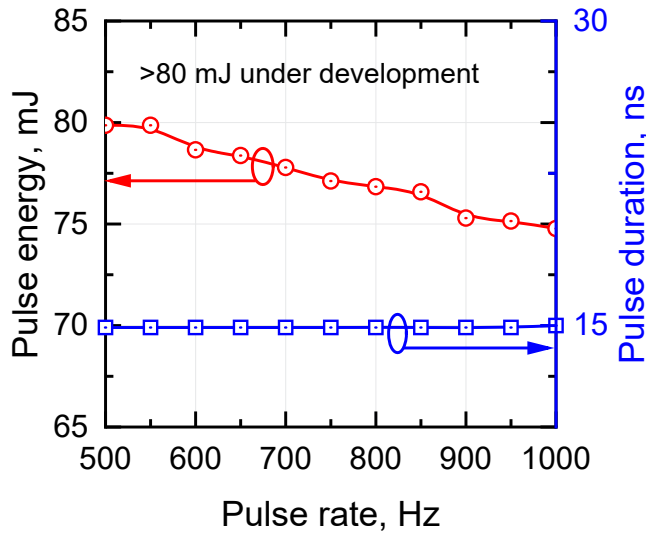


# HLPN-2090 SERIES

## Ho: YAG Hybrid Nanosecond Pulsed Lasers



Sample output energy vs pump power characteristics for different repetition rates for HLPN-LRR

Acousto-optically or Passively Q-Switched Optical Heads



HLPN Holmium:YAG laser provides 10 - 50 nanosecond pulses at 2.09  $\mu\text{m}$  with pulse energies up to 50 mJ and output powers up to 80 W. The acousto-optically or passively q-switched Ho:YAG head is pumped by IPG's efficient and reliable Thulium fiber laser. The HLPN 2.09  $\mu\text{m}$  pulsed laser addresses a wide range of materials processing, scientific and medical applications. A single-frequency option is also available.



### FEATURES

- ▶ Output Power up to 80 W
- ▶ Pulse Energy 1 - 50 mJ
- ▶ Repetition Rate 0.1 - 100 kHz
- ▶ Pulse Duration 10 - 50 ns
- ▶ TEM<sub>00</sub> Beam Mode
- ▶ Power Amplification Option
- ▶ Single-frequency Option



### APPLICATIONS

- ▶ Plastics Marking
- ▶ Plastics Cutting and Welding
- ▶ Medical Therapy, Surgery
- ▶ Spectroscopy
- ▶ LIDAR
- ▶ OPO Pump Source

# HLPN-2090 SERIES

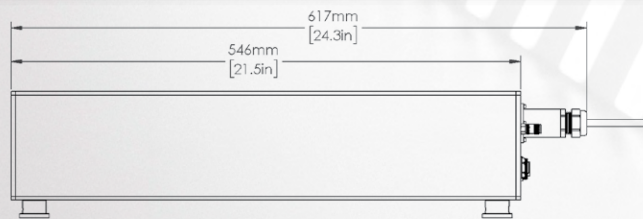
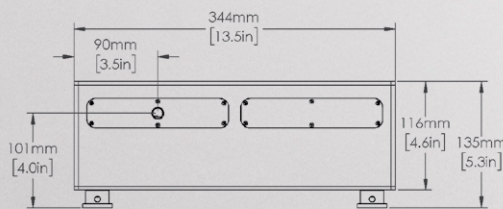
## Ho: YAG Hybrid Nanosecond Pulsed Lasers

Optical Characteristics	HLPN-5-10-9	HLPN-15-15-15	HLPN-40-15-30	HLPN-50-20-50	HLPN-1.6-30-80
Mode of Operation*	Passively Q-switched	Acousto-optically Q-switched			
Wavelength, nm	2090				
Linewidth FWHM**, nm	<0.01	<1			
Max. Average Power, W	9	15	30	50	80
Peak Power, MW	0.5	1	2.5	2.5	0.08
Max. Pulse Energy***, mJ	5	15	40	50	1.25
Pulse Duration, ns	15		20		15-55
Repetition Rate****, kHz	0.2-2	0.3-1	0.1-10	0.1-1	20-100
Polarization	Linear, >100:1				
Output Beam Mode, M <sup>2</sup>	≤1.2				
Beam Diameter (FW, 1/e <sup>2</sup> ), mm	1.5				
Beam Divergence, mrad	<1				
Warm-up Time, min	15				

General Characteristics	Pump Laser	IPG Photonics' CW Thulium Fiber Laser			
Optical Head Dimensions (W × D × H), mm	107 × 323 × 143	206 × 260 × 72	344 × 546 × 116		
Pump Laser Cooling*****	Air-cooled or Water-cooled				
Optical Head Cooling	Water-cooled				
Supply Voltage 50-60 Hz, VAC	110 - 240				
Power Consumption, W	500	800	1300	2300	2200

\* All lasers can operate in CW mode with maximum average power  
 \*\* Single-frequency option is available upon request  
 \*\*\*\*\* Wafer chiller is not included

\*\*\* Output energies >50 mJ are available upon request  
 \*\*\*\* Custom repetition rates are available upon request



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[IPGPhotonics.com/contact](http://IPGPhotonics.com/contact)  
[www.ipgphotonics.com](http://www.ipgphotonics.com)

MAX. AVERAGE OUTPUT POWER: 160 W  
 MAX. PEAK OUTPUT POWER: 7 MW  
 PULSE DURATION: 15-55 ns  
 PULSE REPETITION RATE: 0.1-100 kHz  
 WAVELENGTH RANGE: 2000-2200 nm

DANGER - INVISIBLE LASER  
 RADIATION AVOID EYE OR SKIN  
 EXPOSURE TO DIRECT OR  
 SCATTERED RADIATION  
 CLASS 4 LASER PRODUCT  
 IEC 60825-1:2014

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