

Technical data sealed CO₂ lasers – specification

	OEM 50iX
Laser beam data	
Wavelength ⁽¹⁾	10.6µm
Excitation	RF excited
Laser output power	
Power range(rated)	25 – 525W
Typical power stability (without power feedback)	± 3%
Typical power stability (with power feedback) ⁽²⁾	± 1%
Guaranteed power stability (without power feedback)	± 5%
Guaranteed power stability (with power feedback) ⁽²⁾	± 2%
Peak power	1235W
Minimum guaranteed shipment power ^{(3) (4)}	630W
Typical shipment power ⁽³⁾	715W
Laser beam quality	
Diameter @ (1/e ²) at laser o/p optic ⁽⁵⁾	11.5 ± 1mm
Beam quality factor M ² (K)	M ² < 1.2 (K > 0.83)
Divergence (full angle far field)	< 1.3mrad
Pointing stability (half angle)	< 0.25mrad
Polarisation	Linear (parallel to base), purity > 100:1
Ellipticity	< 1.2:1
RF PSU	
Input voltage rating ⁽⁶⁾	50VDC ±1%
Maximum average DC input current	200A
Maximum average power consumption	10kW
Pulse mode	
Frequency	0 – 100kHz
Width	2 – 400µs
Energy	25 – 495mJ
Optical pulse rise/fall	< 60µs
Duty cycle (max)	70%
Dimensions and weights	
Laser head/RF (without cover)	(LxWxH)1273mmx430mmx318mm 78kg
Laser head/RF (including cover)	(LxWxH)1273mmx430mmx318mm 92kg
DC PSU (Optional)	(LxWxH)660mmx483mmx135mm 29kg
External control facilities	
Laser head	RS232 or Ethernet communications Mobile control unit (optional) PWM input Status outputs
Cooling	
Flow rate (minimum) ⁽⁷⁾	> 9 l/min
Refrigeration capacity	> 11kW
Environmental requirements	
Ambient temperature range	5 – 40°C
Relative humidity range	10 – 85% (non-condensing)
Operational altitude	< 2000m

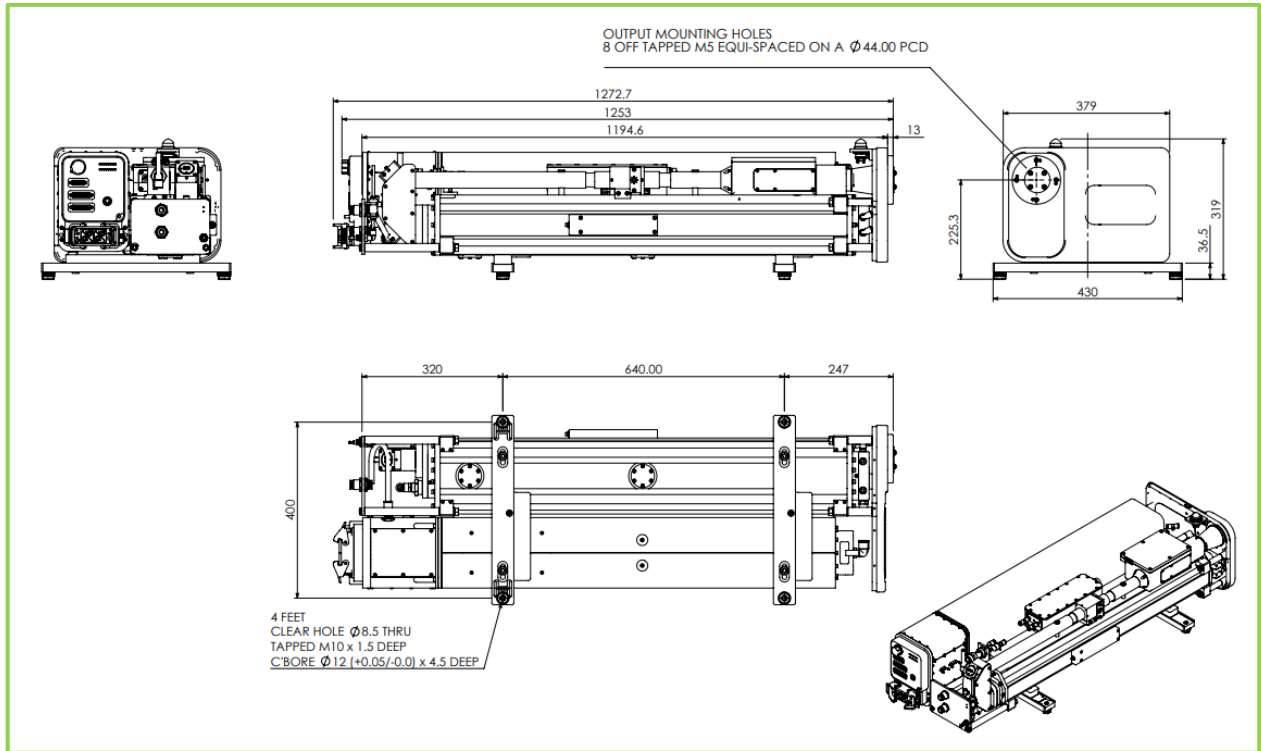
DC PSU (optional)

