



# Genesis CX STM-Series

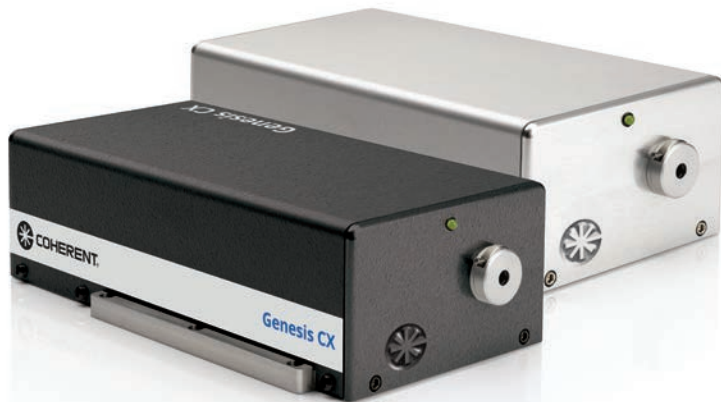
## High Performance High Power UV and Visible OPS Laser Systems

Based on Coherent's Optically Pumped Semiconductor Laser (OPSL) technology, the Genesis CX STM laser is a high-performance CW TEM<sub>00</sub> laser providing up to 10 W in the visible wavelength range (460 nm to 590 nm) and up to 250 mW in the UV (355 nm).

Standard wavelengths and powers include:

- 355 nm, at up to 250 mW
- 460, 480, 488, 514, 532, 561, 577, and 590 nm, at up to 10 W

OPSL technology furthermore offers the unique ability to tailor the wavelength of the laser to meet your unique applications requirement, limited only by the semiconductor material system being used. Current capabilities include 310 to 390 nm, 460 to 590 nm, and 920 to 1180 nm, with new wavelengths under development.



### FEATURES & BENEFITS

- Up to 10 W output power at visible wavelengths
- Up to 250 mW output power at UV wavelengths
- Standard wavelengths at 355, 460, 480, 488, 514, 532, 561, 577, and 590 nm
- Superior mode quality
- Power-invariant beam properties
- Low noise
- PermAlign™ solder-bonded optics technology
- AAA™ ultra-long life pump diodes
- OEM and end-user configuration options

### APPLICATIONS

- Semiconductor Inspection
- Semiconductor Mask Writing
- Flow Cytometry
- DNA Sequencing
- Particle Counting
- Confocal Microscopy
- Particle Image Velocimetry



SPECIFICATIONS <sup>1</sup>	Genesis CX-355 <sup>2</sup>
Wavelength (nm)	355 ±2
FWHM Linewidth (GHz)	<50
Pulse Format	CW
Spectral Purity (%)	>99
Output Power (mW)	40, 60, 80, 100, 150, 200, 250
Power Tunability <sup>3</sup>	5 mW to 100% full rated power
Spatial Mode	TEM <sub>00</sub>
Beam Quality (M <sup>2</sup> )	<1.2
Beam Circularity <sup>4</sup>	1.0 ±0.1
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	0.975 ±0.2
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	<1.2
Beam Waist Location <sup>5</sup> (m)	±0.325
Beam Position Stability <sup>6</sup> (µm/°C)	<5
Beam Pointing Stability <sup>6</sup> (µrad/°C)	<6
Beam Position Tolerance <sup>7</sup> (mm)	
Horizontal	±<1.0
Vertical	±<1.0
Beam Pointing Tolerance (mrad)	<5
Polarization Ratio	Linear, >100:1
Polarization Direction	Vertical <sup>10</sup> , ±5°
Noise (% rms) (10 Hz to 1 MHz)	<0.1
Power Stability <sup>8</sup> (%) (pk-pk)	±<1
Warm-up Time (minutes)	<10
CDRH Compliant	Yes
UTILITY REQUIREMENTS	
Operating Voltage (VAC)	100 to 240
Frequency (Hz)	50 to 60
Power Consumption (W)	500 <sup>11</sup>
Cooling Requirements for ambient temperatures up to 35°C for ambient temperatures up to 40°C for Genesis CX-532 10 W Laser	Heat sink required Genesis CX Air-Cooled Riser, Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent
ENVIRONMENTAL CONDITIONS	
Ambient Temperature Operating Condition Non-Operating Condition	10 to 40°C (50 to 104°F) non-condensing -10 to 60°C (14 to 140°F)
Relative Humidity <sup>9</sup> (%)	5 to 95

