

GRAVER series

High-power industrial ns-laser



FEATURES

- 35W at 1064nm /30W at 532nm
- Short pulse width <10 ns@40kHz
- High peak power >70kW
- High beam quality $M^2 < 1.2$
- Compact, sealed and rugged industrial grade design
- Fully detachable umbilical

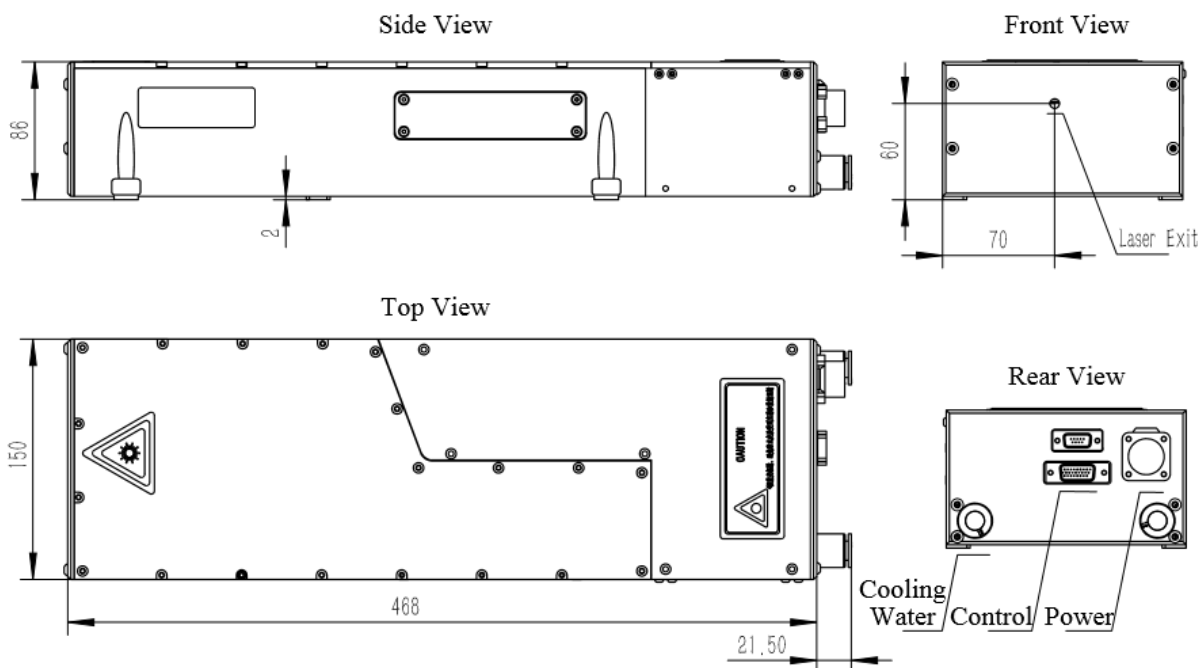
GRAVER series provide industrial grade DPSS nanosecond lasers with adjustable repetition rate and high peak power. With rugged and compact design, these lasers have been a versatile tool for a variety of industrial material processing applications.

APPLICATIONS

- Cutting and Drilling PCBs
- Cutting and Machining Ceramics
- Solar Cell Scribing
- Touch Panel Manufacturing

GRAVER Laser Head
Mechanical Specifications

Unit:mm



GRAVER series Specifications



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Beam characteristics

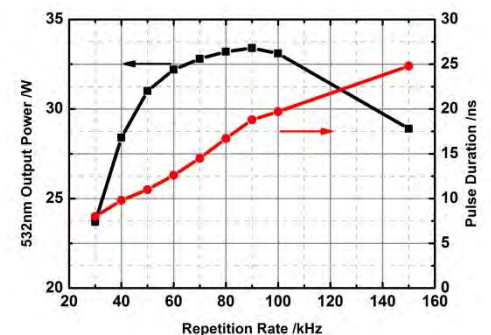
Version	GRAVER-1064-35			GRAVER-532-30		
Wavelength (nm)	1064			532		
Repetition Rate ¹ (kHz)	30 – 150					
Average Power (W)	Average Power (W) at Different Rep. Rates ²					
	40kHz	80kHz	120kHz	40kHz	80kHz	120kHz
	35	40	36	28	32	30
Pulse Energy (μJ)	Pulse Energy (μJ) at Different Rep. Rates					
	40kHz	80kHz	120kHz	40kHz	80kHz	120kHz
	875	500	300	700	400	250
Peak Power (kW)	Peak Power (kW) at Different Rep. Rates					
	40kHz	80kHz	120kHz	40kHz	80kHz	120kHz
	62.5	21	10	70	24	11.4
Beam Spatial Profile	TEM ₀₀ (M ² <1.2)					
Pulse width ³ (ns)	<14@40kHz			<10@40kHz		
Energy Stability (RMS)	<2%					
Power Stability ⁴ (RMS)	<2%					
Polarization Ratio	>100:1					
Beam Circularity (%)	>85%					
Pointing Stability ⁵ (μrad/°C)	<50					
Beam Divergence ⁶ (mrad)	<2					
Beam Waist Diameter (mm)	~0.40 ± 10%					
Beam Diameter ⁷ (mm)	~0.75 ± 10%					
Beam Waist Location ⁸ (mm)	-162 ± 10%					

General characteristics

AC Input	220 VAC ±5% 50-60Hz
Power Consumption	<500W (typical 35W at 40kHz&1064nm)
Cooling Type	Closed-loop water cooling
Operating Conditions	Temperature 15-35°C Humidity <65%
Warm-Up Time	<40min

NOTES

- All specifications at 1064/532nm and 40kHz repetition rate unless otherwise noted.
- Please provide operating Rep. rate for optimum output power.
- Please provide operating pulse duration for optimum the output power.
- Average in 8 hours with room temperature variation $\delta T < 3^{\circ}\text{C}$.
- Maximum deviation from beam mean centroid.
- Full angle for 86.5% of energy.
- At the window of the laser head.
- "+" indicates the waist locates out of the laser head according to the window, while "-" indicates the waist is inside the laser head.



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