

Compact Evolution Series

Industrial High Power
Diode Laser

The Compact Evolution series products are high power, fiber-coupled, industrial diode laser systems offering up to 600 W output power. With a modular and robust design, the Compact Evolution provides optimum efficiency, flexibility, and reliability in industrial applications such as plastic welding, selective soldering, brazing and heat treatment.

Compact Evolution series products offer a turn-key solution with an extensive range of accessory options that provide flexibility for integration into a wide range of laser-based manufacturing systems.

Features and Benefits

- Output power: up to 600 W
- 19" Rack for easy integrate
- Long life diode modules
- Equipped with control unit for internet-accessible diagnostics and e-service

Applications

- Brazing
- Heat Treatment
- Plastics Welding
- Scientific Applications
- Selective Soldering



SPECIFICATIONS

	Compact Evolution 980				
	200	300	400	500	600
Nominal Power (W)	200	300	400	500	600
Power Range (%)	10 to 100				
Laser Beam Quality (BPP) (mm * mrad)	22				
Power Stability Over 24-hour; Cooling Water $\Delta T = \pm 1$ K (%)	± 2				
Pulse Frequency Range (Hz)					
Laser On-Signal	1000				
Analog Modulation	600				
Wavelength (nm)	980				
ELECTRICAL RATINGS					
Voltage	200 to 240 (1P/N/PE)				
Connected Load (kVA)	~0.4	~0.6	~0.8	~1.1	~1.3
Effective Power at Nominal Power (kW)	~0.5	~0.7	~0.9	~1.2	~1.4
Max. Current Consumption at 230 V (A)	~2.2	~3.0	~3.9	~5.2	~6.0
Fuses Type NH (A)	16				
Residual Current Device ¹ (RCD)	All-current sensitive, short time delay, Type B				
COOLING					
Recommended Cooling Capacity (kW)	0.25	0.35	0.5	0.6	0.8
Cooling Water ² Pressure (Max. Value) (bar)	6				
Cooling Water ² Temperature (°C)	22 \pm 1K				
Cooling Water ² Flow Rate (Min. Value) (l/min.)	3	5	5	10	10
Pressure Drop (hPa)	2000	3500	3500	1000	1000
FIBER DELIVERY SYSTEM					
Interface	QBH				
Diameter (μ m)	200				
Numerical Aperture	0.22				
Length (m)	≤ 20				
Accessories (options)	Fixed Optics, Scanners, Process control via Pyrometer, Chiller				
DIMENSIONS & WEIGHTS					
Laser Dimension (L x W x H)	~626 x ~483 x ~133 mm (~24.65 x 19.02 x ~5.23 in.)				
Laser Weight	<30 kg (66.14 lbs.)				
ENVIRONMENTAL CONDITIONS					
Ambient Temperature in Operation (°C)	18 to 40 °C (64 to 104 °F)				
Storage Temperature (°C)	5 to 50 °C (41 to 122 °F)				
CUSTOMER INTERFACE					
Analog Power (V DC)	0 to 10 (600 Hz ma. Modulation frequency)				
Digital Signals (V DC)	24				
Interface for Control via PC	Ethernet				
OPTIONS LASER					
	Bus Interface (RS232, CanOpen, EtherCAT, RTI, ...)				

¹ Optional.

² Use water according to DIN ISO 3696.

AVAILABLE ACCESSORIES¹

COLLIMATORS



The collimator is optimized to the requirements of Compact Series diode laser optical specifications: It is available with different collimating focal length for SMA and QBH fiber connector.

FIXED OPTICS



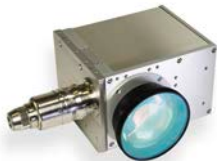
The processing head with fixed spot size is used for soldering or contour welding. Different focal length allow a wide variation of spot sizes to meet the requirements of the application.

FIXED OPTICS WITH INTEGRATED PYROMETER



The processing head with integrated pyrometer is used for non-contact measuring of the work piece temperature and enables closed loop temperature control. A powerful software package allows processes documentation and optimization.

SCANNER OPTICS



Scanner optics is used for quasi-simultaneous welding. A broad variation of spot sizes and scanning fields are available to meet the requirements of the application.

