

MEDICAL APPLICATION

OXYGEN CONCENTRATORS

What is an Oxygen Concentrator?

It is a medical device that is used to deliver oxygen to those who require it due to low levels of oxygen in their blood.

Concentrators are powered by batteries or conventional electrical wall outlets.

A concentrator is made up of a compressor, sieve bed filter and circuit boards.

In comparison with an oxygen tank that has a set amount of oxygen a concentrator filters in air, compresses it and delivers air continuously. The air supply should never run out like an Oxygen tank would as long as electrical power is provided.

How does it work?

An oxygen concentrator is similar to how a window air conditioning unit works. It takes in air, modifies it and delivers it in a new form. An oxygen concentrator takes in air and purifies it for use by people requiring medical oxygen.

The 5 steps in Oxygen Concentration:

1. The concentrator takes in air from its surroundings
2. It then compresses the air, while the cooling mechanism prevents overheating of the concentrator
3. The concentrator removes nitrogen from the air by way of a filter and sieve beds

4. The concentrator uses an electronic interface to adjust delivery settings

5. The delivery of the purified oxygen is by use of a nasal cannula or mask

Where are pressure sensors used on an Oxygen Concentrator?

Not all concentrators are the same but the common areas where pressure sensors are being used are as follows and as shown in the below diagram.



1. Measurement of Oxygen tank pressure about 2,000 psi (136 bar)
2. Flow of oxygen being delivered to patient approximately .58 psi (16" of H₂O)
3. Measurement of concentrated oxygen in surge tank typically 30 psi (2 bar)

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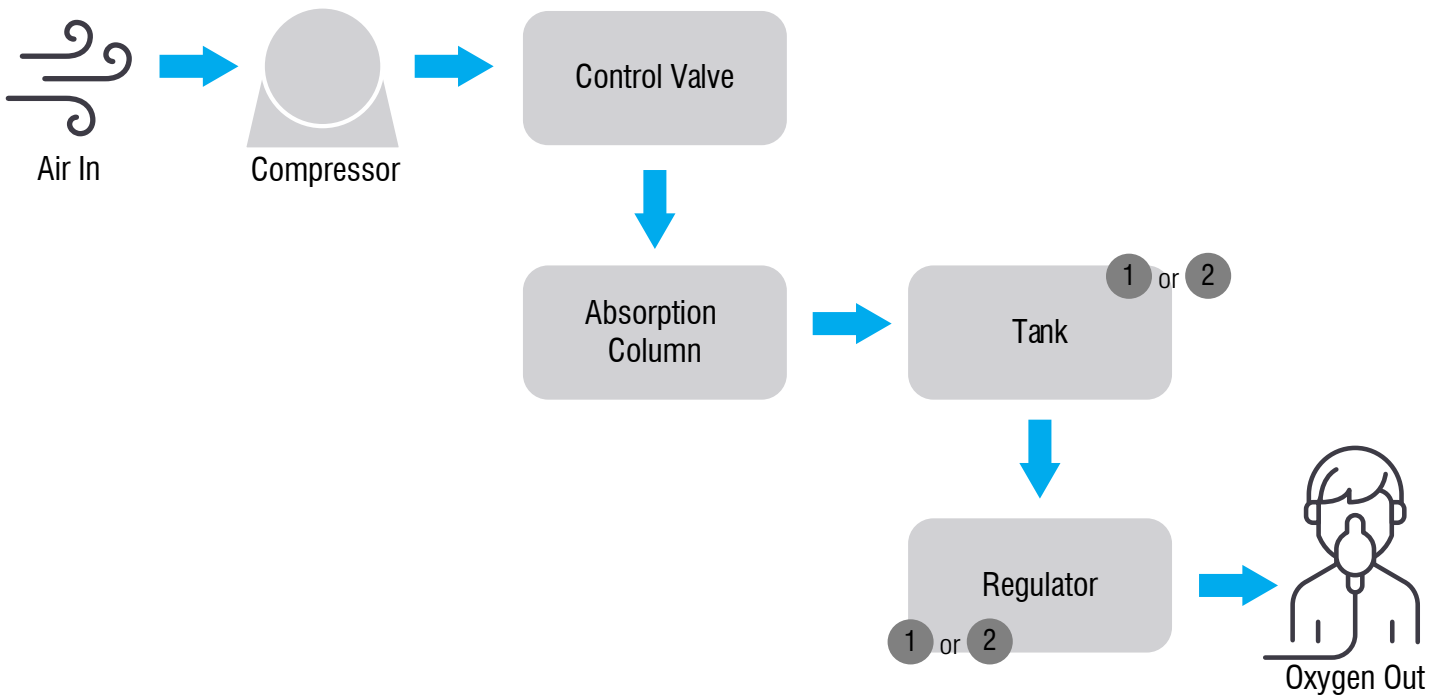
RECOMMENDED PRODUCTS

Reference on Diagram	Product Series	Type	Features	Function	Brand
1	 P1K*	PCB Mount	<ul style="list-style-type: none"> • 5V input • Ratiometric output • 0-2" to 0-10" H₂O range 	Differential Low Pressure Sensor	Kavlico
2	 P1J*	PCB Mount	<ul style="list-style-type: none"> • 2.7-5.5V input • Digital output (I²C or SPI) • 0-2" to 0-10" H₂O range • Low power (<2.5mA) 	Differential Low Pressure Sensor	Kavlico

*For breathing pressure sensor (typically 0-2" to 0-10") see standard P1J and P1K options. For tank pressure sensor (typically >15psi) contact Sensata or higher pressure options



DIAGRAM



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