

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

|                                                     |                                                                           |                                    |
|-----------------------------------------------------|---------------------------------------------------------------------------|------------------------------------|
|                                                     | SR 15i (PP) 10.25μm                                                       |                                    |
| Laser beam data                                     |                                                                           |                                    |
| Wavelength <sup>(1)</sup>                           | 10.25μm                                                                   |                                    |
| Excitation                                          | RF                                                                        |                                    |
| Output power                                        |                                                                           |                                    |
| Power range (rated) <sup>(2)</sup>                  | 10–155W                                                                   |                                    |
| Typical stability (long term) <sup>(3)</sup>        | ± 3% without power feedback, ± 1% with power feedback                     |                                    |
| Peak power <sup>(4)</sup>                           | 390W                                                                      |                                    |
| Minimum shipment power <sup>(2)</sup>               | 186W                                                                      |                                    |
| Laser beam quality                                  |                                                                           |                                    |
| Diameter @ (1/e <sup>2</sup> ) (at laser o/p optic) | 6.8 ± 0.5mm                                                               |                                    |
| Beam quality factor                                 | M <sup>2</sup> < 1.2 (K > 0.83)                                           |                                    |
| Divergence (full angle far field)                   | < 2mrad                                                                   |                                    |
| Pointing stability (half angle)                     | < 0.25mrad                                                                |                                    |
| Polarisation                                        | Linear (parallel to base)                                                 |                                    |
| Ellipticity                                         | < 1.2 : 1                                                                 |                                    |
| RF input requirements                               |                                                                           |                                    |
| DC input voltage                                    | 50VDC ± 1%                                                                |                                    |
| Maximum average DC input current <sup>(5)</sup>     | 72A                                                                       |                                    |
| Maximum peak DC input current                       | 120A                                                                      |                                    |
| Maximum average power consumption <sup>(6)</sup>    | 3.6kW                                                                     |                                    |
| Pulsed mode                                         |                                                                           |                                    |
| Frequency                                           | 0–130kHz                                                                  |                                    |
| Pulse width                                         | 2–400μs                                                                   |                                    |
| Energy                                              | 7–125mJ                                                                   |                                    |
| Optical pulse rise/fall                             | < 60μs                                                                    |                                    |
| Duty cycle (max)                                    | 60%                                                                       |                                    |
| Dimensions and weights                              |                                                                           |                                    |
| Laser head/RF                                       | (LxWxH) 879x198x222 (mm)<br>32kg                                          |                                    |
| 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                                | 415VAC± 10% 50/60Hz<br>Three phase |
| Input current (max)                                 | 22A @ 230V                                                                | 12A@415V                           |
| External fusing requirement                         | 30A @ 230V                                                                | Three x 16A@415V                   |
| Output voltage                                      | 50V                                                                       | 50V                                |
| Maximum output current                              | 96A                                                                       | 150A                               |
| Maximum output power <sup>(6)</sup>                 | 4.8kW                                                                     | 7.5kW                              |
| Earth leakage current                               | < 4mA                                                                     | < 30mA                             |

## Cooling

|                        |                                                |
|------------------------|------------------------------------------------|
| Minimum flow rate      | ≥ 5L/min                                       |
| Recommended flow rate  | ≥ 6L/min                                       |
| Refrigeration capacity | > 4kW                                          |
| Temperature            | 19°C/66°F to 25°C/77°F ± 1°C (above dew point) |

## Environmental requirements

|                           |                         |
|---------------------------|-------------------------|
| Ambient temperature range | 5–40°C                  |
| Relative humidity range   | 10–85% (non-condensing) |
| Operational altitude      | < 2000m                 |

### Notes:

<sup>1</sup>10.25μm is the predominant wavelength. This can typically vary in the range 10.17μm–10.33μm.

<sup>2</sup> Mean average power at maximum duty cycle.

<sup>3</sup> Guaranteed stability (long-term) ± 6% without power feedback and ± 2% of rated power with power feedback.

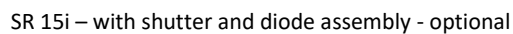
<sup>4</sup> Depending on frequency.

