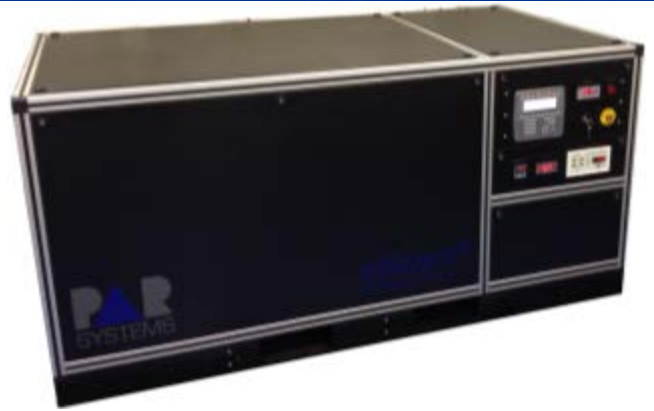


## TEA Series - UT

The TEA Series - UT lasers are part of *sdilasers™* standard Transversely-Excited Atmospheric-Pressure (TEA) CO<sub>2</sub> laser product series. The TEA UT 200/75 through TEA UT 1000/300 models have a selective repetition rate and high power output. These lasers yield output powers ranging from 70W to 300W 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. The TEA Series – UT lasers have been optimized to produce a very short pulse with high energy content in the gain switched spike of the laser pulse. The laser pulse has virtually no residual tail section and is ideally suited for laser ultrasonic nondestructive inspection applications.



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, and cooling water. The TEA UT 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
- High pulse energy
- Short output pulse
- High peak power per pulse
- Local/Remote control
- Optional side arm catalyst

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

- Non-Destructive Inspection (NDI)
- Isotope separation
- Extreme Ultraviolet (EUV) generation systems
- THz imaging systems
- Laser marking systems

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

## TEA Series – UT Specifications

Model	200/75	400/140	600/210	1000/300
Wavelength (µm)	9.2 - 10.8	9.2 - 10.8	9.2 - 10.8	9.2 – 10.8
Repetition rate (Hz)	200	400	600	1000
Pulse energy - Multimode (J)	0.35	0.35	0.35	0.3
Pulse energy - TEM <sub>00</sub> (J)	0.100	0.100	0.100	0.120
Average output power - Multimode (W)	70	140	210	300
Average output power - TEM <sub>00</sub> (W)	20	40	60	120
Pulse width - FWHM of initial spike (ns)	50 - 100	50 - 100	50 - 100	50 – 100
Output stability (1 sigma)	<4%	<4%	<4%	<4%
Jitter (1 sigma)	<10ns	<10ns	<10ns	<10ns
Beam height - Multimode (mm)	15	15	15	12
Beam width - Multimode (mm)	15	15	15	12
Beam Quality factor (M <sup>2</sup> ) - Multimode	3 - 6	3 - 6	3 - 6	2 – 4
Beam waist - TEM <sub>00</sub> (mm)	5	5	5	4
Beam Quality factor (M <sup>2</sup> ) - TEM <sub>00</sub>	1 - 2	1 - 2	1 - 2	1 – 2
Operating pressure (atm)	1	1	1	1
Dimensions (L x W x H)	1.3m x 0.9m x 0.7m	1.8m x 1.1m x 0.7m	1.8m x 1.1m x 0.7m	2.1m x 1.1m x 0.8m
Weight - including transformer oil (kg)	500	1300	1300	1800
Gas load lifetime for closed loop system	>100,000,000 pulses			
Electrical voltage	208V, 380V 50/60Hz			
Phase	Three phase			
Pulse Circuit	Patented solid switch technology			
Pre-ionisation	Corona pre-ionised			
Cooling services Temperature stabilised, closed loop chilled water supply with temperature at 18C, with a heat removal capacity of:	5kW	10kW	15kW	15kW
Optional extras	Manual wavelength tuner Side arm catalyst system			
Typical applications	Non-Destructive Testing (NDT) Isotope separation Extreme Ultraviolet (EUV) generation systems THz imaging systems Laser Marking systems			