<sup>1</sup> Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

<sup>2</sup> Available in OEM or end user versions.

<sup>3</sup> Noise specification applies at full rated power. Noise varies roughly inversely proportionally to the output power.

<sup>4</sup> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>5</sup> Negative value corresponds to a location inside head.

<sup>6</sup> After warm-up over 2 hours.

<sup>7</sup> Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.

<sup>8</sup> Measured over 8 hours.

<sup>9</sup> Non-condensing.

<sup>10</sup> Vertical + normal to laser base plane.

<sup>11</sup> Power consumption for the CX 355-250 is 600 W.

SPECIFICATIONS <sup>1</sup>	Genesis CX-460 <sup>2</sup>	Genesis CX-480 <sup>2</sup>	Genesis CX-488 <sup>2</sup>	Genesis CX-514 <sup>2</sup>
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
FWHM Linewidth (GHz)	<30			
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (mW)	1000	1000, 2000, 3000	1000, 2000, 3000, 4000	2000, 4000
Power Tunability <sup>3</sup>	50 mW to 100% full rated power			
Spatial Mode	TEM <sub>00</sub>			
Beam Quality (M <sup>2</sup> )	<1.1			
Beam Circularity <sup>4</sup>	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	2.1 ±0.3	2.1 ±0.3	2.2 ±0.3	2.2 ±0.3
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	<0.5			
Beam Waist Location <sup>5</sup> (m)	±0.5			
Beam Position Stability <sup>6</sup> (µm/°C)	<5			
Beam Pointing Stability <sup>6</sup> (µrad/°C)	<5			
Beam Position Tolerance <sup>7</sup> (mm)				
Horizontal	±<1.0			
Vertical	±<1.0			
Beam Pointing Tolerance (mrad)	<5			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Horizontal, ±5°			
Noise (% rms) (10 Hz to 10 MHz)	<0.1			
Power Stability <sup>8</sup> (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
UTILITY REQUIREMENTS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
Cooling Requirements for ambient temperatures up to 35°C for ambient temperatures up to 40°C for Genesis CX-532 10 W Laser	Heat sink required Genesis CX Air-Cooled Riser, Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent			
ENVIRONMENTAL CONDITIONS				
Ambient Temperature Operating Condition Non-Operating Condition	10 to 40°C (50 to 104°F) non-condensing -10 to 60°C (14 to 140°F)			
Relative Humidity <sup>9</sup> (%)	5 to 95			

1 Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

2 Available in OEM or end user versions.

3 Noise specification applies at full rated power. Noise varies roughly inversely proportionally to the output power.

4 Circularity defined as vertical diameter divided by horizontal diameter.

5 Negative value corresponds to a location inside head.

6 After warm-up over 2 hours.

7 Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.

