

# Evolution

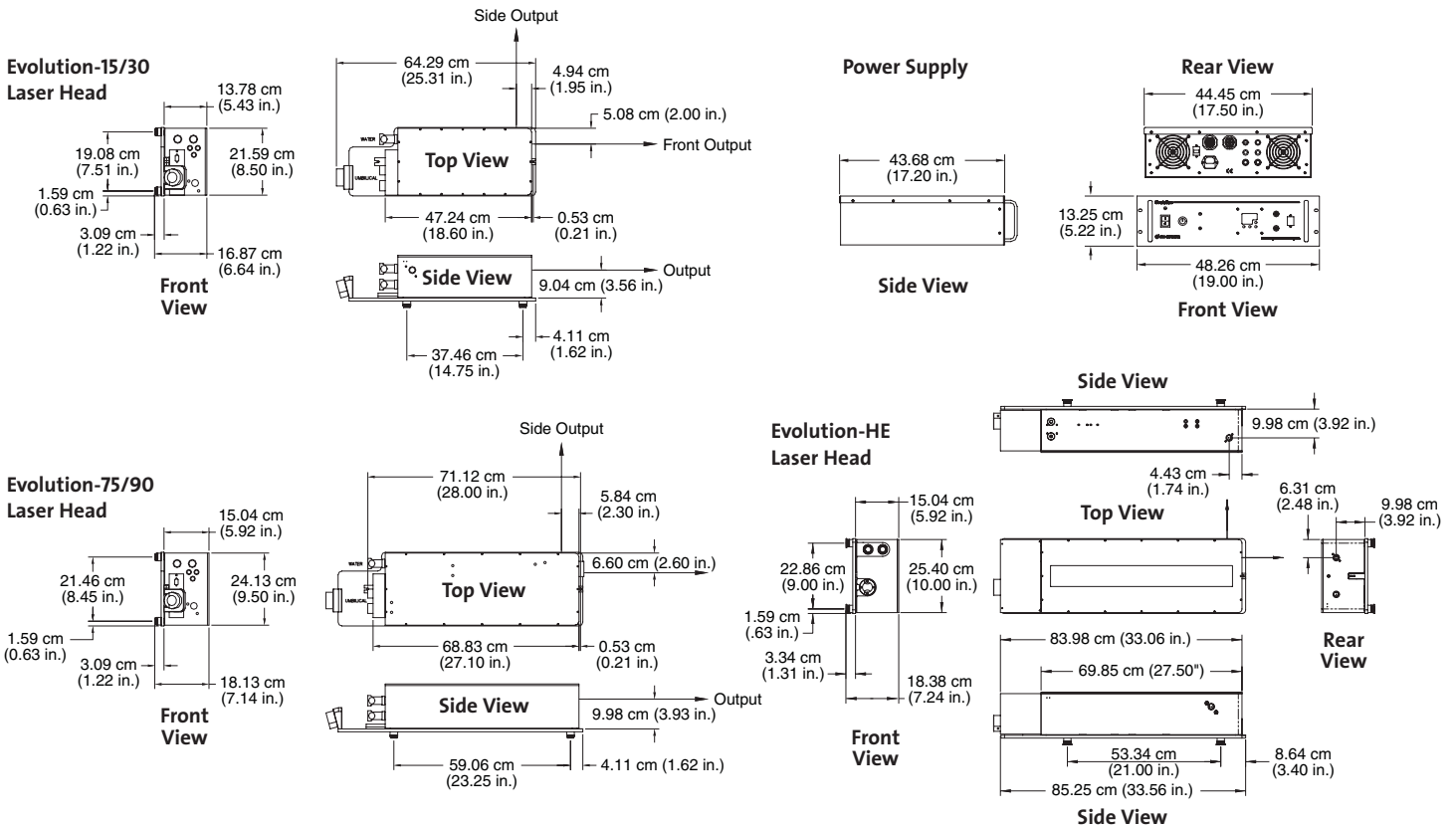
## High-Power, Diode-Pumped, Green, Q-Switched Laser

### Features

- High energy per pulse (>45 mJ)
- Stable (<1% RMS noise)
- System includes:
  - Laser head
  - Detachable umbilical
  - Compact power supply
  - Laptop computer
  - Water-to-air heat exchanger
- Water-cooled, monolithic structure laser head for best mechanical and thermal stability
- Side or front beam exit port options
- User-friendly LabVIEW®-based control software
- Large installed base
- Key applications include:
  - Pumping Ti:Sapphire lasers
  - Materials processing



