

QUESTIONS AND ANSWERS

VETROSON®

OXY-GEN™ SYSTEMS

(Oxygen Generating Systems)



Question & Answer Brochure

THE UNIVERSITY OF CHICAGO



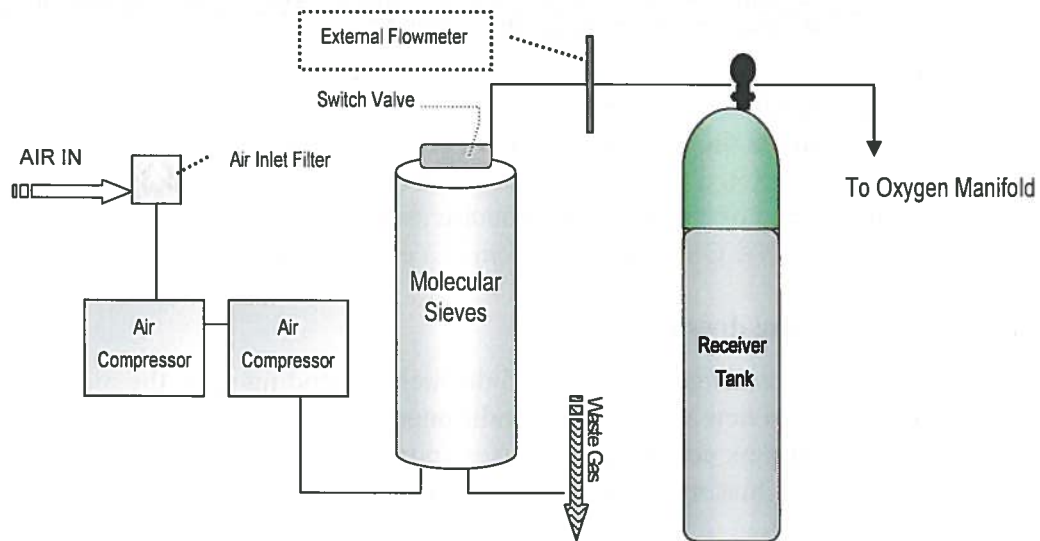


Q & A

VETROSON® OXY-GEN™ SYSTEMS

1) Q. How does the VETROSON® OXY-GEN™ System work?

A: A simplified explanation is that air (21% oxygen, 78% nitrogen, 0.97% argon and 0.03% other gases) is drawn into a powerful compressor in the generator. The oxygen is separated from the compressed air by passing through the molecular sieve which contains zeolite. Zeolite may be compared to the soda lime in your anesthesia machine which absorbs CO₂. Zeolite adsorbs the nitrogen and sends it back into the room. The oxygen is delivered to the receiver tank where it is ready to be delivered throughout the hospital. A diagram of this is below.



2) Q. What is the difference between your oxygen generator system and an oxygen concentrator?

A. The terms have mistakenly been used interchangeably. Generally, the term oxygen concentrator describes a smaller home medical system used in a 1-to-1 situation producing oxygen at only 5 PSI. Concentrators are placed near a patient's bed. They cannot deliver oxygen any appreciable distance from the unit. Also, the purity of oxygen (%) falls drastically at a LPM flow necessary to supply oxygen for the requirement of a veterinary hospital. If an attempt is made to increase the PSI with an external booster, LPM will be decreased in addition to a decrease in oxygen purity. Oxygen generators are large capacity units. Our OXY-GEN™ SYSTEMS have built-in compressors and are modified to boost the delivery of oxygen to the practice's central oxygen location (i.e. manifold) at 93% +/- 3% oxygen purity. We have a 20 PSI model and a 50 PSI model.

3) Q: I don't think I have room for one. Is it big like a refrigerator?

A: No. The specifications are:

	20 PSI, 15 LPM 115V	50 PSI, 15 LPM 230V
Height	38	38
Width	25"	25"
Depth	17	17
Weight***	145 lbs	220

*** Weight shown is for the generator only

The oxygen receiver tank is 7 ½" in diameter, weighing 34 lbs. and holds approximately 30 liters of oxygen. Its stand measures 27.5" high x 13" wide x 15" deep.

