



HighLight FL Compact

High-Power Single- and Multi-Mode Fiber Lasers

The HighLight™ FL Compact series of industrial, multi-kilowatt fiber lasers provides a cost-effective solution for many common welding tasks. These lasers feature Coherent's unique multi-stage back reflection immunity system which enhances reliability and lifetime, and enables safe processing of highly reflective materials, including brass, copper, and aluminum. HighLight FL Compact lasers are available either as single- or multi-mode lasers.

Single-mode Compact lasers offer output powers from 1 to 2.5 kW. The combination of small focus spot size and high-power density makes the single-mode lasers particularly well-suited for applications where high beam quality is needed. These include remote welding and other scanner-based configurations, welding using beam wobble, high-speed cutting of thin sheet metal, or conductive welding of dissimilar materials.

Multi-mode Compact lasers are available with output powers from 1 to 10 kW and a wide range of processing fibers to satisfy a variety of requirements.

FEATURES

- Output power: 1,000 - 10,000 Watts, 2.5 kW out of one fiber laser module
- Single- or multi-mode
- Excellent stability over the entire power range (1% to 100%)
- Inherently back reflection safe
- Industry-leading closed loop power control for high process consistency
- Optimized power profile programming tool for welding processes
- CleanWeld™ technology to optimize welding results



BENEFITS

- Reliable and fast welding process
- High welding seam and welded part quality
- Minimized operating costs

APPLICATIONS

- Welding
- Cutting
- Surface treatment



HighLight FL Compact Single-Mode Datasheet

SPECIFICATIONS	HighLight FL1000CSM	HighLight FL1500CSM	HighLight FL2000CSM	HighLight FL2500CSM
Nominal Power (W)	1,000	1,500	2,000	2,500
Power Range (%)	1 - 100			
Laser Beam Quality (BPP) at Collimator (mm x mrad)	≤ 0.4			
Power Stability (%)	± 1			
Pulse Frequency Range (kHz)	CW - 10			
Wavelength (nm)	1070 ± 10			
ELECTRICAL RATINGS				
Voltage (VAC)	400/440/480 ± 10%			
Max. Connected Load (kVA)	4.0	5.7	6.4	8.9
Max. Effective Power at Nominal Laser Power at 400 V (kW)	3.8	5.5	6.2	8.7
Max. Current Consumption at 400 V (A)	5.5	8	9	12.5
Fuses Type NH (A)	16		32	
COOLING				
Recommended Cooling Capacity Laser & QHB/QD (kW)	2.2	3.3	4.4	5.6
Flow Rate Laser (l/min)	24			
Flow Rate QHB/QD (l/min)	2			
Laser Temperature (°C)	25 ± 1			
Temperature for QBH/QD (°C)	24 - 45			
Max. Pressure Laser (MPa)	0.5			
Max. pressure QBH/QD (MPa)	0.4			
Typical Pressure Drop Laser (MPa)	0.25			
FIBER DELIVERY SYSTEM				
Interface	QBH, QD			
Diameter (µm)	20			
Length (m)	15, 20	15, 10	10	5
DIMENSIONS & WEIGHTS				
Laser Dimension L x W x H (mm) without signal tower	Mini: 794 x 916 x 557			
Laser Weight (kg)	< 200			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature (°C)	5 - 40			
Humidity (°C)	Environmental conditions always below the dew point. Condensation to laser, QHB/QD and optics must be avoided during the operation, storage and transport.			
CUSTOMER INTERFACE				
Digital Signals (V DC)	24			
Power Control (V DC)	0 - 10			
Gate Control (V DC)	24, rise/fall time < 30 µs			
OPTIONS LASER				
	Field bus (Ethernet/IP, Profinet, Profibus, Devicenet, Ethercat), Scanner control interface, Multi station interface			

