The Terra Nd:YLF laser is the smallest laser in its class. It produces high average power (>50 W) at kilohertz repetition rates. Our proprietary intracavity frequency doubling results in high conversion efficiency, without resorting to the tight focusing in the doubling crystal, which is normally necessary in an extracavity design and leads to possible optical damage. Our proprietary pump chamber design further increases the system's overall efficiency.

High pulse energy, smallest M², and small jitter are all available in this extremely compact and highly ruggedized package, optimized for pumping Ti:Sapphire amplifiers.

**Applications**

- Stent/Glass/PCB/Fine Metal Cutting
- LCD/Solar Edge Deletion
- Marking
- Wafer Trimming
- Micro-hole Drilling
- Ceramics Scribing
- Fine Wire Stripping
- Diamond/Gemstone Processing

**Science**

- Ti:Sapphire pumping
- Particle Image Velocimetry (PIV)
- Combustion Analysis
- Laser Induced Fluorescence
- LIDAR
- Resonance Raman Spectroscopy
- Chemical Analysis of Macromolecules
- Laser Microprobe Analysis

**Key Features**

- >30 mJ pulse energy at 1kHz
- Average power >50 W @ 3 kHz
- Repetition rates up to 10 kHz
- Exceptional beam pointing and power stability
- Compact, rugged & hermetically sealed laser head
- Quick & easy diode module replacement (3min)
- Proprietary pump chamber design for optimal beam quality
- Optimized for ultrafast amplifier pumping
### Specifications

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<th>527-50-M</th>
<th>527-40-M</th>
<th>527-30-M</th>
<th>527-20-M</th>
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<tbody>
<tr>
<td>Transverse Mode</td>
<td>MM</td>
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<tr>
<td>Pulse Energy at 0.1-1 kHz (mJ)</td>
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<td>20</td>
<td>15</td>
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<td>Pulse Repetition Rate (kHz)</td>
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<tr>
<td>Pulsewidth (ns)</td>
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<td>&lt; 150</td>
<td>&lt; 160</td>
<td>&lt; 170</td>
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<td>Energy Stability (% rms)</td>
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<td>&lt; 0.5</td>
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<td>Beam Pointing Stability (µrad)</td>
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<td>Beam Diameter at Output (mm)</td>
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<td>Beam Quality (M²)</td>
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<td>Polarization (Vertical/Horizontal)</td>
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<td></td>
<td>Horizontal</td>
</tr>
</tbody>
</table>

¹ All specifications at 1kHz unless otherwise noted.
² Single shot to 0.1 kHz available with external trigger
³ Typical measurement (±10%)
⁴ Measured at 13.5% level at output window

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Terra Energy Stability - Terra-527-40-M output energy stability measurement

Terra Beam Profile - Uniform Spatial Profile is optimized for Ti:Sapphire pumping

Laser System Output Characteristics
Terra 527-50-M Performance Curves
### Specifications

**Terra Physical Layout**

All dimensions are in inches [mm].

#### Side View

- **Optical Head**
  - Type A: 21.7 (551)
  - Type B: 24.7 (627)

- **Power Supply**
  - 17.7 kg (39 lbs)

- **Chiller**
  - 55 kg (122 lbs)

#### Front View

- **Optical Head**
  - A) 9 kg (20 lbs) / B) 10.5 kg (23 lbs)

- **Power Supply**
  - 17.7 kg (39 lbs)

- **Chiller**
  - 55 kg (122 lbs)

#### Weight

- **Optical Head**
  - A) 9 kg (20 lbs) / B) 10.5 kg (23 lbs)

- **Power Supply**
  - 17.7 kg (39 lbs)

- **Chiller**
  - 55 kg (122 lbs)

#### Electrical Service

- **Power Supply**
  - Single-phase: 200-240 VAC, 50/60 Hz operating current: 5A, max current: 10A

- **Chiller**
  - Single-phase: 230 ±10% VAC, 50/60 Hz operating current: 10A, max current: 15A

#### Temperature & Humidity

- **Operating Temperature**
  - 15 to 35°C

- **Storage Temperature**
  - -20°C to 50°C

- **Relative Humidity**
  - 8-80%, non-condensing

#### Control Interface

- **Serial Interface**
  - RS-232

- **Rear Connections**
  - External beam enable, external trigger

- **Control Software**
  - MS Windows-based Laser Commander

#### Umbilical Length

- 3.65 m (12.0 ft)

#### Cooling

- Air-water; water-water-cooling option available

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**DANGER**

Avoid eye or skin exposure to direct or scattered radiation.

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amplitude-laser.com
Terra
Diode pumped Nd:YLF laser