

Technical data sealed CO₂ lasers – specification

Ref 902-0929-00 (internal use only)

Laser beam data

Wavelength ⁽¹⁾

Excitation

SR 25i

10.6µm

RF excited

Laser output power

Power range(rated)

Typical power stability (without power feedback)

Typical power stability (with power feedback) ⁽²⁾

Guaranteed power stability (without power feedback)

Guaranteed power stability (with power feedback) ⁽²⁾

Peak power

Minimum shipment power ⁽³⁾

15W-250W

± 3%

± 1%

± 6%

± 2%

630W

300W

Laser beam quality

Diameter @ (1/e²) at laser o/p optic ⁽⁴⁾

Beam quality factor M² (K)

Divergence (full angle far field)

Pointing stability (half angle)

Polarisation

Ellipticity

6.5 ± 0.5mm

M² < 1.2 (K > 0.83)

< 2mrad

< 0.25mrad

Linear (parallel to base), purity > 100:1

< 1.2:1

RF PSU

Input voltage rating ⁽⁵⁾

Maximum average DC input current

Maximum average power consumption

50 VDC ±1%

96A

4.8kW

Pulse mode

Frequency

Width

Energy

Optical pulse rise/fall

Duty cycle (max)

0 to 130kHz

2µs to 400µs

10mJ-200mJ

< 60µs

60%

Dimensions and weights

Laser head/RF – without shutter

Laser head/RF – with shutter

Laser head/RF – with shutter and power feedback

DC PSU – Single phase (Optional)

DC PSU – 3 phase (Optional)

(LxWxH)941mmx198mmx222mm 34kg

(LxWxH)1005mmx198mmx222mm 34kg

(LxWxH)105mmx251mmx222mm 34kg

(LxWxH)511mmx371mmx1760mm 24kg

(LxWxH)512mmx149mmx88mm 23kg

External control facilities

Laser head

RS232 communications (shutter options only)

PWM input

Status outputs

Cooling

Flow rate (minimum)

Refrigeration capacity

> 5 l/min

> 5.3kW

Environmental requirements

Ambient temperature range

Relative humidity range

Operational altitude

5 – 40°C

10 – 85% (non-condensing)

