

# ETERNITY | CO<sub>2</sub> LASERS

## Compact and High Performance



### Compact Footprint

Easy integration and best application results



### Unmatched Longevity

No laser gas degradation for exceptional power stability.



### Superior Beam Quality

Consistent power stability for precise processing.

## Exceptional CeramiCore® Performance

### Powerful with a Small Footprint

The Eternity series represents our smallest laser tubes. Built with our **patented CERAMICORE® technology**, these CO<sub>2</sub> lasers are available as 25, 30, 40 and 50-Watt models.

They provide **superior performance**, particularly for compact platforms. Enhance your automated web systems, laser scanner modules, and small workstations with **excellent process repeatability**.

## Benefits

### Superior Stability and Precision

Iradian CERAMICORE® Laser tubes produce reliable and stable maximum rated power levels as well as minimum power levels for heat sensitive applications. Unlike conventional CO<sub>2</sub> lasers that lose stability under 10% power settings, the Eternity series operates down to 2% **without any loss of power stability**.

The Eternity series exhibits exceptional beam quality and **pointing stability** ensuring precise procession of materials. Compared to conventional glass or metal laser tubes, our patented CERAMICORE® technology provides exclusive processing benefits.

## Applications

### CO<sub>2</sub> Laser Tubes for Your Application Needs

- Cutting/perforating
- Marking/coding
- Engraving/etching
- Wire Stripping
- Fiber optic splicing
- Medical surgery

