HighLight FL-ARM Compact

High-Power Adjustable Ring Mode (ARM) Fiber Lasers

The HighLight™ FL-ARM Compact series of industrial, multi-kilowatt fiber lasers delivers superior results in a variety of challenging welding tasks. Adjustable ring mode refers to the unique output beam from this laser, which consists of two independently controllable, co-axial beams from a single delivery fiber.

HighLight™ FL-ARM Compact lasers are available in two configurations. A multi-mode version (the center spot is multi-transverse mode), provides the ability to join parts having large or inconsistent gaps, while producing improved joint strength and a smaller heat affected zone (HAZ). It also delivers high speed and high throughput, spatter-free processing, and lowers overall production costs by largely eliminating the need for post-processing. It is particularly useful for applications such as crack free welding of aluminum without filler wire, and zero-gap lap welding of zinc coated steel.

A superior brightness version of the laser (1.5 kW center + 2.5 kW ring) with the 25 µm center core diameter and 15 m fiber length producing significantly smaller spot size, is also available.

FEATURES

- Output power: 2,000 - 10,000 Watts
- Adjustable Ring Mode (ARM)
- 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

BENEFITS

- Reliable and fast welding process with high efficiency
- Superior welding seam quality with minimal heat affected zones
- Maximized freedom for welding geometries
- Highest welded part quality with minimum reject rates
- Minimized operating costs

APPLICATIONS

- High-quality welding of challenging materials like high-strength steel, aluminum, or copper
- Cutting

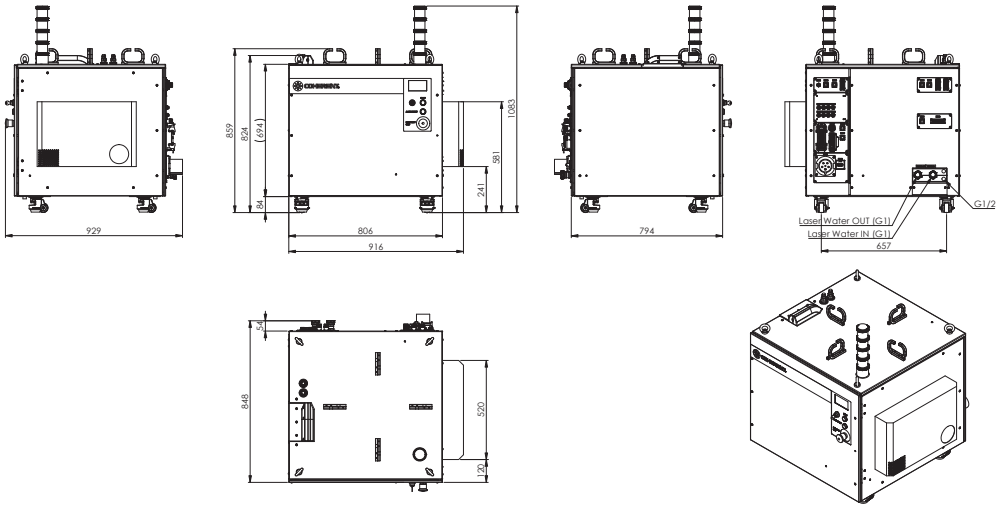
COHERENT®
Superior Reliability & Performance

SPECIFICATIONS	HighLight FL2000C-ARM	HighLight FL4000C-ARM	HighLight FL5000C-ARM
Nominal Power (W)	2,000	4,000	5,000
Power Range (%)	1 - 100		
Laser Beam Quality (BPP) at Collimator (mm x mrad)	For 70/180 µm Center < 2.5, Ring < 9 For 50/140 µm Center < 2.5, Ring < 6.5		
Power Stability (%)	± 1		
Pulse Frequency Range (kHz)	CW - 10		
Wavelength (nm)	1070 ± 10		
ELECTRICAL RATINGS			
Voltage (VAC)	400/440/480 ± 10%		
Connected Load (kVA)	8.9	12.7	17.5
Effective Power at Nominal Power (kW)	8.7	12.5	17.3
Max. Current Consumption at 400 V (A)	12.5	18	25
Fuses Type NH (A)	32		
COOLING			
Recommended Cooling Capacity Laser & QBH/QD (kW)	4.4	8.9	11.1
Flow Rate Laser (l/min)	43		
Flow Rate QHB/QD (l/min)	2		
Temperature Laser (°C)	25 ± 1		
Temperature for QHB/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)	Center D 70, Ring OD 180 / Center D 50, Ring OD 140		
Length (m)	20 (other lengths on request)		
DIMENSIONS & WEIGHTS			
Laser Dimension L x W x H (mm) without signal tower	Midi: 794 x 916 x 824		
Laser Weight (kg)	< 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		

