



# Genesis MX STM-Series

## TEM<sub>00</sub> Visible OEM and End-User OPS Laser Systems

Applications like Flow Cytometry, Particle Counting, DNA Sequencing and Microscopy are enabled by low noise, visible true CW lasers. The Genesis MX STM-Series provides up to 1 W of visible laser light from either OEM or CDRH-compliant end-user systems.

Based on Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology, the Genesis MX STM-Series features variable output power without changing the beam parameters. This, combined with a diffraction-limited beam, low noise and high stability, provides unparalleled laser performance in a convenient package.

Genesis MX STM-Series is the perfect match for customers in need of the highest performing CW laser technology for research and instrumentation in life science and biological applications.

### FEATURES & BENEFITS

- Single Transverse Mode (TEM<sub>00</sub>)
- OEM or end-user versions
- Air- or water-cooled solutions

### APPLICATIONS

- Flow Cytometry
- Particle Counting
- DNA Sequencing
- Microscopy



SPECIFICATIONS <sup>1</sup>	Genesis MX-460	Genesis MX-480	Genesis MX-488	Genesis MX-514
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500	500	500, 1000	500, 1000
Power Tunability <sup>2</sup> (mW)	50 (to 100% full rated power)			
Spectral Purity (%)	>99			
Spatial Mode	TEM <sub>00</sub>			
Beam Quality (M <sup>2</sup> )	<1.1			
Beam Circularity <sup>3</sup>	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>3,4</sup> (mm)	0.25 ±0.25 m			
Beam Pointing Stability <sup>5,6</sup> (μrad/°C)	<5			
Horizontal Beam Position Tolerance <sup>6</sup> (mm)	±<1.0			
Vertical Beam Position Tolerance <sup>6</sup> (mm)	±<1.0			
Beam Pointing Tolerance <sup>6</sup> (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Vertical, ±5° (normal to mounting plane)			
Noise <sup>2</sup> (% rms) (10 Hz to 10 MHz)	<0.1			
Noise <sup>2,6</sup> (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability <sup>7</sup> (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
Operating Diode Current	n/a			
Maximum Diode Current	n/a			
Diode Voltage	n/a			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Forced air cooled or water cooled heatsink comes included (integrated with laser); chiller for water cooled model is sold separately.			
Ambient Temperature				
Operating	10 to 40°C (50 to 104°F)			
Non-Operating <sup>8</sup>	-10 to 60°C (14 to 140°F)			
Relative Humidity <sup>9</sup> (%)	5 to 95, non-condensing			

<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> Noise specification applies at full rated power. Noise is expected to increase roughly inversely proportionally to the output power.

<sup>3</sup> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>4</sup> Negative value corresponds to a location inside head.

<sup>5</sup> After 2-hour warm-up.

<sup>6</sup> Measured at the output window.

<sup>7</sup> Measured over 8 hrs.

<sup>8</sup> Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.

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

SPECIFICATIONS <sup>1</sup>	Genesis MX 532	Genesis MX 561	Genesis MX 577	Genesis MX 590
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500, 1000, 1500	500	500, 1000	500, 1000
Power Tunability (mW)	50 (to 100% full rated power)			
Spectral Purity (%)	>99			
Spatial Mode	TEM <sub>00</sub>			
Beam Quality (M <sup>2</sup> )	<1.1			
Beam Circularity <sup>3</sup>	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>3,4</sup> (mm)	0.25 ±0.25 m			
Beam Pointing Stability <sup>5,6</sup> (μrad/°C)	<5			
Horizontal Beam Position Tolerance <sup>6</sup> (mm)	±1.0			
Vertical Beam Position Tolerance <sup>6</sup> (mm)	±1.0			
Beam Pointing Tolerance <sup>6</sup> (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Vertical, ±5° (normal to mounting plane)			
Noise <sup>2</sup> (% rms) (10 Hz to 10 MHz)	<0.1			
Noise <sup>2,6</sup> (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability <sup>7</sup> (%) (pk-pk)	±1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500			
Operating Diode Current	n/a			
Maximum Diode Current	n/a			
Diode Voltage	n/a			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Forced air cooled or water cooled heatsink comes included (integrated with laser); chiller for water cooled model is sold separately.			
Ambient Temperature				
Operating	10 to 40°C (50 to 104°F)			
Non-Operating <sup>8</sup>	-10 to 60°C (14 to 140°F)			
Relative Humidity <sup>9</sup> (%)	5 to 95, non-condensing			

<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> Noise specification applies at full rated power. Noise is expected to increase roughly inversely proportionally to the output power.

