

## Technical data sealed CO<sub>2</sub> lasers – specification

|                                                     |                                                                           |                                     |
|-----------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------|
|                                                     | SR 25 AOM 9.3μm                                                           |                                     |
| Laser beam data                                     |                                                                           |                                     |
| Wavelength <sup>(1)</sup>                           | 9.3μm                                                                     |                                     |
| Excitation                                          | RF                                                                        |                                     |
| Output power                                        |                                                                           |                                     |
| Power range (rated) <sup>(2)</sup>                  | 0 – 150W                                                                  |                                     |
| Typical stability (long term) <sup>(3)</sup>        | ± 2%                                                                      |                                     |
| Peak power <sup>(4)</sup>                           | 150W                                                                      |                                     |
| Minimum shipment power <sup>(2)</sup>               | >150W                                                                     |                                     |
| Laser beam quality                                  |                                                                           |                                     |
| Diameter @ (1/e <sup>2</sup> ) (at laser o/p optic) | 7.7 ± 0.5mm                                                               |                                     |
| Beam quality factor                                 | M <sup>2</sup> < 1.2 (K > 0.83)                                           |                                     |
| Divergence (full angle far field)                   | < 2mrad                                                                   |                                     |
| Pointing stability (half angle)                     | < 0.3mrad                                                                 |                                     |
| Polarisation                                        | Linear (perpendicular to base)                                            |                                     |
| Ellipticity                                         | < 1.1 : 1 (typical), < 1.2 : 1 (guaranteed)                               |                                     |
| System input requirements                           |                                                                           |                                     |
| DC input voltage                                    | 50VDC ± 1%                                                                |                                     |
| Maximum average DC input current <sup>(4)</sup>     | 106A                                                                      |                                     |
| Maximum peak DC input current                       | 170A                                                                      |                                     |
| Maximum average power consumption <sup>(4)</sup>    | 5.3kW                                                                     |                                     |
| AOM Pulsed mode                                     |                                                                           |                                     |
| Frequency                                           | 0 – 240kHz                                                                |                                     |
| Pulse width                                         | >1μs                                                                      |                                     |
| Energy                                              | >0.3mJ                                                                    |                                     |
| Optical pulse rise/fall                             | < 1μs                                                                     |                                     |
| Duty cycle (max)                                    | 100%                                                                      |                                     |
| Dimensions and weights                              |                                                                           |                                     |
| Laser head/RF                                       | (LxWxH) 947x290x224 (mm)<br>50kg                                          |                                     |
| External control facilities                         |                                                                           |                                     |
| Laser head                                          | Commands from external controller<br>Status signal to external controller |                                     |
| DC Electrical ratings                               |                                                                           |                                     |
| Input voltage range                                 | 230VAC ± 10% 50/60Hz.<br>Single or bi-phase                               | 380-480 VAC 47/63Hz.<br>Three phase |
| Input current (max)                                 | 29A @ 230V                                                                | 50A (max inrush current)            |
| External fusing requirement                         | 40A @ 230V                                                                | Three x 15A                         |
| Output voltage                                      | 50V                                                                       | 50V                                 |
| Maximum output current                              | 120A                                                                      | 110A                                |
| Maximum output power <sup>(6)</sup>                 | 6kW                                                                       | 5.5kW                               |
| Earth leakage current                               | <4mA                                                                      | <5mA                                |

## Cooling (Laser + RF + DC PSU)

|                        |                                                |
|------------------------|------------------------------------------------|
| Minimum flow rate      | ≥ 5L/min                                       |
| Recommended flow rate  | ≥ 6L/min                                       |
| Maximum pressure       | 6 bar                                          |
| Refrigeration capacity | > 5kW                                          |
| Temperature            | 18°C/64°F to 25°C/77°F ± 1°C (Above dew point) |

## Cooling (AOM)

|                        |                                                |
|------------------------|------------------------------------------------|
| Minimum flow rate      | ≥ 2L/min                                       |
| Recommended flow rate  | ≥ 3L/min                                       |
| Maximum pressure       | 3 bar                                          |
| Refrigeration capacity | > 0.5kW                                        |
| Temperature            | 18°C/64°F to 20°C/68°F ± 1°C (above dew point) |

## Environmental requirements

|                           |                           |
|---------------------------|---------------------------|
| Ambient temperature range | 5 – 30°C                  |
| Relative humidity range   | 10 – 85% (non-condensing) |
| Operational altitude      | < 2000m                   |

### Notes:

<sup>1</sup> 9.27μm is the predominant wavelength. This can typically vary in the range 9.2μm – 9.4μm.