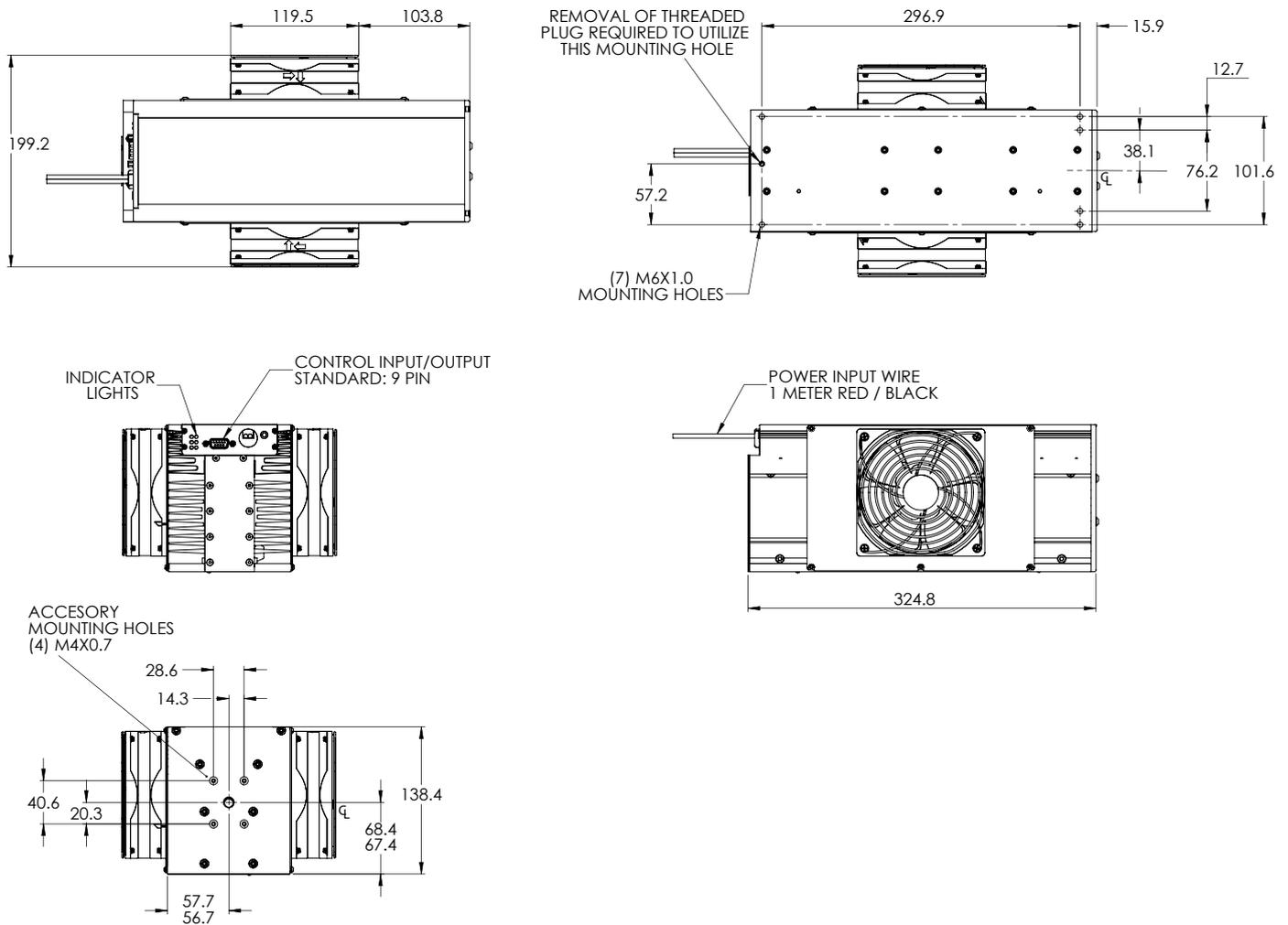
## Advantages

### Excellent Beam Stability

Get better process results with the Eternity series and enjoy the following advantages:

- Compact footprint, easy to integrate
- Patented CERAMICORE® design ensures longevity
- Inert CERAMICORE® prevents laser gas contamination, power loss
- Low thermal expansion CERAMICORE® for high stability
- Extended power stability from 2% to maximum power
- Short rise and fall times; good pulsing characteristics
- Advanced RF driver electronics: reliable, efficient and state-of-the-art
- 30% fewer laser components; highest reliability

## Technical Drawings



## Customizations & Options

### Flexibility for Your Applications with Eternity Laser Tubes

Customize your Eternity CERAMICORE® laser for your applications with power, wavelength and other options:

- Power levels: 25 W, 30 W, 40 W, 50 W
- Wavelength options: 9.3  $\mu\text{m}$ , 10.2  $\mu\text{m}$ , 10.6  $\mu\text{m}$ , 11.2  $\mu\text{m}$
- Cooling options: fan-cooled or air-cooled
- Beam expansion or collimation: 2.5x, 3x, 4x, 5x, 6x
- Power supply models and sources
- Laser controls
- Customized final testing
- Operation and training programs
- Rapid response service program
- Laser gas degradation insurance

**Specifications**

# Eternity

Model	E25	E30	E40	E50	E60
Nominal Power	25 W	30 W	40 W	50 W	60 W
Beam Quality	$M^2 \leq 1.2$				
Beam Ellipticity	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1
Beam Diameter (mm), 1/e2 @ 0m	2.5 ± 0.5	2.5 ± 0.5	2.5 ± 0.5	2.5 ± 0.5	2.5 ± 0.5
Beam Divergence (full angle)	8 ± 1 mrad				
Wavelength	9.3 μm	10.2 μm, 10.6 μm, 11.2 μm	10.2 μm, 10.6 μm	10.2 μm, 10.6 μm	10.2 μm, 10.6 μm
Rise Time	< 75 μs				
Power Stability, Fan	< ± 5%	< ± 5%	< ± 5%	< ± 5%	< ± 5%
Polarization	Random	Random	Random	Random	Random
Cooling	Fan	Fan/Water	Fan/Water	Fan/Water	Water
Input power/ Heat Load	720 W	580 W	720 W	870 W	870 W
Input Voltage, Current	48 V / 15 A	48 V / 12 A	48 V / 15 A	48 V / 18 A	48 V / 18 A
Frequency Range	0.1 - 140 kHz				
Operating Temperature	5 °C - 35 °C / 40 °F - 95 °F	5 °C - 40 °C / 40 °F - 104 °F	5 °C - 40 °C / 40 °F - 104 °F	5 °C - 40 °C / 40 °F - 104 °F	5 °C - 40 °C / 40 °F - 104 °F
Operating Humidity	Non-Condensing	Non-Condensing	Non-Condensing	Non-Condensing	Non-Condensing
Shipping Temperature	-10 °C - 60 °C / 14 °F - 140 °F	-10 °C - 60 °C / 14 °F - 140 °F	-10 °C - 60 °C / 14 °F - 140 °F	-10 °C - 60 °C / 14 °F - 140 °F	-10 °C - 60 °C / 14 °F - 140 °F
Weight	9 kg / 20 lbs.				
Dimensions (L x W x H)	324.8 mm x 199.2 mm x 138.4 mm	324.8 mm x 199.2 mm x 138.4 mm	324.8 mm x 199.2 mm x 138.4 mm	324.8 mm x 199.2 mm x 138.4 mm	324.8 mm x 199.2 mm x 138.4 mm

\*Power Stability is measured after 5 minutes warmup.  
Iradion follows a policy of continuous product improvement. All specifications are subject to change without notice. Rev. 2.0, 07/2025.

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**ENDURING EXCELLENCE, PULSE BY PULSE.**

