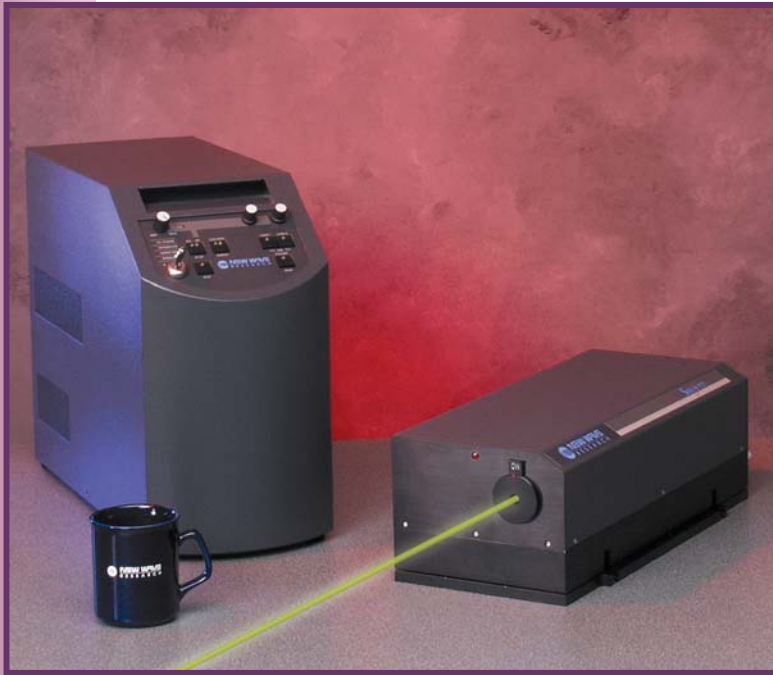


# Pegasus-PIV

## A High-Speed Laser for Particle Image Velocimetry



### Applications

Pegasus-PIV is a dual-head, high repetition rate Nd:YLF laser designed for high-speed flow analyses using Particle Image Velocimetry (PIV). It is ideally suited for high-speed flow experiments and investigations such as:

- Turbulent flow studies
- Vortex analysis
- Spray analysis
- Combustion studies

**P**egasus-PIV is a dual-head, high repetition rate, diode-pumped Nd:YLF laser system designed for high-speed or time-resolved Particle Image Velocimetry (PIV) analyses. Each of its two laser heads can operate from 1 – 10,000 pulses per second allowing camera frame rates up to 20,000 frames per second. With both laser heads operating, green energy per pulse is 10mJ at 2kHz. Because Pegasus-PIV features a dual-head design, each head can be triggered independently. Each laser pulse is uniform assuring the same pulse width, uniformity and intensity.

### Important Advantages of Pegasus-PIV Include:

- Dual laser heads are independently triggered and produce uniform laser pulses
- Per-cavity energy at 527nm is 10mJ at 1kHz
- System operates from 2 – 20k pulses per second
- Compact laser head makes setup convenient and easy
- Laser can be triggered internally, by an external source through BNCs, or by a remote computer via an RS232 interface



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# Performance Specifications

**Wavelength** 527 nm

## Repetition Rate

Dual Cavity System 2—20,000 Hz

Per Cavity 1—10,000 Hz

## Energy

Dual Cavity System  $\geq 10\text{mJ @ } 2,000\text{ Hz (} 2 \times 1,000\text{ Hz per cavity)}$

Per Cavity  $\geq 10\text{mJ @ } 1,000\text{ Hz}$

## Power<sup>1</sup> @ 1,000 Hz x 2

Dual Cavity System  $\geq 20\text{ watts}$

Per Cavity  $\geq 10\text{ watts}$

**Energy Stability<sup>2</sup> (rms %) @ 2kHz, 20W** < 1%

**Pulse Width<sup>3</sup> at 1kHz** < 180 ns

**Beam diameter** 1.5 mm

**Divergence<sup>4</sup>**  $\leq 3\text{ mrad}$

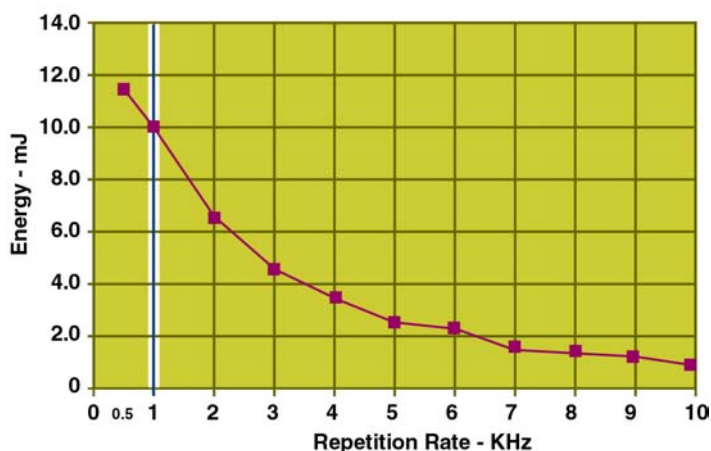
**Polarization** Vertical

**Spatial mode** Multimode,  $M^2 < 6$

**Warm-up time—95% full power**  $\leq 10\text{ min.}$

1. After 10 minute warm-up
2. RMS after 10 minute warm up
3. Full-width, half-maximum
4. Full angle for 86% of the energy, at  $1/e^2$

