# HIGH-SPEED LASERS FOR TR-PIV AND TR-V3V-FLEX SYSTEMS


With the collaboration between Northrop Grumman and TSI, the Northrop Grumman High-Speed Particle Image Velocimetry (PIV) lasers with high laser energy and high pulse rates are designed to be used specifically with TSI's Time-Resolved (TR) PIV and TR-V3V-Flex systems. With the high energy output, this laser is ideal for measurements with large fields of view and large measuring volumes. This high-speed PIV laser system is easy to operate and reliable. With its powerful laser output, allows you to explore the most challenging research activities, putting you in the forefront of the research community.

The high-speed lasers use the proprietary-designed Ti-Sapphire ultrafast oscillators for diode pumping. As a result, it allows much more of the pump light to be absorbed by the laser crystals, providing extraordinary laser energy output at much higher pulse frequencies.

As part of the TR-PIV and TR-V3V-Flex systems, the laser is easily integrated with the rest of the components. The operation of the laser is controlled through the Insight 4G™ software for planar PIV or Insight V3V™ 4G software for volumetric PIV. Due to the high energy output and flexible pulse frequency, the lasers are perfect for a wide variety of flow measurements in large scale facilities.

**Features and Benefits**

+ Highest laser energy measurements in large Field of View and volume size
+ Pulse frequency from single shot to 50 kHz
+ Excellent beam quality for uniform light energy in the plane or volume
+ Pulse energy up to 50 mJ/pulse with no decrease in energy at low-pulse frequency
+ Robust, software controlled operation

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# SPECIFICATIONS

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| Model | YLF30-1000-NG | YLF50-1000-NG | YAG10-10000-NG | YAG20-10000-NG |
|---|---|---|---|---|
| Laser Type | DPSS YLF | DPSS YLF | DPSS YAG | DPSS YAG |
| Wavelength (nm) | 527 | 527 | 532 | 532 |
| Beam Diameter (mm) | < 4 | < 4 | < 4 | < 4 |
| Beam Quality ($M^2$) | < 15 @ 1 kHz | < 15 @ 1 kHz | < 20 @ 10 kHz | < 25 @ 10 kHz |
| Beam Divergence (mrad) | < 5.0 @ 1 kHz | < 5.0 @ 1 kHz | < 5.0 @ 10 kHz | < 8.0 @ 10 kHz |
| Energy Per Pulse (mJ) | 30 mJ at 1 kHz | 50 mJ at 1 kHz | 10 mJ at 10 kHz | 20 mJ at 10 kHz |
| Average Power Per Laser Cavity (W) | 30 W at 1 kHz | 50 W at 1kHz | 100 W at 10 kHz | 200 W at 10 kHz |
| Pulse Width (FWHM) (ns) | < 250 @ 3 kHz | < 250 @ 3 kHz | < 250 @ 10 kHz | < 120 @ 10 kHz |
| Pulse to Pulse Stability (% rms) | < 1.5 @ 3 kHz | | < 1.5 @ 10 kHz | |
| Polarization | Circular polarity | | | |
| Operating Temperature (°C) | 18 – 30 (non-condensing atmosphere) | | | |
| Laser Head Dimensions (Inches) | 20" x 42" x 7" | | | |
| Controller | Two eDrive control modules, one per laser cavity | | | |
| Chiller | Single chiller supplied with laser | | | Two chillers supplied with laser |



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