SCANNER OPTICS WITH INTEGRATED PYROMETER



The processing head enables quasi-simultaneous welding with the advantage of closed loop temperature control.

¹ All processing heads are available with SMA or QBH fiber connector.

AVAILABLE ACCESSORIES¹

OPTICS FOR RADIAL WELDING



The processing head enables simultaneous welding of a radial symmetrical component without rotating part or optics. Customer specific, dimensioning, and optical set up can be optimized to the welding geometry.

OPTICS FOR RADIAL WELDING WITH INTEGRATED PYROMETER



The processing head enables quasi-simultaneous welding of a radial symmetrical component with the advantage of closed loop temperature control. The programmable servomotor allows the welding without rotating the part.

LINE OPTICS



Line optics are used for applications that require a rectangular or square spot. Customized optical layouts allow a wide variation of different foci's.

INTERFACE CONVERTER



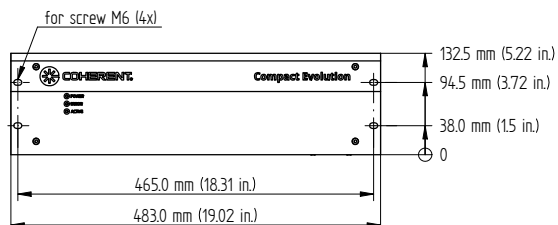
Interface Converter allows customers already using Compact Lasers an easy upgrade to Compact Evolution without changing the wiring of the customer interface.

¹ All processing heads are available with SMA or QBH fiber connector.

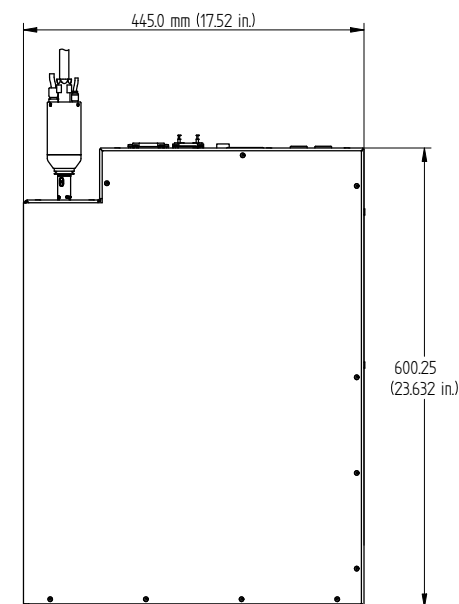
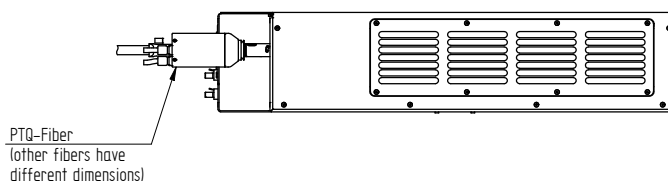
MECHANICAL SPECIFICATIONS

Compact Evolution Series

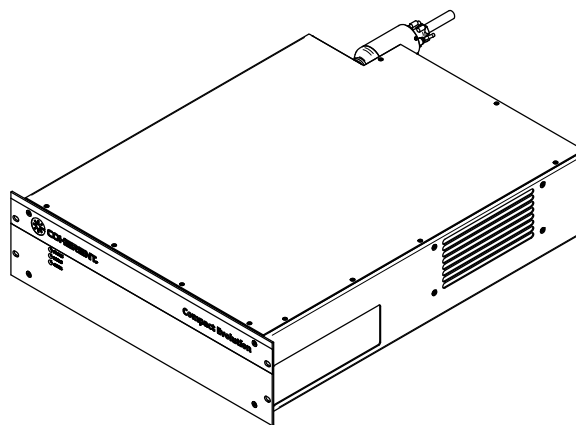
Front View



Side View



Top View



Industriegehäuse 19"-3HE
Industrial Rack Mount 19"-3HU
Rack Industriel 19"-3UH



Coherent, Inc.,
5100 Patrick Henry Drive Santa Clara, CA 95054
p. (800) 527-3786 | (408) 764-4983
f. (408) 764-4646

tech.sales@coherent.com www.coherent.com

Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

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