4) Q: What is the function of the Receiver Tank?

A: The Receiver Tank has two functions:

- 1) First having an "extra" supply of oxygen allows you to flush an anesthesia machine without depressing the flow on the others.
- 2) In the event of a power failure and loss of electricity, the receiver tank has a sufficient oxygen supply (approximately 20 minutes on the average) to allow you to complete surgery and at the same time turn on your back up H tanks.

It should be noted that our special valve on the receiver tank is constantly releasing a small amount of oxygen when you are using a low flow demand. Your VETROSON® Oxy-Gen™ System is a constant flow system.

5) Q: How much noise does it make?

A: The noise level averages about 65-75 decibels depending upon the model. It may be compared with a new window air conditioner. When the system is "On" the special valve on the receiver tank continually releases approximately 1 LPM depending on the model. This results in a hissing sound, which is normal.

6) Q: How can I calculate the LPM of oxygen required for my clinic?

A: To calculate your usage you must know your maximum oxygen use. Total the LPM you use on the flow meter for each anesthesia machine, ICU and any other oxygen consuming items in the clinic (1 for Anesthesia machines, 10 to fill Snyder or Cage Door ICU- 5 for maintenance, and 4 as an average for ventilators). Add the amount of the projected use of any new equipment that you plan to add to the clinic. This will give you the estimated maximum LPM requirement. This figure plus 20% more LPM will show you the model which will be best for most practices.

We would suggest that veterinarians with very large facilities that require more than 15 LPM contact Summit Hill Laboratories. We recommend the "piggy-backing" of two units or "zoning" if our system is to be installed in a new practice.

7) Q: You have machines at 20 PSI & 50 PSI that deliver oxygen at 93% +/- 3% purity. Which machine should I buy?

A: For a practice with only anesthesia machines and/or ICU units, a 20 PSI unit would be perfect. For practices with ventilators, the 50 PSI unit is recommended, as ventilators require 50 PSI to handle the mechanical side.

8) Q: How quickly would the VETROSON® OXY-GEN™ SYSTEM pay for itself?

A: For example, if you lease the 20-15 VETROSON® OXY-GEN™ SYSTEM, the leasing price would be about \$156.00*/month for five years. Compare this figure to the cost to your monthly oxygen bill. The difference between a monthly leasing price of \$156.00 and your monthly oxygen cost is your monthly savings. On the average, your monthly oxygen bill will be 2-3 times the leasing amount. In addition, you will have an endless supply of oxygen at pennies per day. Remember, if you lease, you will own the system after five years for \$1.00. Also, you can review your oxygen purchases for the past year and divide the figure into the cost of the system to determine the number of months it would take to pay for the system. Either way, you will note the dollar savings and convenience using the VETROSON® OXY-GEN™ SYSTEM.

**The leasing figure used here was current at the time of printing. It is only one example of a leasing cost. We use it only to illustrate potential monthly savings. Lease rates may vary by lessor.*

9) Q: Is 50 PSI required to operate a veterinary anesthesia machine or an intensive care unit?

A: No. Flow rate (i.e. LPM) is the most important factor in an oxygen delivery system. Our 20 PSI VETROSON® Oxy-Gen™ System will supply the needs of veterinary practices that do not have ventilators. When our 20 PSI unit is installed in an existing practice, a drop of about 10% will be noted on the flowmeters. Adjust the flow to where it was previously and oxygen will be supplied at the rate that it had been receiving at 50 PSI from the tank prior to our machine's installation. Our present unit supplies 15 LPM.

10) Q: You make reference to ventilators in your oxygen usage chart. I understand ventilators will only run at 50 PSI – no lower. What's the answer here?