<sup>3</sup> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>4</sup> Negative value corresponds to a location inside head.

<sup>5</sup> After 2-hour warm-up.

<sup>6</sup> Measured at the output window.

<sup>7</sup> Measured over 8 hrs.

<sup>8</sup> Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.

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

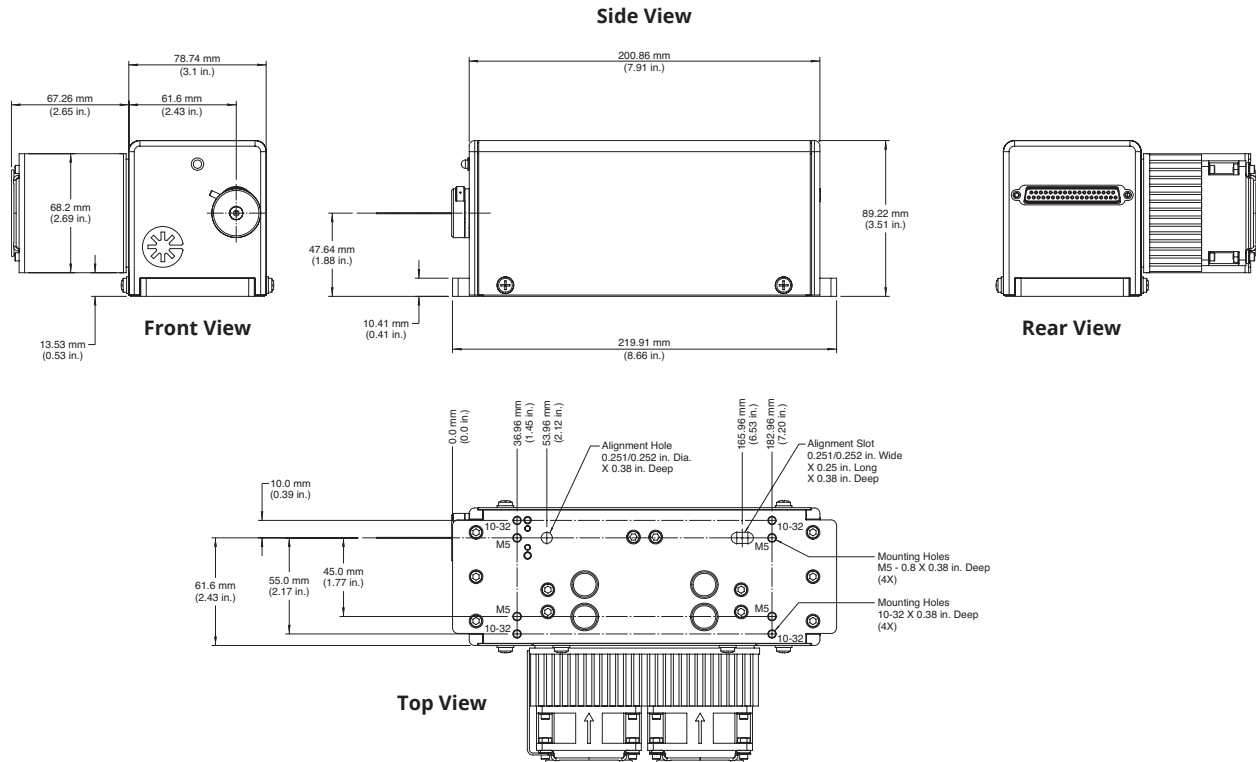
**MECHANICAL SPECIFICATIONS**

Dimensions (L x W x H)	
Laser Head <sup>1</sup> with Air-Cooled Heatsink (End User)	201 x 146 x 89 mm (7.9 x 5.7 x 3.5 in.)
Laser Head <sup>1</sup> with Water-Cooled Heatsink (End User)	201 x 100 x 89 mm (7.9 x 3.9 x 3.5 in.)
Power Supply (End User)	361 x 229 x 180 mm (14.2 x 9.0 x 7.1 in.)
Laser Head (OEM)	n/a
Power Supply (OEM)	n/a
Cables (laser head to controller)	3 m (9.8 ft.)
Weight	
Laser Head (End User)	Water-Cooled 4.9 kg / Air-Cooled 3.8 kg
Power Supply (End User)	6.0 kg
Laser Head (OEM)	n/a
Power Supply (OEM)	n/a

