

# Ozo Series

Comes Complete with the following:

- I. Compressor – This system makes use of Thomas-brand Air Compressors, a proven and reliable manufacturer of OEM pumps and compressors for over 60 years.
  - A. Limited internal movement; the piston just moves up/down, and the fan spins to cool the compressor housing. This limit helps ensure a much longer shelf life and operation time for the compressor.
  - B. System uses a WOB-L Piston compressor to achieve its volume and pressure; this type uses 2 pistons and shifts from side to side as its moved.
  - C. Oil-less design has allowed for a safe way to generate oxygen, while minimizing the potential for an explosion/fire hazard.
  - D. Compressor's expected field life is in the 30,000-hour range (some room for variation and change).
  - E. Simple yet effective and compact design. Installation and maintenance of compressor is simplified.
  - F. Compressor receives extensive testing and inspection, both at the production facility where it's created, as well as in-house during manufacturing.
  - G. Mountable via the screw holes on the feet of the compressor; can be secured to or inside of something.
  - H. Makes use of an incredibly simple form of servicing/maintenance; remove the head of the compressor, check the silicone orange seals, inspect the pistons, and close it back up.
  - I. Unit comes with an internal Thermal Switch, which is configured to measure the internal temperature of the compressor and to turn off the compressor if temperature exceeds 284 degrees Fahrenheit (140 degrees Celsius). The reasoning is to minimize any heat-induced damage to the compressor, while also preventing a potential fire.
  - J. Also makes use of a Pressure Relief Valve rated to 50 PSI. Pressure is vented from the compressor in an attempt to relieve the internal pressure of the compressor back towards a range where it can operate safely.
  - K. Both 115 Volt and 230 Volt Power option are available.
- II. Module - A standard in every oxygen-generating machine, the Sieve Module holds the molecular sieve, allowing for a location for gas exchange via adsorption/desorption.
  - A. Composed of 2 main Aluminum Sieve Tubes, as well as a Product Gas and an Exhaust Gas Vent Tubes.
  - B. Manufactured to be a single, overall unit rather than several small, independent, and complex parts.
  - C. Easy installation and usage; just plug the module into two hoses (one is from the Compressor while the other is the product).
  - D. Utilizes Rexroth-Aventics Solenoid valves, which are configured to cycle at a pre-determined time, allowing for both sieve beds to receive and produce purified oxygen.

- E. The valves consist of a PVC sheath that houses the valves, the valves themselves, and then seals composed of Caoutchouc/ Butadiene Caoutchouc natural rubber.
- F. Each module comes with an assembled Two-Port Regulator, an adjustable control valve which allows for a tailoring of the outlet pressure to meet the requirements of the customer.
- G. Tubes are filled with a distinct blend of Sodium and Lithium-based molecular sieves (Sodium and Lithium Aluminosilicates); the ratio of the two has been fine-tuned and perfected to provide a sieve blend that performs perfectly in oxygen purification applications. Both have a very high affinity for Nitrogen, which allows for it to efficiently capture and release of the gas, leaving behind only oxygen with traces of atmospheric, inert gases.

### III. Capacitor

- A. Each system makes use of an Italfarad Capacitor, a company specializing in making electronic capacitors for almost 70 years.
- B. Composed of a Self-Repairing, metallized polypropylene as its dielectric material, encased in an Aluminum housing unit that's filled with a resin. This setup allows for superior electrical reliability, while still maintaining a superb mechanical resistance to vibration and shock.
- C. Capacitor is rated to either 15 uF (microfarad) or 25 uF, depending on the electrical requirements of the machine, as well as the voltage provided in each country.
- D. Each device has a minimum operating temperature of -40 degrees Celsius (-40 degrees Fahrenheit), a maximum temperature of 85 degrees Celsius (185 degrees Fahrenheit), and a 21-day Damp Heat Test Term (determining how long electrical components can survive in a humid environment before the moisture penetrates). This wide range allows for the capacitor to properly function in nearly every climate type with virtually no electrical problems or difficulties.
- E. Complete with a Flame-retardant plastic material covering the capacitor, as well as a S-2 Safety Protection Device; this is triggered when the internal pressure exceeds the protection level of the capacitor as a whole; the capacitor connection leads extend 10 mm upwards when this occurs, allowing for a distance between the lead and the dielectric material on the inside in hopes of preventing capacitor damage.
- F. Mounted onto a M8 metal stud post, this capacitor can be mounted onto a device by threading the stud through an appropriately sized hole, and securing with a nut provided with each capacitor.
- G. Each capacitor meets CEI EN 60252-1 (AC Motor Capacitors), VDE EN 60252-1 (German Reference equivalent for AC Motor Capacitors), UL 810 (Underwriters Laboratories; Standard for Electrochemical Capacitors), and EN 60252-1 (European Union Standard; AC Motor Capacitors) regulations.