A: Most anesthesia machines with ventilators have dual inlets. One is directly to the line that supplies oxygen to the patient, the other is to power the bellows. A 20 PSI Oxy-Gen System can easily supply the needs of the animal side; however, the bellows requires 50 PSI. Therefore, a 50 PSI unit should be purchased if a ventilator is being employed. The LPM is determined by the weight of the animal. (Note: There are at least two companies that market anesthesia machines with built in ventilators. These require our 50 psi unit. They use considerably more oxygen per # of animal than conventional ventilators.) If a practice has our 20 PSI generator and adds a ventilator, an air compressor set at 50 PSI may be used to run the mechanical side only.

** PLEASE NOTE: The use of a ventilator (requiring 50 PSI) with a 20 PSI System will over-tax the molecular sieve beds by asking for a higher pressure than the system is capable of producing. This will result in contamination of the molecular sieve beds and a possible machine breakdown.*

11) Q: Your literature says your units produce 93% +/- 3% oxygen. What does the remaining % consist of?

A: Nitrogen and Argon, both gases harmless to the patients.

12) Q: Can your VETROSON® OXY-GEN™ SYSTEM handle the O2 supply for an ICU?

A: Yes. Our 20-15 system has been tested supplying O2 to the Snyder Mfg. Co. ICU 2000 H double cage. This is a 6 ft. model.*

To attain 35% O2 concentration, the flow meter on the Snyder unit was set at 8-10 LPM (no higher). It reached the 35% level in less than 25 minutes. The flow meter was then set at 4-5 LPM for maintenance. Our 2015 VETROSON® OXY-GEN™ SYSTEM can easily handle the ICU requirements plus 3-4 anesthesia machines simultaneously at the cost of the electricity consumed by one light bulb.

** Please note: We have found that there is no "stop" on these ICU flow meters. By turning the flow meter knob all the way up, as much as 70 LPM may be delivered. Therefore, setting the flow meter on an ICU higher than 10 LPM may result in exceeding the capacity of the model. This, of course, depends on the LPM of your model and how high above 10 LPM the knob on the flowmeter is turned. If the capacity is exceeded, the molecular sieves will break down. This type of breakdown is NOT covered by the SHL warranty. The same situation exists on "cage door" ICUs.*

13) Q: How difficult is it to connect the VETROSON® OXY-GEN™ SYSTEM to the VETROSON® Receiver Tank?

A: It's rather simple. The receiver tank and generator will be packed in separate boxes. The large box contains the generator. It will be shipped on a pallet, strapped in an upright position. Slide the box off of the pallet. Open the box and remove all of the packing. Roll the generator out of the box. Place it where it will be located. Open the smaller box with the receiver tank. It will also have the additional components (O2 equalizer valve and two oxygen hoses). One end of the 3 ft. oxygen hose is already connected to the receiver tank at the factory. Connect the male fitting on the other end to the female fitting on the oxygen outlet on the generator. A 9 ft. oxygen hose is attached to the elbow on the receiver tank. It should be connected to the low pressure side of the practice's central oxygen system manifold.

