware control, analog power control, analog monitors, Ethernet control, GUI, and API	
Control Interface, Optional	EtherCAT, EtherNet/IP, DeviceNet, Profinet, Profibus	
Mechanical Specifications		
Dimensions (W x D x H)	1004 x 804 x 701mm	
Optical Fiber	10, 15, 20m, QD connector standard	
Cooling Method	Water	
Environmental Specifications		
Operating Temperature ¹	+10 to +40°C	
Storage Temperature	-10 to +60°C	
Relative Humidity	10 to 80%	

¹ Non-condensing or with use of CDA.

nLIGHT Corona Beam Control Example

As an example, Table 1 shows the typical Corona beam output. Note that beams with similar diameters or BPP values can have significantly different shapes or power distributions. Corona's wide range of beam characteristics provides the versatility necessary to optimize each application or process step.

Table 1 – Corona Beam Characteristics

Setting	Corona Beam	Beam Description	Beam Diameter (typical) ¹	BPP (typical) ¹	Optimized Cutting Example
0		Small Fat-top	100μm	5.7mm-mrad	Piercing Any Metal, Thin Sheet
1		Large Flat-top	315μm	17mm-mrad	Nitrogen Kerf Optimization
2		Thick Donut	320μm	15mm-mrad	Oxygen Thick Mild Steel

¹ Measurement is using 86% method

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