SL-GT-10

Ultra thin, high density gas jet system for near-critical regime

www.sourcelab-plasma.com
**A gas jet dedicated to your physics**

The SL-GT-10 system is a high-pressure fast-switching gas jet assembly, specifically conceived for laser-plasma interaction.

This high density gas jet offers unprecedented capabilities in terms of density range and jet size (FWHM): with a single equipment, the experimentalist can explore a broad perimeter of laser-plasma interaction regimes.

The SL-GT-10 is the only jet system enabling to access densities in the near-critical regime for Ti:Sa laser pulse (800 nm), while keeping the jet size sub-millimetric.

### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Max atomic peak density (400 µm nozzle, 320 bar)</td>
<td>&gt; $2 \times 10^{21}$ atoms/cm$^3$</td>
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<tr>
<td>Mach number (with a sub-mm nozzle)</td>
<td>Up to 6</td>
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<tr>
<td>Gradient scale length (400 µm nozzle)</td>
<td>&lt; 400 µm</td>
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<tr>
<td>Repetition rate</td>
<td>Up to 1 Hz</td>
</tr>
<tr>
<td>Open / close time</td>
<td>15 ms / &lt; 45 ms</td>
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<tr>
<td>Compatible nozzle type</td>
<td>Min. 200 µm of critical diam.</td>
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<tr>
<td>Valve dimensions (L x r) / mass</td>
<td>90 x 34 mm / 1.5 kg</td>
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<tr>
<td>Valve open / close timescale</td>
<td>&lt; 3 ms</td>
</tr>
<tr>
<td>High-pressure pipes length</td>
<td>Up to 3 m (flexible)</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>Max. 344 bar</td>
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</tbody>
</table>

*Experimental gas jets lineouts from SL-Noz-Comp at 424 µm from the nozzle exit (in red) and from sonic nozzles of 400 µm of diameter SL-Noz-at 100 µm from the nozzle exit (in green).*

**Experimental gas jets lineouts from SL-Noz-Comp at 424 µm from the nozzle exit (in red) and from sonic nozzles of 400 µm of diameter SL-Noz-at 100 µm from the nozzle exit (in green).**

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**SourceLAB**

- Ion acceleration
- Vortex / Soliton excitation
- THz radiation
- Betatron radiation
- Electron acceleration
- Harmonic generation

**Fully interfaced, easy-to-tune output gas flow**