8 Measured over 8 hours.

9 Non-condensing.

SPECIFICATIONS <sup>1</sup>	Genesis CX-532 <sup>2</sup>	Genesis CX-532 <sup>2</sup>	Genesis CX-561 <sup>2</sup>	Genesis CX-577 <sup>2</sup>	Genesis CX-589/590 <sup>2</sup>
Wavelength (nm)	532 ±3	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<30				
Pulse Format	CW				
Spectral Purity (%)	>99				
Output Power (mW)	2000, 4000, 5000, 6000, 7000, 8000	10,000	3000	1000, 2000, 3000	2000, 3000
Power Tunability <sup>3</sup>	50 mW to 100% full rated power				
Spatial Mode	TEM <sub>00</sub>				
Beam Quality (M <sup>2</sup> )	<1.1				
Beam Circularity <sup>4</sup>	1.0 ±0.1				
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	2.3 ±0.3	2.3 ±0.3	2.3 ±0.3	2.3 ±0.3	2.4 ±0.3
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	<0.5				
Beam Waist Location <sup>5</sup> (m)	±0.5				
Beam Position Stability <sup>6</sup> (µm/°C)	<5				
Beam Pointing Stability <sup>6</sup> (µrad/°C)	<5				
Beam Position Tolerance <sup>7</sup> (mm)					
Horizontal	±<1.0				
Vertical	±<1.0				
Beam Pointing Tolerance (mrad)	<5				
Polarization Ratio	Linear, >100:1				
Polarization Direction	Horizontal, ±5°				
Noise (% rms) (10 Hz to 1 MHz)	<0.1				
Power Stability <sup>8</sup> (%) (pk-pk)	±<1				
Warm-up Time (minutes)	<10				
CDRH Compliant	Yes				
UTILITY REQUIREMENTS					
Operating Voltage (VAC)	100 to 240				
Frequency (Hz)	50 to 60				
Power Consumption (W)	500				
Cooling Requirements for ambient temperatures up to 35°C for ambient temperatures up to 40°C for Genesis CX-532 10 W Laser	Heat sink required Genesis CX Air-Cooled Riser, Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent Genesis CX Water-Cooled Riser or equivalent				
ENVIRONMENTAL CONDITIONS					
Ambient Temperature Operating Condition Non-Operating Condition	10 to 40°C (50 to 104°F) non-condensing -10 to 60°C (14 to 140°F)				
Relative Humidity <sup>9</sup> (%)	5 to 95				

<sup>1</sup> Optical parameters measured at the output plane of the laser head. Unless noted all parameters valid for the lifetime of the unit.

<sup>2</sup> Available in OEM or end user versions.

<sup>3</sup> Noise specification applies at full rated power. Noise varies roughly inversely proportionally to the output power.

<sup>4</sup> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>5</sup> Negative value corresponds to a location inside head.

<sup>6</sup> After warm-up over 2 hours.

<sup>7</sup> Measured at the output window. Positions are relative to the base and side of the laser as shown in the drawing.

<sup>8</sup> Measured over 8 hours.

<sup>9</sup> Non-condensing.

<sup>10</sup> Vertical + normal to laser base plane.

