

## Data Sheet

# M1902 Oxygen Concentrator



## DESCRIPTION

The M19O2 Oxygen Concentrator is designed to provide over 90% concentrated oxygen between 10 to 15 litres per minute. It uses the Pressure Swing Adsorption (PSA) process to trap and remove Nitrogen from ambient air, thereby allowing enriched Oxygen to be available at the output. It achieves this using Lithium based molecular sieve zeolite. The built in 2.4 hp (1.8 kW) high flow rate, oil free compressor provides sufficient capacity for the desired concentrated Oxygen output. Ambient, dry air has a concentration of 78.08% Nitrogen, 20.95% Oxygen, 0.93% Argon, with the balance consisting mainly of CO<sub>2</sub>. By capturing this ambient Nitrogen, the concentration of Oxygen can be increased up to a maximum of 95.55% using Lithium based zeolite using the PSA process.

To enable use in high humidity conditions, it incorporates a moisture removal stage with a built-in auto-drain valve. An electro-chemical oxygen sensor is included in line at the output stage to allow continuous monitoring of the concentration. A color coded LED indicator lights red for concentration below 80%, blue for 80% to 90% and green for more than 90% thus visually indicating when it is safe to use the machine even from a distance. The digital display shows oxygen concentration, ambient humidity, ambient temperature, and compressor status (on/off). The compressor can be turned on/off using the push button control on the front panel.

The safety emergency switch can be used at any time to turn off the machine instantly. The front panel also has a 10 Amp fuse (5x20 mm) for protection in case of over current faults. Inside the machine is a pressure overload switch adjusted to switch off the compressor if pressure exceeds a safe limit.

The machine is built on a rigid, aluminum extrusion frame with acrylic and composite aluminum panelling suitable for use in hospital environments. A tilt handle and two caster wheels allow the machine to be tilted and moved around easily. The machine can be powered from a standard, 230 V / 16 A socket outlet.

The M19O2 Oxygen Concentrator is a result of the collaborative effort of the M19 Collective - a collection of makerspaces, community organisations, foundations, industries, universities, researchers and individuals making a collaborative effort to foster open innovation and especially open hardware around the country using decentralised approach and knowledge sharing.

More information about the M19 initiative can be found at this link

<https://www.makersasylum.com/m19o2/>

Detailed engineering information can be found on our Github repository at this link

<https://github.com/MakersAsylumIndia/M19O2>

For additional information, comments or feedback, please EMail us at

[info@makersasylum.com](mailto:info@makersasylum.com)