HighLight FL Compact Multi-Mode Datasheet

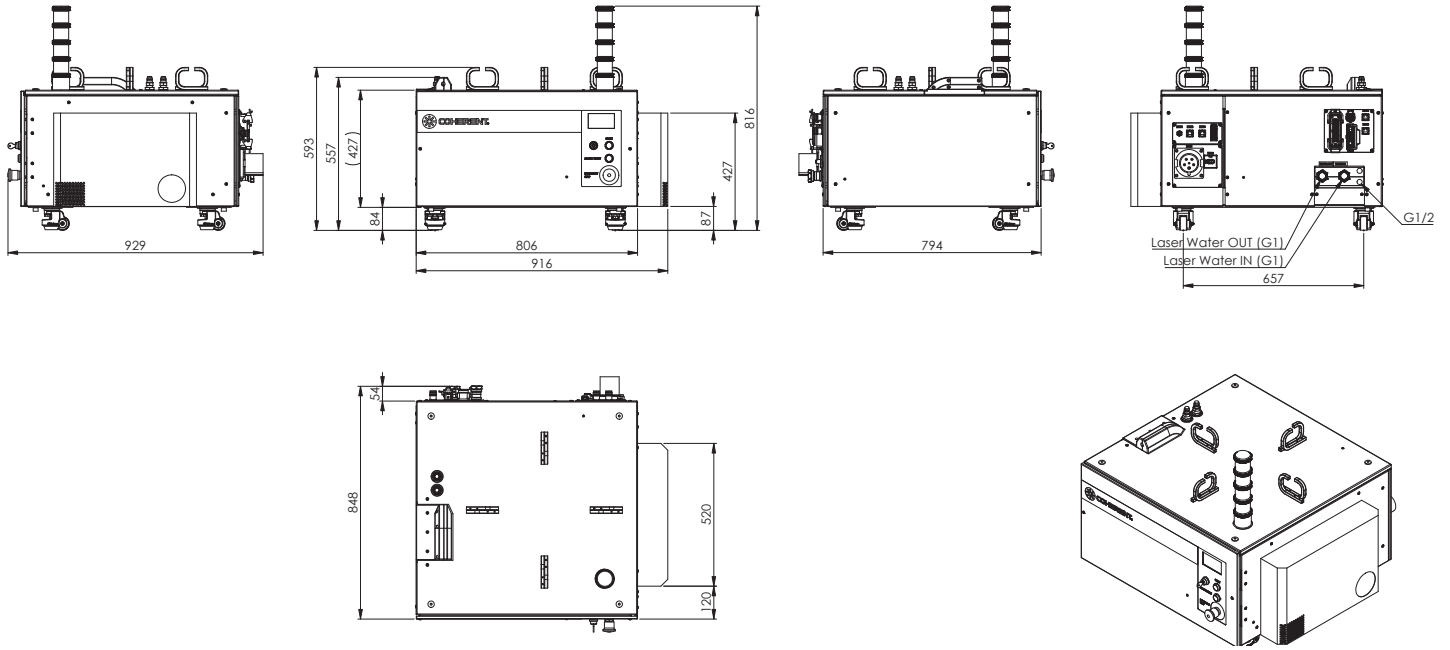
SPECIFICATIONS	HighLight FL1000C	HighLight FL2000C	HighLight FL4000C	HighLight FL5000C
Nominal Power (W)	1,000	2,000	4,000	5,000
Power Range (%)	1 - 100			
Laser Beam Quality (BPP) at Collimator (mm x mrad)	50 µm: ≤ 2.5 100 µm: ≤ 4 150 µm: ≤ 6			
Power Stability (%)	± 1			
Pulse Frequency Range (kHz)	CW - 10			
Wavelength (nm)	1070 ± 10			
ELECTRICAL RATINGS				
Voltage (VAC)	400/440/480 ± 10%			
Connected Load (kVA)	4.0	6.4	12.7	17.5
Effective Power at Nominal Power* (kW)	3.8	6.2	12.5	17.3
Max. Current Consumption at 400 V (A)	5.5	9	18	18.9
Fuses Type NH (A)	16	32	32	32
COOLING				
Recommended Cooling Capacity Laser & QHB/QD (kW)	2.2	4.4	8.9	11.1
Flow Rate Laser (l/min)	24		43	
Flow Rate QHB/QD (l/min)	2			
Laser Temperature (°C)	25 ± 1			
Temperature for QBH/QD (°C)	24 - 45			
Max. Pressure Laser (MPa)	0.5			
Max. pressure QBH/QD (MPa)	0.4			
Typical Pressure Drop Laser (MPa)	0.25			
FIBER DELIVERY SYSTEM				
Interface	QBH/QD			
Diameter (µm)	50 - 150			
Length	15, 20			
DIMENSIONS & WEIGHTS				
Laser Dimension L x W x H (mm) without signal tower	Mini: 794 x 916 x 557		Midi: 794 x 916 x 824	
Laser Weight (kg)	< 200		<350	
ENVIRONMENTAL CONDITIONS				
Ambient Temperature (°C)	5 - 40			
Humidity (°C)	Environmental conditions always below the dew point. Condensation to laser, QHB/QD and optics must be avoided during the operation, storage and transport.			
CUSTOMER INTERFACE				
Digital Signals (V DC)	24			
Power Control (V DC)	0 - 10			
Gate Control (V DC)	24, rise/fall time < 30 µs			
OPTIONS LASER				
	Field bus (Ethernet/IP, Profinet, Profibus, Devicenet, Ethercat), Scanner control interface, Multi station interface			