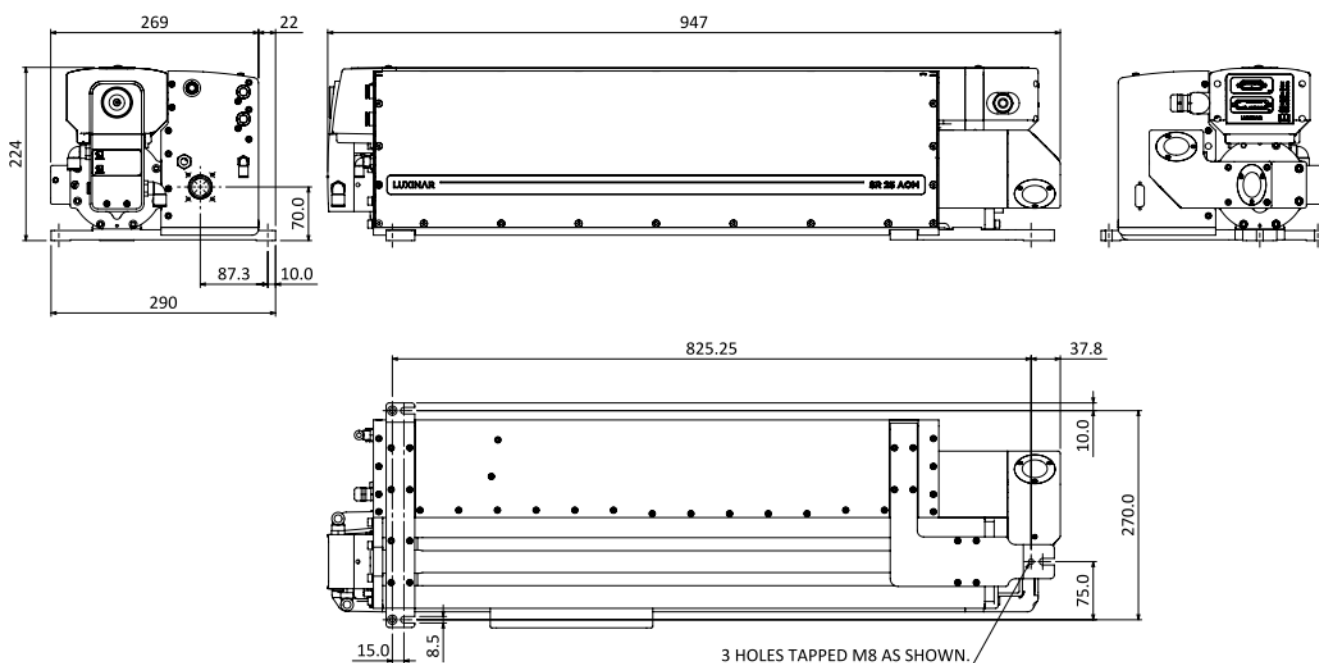
<sup>2</sup> Mean average power at 100% AOM duty cycle. The mean average power is proportional to AOM duty cycle.

<sup>3</sup> Guaranteed stability (long-term) is ± 3%.

