HighLight FL-ARM with Scanner Control

Adjustable Ring Mode Fiber Laser with Integrated Scanner Control

The HighLight™ FL-ARM with integrated scanner control is a complete fiber laser welding solution for demanding, high volume e-mobility applications that enables increased productivity and quality in a gigafactory environment. Specifically, it combines a multi-kW, HighLight FL-ARM (adjustable ring mode) fiber laser with a scanner controller, power transformer, water cooling system, and Fieldbus interface into a single cabinet that occupies 30% less space than separate components. It is compatible with both 2D or 3D remote welding optics.

This integrated platform reduces the time, effort, and complexity of bringing precision laser welding processes into production. It is available with options including a chiller-based cooling system, vision system and process monitoring.

FEATURES

- Simplified installation
- Complete support from a single point of contact
- Reduced operation and service area
- UL508 compliant
- Lockable doors
- Large scan field
- Improved welding results with ARM laser beam optimization capabilities

APPLICATIONS

- Prismatic battery can-cap welding
- Battery interconnects
- Joining large form factor cylindrical battery components
- Aluminum battery module enclosure welding
- Busbar welding

COHERENT

Specifications	HighLight FL5000-ARM with integrated scanner control and beam management FFC	HighLight FL7500-ARM with integrated scanner control
Nominal Power (W)	5000	7500
Power Range (%)	1 to 100	
Laser Beam Quality (BPP) at Collimator (mm x mra)	For 100/290 µm + FFC: Center ≤4, Ring ≤14 For 50/200 µm + FFC: Center ≤2.5, Ring ≤10	For 70/180 µm: Center ≤2.5, Ring ≤9 For 50/140 µm: Center ≤2.5, Ring ≤6.5 For 50/230 µm: Center ≤2.5, Ring ≤11.5
Power Stability (%)	±1	
Pulse Frequency Range (kHz)	CW - 10	
Wavelength	1070 ±10	
Electrical Ratings		
Voltage (VAC)	400/440/480 ±10%	
Connected Load (kVA)	24.8	29.9
Effective Power at Nominal Power (kW)	24.6	29.7
Max. Current Consumption at 400 V (A)	35.5	43
Fuses Type NH (A)	63	
UL508	Compliant	
Safety Class	PL-e	
Cooling		
Recommended Cooling Capacity Laser (kW)	11.1	16.7
Recommended Cooling Capacity FFC and QHB/QD (kW)	FFC: 2.0	QD/QBH: 1
Flow Rate Laser (l/min.)	43	65
Flow Rate Optics Circuit (l/min.)	3.0 - with shortened HM2D/RLSK tubing	
Temperature Laser (°C)	25 ±1	
Temperature Optics Circuit (°C)	15 to 35, non condensing	
Max. Pressure Laser (MPa)	0.5	
Max. Pressure Optics Circuit (Mpa)	0.5 - note includes FFC circut inside	0.5
Typical Pressure Drop Laser (MPa)	0.25	
Fiber Delivery System		
Interface	QBH/QD	
Diameter (µm)	Center D 100, Ring OD 290 Center D 50, Ring OD 200	Center D 70, Ring OD 180 Center D 50, Ring OD 140 Center D 50, Ring OD 230
Length (m)	20	
Dimensions and Weights		
Laser Dimension (L x W x H) (mm)	806 x 808 x 1276	
Laser Weight (kg)	<460	