< 2000m

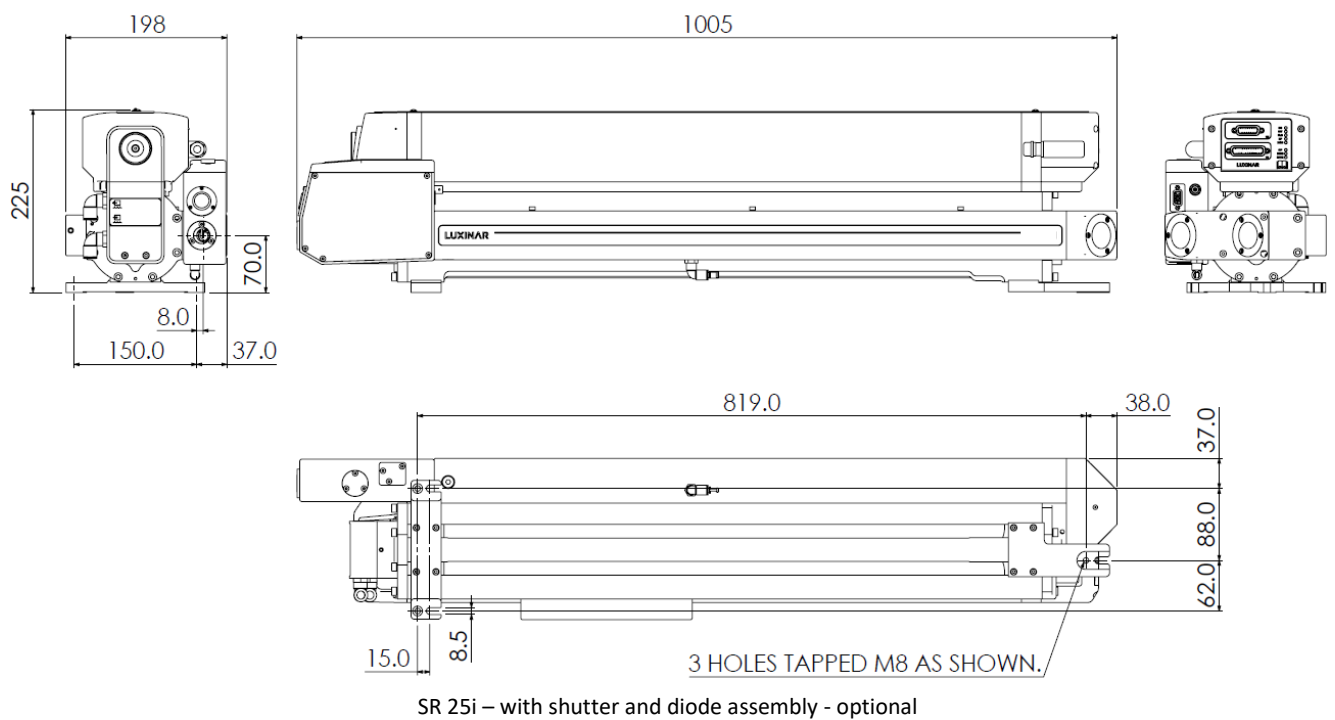
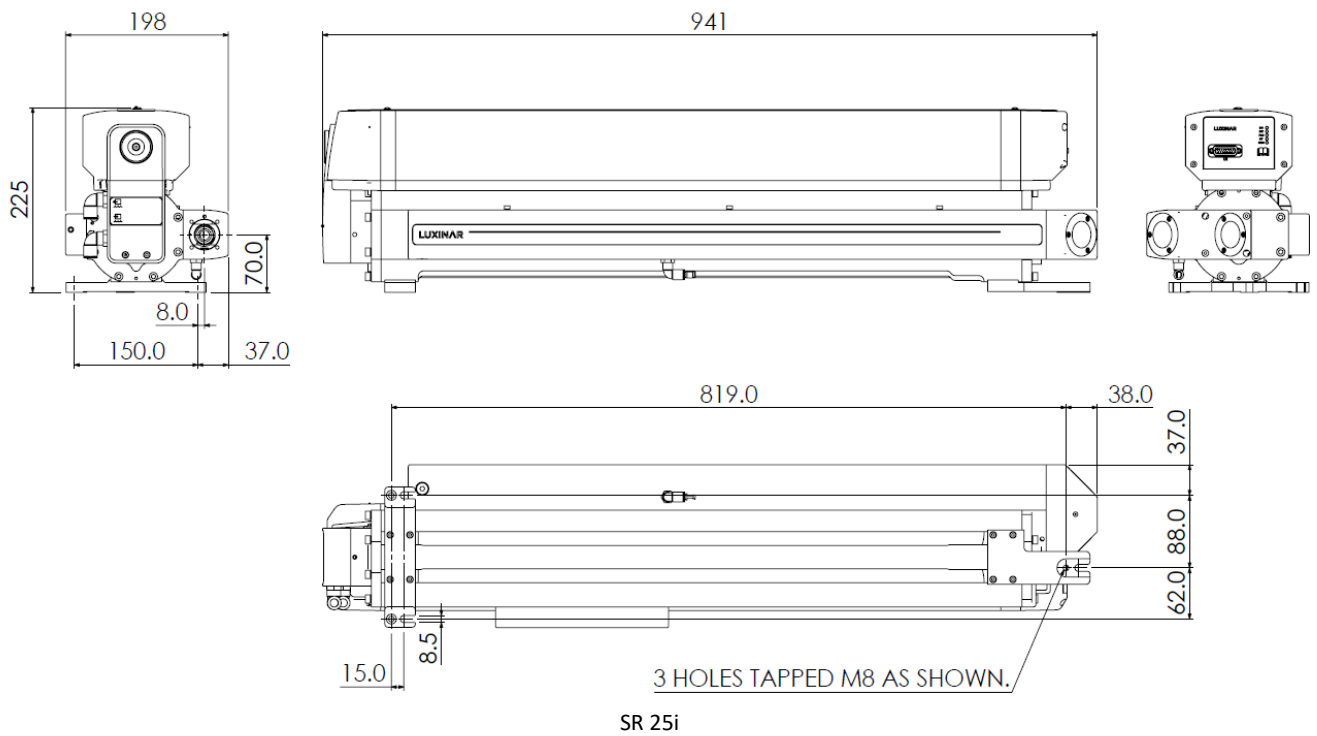
DC PSU (optional)