HighLight FL Compact Multi-Mode Datasheet

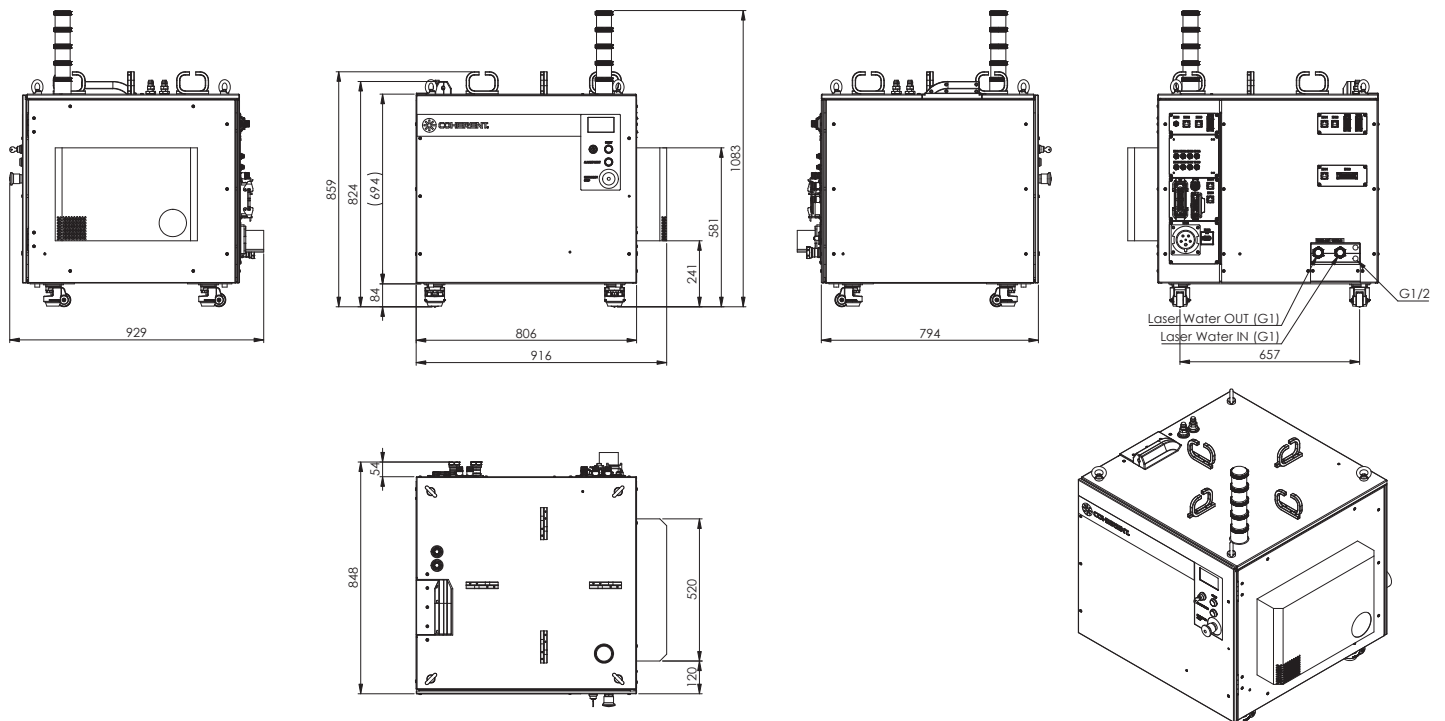
SPECIFICATIONS	HighLight FL6000C	HighLight FL7500C	HighLight FL8000C	HighLight FL10000C
Nominal Power (W)	6,000	7,500	8,000	10,000
Power Range (%)	1 - 100			
Laser Beam Quality (BPP) at Collimator (mm x mrad)	50 μm: ≤ 2.5 100 μm: ≤ 4 150 μm: ≤ 6		100 μm: ≤ 4 150 μm: ≤ 6	
Power Stability (%)	± 1			
Pulse Frequency Range (kHz)	CW - 10			
Wavelength (nm)	1070 ± 10			
ELECTRICAL RATINGS				
Voltage (VAC)	400/440/480 ± 10%			
Connected Load (kVA)	18.9	24.4	25.1	34.8
Effective Power at Nominal Power* (kW)	18.7	24.2	24.9	34.6
Max. Current Consumption at 400 V (A)	27	35	36	50
Fuses Type NH (A)	63			
COOLING				
Recommended Cooling Capacity Laser & QHB/QD (kW)	13.3	16.7	17.8	22.2
Flow Rate Laser (l/min)	65		84	
Flow Rate QHB/QD (l/min)	2			
Laser Temperature (°C)	25 ± 1			
Temperature for QBH/QD (°C)	24 - 45			
Max. Pressure Laser (MPa)	0.5			
Max. pressure QBH/QD (MPa)	0.4			
Typical Pressure Drop Laser (MPa)	0.25			
FIBER DELIVERY SYSTEM				
Interface	QBH/QD			
Diameter (μm)	50 - 150		100, 150	
Length	15, 20	5 (50 um), 15, 20	15, 20	15, 20
DIMENSIONS & WEIGHTS				
Laser Dimension L x W x H (mm) without signal tower	Maxi: 794 x 951 x 1322			
Laser Weight (kg)	< 490		< 540	
ENVIRONMENTAL CONDITIONS				
Ambient Temperature (°C)	5 - 40			
Humidity (°C)	Environmental conditions always below the dew point. Condensation to laser, QHB/QD and optics must be avoided during the operation, storage and transport.			
CUSTOMER INTERFACE				
Digital Signals (V DC)	24			
Power Control (V DC)	0 - 10			
Gate Control (V DC)	24, rise/fall time < 30 μs			
OPTIONS LASER				
	Field bus (Ethernet/IP, Profinet, Profibus, Devicenet, Ethercat), Scanner control interface, Multi station interface			