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

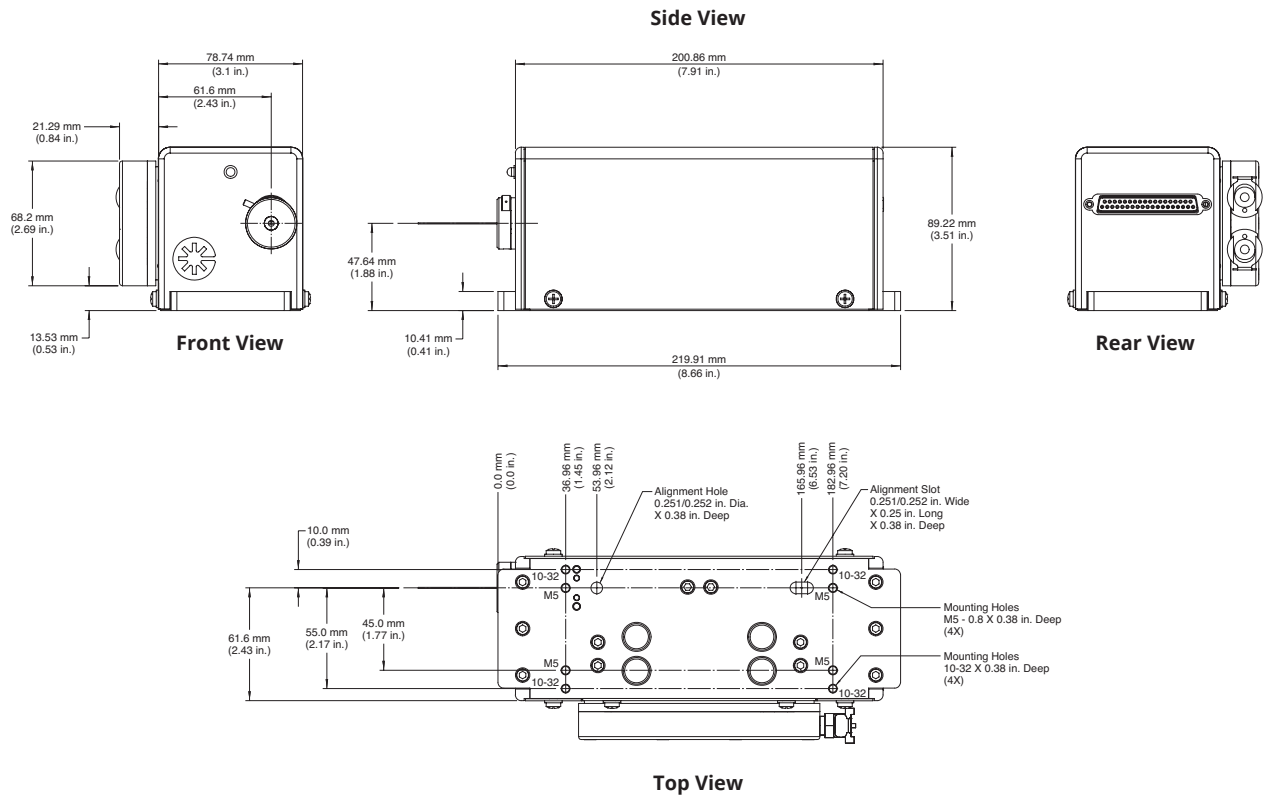
**MECHANICAL SPECIFICATIONS**

**Genesis MX STM-Series (End-User)  
Air-Cooled version**



## MECHANICAL SPECIFICATIONS

### Genesis MX STM-Series (End-User) Water-Cooled version



SPECIFICATIONS <sup>1</sup>	Genesis MX 460 OEM	Genesis MX 480 OEM	Genesis MX 488 OEM	Genesis MX 514 OEM
Wavelength (nm)	460 ±3	480 ±3	488 ±3	514 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500	500	500, 1000	500, 1000
Power Tunability <sup>2</sup> (mW)	Range is dependent on driving electronics; 50 mW to 100% full rated power with Coherent controller / power supply			
Spectral Purity (%)	>99			
Spatial Mode	TEM <sub>00</sub>			
Beam Quality (M <sup>2</sup> )	<1.1			
Beam Circularity <sup>3</sup>	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>3,4</sup> (mm)	0.25 ±0.25 m			
Beam Pointing Stability <sup>5,6</sup> (μrad/°C)	<5			
Horizontal Beam Position Tolerance <sup>6</sup> (mm)	±<1.0			
Vertical Beam Position Tolerance <sup>6</sup> (mm)	±<1.0			
Beam Pointing Tolerance <sup>6</sup> (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Horizontal (parallel to heatsink)			
Noise <sup>2</sup> (% rms) (10 Hz to 10 MHz)	<0.1			
Noise <sup>2,6</sup> (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability <sup>7</sup> (%) (pk-pk)	±<1 (with Coherent controller/power supply)			
Warm-up Time (minutes)	<10 (with Coherent controller/power supply and heatsink)			
CDRH Compliant	No			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	n/a			
Frequency (Hz)	n/a			
Power Consumption (W)	n/a			
Operating Diode Current	<12.5	<10	<10, <12.5	<10, <12.5
Maximum Diode Current	<15	<12	<12, <15	<12, <15
Diode Voltage	1.5 to 2.2			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Heat sink required (available from Coherent); case temperature must be maintained at 25 ±1°C			
Ambient Temperature Operating Non-Operating <sup>8</sup>	Dependent on laser head mounting and heatsinking; 10 to 40°C with Coherent heatsink -10 to 60°C (14 to 140°F)			
Relative Humidity <sup>9</sup> (%)	5 to 95, non-condensing			

<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> Noise specification applies at full rated power. Noise is expected to increase roughly inversely proportionally to the output power.

<sup>3</sup> Circularity defined as vertical diameter divided by horizontal diameter.

<sup>4</sup> Negative value corresponds to a location inside head.

<sup>5</sup> After 2-hour warm-up.

<sup>6</sup> Measured at the output window.

<sup>7</sup> Measured over 8 hrs.

<sup>8</sup> Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.

