

# M300

二氧化碳射频激光器

## Carbon dioxide RF laser

M系列射频 CO<sub>2</sub> 激光器采用平板放电设计, 其中M300型号峰值功率超过750W。该紧凑型激光器将射频电源与激光腔集成, 可提供卓越的光束质量和功率稳定性。

The M series RF CO<sub>2</sub> lasers feature a slab discharge design, with the M300 lasers achieving a peak power of over 750W. This compact laser integrates the RF power supply with the laser cavity, providing excellent beam quality and power stability.



### 产品特点

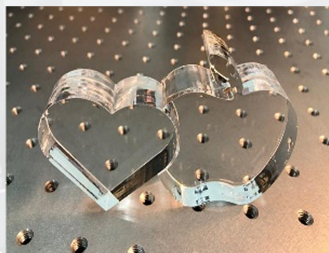
- ◆ 广泛的工作功率范围
- ◆ 高峰值功率
- ◆ 脉冲上升与下降时间短
- ◆ 优异的光束质量
- ◆ 高功率稳定性

### Product Features

- ◆ Wide range of operating power
- ◆ High peak power
- ◆ Short pulse rise and fall time
- ◆ Excellent beam quality
- ◆ High power stability

### 应用场景

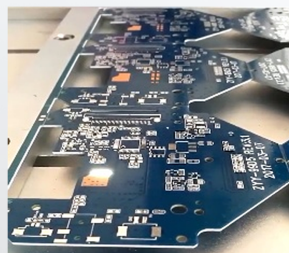
Application Scenarios



亚克力切割  
Acrylic Cutting



木制品切割  
Wood Product Cutting



PCB打孔  
PCB Board Drilling



纸板雕刻  
Pattern Cutting

# 产品参数

## Product parameter

参数 SPECIFICATIONS	型号 MODEL	M300i	M300
	波长(μm) Wavelength (μm)		9.3
输出功率(W) <sup>①</sup> Output Power(w) <sup>①</sup>		≥ 220W	≥ 250W
功率范围(W) Power Range(W)		10-220W	10-250W
峰值功率(W) Peak Power(w)		660W	750W
功率稳定性(%) <sup>②</sup> Power Stability(%) <sup>②</sup>		< ±6%	
光束质量(M <sup>2</sup> ) Mode Quality (M2)		M <sup>2</sup> < 1.2	
光束椭圆度 Beam Ellipticity		< 1.2:1	
光束直径(mm) <sup>③</sup> Beam Diameter(mm) <sup>③</sup>		7.0 ± 1	8.5 ± 1
光束发散角(mrad全角) Full-Angle Beam Divergence(mrad)		< 2.0	
偏振(线性偏振, 平行于宽度) Typical Polarization (parallel to baseplate)		> 100:1	
脉冲频率 Pulse Frequency (kHz)		0 - 100kHz	
脉冲频率宽度 RF Excitation Pulse Width Range (μs)		2 - 1000μs	
占空比 Duty Cycle Limit (%)		0 ~ 60%	
脉冲上升/下降时间(μs) Fall Time(μs)		≤ 60μs	
重量 Weight		47kg	
尺寸:长*宽*高(mm) Dimensions (L*W*H)		1077 × 197 × 227	
散热方式 Cooling		水冷 Water	
热负荷 Heat Load (w)		< 4500W	
<b>电源要求</b> Input Power			
输入电压 DC Input Voltage (VDC)		48VDC	
输入电流 <sup>④</sup> Continuous DC Input Current(A) <sup>④</sup>		90A	
<b>环境条件</b> Environment Condition			
工作环境温度 Maximum Case Temperature		5°C ~ 40°C	
外壳最高温度 Temperature		< 50°C	
海拔高度 Altitude		< 2000m	
湿度 Humidity.		< 80%, 无冷凝 Non-Condensing	
航运和存储环境 Shipping/Storage Environment		-10°C ~ 60°C, 无冷凝 Non-Condensing	
<b>冷却水要求</b> Coolant			
流速 Dynamic Coolant Flow Rate (l/min.)		6L/min	
水压 Coolant Maximum Static Pressure (kPa)		210-820kPa	
温度 Coolant Setpoint Temperature Range		20°C - 25°C	
水的硬度 (CaCO <sub>3</sub> ) Hardness of water (CaCO <sub>3</sub> )		< 250mg/L	

以上规格如有变动, 恕不另行通知。

说明:

① 从冷启动开始预热5分钟后, 以10 kHz的脉冲重复频率和60%的占空比条件下测量

② 功率稳定性的定义为: 在恒定的水温下, ±(Pmax-Pmin)/(2Pmax)

③ 在出光口位置测量

④ 在10 kHz的脉冲重复频率和60%占空比条件下, 测量最大平均输入电流

The above specifications are subject to change without prior notice.

Notes:

① Measured at 10 kHz PRF, 60% duty cycle after a 5 minutes warm-up from cold start

② Power Stability definition: At a constant water temperature, ±(Pmax-Pmin)/(2Pmax)

③ Measured at the position of light outlet

④ Measured at 10 kHz PRF and 60% duty cycle operation, maximum average input current