MECHANICAL SPECIFICATIONS

Mini:
 HighLight FL1000C - FL2000C
 HighLight FL1000CSM - FL2500CSM

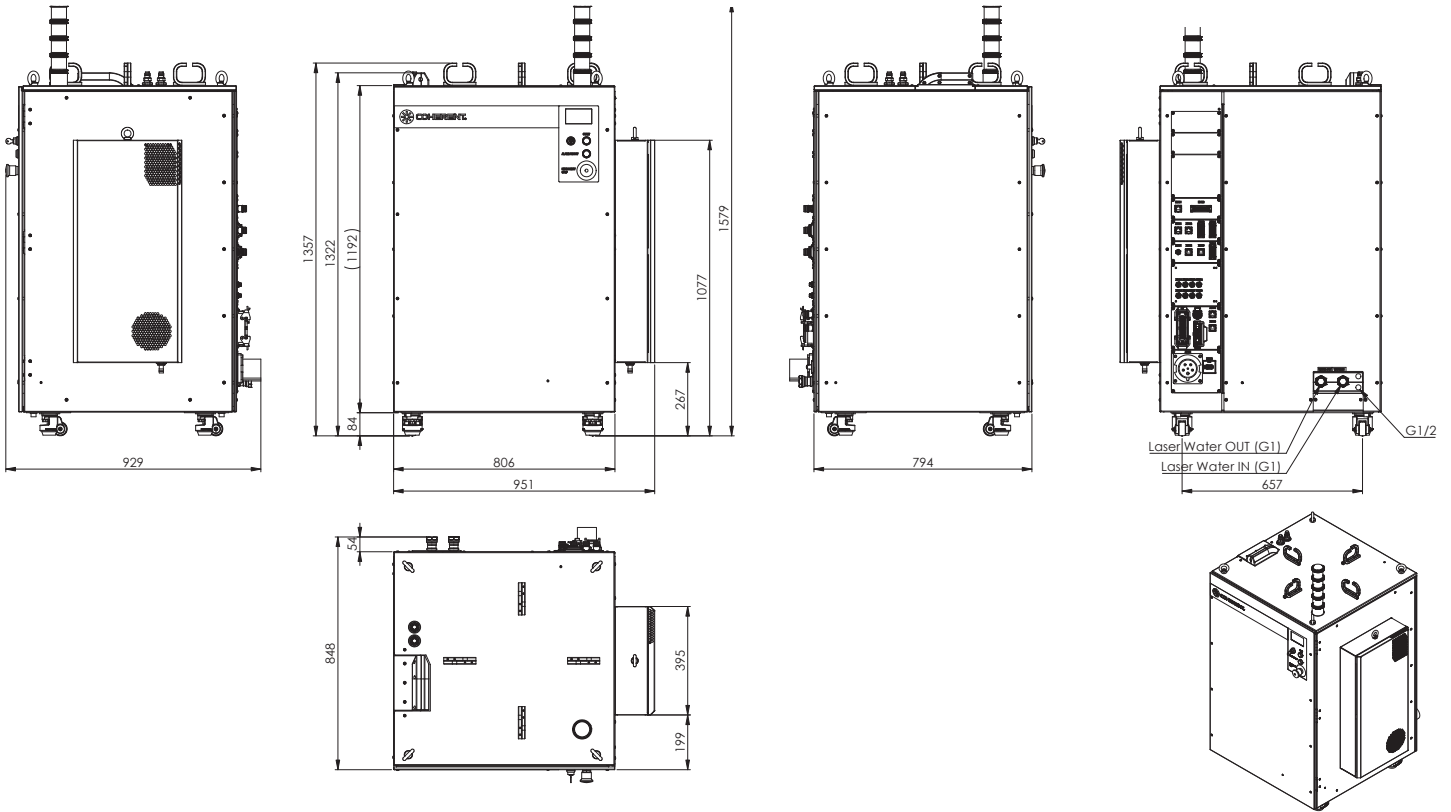


Midi:
 HighLight FL4000C - FL5000C



MECHANICAL SPECIFICATIONS

Maxi:
HighLight FL6000C - HighLight FL10000C



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent offers a limited warranty for all HighLight Lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.
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DANGER

VISIBLE AND/OR INVISIBLE LASER RADIATION
 AVOID EYE OR SKIN EXPOSURE TO
 DIRECT OR SCATTERED RADIATION

MODEL: HighLight FL Vx: FIBER LASER
MAXIMUM OUTPUT: 10000 WATTS CW
 100 µSEC PULSE ∞
 at wavelength in the range of 950 - 1150 nm
CLASS IV LASER PRODUCT

ALIGNMENT LASER DIODE INSTALLED
CLASS IIIa LASER RADIATION ALSO EMITTED
 AVOID DIRECT EYE EXPOSURE
MAXIMUM OUTPUT: 5mW CW/ WAVELENGTH: 633-670nm

CAUTION
INVISIBLE LASER RADIATION CLASS II
 WHEN OPERATED
 INTERLOCK OPERATES
 AVOID EYE OR SKIN EXPOSURE TO
 DIRECT OR SCATTERED RADIATION

CAUTION
VISIBLE LASER RADIATION
 CLASS III
 AVOID DIRECT EYE EXPOSURE

Coherent industrial lasers are designed in strict accordance with the respective safety regulations. We certify that each laser manufactured by our company complies with FDA Radiation Performance Standards, 21 CFR Subchapter J and with IEC 60825. Warning labels as shown in the figure appear on each Coherent laser to indicate the respective classification.