### IV. Moisture Separator

- A. A device built that rapidly cools the air coming from the compressor, causing any water vapor to condense out of the air.

- B. Makes use of an Aluminum Heat Exchanger, shaped into a spiral at one end. This purpose is to increase the overall surface area of the Aluminum, allowing for effective removal of heat.
  - C. Main body is made from an Aluminum 8.5-inch-long cylinder, where it continues the process of allowing heat to dissipate from the system while providing an area for the condensed-out water to be removed via a wick in the bottom.
  - D. Has a quick-connect outlet fitting built in for retrieval of the cooled air.
- V. Printed Circuit Board (PCB)
- A. Each system also comes with a Printed Circuit Board, to allow all parts of the machine to be powered and operated in tandem.
  - B. This board can be configured to run off of either 115 Volt or 230 Volt electricity by changing the placement of a few shunts on the board itself.
  - C. Provides power to open/close each of the solenoid valves on top of the module in an alternating fashion; this allows a steady supply of purified oxygen at all times.
  - D. The PCB also controls the timing schedule for the solenoid valves. By programming the board to alternate the valves every 5.5 seconds, enough time has elapsed to allow the full removal of nitrogen from the system, without sacrificing oxygen.
  - E. Every board also comes with a built-in alarm, which triggers when things such as power loss or power overload occur. Alarm is both auditory and visual to maximize the chances of it being noticed.
  - F. Produced by Compass Controls, a reputable US-maker of instrumentation, process control, and electrical engineering.
  - G. Comes complete with a Wiring Harness, which is designed to convert the external power into a 24 Volt DC current, which controls the valves.

#### Optional Purchases with the Ozo Kit:

- I. Flowmeter
  - A. A polyurethane tube, containing a ball and an inlet/outlet connection.
  - B. Available in 1-5, 2-8, and 2-10 Liters per Minute.
  - C. Flow levels move up by 1 LPM on the meter, allowing for precise and accurate control of output.
  - D. Provided by A Power Instruments Company LLC.
  - E. Flowmeter measures 5 Inches Long by 1 Inch Wide.
  - F. Flowmeter is lockable via a modification to the outlet connection portion, which can be used to set a cap on how many liters per minute are required.
- II. Hour Meter
  - A. An Acrylonitrile-Butadiene Styrene (ABS) black plastic Hour Meter, complete with an Acrylic clear window for easy reading/viewing.
  - B. Internal 3-volt Lithium battery (Li-MnO<sub>2</sub>) allows for operation and effective time keeping even when machine has no external power.
  - C. 2 Terminal Lead Connections on the backside of hour meter.

- D. 100% fully encapsulated, meaning device is protected from external environment.
  - E. Measurements displayed on internal LCD screen.
  - F. Hour Meter snaps into appropriately-sized cavity, allowing for easy mounting.
  - G. Produced by Global Digital Instruments.
  - H. Maxes out at 99,999 hours.
  - I. Size is 1.75 Inches wide by 0.12 Inches (or 3 mm) long.
- III. Compressor Bracket
- A. A powder-coated Aluminum support bracket that provides seamless mounting to the compressor.
  - B. Bracket sits atop 4 springs, allowing for even distribution of shock forces. This allows for both noise reduction as well as temperature reduction (by keeping it elevated), ultimately resulting in longer effective operation and less wear and tear.
  - C. Bracket is ultimately secured to a cradle by 4 bolts with washers. Cradle and compressor can therefore be mounted into any kind of external application, while increasing stability and compacting ability.
  - D. Overall dimensions are 8 ¼ Inches Wide by 10 Inches Long
  - E. Cradle has 8 screw hole locations, enabling mounting flexibility.
- IV. External Fans for Circulation
- A. Crucial to the operation of the oxygen concentrator
  - B. Circulates air around the machine to aid in cooling of the compressor, as well as moving cooler air in.
  - C. Sunon Manufactured Impedance-Preventing Fan
  - D. Blades are protected via an aluminum housing cage
  - E. Overall size is 4.13 Inches by 4.13 Inches
  - F. Power provided by two external lead connectors incorporated into the side of the housing.
  - G. Fans set up for either 115- or 230-Volt power options.
- V. Power Cord Options
- A. Optional power cord to provide your OEM with external power.
  - B. Options available in 115 and 230 Voltages.
  - C. Power Cord ends for US/115 Voltage; 230 Voltage Australia/New Zealand Plugs, Euro Plugs, Israel Plugs, United Kingdom Plugs, India Plugs, and Chinese Plugs.
  - D. Simple plug, excess cordage for mobility, and then 2 female Crimp Connector Terminals which plug into the wiring the powers the unit.
- VI. Wiring Harness
- A. A Universal Voltage Wiring Harness.
  - B. Designed specifically for powering this oxygen concentrator.
  - C. Allows for connection to power switch, board, compressor, fan(s), and ultimately the external power source.
  - D. Each connection makes use of a positive/negative pole.