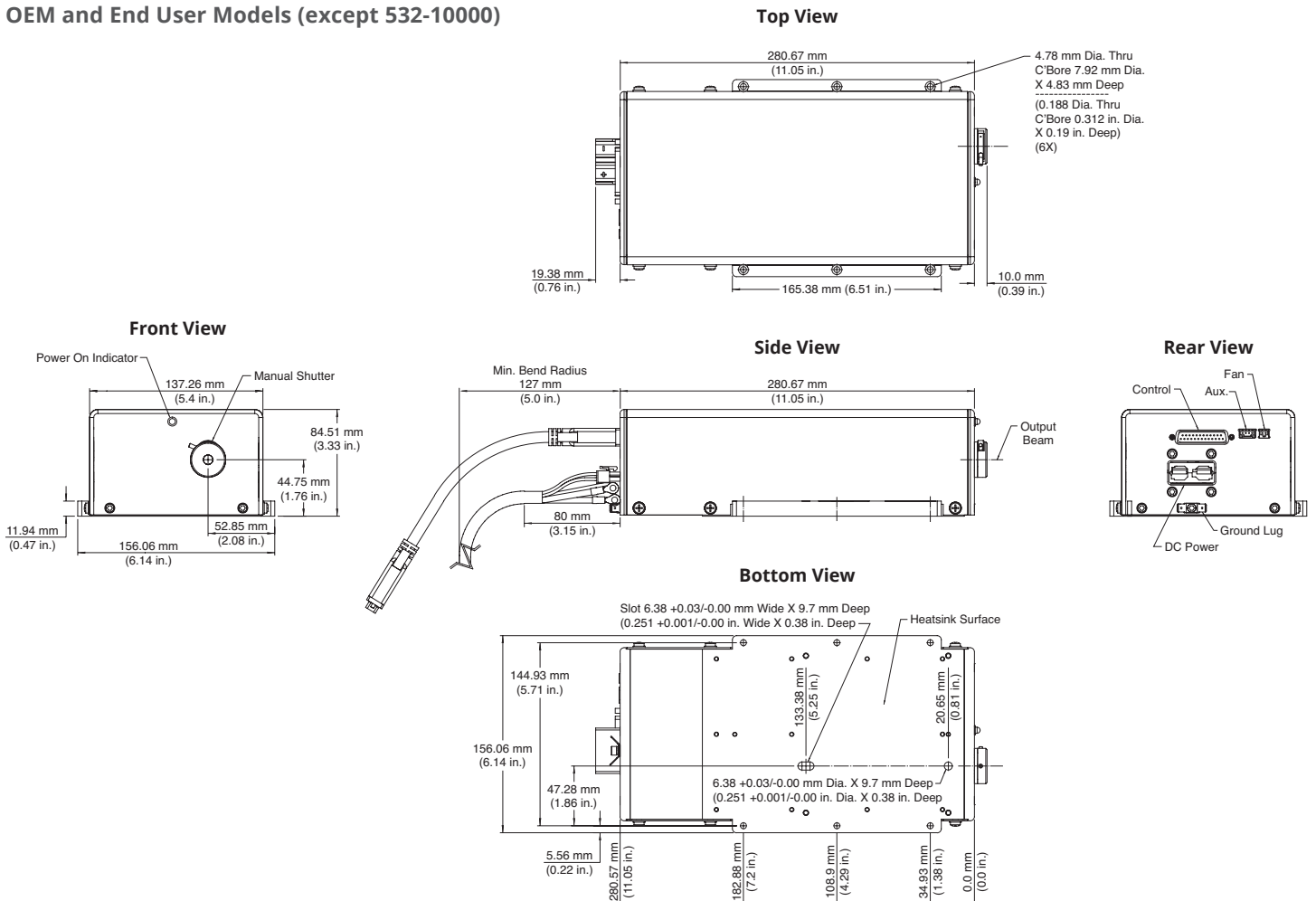
**MECHANICAL SPECIFICATIONS**

Dimensions (L x W x H)	
Laser Head <sup>1</sup>	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)
Laser Head, 532-10000	281 x 156 x 87 mm (11.1 x 6.1 x 3.4 in.)
Power Supply (End User)	361 x 229 x 180 mm (14.2 x 9.0 x 7.1 in.)
Power Supply (OEM)	300 x 208 x 97 mm (11.8 x 8.2 x 3.8 in.)
Cables (laser head to controller)	3 m (9.8 ft.)
Weight	
Laser Head	7.1 kg (15.65 lbs)
Laser Head, 532-10000	8.6 kg (18.96 lbs)
Power Supply (End User)	6.0 kg (13.23 lbs)
Power Supply (OEM)	3.8 kg (8.38 lbs)
CE Marking	IEC 61010-1/EN 61010-1

<sup>1</sup> Back connector not included in laser head length dimension.