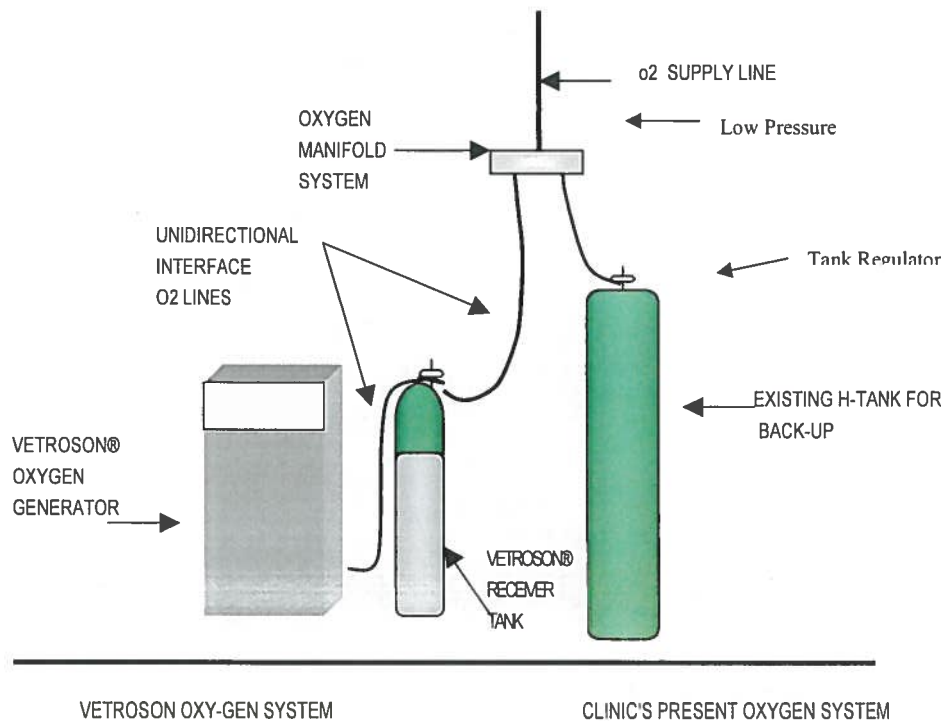
14) Q: Once the system is connected, what will it look like?

A: The OXY-GEN™ SYSTEM consists of the oxygen generator and a receiver tank.

The generator has an Off/On switch, a flow meter, an hour meter, an oxygen pressure gauge to show the line pressure produced. Please consult the "How To Set Up Your VETROSON® OXY-GEN™ SYSTEM" sheet for the details.

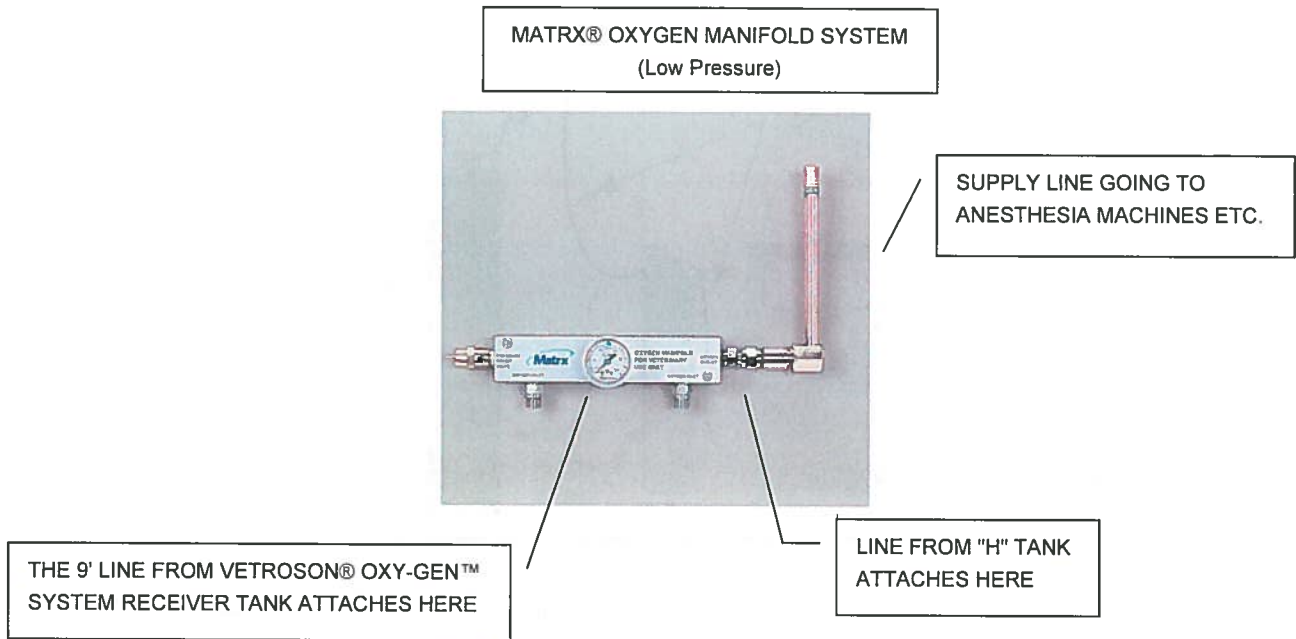
At the lower right side of the cabinet is a circuit breaker to protect the generator in case of power overload.