Input voltage rating	Single phase 230 VAC $\pm 10\%$ 50-60Hz	3 phase 380-480 VAC 50-60Hz
Input current (max)	Single or bi-phase 29A	No neutral connection 12A per phase
Output voltage	50V	50V
Output current (max)	120A	150A
Output power (max)	6.0kW	7.5kW
Coolant pressure (max)	6bar	6bar
Coolant flow	> 5 l/m	> 5 l/m

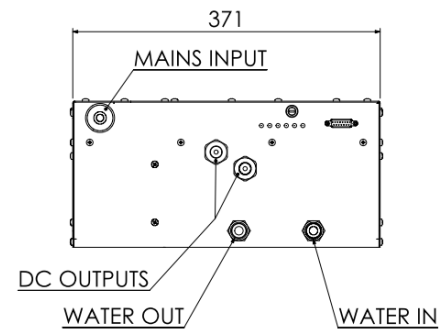
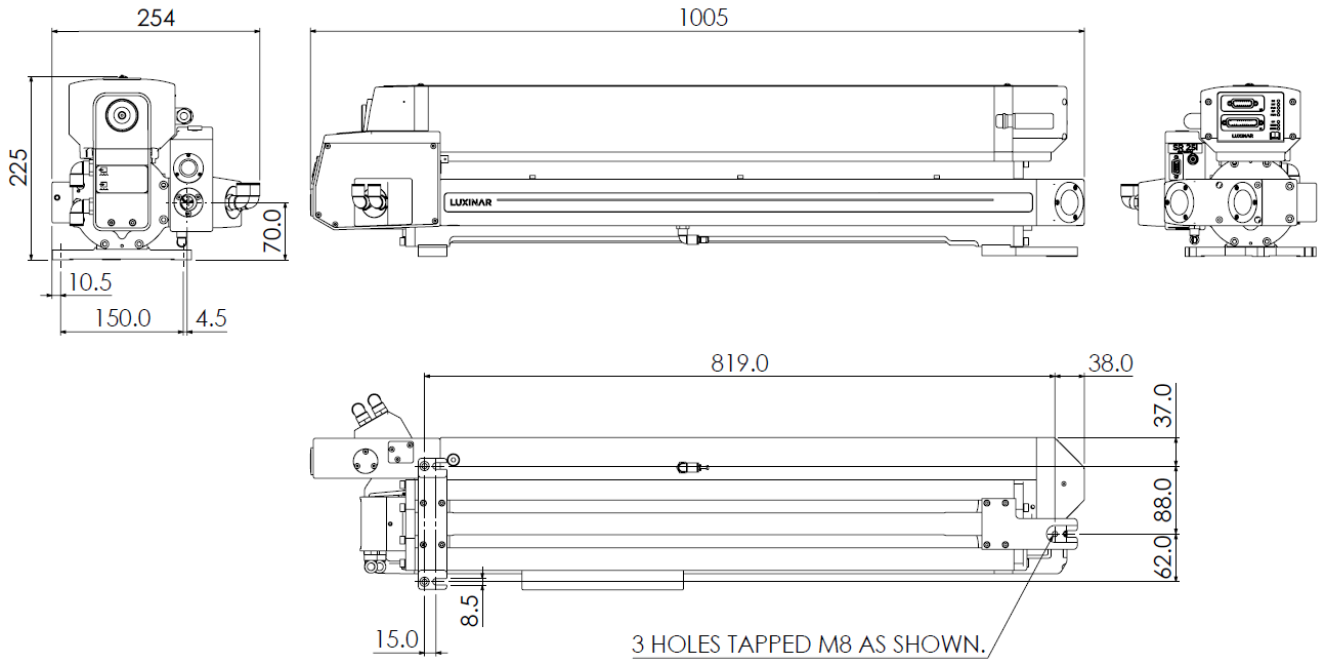
Notes:

1. 10.6 μm is the predominant wavelength. This can typically vary in the range 10.45 μm –10.7 μm
2. The guaranteed stability is $\pm 2\%$ with power feedback enabled and $\pm 6\%$ without power feedback enabled at a pulse width of 50 μs and a duty of 60%. Power feedback turn on response is typically 300-500 milliseconds
3. Mean average power at maximum duty cycle
The guaranteed minimum shipment power is 300W at 50 μs pulse width and 60% duty
4. A beam waist diameter of typically $10.5 \pm 1\text{mm}$ is located approximately 2m to 4m from the laser output
5. Input load capacitance is 47mF.