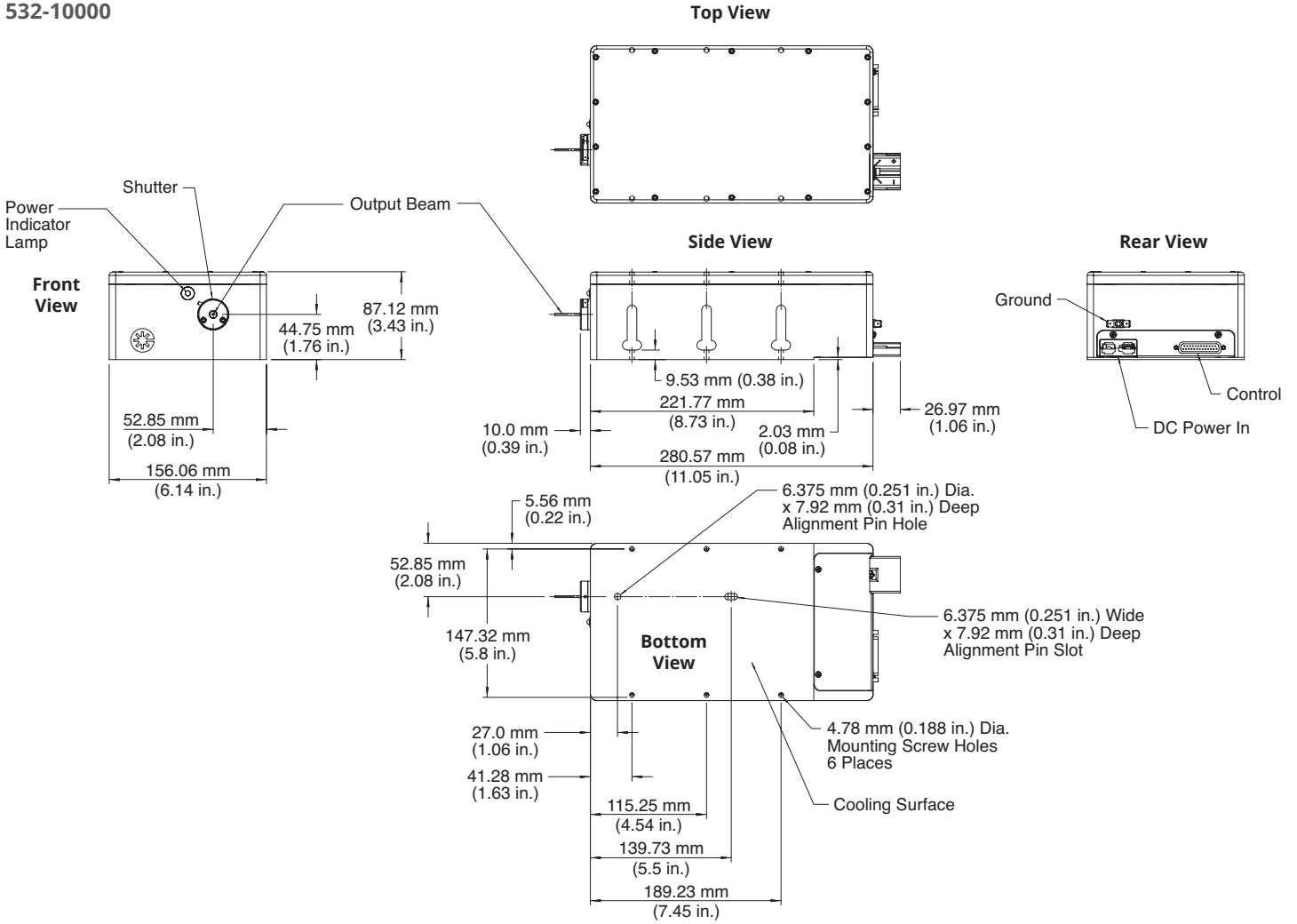
**MECHANICAL SPECIFICATIONS**

**Genesis CX STM-Series Head  
OEM and End User Models (except 532-10000)**

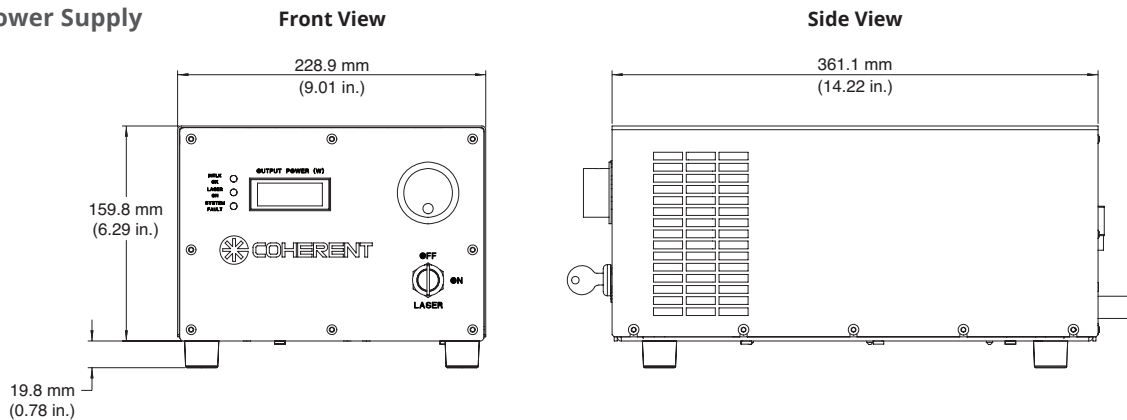


**MECHANICAL SPECIFICATIONS**

**Genesis CX STM-Series Head  
532-10000**