Input voltage rating	400VAC $\pm 10\%$, 50-60Hz (3 phase – no neutral connection)
Input current (max)	20A per phase
Earth leakage current	< 10mA
Output voltage	50VDC $\pm 1\%$
Output current (max)	200A
Output power (max)	10kW
Coolant pressure (max)	6 bar (88 psi)
Coolant flow	> 7 l/min

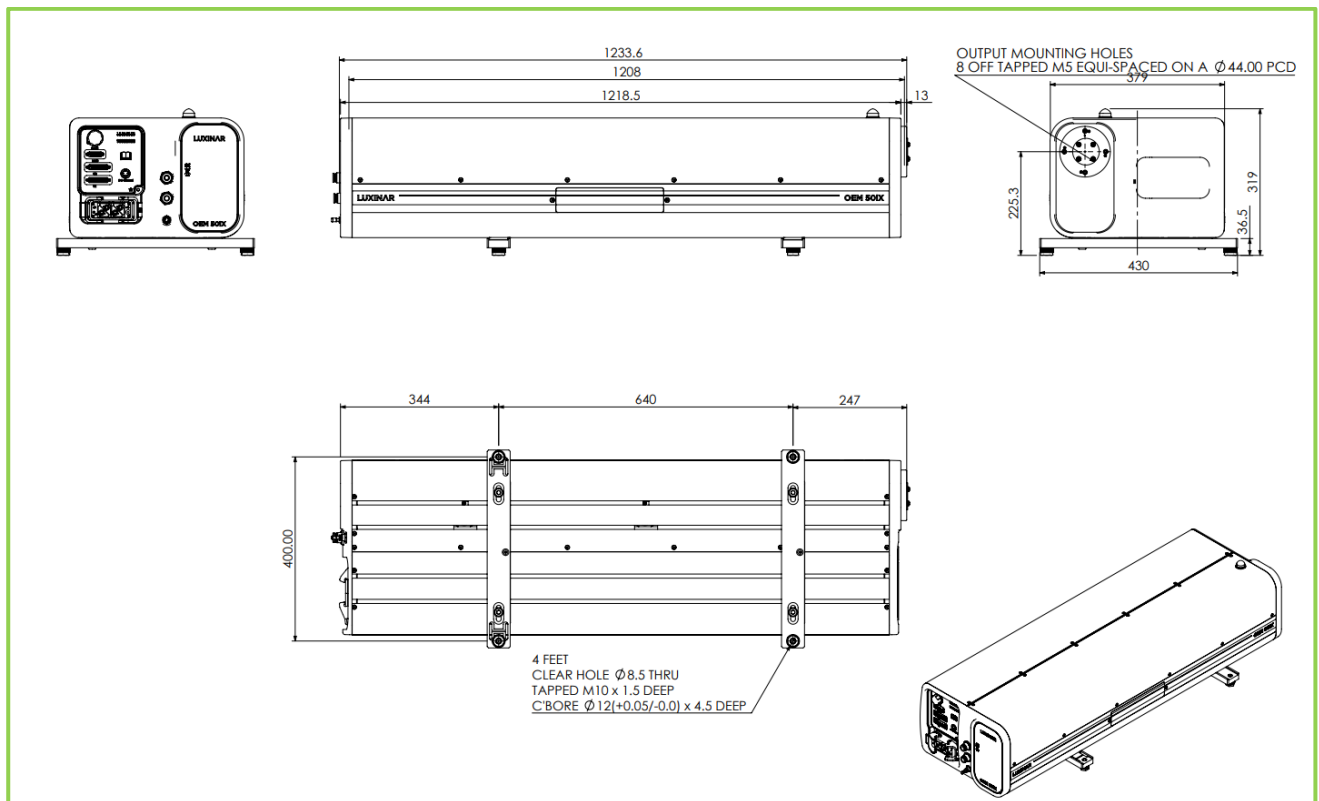
Notes:

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 $\pm 5\%$ without power feedback enabled at a pulse width of 50 μs and a duty of 70%. Power feedback turn on response is typically 300-500 milliseconds
3. Mean average power at maximum duty cycle
4. The guaranteed minimum shipment power is specified at 50 μs pulse width and 70% duty
5. A beam waist diameter of typically 10.5 $\pm$ 1mm is located approximately 2m to 4m from the laser output
6. Input load capacitance is 142mF
7. Operation down to 7 l/min is possible. However, to obtain the guaranteed power signature levels stated within this document, 9 l/min is required

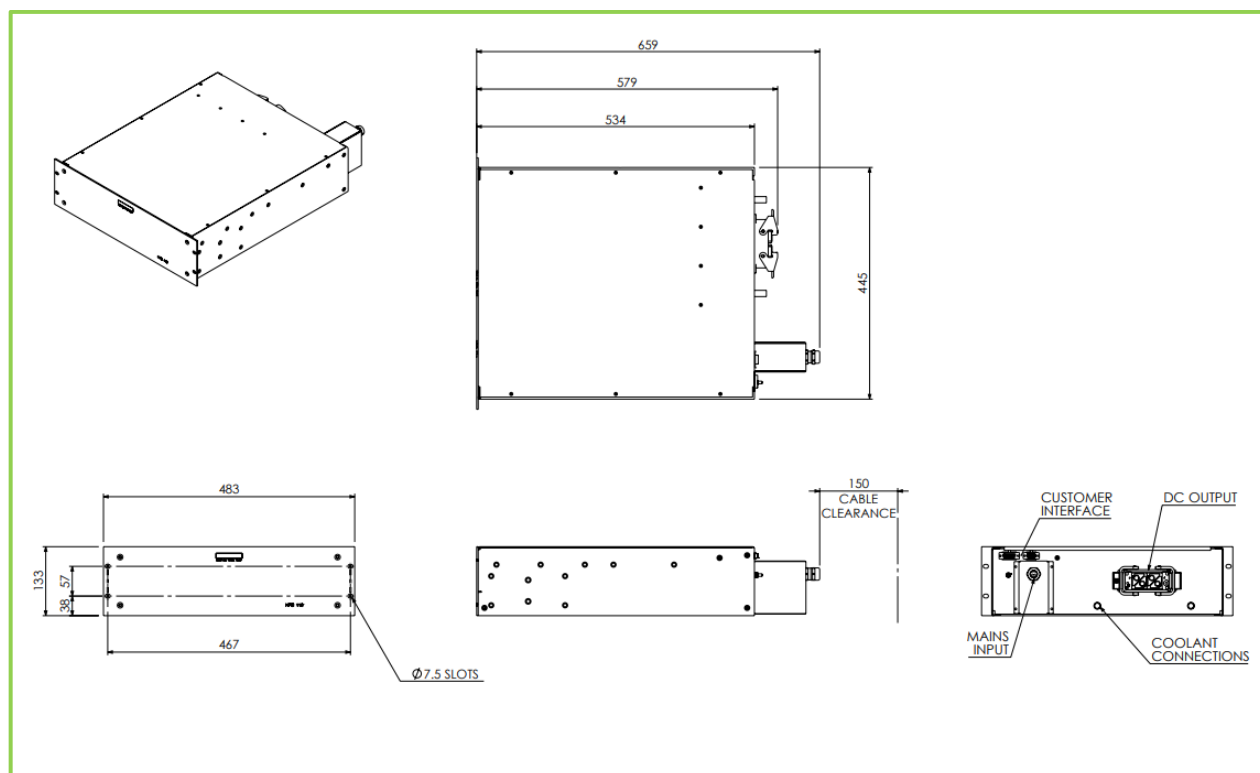
Please note that while every effort has been made to ensure that the data given in this document is accurate, the information, figures, illustrations, tables, specification and schematics contained herein are subject to change without notice



OEM 50iX without cover



OEM 50iX with cover



DC power supply – 10kW 3-phase (optional)