

# PIV ND: YAG LASERS FOR PIV SYSTEM MEASUREMENTS

TSI's family of low speed lasers are ideal for particle imaging velocimetry (PIV) applications featuring a dual oscillator/single head, low repetition rate, Nd YAG laser. These lasers offer a powerful light source illuminating seed particles in the flow allowing for measurement of velocity.



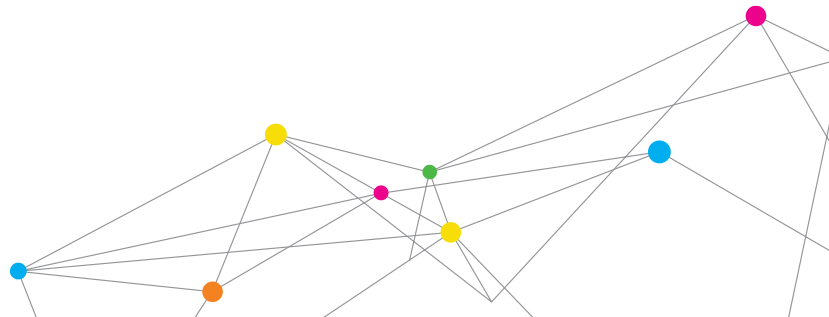
Featuring dual cavity lasers, the lasers deliver two lasers with pulses separated by user adjustable timing; the separation of pulses can range from milliseconds to nanoseconds. Offering short pulse duration, users are able to capture seed particle images without distortion.

## Features and Benefits

- + Dual cavity arrangement allows for infinite combinations of laser pulse separation between laser beams, accommodating for all velocity ranges in PIV
- + Externally and internally triggered with pulse frequency up to 100 Hz
- + Single and compact laser head and single power supply
- + Short pulse duration of less than 10 ns provides accurate illumination of the particle images in the flow field
- + Variable pulse frequency meeting the capture rate necessary to represent the flow field
- + Easy to operate and very transferable from one experiment to another
- + Offers third or fourth harmonic generation to give 355 nm or 266 nm for PLIF measurements



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# SPECIFICATIONS

## PIV ND: YAG LASERS LASERS FOR PIV SYSTEM MEASUREMENTS

TSI Model	YAG70-15-QTL	YAG145-15-QTL	YAG200-15-QTL
Wavelength (nm)	532		
Pulse repetition rate (Hz)	0 - 15		
Energy (mJ)	70	145	150
Pulse-to-pulse energy stability (% rms)	< 2		
Pulse width (ns)	< 10	< 10	< 10
Near field diameter (mm)	< 5.0	< 6.35	< 6.35
Beam divergence (mrad)	< 4		
Shot-to-shot pointing stability (μrad)	< 100		
Polarization	Linearly polarized, vertical		
Near field beam profile	Flat-top, uniform		
Operational temperature range (°C)	18 to 28		
Storage temperature range (°C)	5 to 50		
Power requirements	100 - 240 VAC, 50 to 60 Hz universal input		
Flashlamps pulses	100 million		
Coolant	Distilled / deionized water		
Triggers	5 V nominal into 50 Ohm or 5 V nominal into high impedance		
Cable length	3 meters (9.84 feet)		

TSI Model	YAG65-15-LIT	YAG135-15-LIT	YAG200-15-LIT	YAG400-15-LIT	YAG50-100-LIT	YAG100-100-LIT
Wavelength (nm)	532	532	532	532	532	532
Energy output (mJ)	65	135	200	400	50	100
Energy output (m)	0 - 15	0 - 15	0 - 15	0 - 15	0 - 50	0 - 100
Pulse-to-pulse stability (% rms)	2	2	2	2	2	2
Beam diameter (mm)	4	5	6.5	9.5	4	4
Beam divergence (mrad)	2.5	3.0	3.0	< 1.0	3.0	3.0
Pulse length @ 1064 nm (ns)	6 - 8	6 - 9	6 - 9	5 - 7	6 - 8	5 - 7
Pointing stability (μrad)	<100	<100	<100	100	100	100
Resonator type	stable	stable	stable	telescopic	stable	telescopic
Flashlamp life (pulses)	> 5 x 10 <sup>7</sup>					
Timing jitter (ns)	< 0.5					
Power requirement	110 - 250 VAC, 47 - 63 Hz, single phase			220 - 250 VAC, 50 - 60 Hz, single phase	110 - 250 VAC, 47 - 63 Hz, single phase	220 - 250 VAC, 50 - 60 Hz, single phase
Ambient temperature (°C)	5 - 35 °C					



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