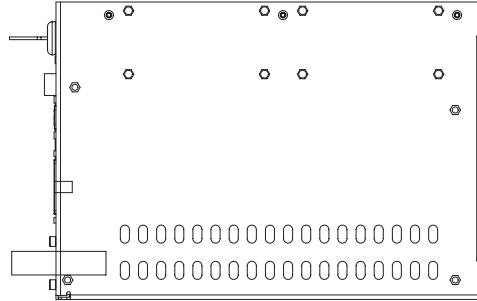
**Genesis CX-Series  
Benchtop Power Supply**



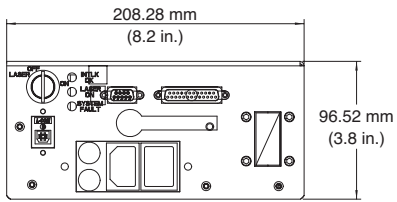
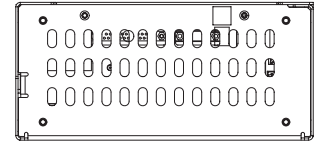
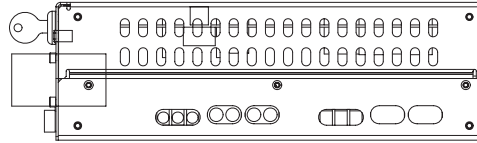
## MECHANICAL SPECIFICATIONS