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

SPECIFICATIONS <sup>1</sup>	Genesis MX 532 OEM	Genesis MX 561 OEM	Genesis MX 577 OEM	Genesis MX 590 OEM
Wavelength (nm)	532 ±3	561 ±3	577 ±3	590 ±3
FWHM Linewidth (GHz)	<30			
Operating Mode	CW			
Output Power (mW)	500, 1000, 1500	500	500, 1000	500, 1000
Power Tunability <sup>2</sup> (mW)	Range is dependent on driving electronics; 50 mW to 100% full rated power with Coherent controller / power supply			
Spectral Purity (%)	>99			
Spatial Mode	TEM <sub>00</sub>			
Beam Quality (M <sup>2</sup> )	<1.1			
Beam Circularity <sup>3</sup>	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e <sup>2</sup> )	1.0 ±0.1			
Beam Divergence (mrad) (FW, 1/e <sup>2</sup> )	0.7 ±0.1			
Beam Waist Location <sup>3,4</sup> (mm)	0.25 ±0.25 m			
Beam Pointing Stability <sup>5,6</sup> (μrad/°C)	<5			
Horizontal Beam Position Tolerance <sup>6</sup> (mm)	±<1.0			
Vertical Beam Position Tolerance <sup>6</sup> (mm)	±<1.0			
Beam Pointing Tolerance <sup>6</sup> (mrad)	<5			
Polarization Ratio	>100:1			
Polarization Direction	Horizontal (parallel to heatsink)			
Noise <sup>2</sup> (% rms) (10 Hz to 10 MHz)	<0.1			
Noise <sup>2,6</sup> (% peak to peak) (10 Hz to 5 kHz)	<1			
Power Stability <sup>7</sup> (%) (pk-pk)	±<1 (with Coherent controller/power supply)			
Warm-up Time (minutes)	<10 (with Coherent controller/power supply and heatsink)			
CDRH Compliant	No			
ELECTRICAL SPECIFICATIONS				
Operating Voltage (VAC)	n/a			
Frequency (Hz)	n/a			
Power Consumption (W)	n/a			
Operating Diode Current	<12.5	<10	<10, <12.5	<10, <12.5
Maximum Diode Current	<15	<12	<12, <15	<12, <15
Diode Voltage	1.5 to 2.2			
ENVIRONMENTAL CONDITIONS				
Head Cooling Requirements	Heat sink required (available from Coherent); case temperature must be maintained at 25 ±1°C			
Ambient Temperature	Dependent on laser head mounting and heatsinking; 10 to 40°C with Coherent heatsink			
Operating	-10 to 60°C (14 to 140°F)			
Non-Operating <sup>8</sup>	-10 to 60°C (14 to 140°F)			
Relative Humidity <sup>9</sup> (%)	5 to 95, non-condensing			

<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.

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<sup>4</sup> Negative value corresponds to a location inside head.

<sup>5</sup> After 2-hour warm-up.

<sup>6</sup> Measured at the output window.

<sup>7</sup> Measured over 8 hrs.

<sup>8</sup> Water cooled model needs to be completely purged of residual water before exposure to freezing temperatures.

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

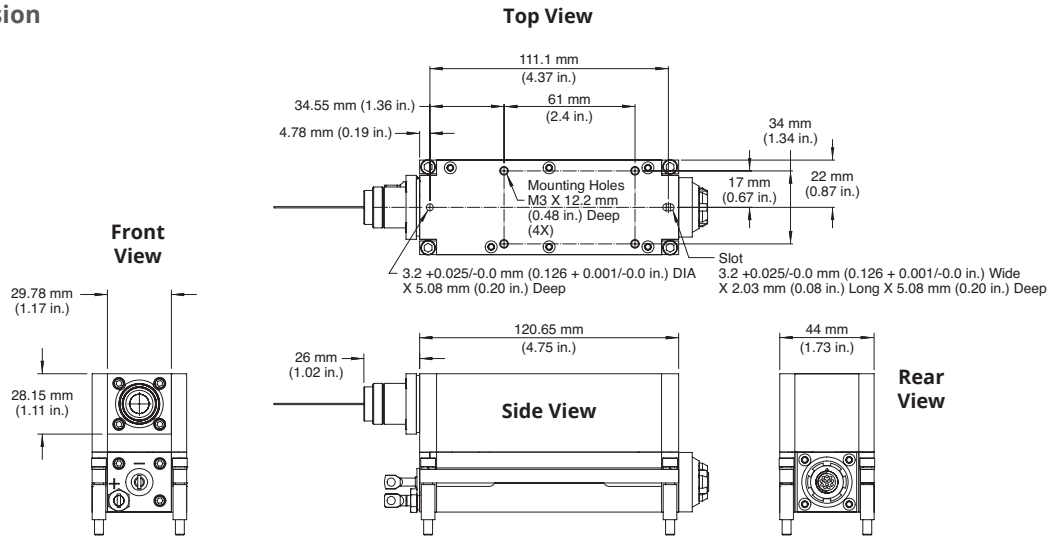
**MECHANICAL SPECIFICATIONS**

Dimensions (L x W x H)	
Laser Head <sup>1</sup> with Air-Cooled Heatsink (End User)	201 x 146 x 89 mm (7.9 x 5.7 x 3.5 in.)
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Laser Head (OEM)	n/a
Power Supply (OEM)	n/a
Cables (laser head to controller)	3 m (9.8 ft.)
Weight	
Laser Head (End User)	Water-Cooled 4.9 kg / Air-Cooled 3.8 kg
Power Supply (End User)	6.0 kg
Laser Head (OEM)	n/a
Power Supply (OEM)	n/a