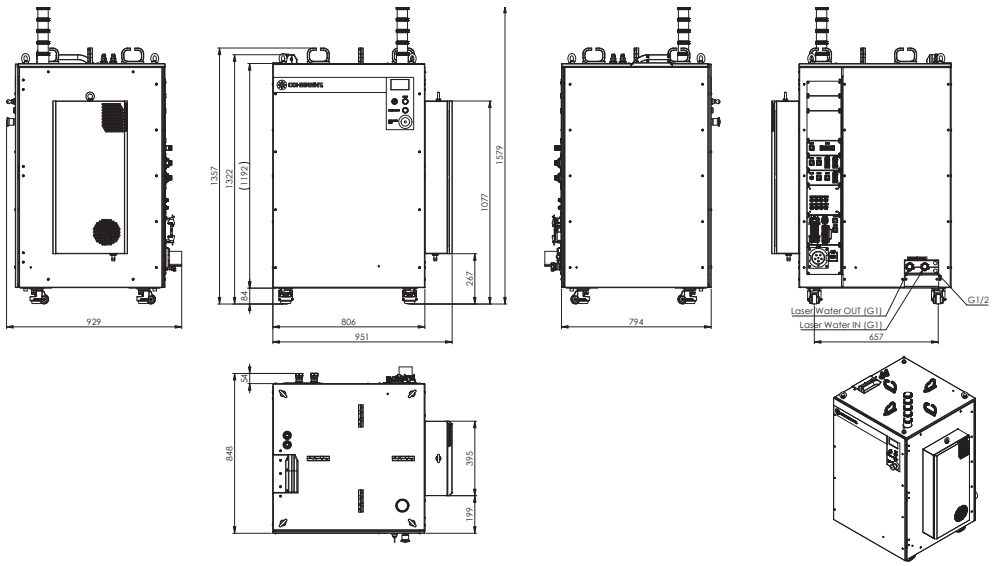
SPECIFICATIONS	HighLight FL6000C-ARM	HighLight FL7500C-ARM	HighLight FL8000C-ARM	HighLight FL10000C-ARM
Nominal Power (W)	6,000	7,500	8,000	10,000
Power Range (%)	1 - 100			
Laser Beam Quality (BPP) at Collimator (mm x mrad)	For 70/180 µm Center < 2.5, Ring < 9 For 50/140 µm Center < 2.5, Ring < 6.5			
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 & QBH/QD (kW)	13.3	16.7	17.8	22.2
Flow Rate Laser (l/min)	65		84	
Flow Rate QHB/QD (l/min)	2			
Temperature Laser (°C)	25 ± 1			
Temperature for QHB/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)	Center D 70 µm, Ring OD 180 µm / Center D 50 µm, Ring OD 140 µm			
Length (m)	20 m (other lengths on request)			
DIMENSIONS & WEIGHTS				
Laser Dimension L x W x H (mm) without signal tower)	Maxi: 794 x 916 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 V			
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

Midi: HighLight FL2000C-ARM - FL5000C-ARM



Maxi: HighLight FL6000C-ARM - High FL10000C-ARM



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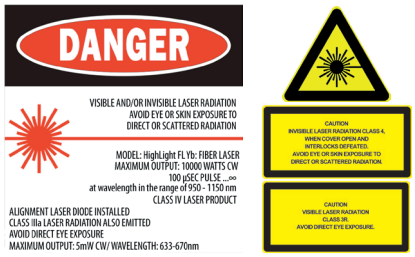

Coherent industrial lasers are designed in strict accordance with the respective safety regulations. We certify that each laser manufactured by our company complies with FDA Radiation Performance Standards, 21 CFR Subchapter J and with IEC 60825. Warning labels as shown in the figure appear on each Coherent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