

PRODUCT COMPARISON

	Standard 10L Concentrator	PulmO2	Impact
Power Consumption			
Power consumption at 10L	664 Watts	464 Watts	30% improvement in energy efficiency. This lower energy consumption will save costs over time at the highest oxygen output. Concentrators are rarely used at 10LPM in target clinical settings.
Power consumption at 5L	645 Watts	216 Watts	66% improvement in energy efficiency. This will have a significant reduction on cost of energy over lifetime usage. This lower energy requirement also makes it much easier to use solar or external power sources.
Power consumption at 2L	664 Watts	218 Watts	67% improvement in energy efficiency. This will have a significant reduction on cost of energy over lifetime usage. This lower energy requirement also makes it much easier to use solar or external power sources.
Start Up Energy Required	60 amps peak to peak, settling at 20 amps	4 amps peak to peak, settling at 20 amps	No significant electricity draw when machines are turned on, even with multiple machines starting. No high start up current required on alternative electricity sources, making standard generators or solar panels much easier to use. Can provide energy consumption waveform.
Resilience			
Sieve bed size		~50% larger	Larger beds allow for more sieve material to be contaminated without oxygen purity overall dropping. The concentrator will produce medical grade oxygen for longer without needing repair, especially in harsher environments.
Sieve bed composition	Mix of sodium and lithium based zeolite	Mix of sodium and lithium based zeolite	Sodium acts as a desiccant to protect the more vulnerable, but more effective lithium based zeolite. This results in a longer sieve bed life.
Check valve	None	Purge harness check valves have 0.5 psi crack pressure	Holds 0.5 psi in sieve beds when power is turned off. When the machine is off, no moisture can enter the sieve beds, keeping them working for longer and reducing failures from long or short periods of the device being turned off.

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Shut off valve	None	Included	In either a planned power shutoff or an unplanned power cut, a separate valve shuts off inlet side of the rotary valve. Rotary valve is closed off by the shutoff valve on the inlet port and by a check valve on the exhaust port. This increases the lifespan of the valve by keeping dust out and prevents dust or other particulates from entering the compressor. This also seals the inlet ends of the sieve beds to prevent moisture from entering when the device is off, lengthening their life as well.
Rotary valve	Included	Similar to standard 10L concentrator but has additional inlet and exhaust port shutoffs.	A rotary valve is more robust compared to other options, like the more commonly used solenoid valve, to ensure air is properly moving through the device.
Filter Replacement Indicator	None	Indicate to the user when the cabinet filter needs to be cleaned. Indicate when the intake filter needs to be checked and or replaced.	By informing users when filters need to be cleaned or replaced, hopefully it will be done more. By replacing or cleaning the filters when indicated, the device will last much longer.
Filter System	Intake, Compressor, Bacteria	Cabinet, Intake, Compressor, Bacteria	By adding the cabinet filter, there is one extra layer of filtration preserving the lifetime of the device.
Altitude, Temperature, Humidity	0 to 2000 meters +5°C to + 40°C 15% to 93% NC	0 to 2000 meters +5°C to + 40°C 15% to 95% NC	The PulmO2 is designed to operate across this environment, not just as an edge case scenario.
Usability/Repairability			
Oxygen Purity LEDs	3 standard colors, red, yellow, green	Label explaining O2 ranges of LEDs	This will provide more information for users on oxygen purity, including when safe usage is okay between 60% and 85% O2 purity. By using LEDs, there is no risk of a glass display breaking, which increases reliability.
Additional LEDs on front panel	None	Startup Low O2 Alarm Pause active Filter Check reminder High Temperature Low / no flow	Additional indicators to the user for understanding the state of the device. Filter check reminder for regular filter maintenance, high temperature and low flow faults are ones that the user can correct, will include instructions on action to take. This makes it easy for anyone to be able to perform basic maintenance.
Additional LEDs on PC Board	None	LEDs indicating faults to aid with service, visible to the BMET when the device is opened for service	Will indicate faults and causes that could be related to Low flow / no flow, High flow, High temperature, Low O2 – break out possible O2 sensor errors, Rotary Valve error, Motor / compressor not running, which is a new fault. This will help BMETs understand what is wrong and how to fix it.

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Diagnostic Capability	None	LED display inside of the device with a chart indicating what needs to be replaced	A non-expert technician will be able to follow along with limited understanding to identify what is wrong and fix it.
QR codes linked to set up videos and entire website with helpful information	None	Placed on the case	Multiple users will be able to follow along set up, usage, and cleaning videos. There is also clinical materials, studies, and other resources available. Online videos are available in multiple languages.
QR codes linked to repair videos	None	Placed inside of the case	Service technicians will be able to follow along easy repair videos with their smart phones without needing to consult often missing printed service manuals. Online videos are available including in multiple languages.
Labeling	Standard safety label	Flowmeter overdraw sticker, instructions for humidifier use, simple instructions for different users, oxygen purity explanation	Device will have all information for safe and effective operating contained on the unit itself so no additional materials are needed. There is no need to memorize key information. This will allow continually changing clinical staff to operate with the same information and prevent knowledge loss by external materials (IFUs, Manuals, etc) being lost.
Other			
Flowmeter	2-10 LPM	1-10 LPM	Can safely use the PulmO2 with more pediatric patients