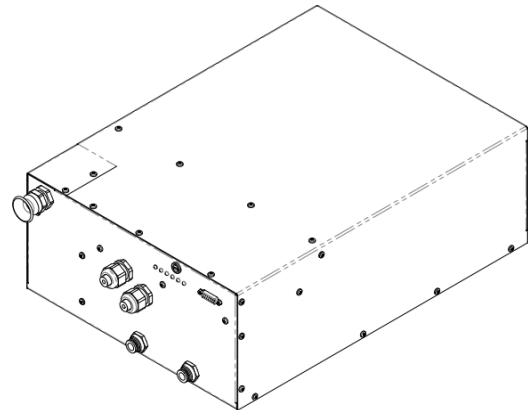
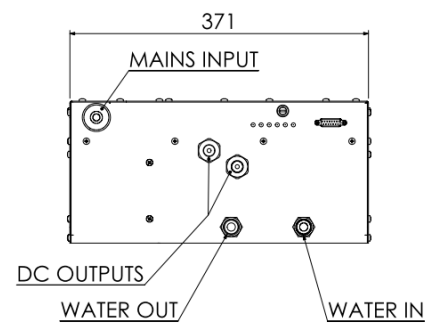
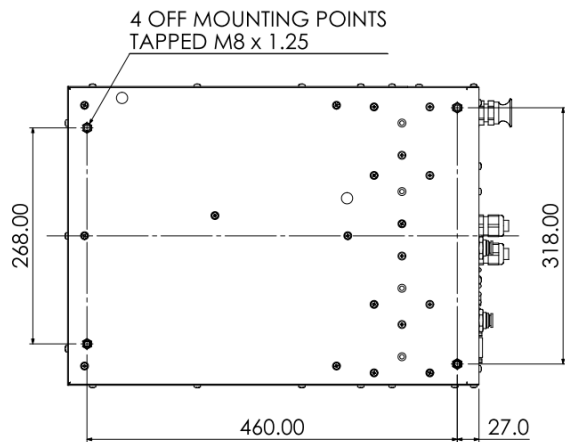
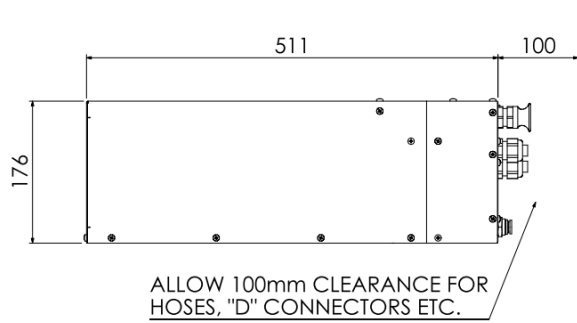
<sup>4</sup> We recommend using a DC PSU with at least 20% head room on the maximum average power rating.

i.e. DC PSU power= maximum o/p\*1.2

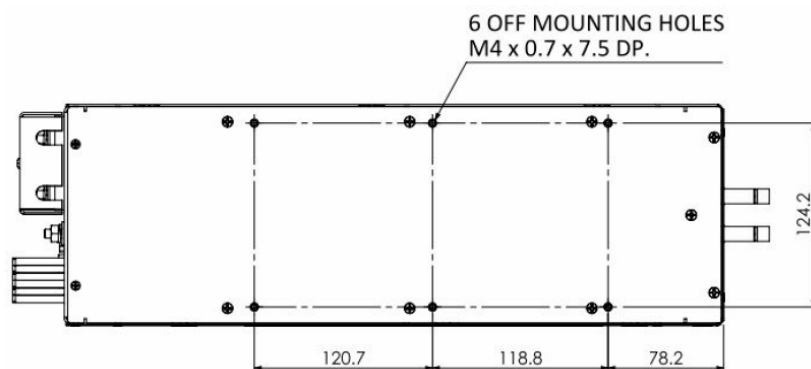
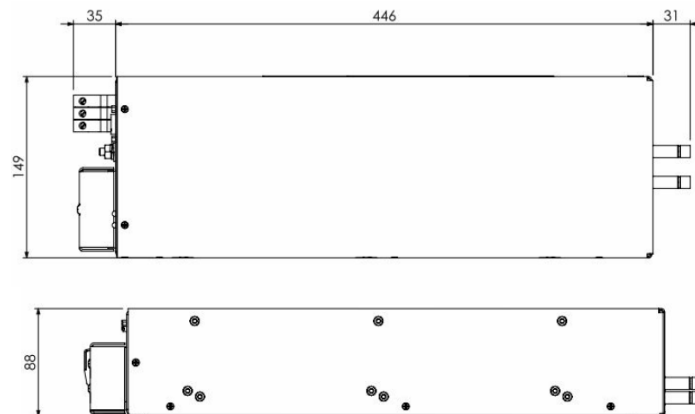
Please note that while every effort has been made to ensure that the data given in this document is accurate, the information, figures, illustrations, tables, specification and schematics contained herein are subject to change without notice



SR 25 AOM



DC power supply – single phase, water cooled - 50V – optional



DC power supply – three phase, water cooled - 50V – optional