The receiver tank has two oxygen hoses: the 3 ft. one connects to the generator, and the 9 ft. one connects to the central oxygen system manifold. The oxygen hoses have a series of check-valves to prevent back flow from the manifold to the OXY-GEN™ SYSTEM.



- 15) **Q: My present oxygen manifold system has a low pressure alarm. It sounds if the pressure drops. Will your 20 PSI unit work with this system?**
- A: The low pressure alarm must be adjusted to 15 PSI or be turned off when a 20 PSI VETROSON® System is being used. The 50 PSI System should not affect the alarm.
- 16) **Q: I have a high pressure manifold for my present oxygen system. How can I hook up the VETROSON® OXY-GEN™ SYSTEM?**
- A: A high pressure manifold has a built-in pressure regulator. Our systems cannot be connected into the high pressure manifold in this situation. It should be connected into the supply line exiting the manifold or be plugged into any of the quick-release outlets within the central oxygen line using a special connector.
- 17) **Q: How do I connect the VETROSON® OXY-GEN™ SYSTEM to my anesthesia machine if my practice does not have a central oxygen system with a manifold?**
- A: Just connect the 9 ft. oxygen line from the receiver tank directly to the machine requiring oxygen. A "Y" can be used to supply a second unit.
- 18) **Q: I have "E" tanks on all of my anesthesia machines and no central system. What do I have to do to connect my anesthesia machines to your VETROSON® OXY-GEN™ SYSTEM?**
- A: You must plumb in oxygen lines to all of your anesthesia machines using an oxygen manifold system. The plumbing, connectors, etc. for each oxygen location would cost approximately \$600.00 plus \$600.00 to connect to the oxygen manifold. Therefore, if you have four oxygen locations, the cost would be about \$3000.00. The "E" tanks should remain in place in the event of a power failure or one "H" tank could be

purchased and tied into the central oxygen manifold for backup. The savings in using the VETROSON® OXY-GEN™ SYSTEM in this case would be significant and pay for the plumbing.



19) **Q: I have four anesthesia machines and they all have ventilators connected to them. What is your recommendation?**

A: Purchase two 50-15 VETROSON® OXY-GEN™ Systems which will produce approximately 26 LPM at 50 PSI. These would be “piggy-backed” with each unit’s 9 ft. hose being connected into a “Y”. One line would exit the “Y” and connect to the manifold. You will have more than enough LPM to run the practice.

20) **Q. Where should I place my VETROSON® OXY-GEN™ System?**

A: We would prefer that our unit be placed in the room where your oxygen tanks and manifold are located. However, the room must be climate controlled, ventilated with a 100 cfm exhaust fan, clean and have the minimum dimensions of 1000 cubic feet.

If the practice has Chemtron or Ohio quick-disconnects, place the unit where any quick-disconnect is positioned. The following explains how this may be accomplished:

Connecting the VETROSON® Oxy-Gen™ System to the Chemtron & Ohio oxygen quick-disconnect