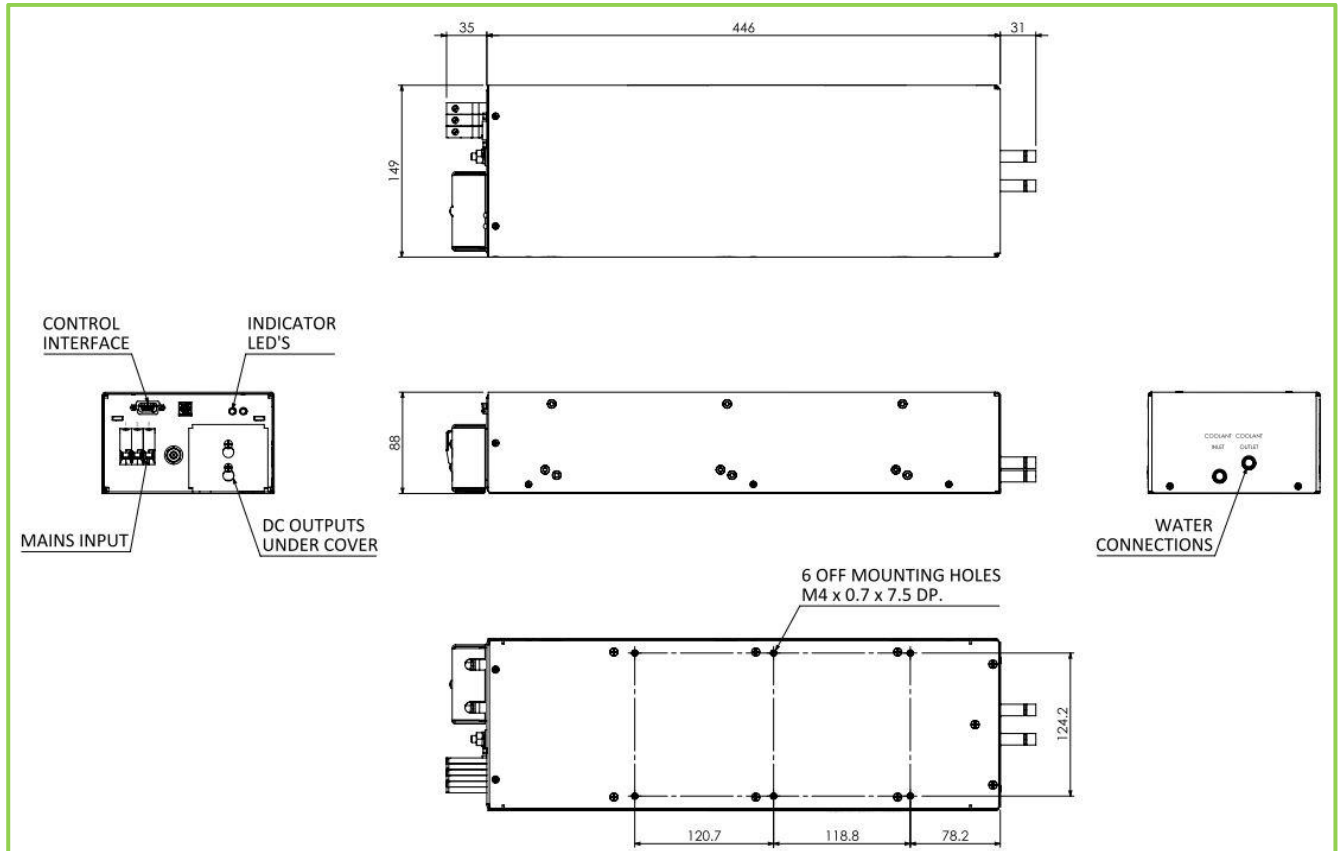
Please note that while every effort has been made to ensure that the data given in this document is accurate, the information, figures, illustrations, tables, specification and schematics contained herein are subject to change without notice



SR 25i – with shutter, diode and power feedback assembly – optional



DC power supply – 50V single phase (optional)



DC power supply – 50V three phase (optional)