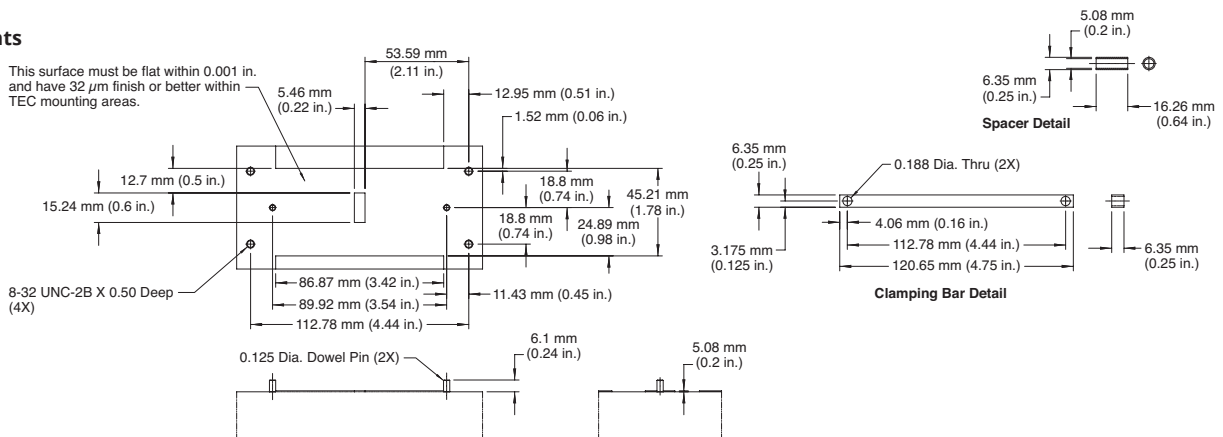
<sup>1</sup> Back connector not included in laser head length dimension.