### Mechanical Specifications



Superior Reliability & Performance

## Evolution

### High-Power, Diode-Pumped, Green, Q-Switched Laser

#### System Specifications

	Evolution-15	Evolution-30	Evolution-75	Evolution-90	Evolution-HE
Wavelength	527	527	527	527	527
Pulse Repetition Rate	1 to 10 kHz	1 to 10 kHz	5 kHz (factory set)	5 kHz (factory set)	1 kHz (factory set)
Average Output Power	12W at 1 kHz 15W at 5 kHz 15W at 10 kHz	20W at 1 kHz 30W at 5 kHz 30W at 10 kHz	75W at 5 kHz	90W at 5 kHz	45W at 1 kHz
Energy-Per-Pulse	12 mJ at 1 kHz 3 mJ at 5 kHz 1.5 mJ at 10 kHz	20 mJ at 1 kHz 6 mJ at 5 kHz 3 mJ at 10 kHz	15 mJ at 5 kHz	18 mJ at 5 kHz	45 mJ at 1 kHz
Typical Pulse Width (FWHM)	<300 nsec at 1 kHz	<250 nsec at 1 kHz	<250 nsec at 5 kHz	<200 nsec at 5 kHz	<150 nsec at 1 kHz
Pulse-to-Pulse Energy Stability	<1% RMS	<1% RMS	<1% RMS	<1% RMS	<1% RMS
Polarization Ratio	Horizontal, >100:1	Horizontal, >100:1	Horizontal, >100:1	Horizontal, >100:1	Horizontal, >100:1
Spatial Mode	Multimode	Multimode	Multimode	Multimode	Multimode
Beam Divergence (full angle)	<10 mrad	<10 mrad	<8 mrad	<8 mrad	<8 mrad
Beam Circularity	>80%	>80%	>80%	>80%	>80%
Nominal Beam Diameter at Output Window (1/e <sup>2</sup> )	3 mm	3 mm	3 mm	3 mm	3 mm
Operating Voltage					
Laser (±10%, single-phase)	100 to 240 VAC	100 to 240 VAC	200 to 240 VAC	200 to 240 VAC	200 to 240 VAC
Chiller	230 VAC, 50 Hz (Europe) 110 VAC, 60 Hz	230 VAC, 50 Hz (Europe) 110 VAC, 60 Hz	230 VAC, 50 Hz (Europe) 110 VAC, 60 Hz	230 VAC, 50 Hz (Europe) 110 VAC, 60 Hz	230 VAC, 50 Hz (Europe) 110 VAC, 60 Hz
Line Frequency	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
Power Consumption					
Laser	0.4 kW typ.; 0.6 kW max.	0.8 kW typ.; 1 kW max.	1.75 kW typ.; 1.9 kW max.	1.75 kW typ.; 1.9 kW max.	1.75 kW typ.; 1.9 kW max.
Chiller	0.9 kW max.	1.8 kW max.	1.8 kW max.	1.8 kW max.	1.8 kW max.
Weight					
Laser	24 kg (53 lbs.)	24 kg (53 lbs.)	40 kg (88 lbs.)	40 kg (88 lbs.)	40 kg (88 lbs.)
Power Supply	14 kg (31 lbs.)	14 kg (31 lbs.)	14 kg (31 lbs.)	14 kg (31 lbs.)	14 kg (31 lbs.)
Chiller	44 kg (97 lbs.)	55 kg (122 lbs.)	55 kg (122 lbs.)	55 kg (122 lbs.)	55 kg (122 lbs.)
Umbilical	2 kg (4.5 lbs.)	2 kg (4.5 lbs.)	2 kg (4.5 lbs.)	2 kg (4.5 lbs.)	2 kg (4.5 lbs.)
Umbilical Length	3 m (10 ft.)	3 m (10 ft.)	3 m (10 ft.)	3 m (10 ft.)	3 m (10 ft.)
Warm-Up Time (typical)	<10 minutes from standby mode <30 minutes from cold start	<10 minutes from standby mode <30 minutes from cold start	<10 minutes from standby mode <30 minutes from cold start	<10 minutes from standby mode <30 minutes from cold start	<10 minutes from standby mode <30 minutes from cold start
Bore-Sight Accuracy (unit-to-unit)	0.5 mm and ±1 mrad Referenced to mounting features on laser head	0.5 mm and ±1 mrad Referenced to mounting features on laser head	0.5 mm and ±1 mrad Referenced to mounting features on laser head	0.5 mm and ±1 mrad Referenced to mounting features on laser head	0.5 mm and ±1 mrad Referenced to mounting features on laser head

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.

Coherent offers a limited warranty for all Evolution lasers. For full details of this warranty coverage, please refer to the Service section at [www.Coherent.com](http://www.Coherent.com) or contact your local Sales or Service Representative.



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