

## TEA Series - MINI

The TEA Series - MINI lasers are part of *sdilasers™* standard Transversely-Excited Atmospheric-Pressure (TEA) CO<sub>2</sub> laser product series. The TEA MINI 100/25 through TEA MINI 300/75 models have a selective repetition rate and high power output. These lasers yield output powers ranging from 25W to 75W at discriminant repetition rate conditions. Configuring the laser pulse energy selectively controls total output energy, providing optimal flexibility for the end user. The output pulse of these lasers is comparatively short for a TEA CO<sub>2</sub> laser, resulting in a high peak power. Typical Full Width Half Maximum (FWHM) values of the laser pulse are between 50ns and 100ns.



Each laser unit is packaged into a single, well-designed and ergonomically sound enclosure, facilitating effortless transport, installation and operation. Required external interfaces are limited to electrical supply, laser gas, cooling water and vacuum pump. The TEA MINI system design also allows for easy maintenance and servicing of the laser system by virtue of easily removable panels and straightforward access. Due to the high degree of stability, the laser resonator requires no adjustment after the initial cavity alignment, which is done during commissioning.

Fully automated, the laser unit offers advanced features such as an RS232 interface to facilitate local as well as remote computerized control. An optical arc detection system protects the laser system from improper discharge conditions. The laser resonator can be configured to have a grating or agile tuner for manual or automatic wavelength tuning of the laser. TEA CO<sub>2</sub> lasers also feature closed gas loop operation with the addition of room temperature catalysts to the laser, housed in the optional side arm catalyst system. Standard models can also be individually customized. Other unique applications include utilizing lasers as oscillators or amplifiers for Master Oscillator Power Amplifier (MOPA) configurations. Please contact us to determine which laser model will best suit your application requirements.

### Key Performance Features:

- Atmospheric pressure
- Selective repetition rate
- Short output pulse
- Compact design
- Local/Remote control

### TEA Series MINI models are ideal for applications such as:

- Light Detection and Ranging (LIDAR) systems
- Extreme Ultraviolet (EUV) generation systems
- THz imaging systems
- Laser marking systems
- Via drilling in Printed Circuit Board (PCB's)
- Non-Destructive Inspection (NDI)
- Wire Stripping

Creating Solutions that Dramatically Enhance Real Value for *your* Customers.

## TEA Series – MINI Specifications

Model	100/25	200/50	300/75
Wavelength (µm)	9.2 - 10.8	9.2 - 10.8	9.2 - 10.8
Repetition rate (Hz)	100	200	300
Pulse energy - Multimode (J)	0.25	0.25	0.25
Pulse energy - TEM <sub>00</sub> (J)	0.100	0.100	0.100
Average output power - Multimode (W)	25	50	75
Average output power - TEM <sub>00</sub> (W)	5	10	15
Pulse width - FWHM of initial spike (ns)	50 - 100	50 - 100	50 - 100
Output stability (1 sigma)	<4%	<4%	<4%
Jitter (1 sigma)	<10ns	<10ns	<10ns
Beam height - Multimode (mm)	12	12	12
Beam width - Multimode (mm)	12	12	12
Beam Quality factor (M <sup>2</sup> ) - Multimode	~2-4	~2-4	~2-4
Beam waist - TEM <sub>00</sub> (mm)	~4	~4	~4
Beam Quality factor (M <sup>2</sup> ) - TEM <sub>00</sub>	~1-2	~1-2	~1-2
Operating pressure (atm)	1	1	1
Dimensions (L x W x H)	1.0m x 0.73m x 0.61m	1.0m x 0.73m x 0.61m	1.0m x 0.73m x 0.61m
Weight (kg)	~200kg	~200kg	~200kg
Gas load lifetime for closed loop system	>100,000,000 pulses	>100,000,000 pulses	>100,000,000 pulses
Electrical voltage	110V, 208V, 230V 50/60Hz	110V, 208V, 230V 50/60Hz	110V, 208V, 230V 50/60Hz
Phase	Single phase	Single phase	Single phase
Pulse Circuit	Solid state switched	Solid state switched	Solid state switched
Pre-ionisation	Corona pre-ionised	Corona pre-ionised	Corona pre-ionised
Cooling services Temperature stabilised, closed loop chilled water supply with temperature at 18°C, with a heat removal capacity of:	800W	1.5kW	2kW
Optional Extras	Agile wavelength tuner Manual wavelength tuner		
Typical Applications	Light Detection and Ranging (LIDAR) systems THz imaging systems Laser marking systems Material surface treatment		