## Single Cavity Energy Per Pulse



## Standard Equipment

Dual-cavity laser head	527nm
Power supply	auto-ranging input voltage 95 – 250VAC, 50/60Hz
Chiller Options	115VAC, 60Hz 230VAC, 50Hz 200VAC, 50/60Hz

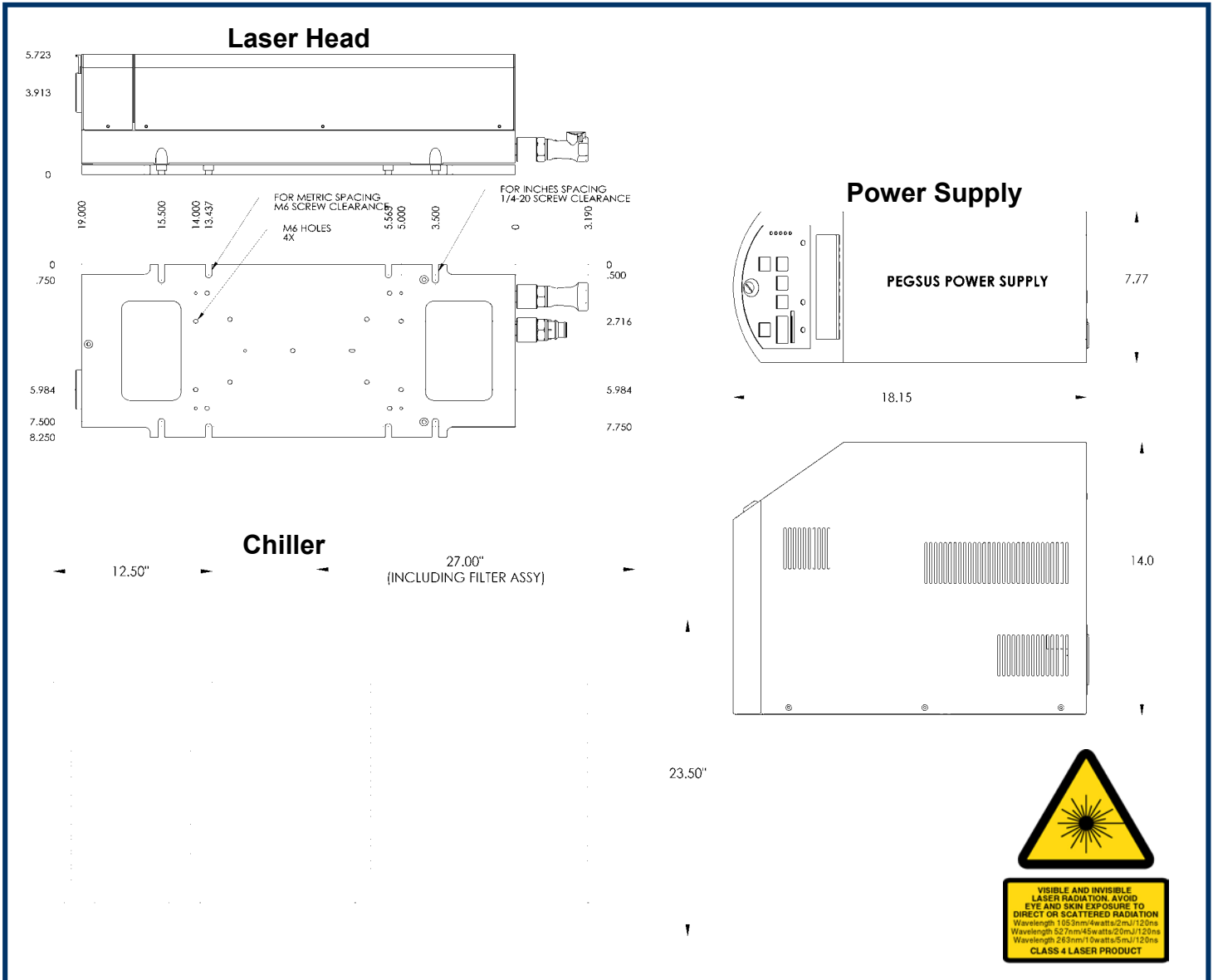
## Physical Specifications

	Laser Head	Power supply	Chiller
Length	19in/483mm	18.15in/461mm	27in/686mm
Width	8.25in/210mm	7.77in/197mm	12.5in/318mm
Height	5.75in/146mm	14.32in/363mm	23.5in/597mm
Weight	33lbs/15kg	35lbs/16kg	144lbs/66kg
Length (umbilical)	10ft/3.0m		

## Operating Requirements

Temperature	10° – 30°C
Relative Humidity	20 – 80% non-condensing
Voltage	
Power Supply	95 – 250VAC, 50/60Hz
Chiller	115VAC, 60Hz or 200VAC, 50/60Hz or 230VAC, 50Hz
Power	
Power Supply	1300watts
Chiller	15.5A @ 115VAC or 7.8A @ 200/230VAC

# Mechanical Specifications



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