Open Source Hardware Certification at

<https://certification.oshwa.org/in000029.html>

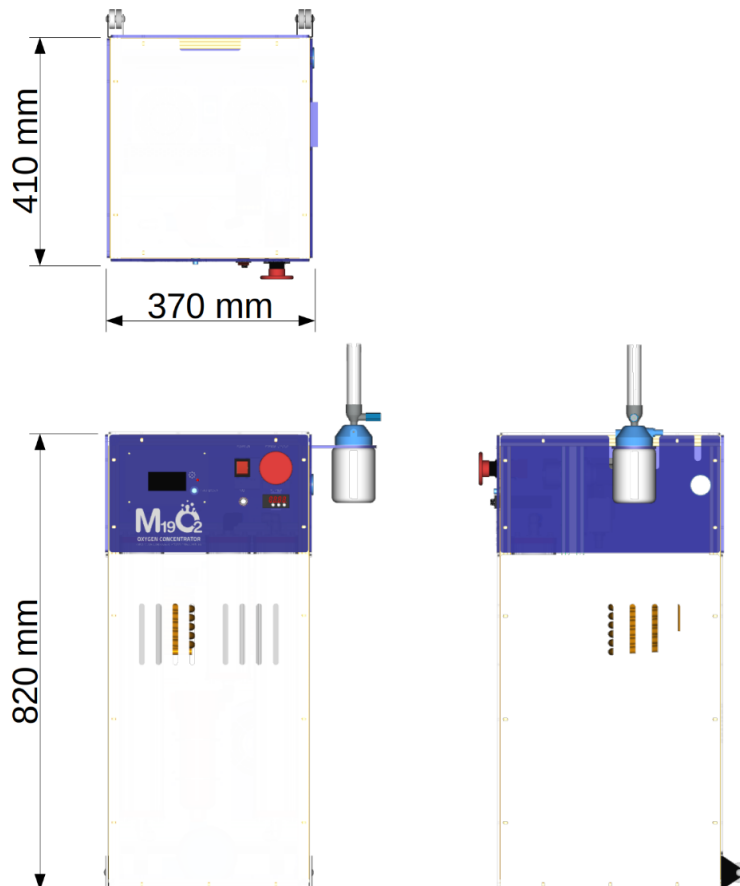
## LICENSES

Hardware	<a href="#">CERN Open Hardware License Version 2 - Strongly Reciprocal (CERN-OHL-S-2.0)</a>
Software	<a href="#">MIT open source license</a>
Documentation	<a href="#">Creative Commons Attribution 4.0 International License</a>

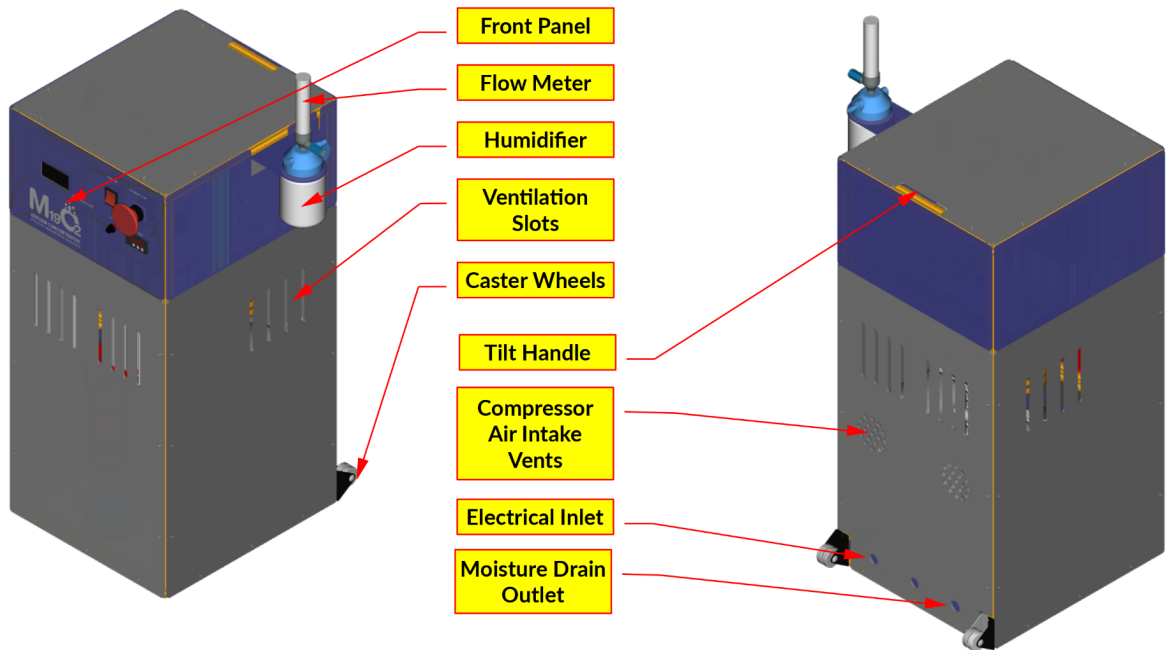
## SPECIFICATIONS

- O<sub>2</sub> concentration >92 %, <sup>-2</sup>/<sub>+3</sub> %
- Output flow rate up to 15 lpm
- Altitude limits -10 % reduction in output flow at 1000 m elevation gain
- Electrical Input 230 V AC, 50 Hz, 10 Amps, single phase, 2000 VA
- Ambient Temperature 20 °C to 35 °C
- Ambient Humidity 0 %RH to 70 %RH
- Noise Emission < 75 dB(A)
- Dimensions 820 H x 410 D x 370 W, in mm  
(excluding caster wheels, tilt handle, external flow meter/humidifier)
- Weight 30 kgs, approx
- Safety Features
  - Emergency Switch
  - Fuse, overcurrent protection (5x20 mm, glass cartridge, slo-blo)
  - Visual Indicator for concentration level
    - <80% = Red
    - >80%, <90% = Blue
    - >90% = Green
  - Over pressure cutoff (set to trip at 5 bar, reset at 1 bar)

## DIMENSIONS



## M19O2 PARTS IDENTIFICATION



## FRONT PANEL