**MECHANICAL SPECIFICATIONS**

**Genesis MX STM-Series (OEM)  
Water-cooled version**



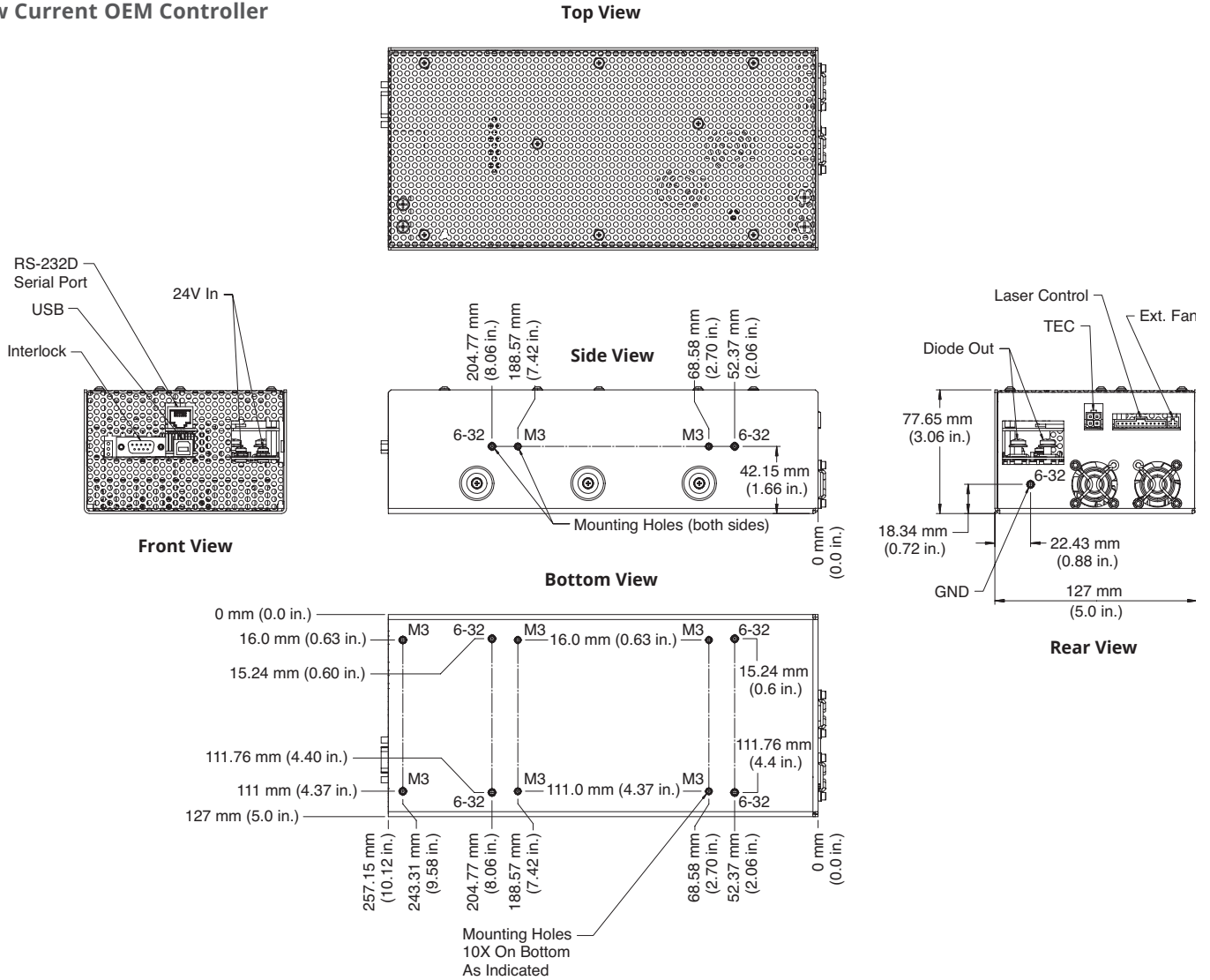
**Base Plate Requirements**





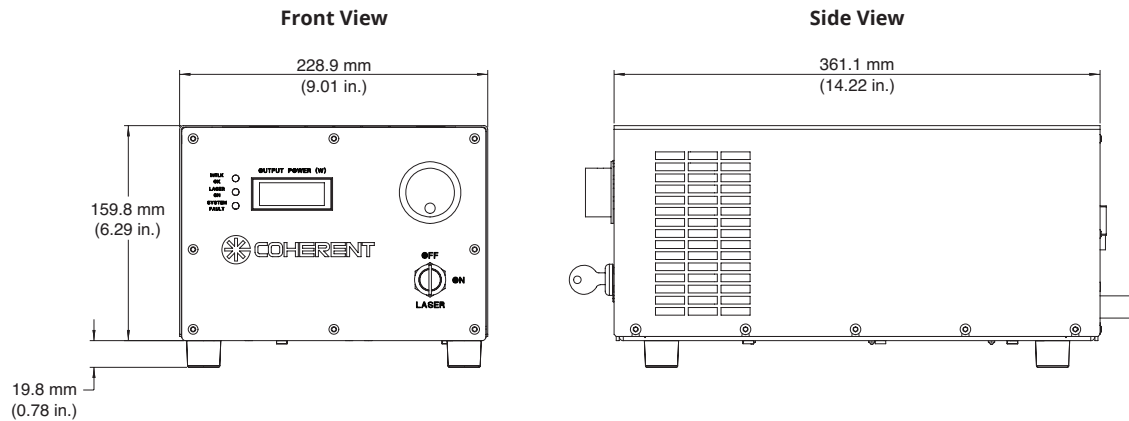
## MECHANICAL SPECIFICATIONS

### Genesis MX STM-Series Low Current OEM Controller



## MECHANICAL SPECIFICATIONS

### Genesis MX STM-Series Benchtop Power Supply



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](mailto:tech.sales@coherent.com) [www.coherent.com](http://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.

Coherent offers a limited warranty for all Genesis MX 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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