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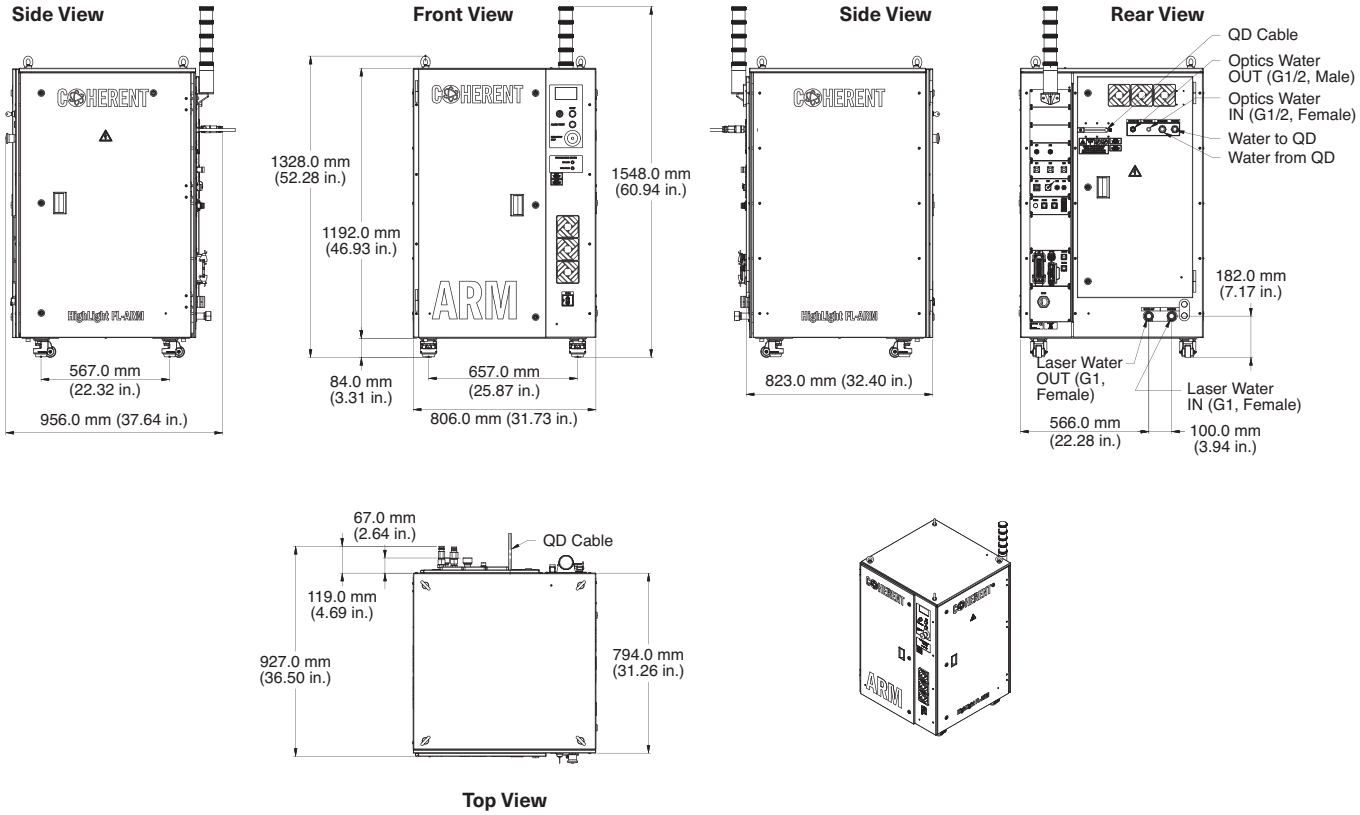
Environmental Conditions		
Ambient Temperature in Operation (°C)	5 to 40	
Humidity (°C)	Environmental conditions always below the dew point. Condensation to laser, QHB/QD and optics must be avoided during the operation, storage and transport.	
Customer Interface		
Scanner II-VI HM2D /RLSK	II- VI HM2D/RLSK	
Fieldbus	Ethernet/IP, Profinet, Profibus, Devicenet, Ethercat	
TWINSAFE, only with Ether-CAT option	x	
Gate Control (V DC)	24, rise/fall time < 30 µs	
Options Laser		
Vision System	with HIGHmotion 2D scanner	

Mechanical Specifications

HighLight FL-ARM with Integrated Scanner Control



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