T80/T100 RF CO_2 Lasers

The T80/T100 RF CO_2 lasers is a continuous output lasers featuring Ceramic Core design, which can be configured for both air cooling and water cooling. Traditional CO_2 lasers utilize glass or metal cavities with internal metal components. Therefore, the users have to face the problem with power decreased and reduced beam stability that caused by laser gas attenuation.

The T series CO_2 lasers adopt Ceramic Core design that allows the gas to be completely contained within a separate, non-reactive Ceramic Core without any parts inside. The metal electrode is mounted outside the resonant cavity. Laser gases are excited from the outside and there are no internal metal surfaces that cause reaction and contamination.

Compared to traditional metal-sealed lasers, the Ceramic Core technology can reduce thermal expansion by 70%, significantly reducing the possible changes in internal parts. The Ceramic Core technology also uses 30% fewer parts than traditional CO_2 lasers, reducing the possibility of failure. At the same time, the T-series RF CO_2 laser has an extremely short pulse rise and fall time and a small heat-affected zone, making it ideal for engraving and cutting. Production efficiency is 4 times higher than traditional CO_2 lasers.

Advantages

- Fully Ceramic Core design significantly reduces laser gas attenuation, extending the lifespan by threefold.
- A 30% reduction in internal components of the resonant cavity enhances reliability.
- Extremely short pulse rise and fall time, contribute to high production efficiency.
- Excellent power stability ensures high reliability.

Applications

- Marking
- Engraving
- Cutting
- 3D Printing

T80/T100 Product Specifications

SPECIFICATIONS \ MODEL	T80	T100
Wavelength (μm)	10.6	10.6
Output Power(W)①	⩾ 80W	⩾ 100W
Power Stability(%)②③	< ±5%	< ±4%
Mode Quality (M^2)	M^2 < 1.2	
Beam Elipticity	< 1.2:1	
Beam Diameter(mm)	2.5 ±0.5	
Beam Divergence (mrad, full angle)	5.2 ±0.5	
Pulse Rise/Fall Time(μs)	＜75μs	
Pulse Frequency (kHz)	0 - 100kHz	
Weight	14.5kg(Fan) / 17.5kg(Water)	
Dimensions (L x W x H)	535 × 192.9 × 156(Fan) / 581.15 × 176× 156.1(Water)	
Cooling	Fan / Water	
Heat Load (W)	< 1400W	
Input Power		
DC Input Voltage (VDC)	48VDC	
Continous DC Input Current(A)④	30A	
Environment Condition		
Maximum Case Temperature	< 50°C	
Temperature	5°C ~ 35°C	
Altitude	< 2000m	
Humidity	Non-Condensing	
Shipping/Storage Environment	-10°C ~ 60°C, Non-Condensing	
Coolant		
Dynamic Coolant Flow Rate (l/min)	6L/min	
Coolant Maximum Static Pressure (kPa)	500kPa	
Coolant Setpoint Temperature Range	20°C - 30°C	
Hardness of water （CaCO3）	< 250mg/L	

The above specifications are subject to change without prior notice

Notes:

① Measured at 25°C and derated by 1%/°C for higher laser head temperatures

② Power Stability definition: ± (Pmax-Pmin)/(2Pmax)

③ Measured at constant duty cycle after 10 minutes laser out at operating condition

④ Measured at 10 kHz PRF and 100% duty cycle operation, maximum average input current