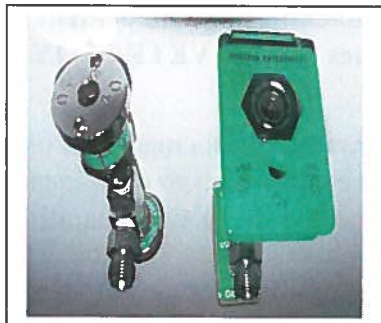


Photo #1 - Front view

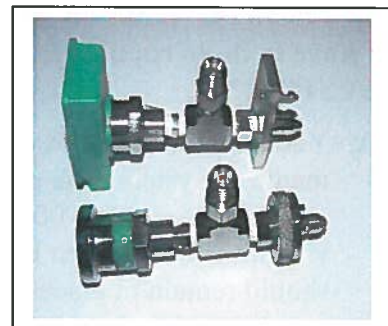


Photo #2 - Bottom-Side View

Photo #1 - You are looking at Ohio and Chemtron oxygen Quick Disconnects as they come from a wall attachment. Our 9 ft. oxygen hose should be attached to the 3/8" DISS Oxygen fitting on the "T" between the wall plate and face plate. This makes it possible to connect our VETROSON® Oxy-Gen System at any location in the hospital that has either oxygen quick disconnect.

Photo #2 - Shows a side view of both oxygen quick disconnects with the face plate to the left and the wall plate to the right. Our 3/8" DISS oxygen fitting on the "T" is positioned between the two. The 9 ft. oxygen hose attaches to the "T".

Please read the Set Up & Installation Instructions in our Installation, Operation & Maintenance manual before installing our VETROSON® Oxy-Gen™ System. It is required that a 20 amp circuit be dedicated to both our 115V and 230V systems. The 115V units are supplied with a 3-pronged ground fault protected plug. The 230V 60Hz (US) units are supplied with a 20 amp-230V slotted plug, Type #6-20P. This requires a 6-20R receptacle.

Note: Our 230V units require 230V single phase electrical service. Triple phase service provides only 208V. If a practice has a 208V system, it cannot be used to supply electric to our 230V system. A 208 voltage supply will cause premature burn out of our major components. In such cases a step-up transformer may be wired into the 208 line at a relatively low cost. We recommend a Hammond QC50ERCB step up transformer. Contact your local electrician to purchase and install this.

The unit should never be placed in or around where animal hair is being clipped. Our machine has a strong pull that will bring an abundance of hair into the unit, blocking the filters.

21) Q: What are the electrical requirements for each model?

A:

Model	Delivers	Volts	Starting Amps	Running Amps	Power Watts
VGS2015	20 PSI, 15 LPM	115	20	8	920
VGS5015	50 PSI, 15 LPM	230	15	7	1610

The 230V units are supplied with a 20 amp-230V slotted plug- type# 6-20P. This requires a 6-20R receptacle. Please remember that our units require a dedicated line.

22) Q: What maintenance is required for the VETROSON® OXY-GEN™ SYSTEMS and when?

A: Depending upon the model, one or more pleated HEPA Air Intake Filters (VGS1500) are used. VGS1500 consists of 2 parts: the HEPA Filter component and a foam filter which caps it. They fit into the round holes at the rear of the unit. Large particle filters (VGS1600) are located in the cabinet door. The large particle filters and the foam filter that is part of VGS1500 should be checked weekly and brushed off or vacuumed and washed as indicated. Both filter systems should be replaced every 6 months or sooner if indicated.

The Switch Valve (VGS2278) should be replaced after each 1000 hours of use.

Note: The generators provide the best performance at temperatures between 40° & 80° F. and when the feed air has a dew point of 40°F or less. The hospital should be between 40° and 80°F for peak performance of VETROSON Oxy-Gen System. Therefore, if temperatures in the hospital or a mobile hospital unit are outside of the “peak performance zone” the temperature of the hospital should be brought into the “peak performance zone” before operating the generating system.

When operating your VETROSON® Oxy-Gen™ System, please make sure the cabinet door is closed and locked. This is not only for safety reasons. Leaving the door open when running the machine may cause overheating of the compressors.

23) Q: What is the warranty?

A: The VETROSON®OXY-GEN™ SYSTEMS are warranted for one (1) year or 1,000 hours of use, whichever comes first.

24) Q: If I have a technical question or a breakdown, how should I handle these?

A: For technical questions, contact Summit Hill Laboratories at 1-800-922-0722.

For repairs/breakdowns or set up questions – contact:

Summit Hill Laboratories. Customer Service: 1-800-922-0722

E-mail: sales@summithilllaboratories.com