### Genesis CX-Series High Current OEM Power Supply

Top View

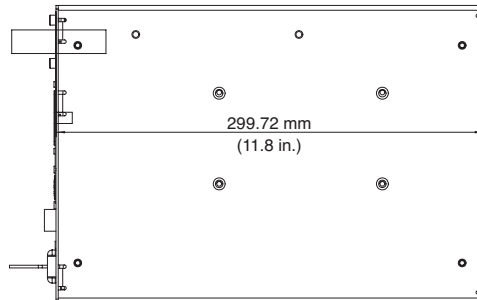


Side View



Front View

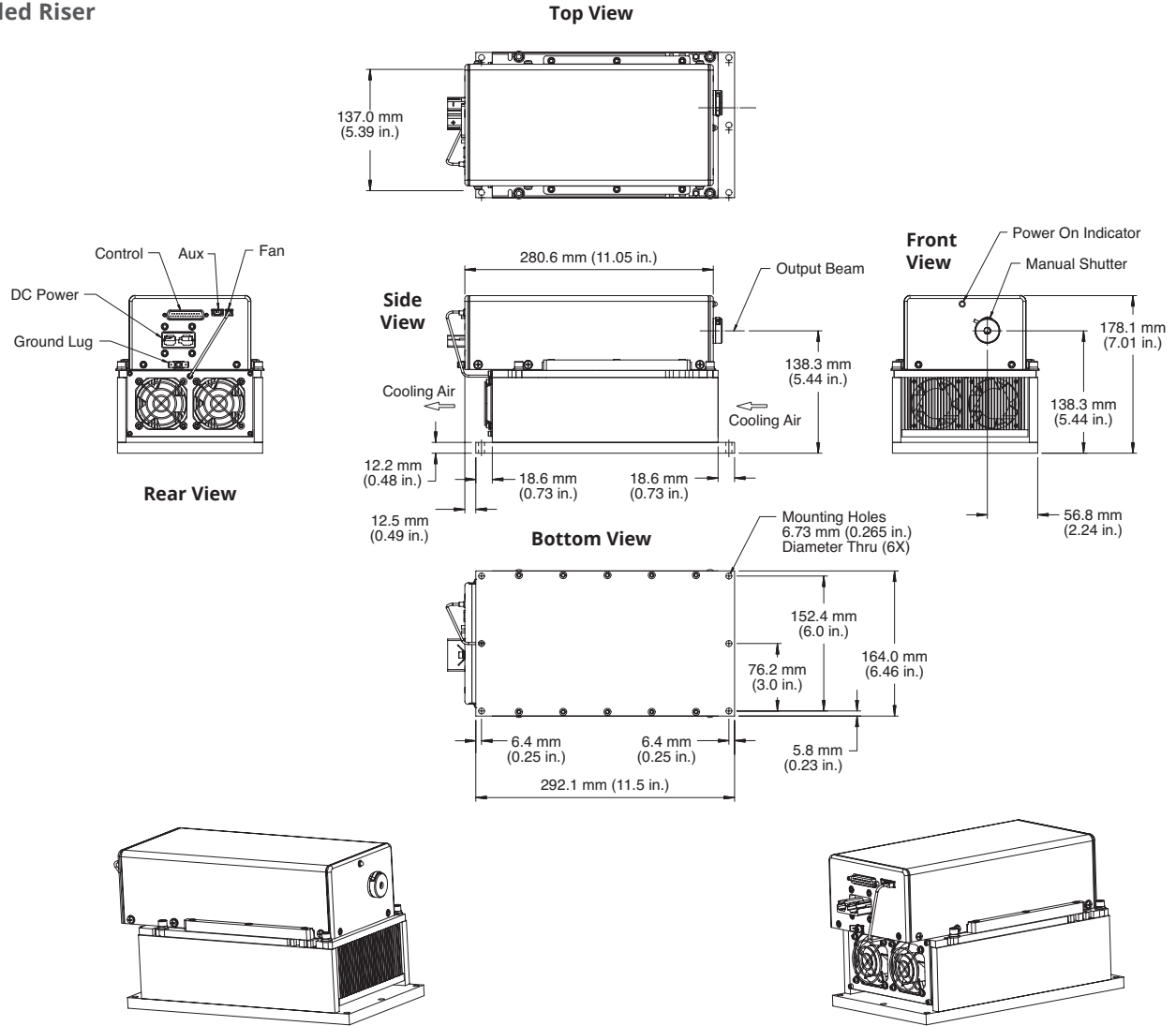
Bottom View



Rear View

## MECHANICAL SPECIFICATIONS

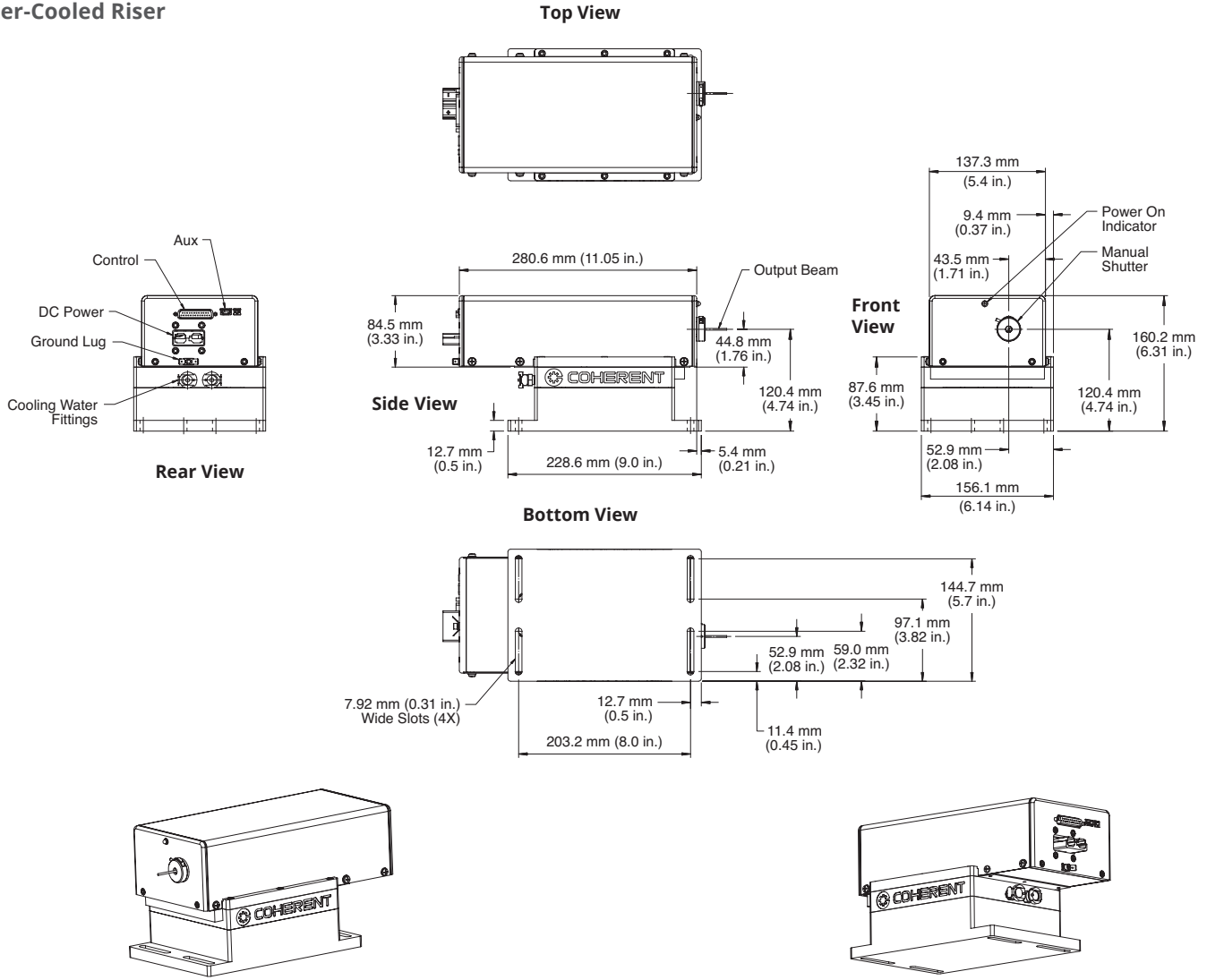
### Genesis CX STM-Series Air-Cooled Riser





**MECHANICAL SPECIFICATIONS**

**Genesis CX STM-Series  
Water-Cooled Riser**



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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 Genesis CX STM 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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