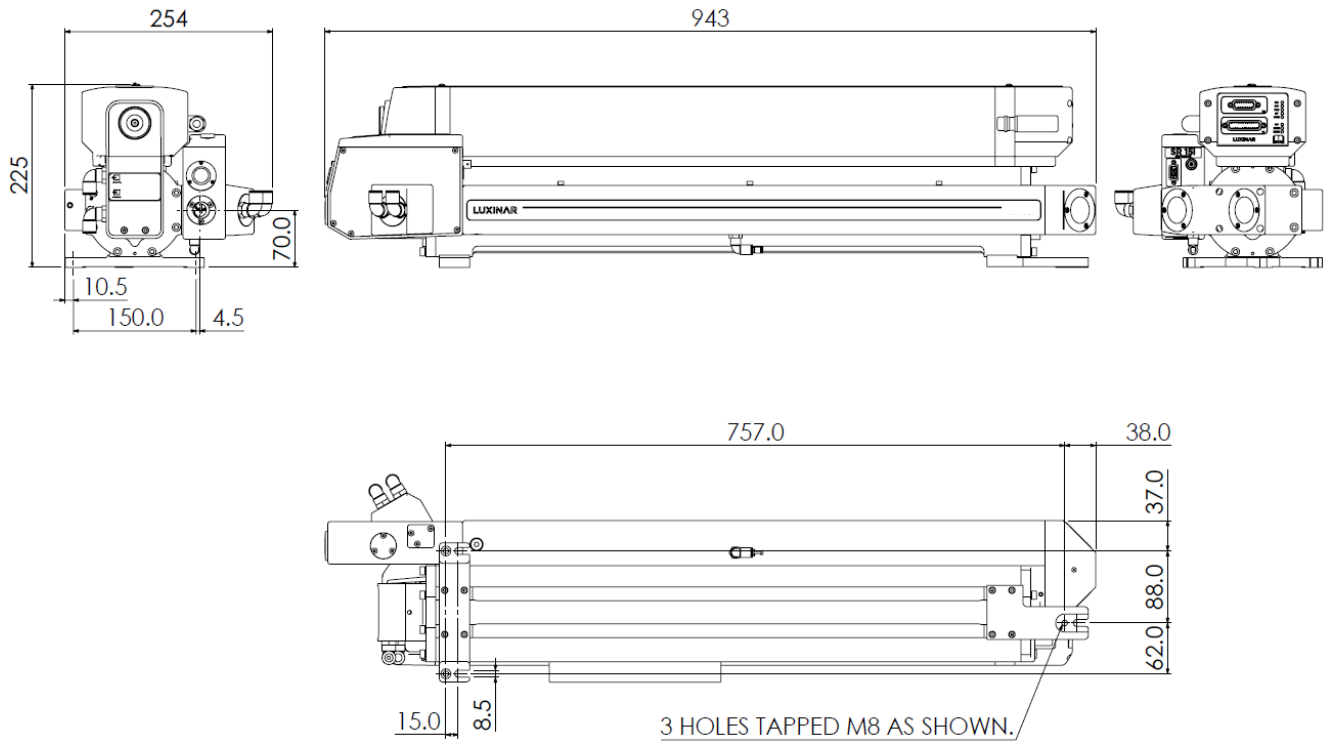
<sup>5</sup> 400μs pulse width @ 60% duty.

<sup>6</sup> We recommend using a DC PSU with at least 20% head room on the maximum average power rating.

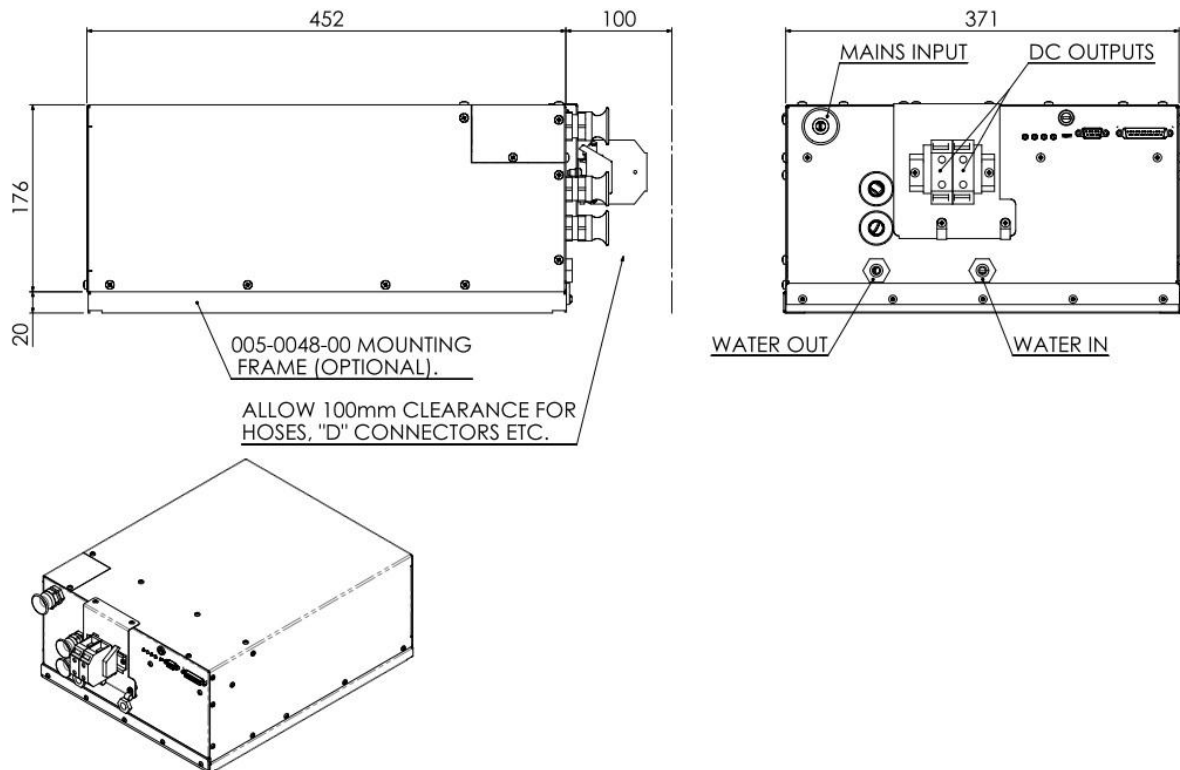
i.e. DC PSU power= maximum o/p\*1.2

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 15i – with shutter, diode and power feedback assembly – optional



DC power supply – water cooled - 50V - optional