

## Portable Oxygen Cylinders

Portable cylinders are provided for mobility and/or for back-up, in case of concentrator or power failure.



### Terms

#### Regulator:

This device connects to the cylinder to show pressure and regulate "continuous" flow.

#### OCD:

Oxygen Conserving Device (OCD) - this device connects to the cylinder to show pressure and regulate flow during 'inspiration' only. This "conserving" during 'exhalation' allows the cylinder to last longer.

Before you can use an OCD you will need to have an oximetry done by a Healthcare professional. Your liter flow can be set by them while monitoring your blood oxygen level. This device may not work for all clients or it may not be covered by your government funding program. See special OCD section at the back.

### Operation

Your portable cylinder system consists of the following parts: the cylinder, which stores pressurized oxygen. The regulator or OCD consists of the pressure gauge, which tells you how much oxygen is left in the cylinder, and a flowmeter, which provides the prescribed flowrate of oxygen.

Both the Regulator and OCD – reduce pressure, regulate flow and connect to the cylinder using the same Pin Index Safety System. We will use the term "Regulator" in this brochure which will refer to both.

### Oxygen Cylinder Safety

- > Post at least one No Smoking sign in a prominent place
- > No one may smoke within 5 feet (1.52 meters) of the oxygen system, the tubing and nasal cannula or the mask
- > Oxygen user and equipment must be kept 5 feet from sources of heat or open flames (e.g. furnace, space heater, gas stoves, barbecues, fireplaces, candles etc.)

- > Follow the safety precautions for oxygen as outlined in the "Home Oxygen Safety" Brochure
- > Keep all grease, oil and petroleum products (even small amounts) and flammable materials away from your oxygen equipment
- > Cylinders must be stored in an adequate ventilated place to prevent oxygen enrichment (not in a closet)
  - Never place the oxygen cylinder near curtains
  - Never cover the oxygen cylinder with clothing or blankets
  - Never carry or use a portable oxygen cylinder under any clothing
- > Store cylinders in a secure location to avoid tampering by unauthorized persons or theft
- > Cylinders must be securely stored upright in a manner which prevents them from falling or being knocked over (against a wall or in a corner)
- > Cylinders can also be stored horizontally where they cannot roll or be damaged
- > It is important to keep the full and empty cylinders in separate locations to ensure no confusion
- > Cylinders can be stored near an exit to facilitate ease of use and delivery exchange
- > Keep cylinder supply stock to a practical minimum
- > Use only approved oxygen tubing and delivery devices
- > Use cannula with a maximum tubing length of 7 feet
- > Always turn off both the cylinder valve and regulator when not in use
- > Do not attempt to disassemble or repair the oxygen equipment
- > If you think your equipment is not working review the troubleshooting chart and if it still is not functioning call your local VitalAire office

## Setting up a new Cylinder

- > Wash your hands before using to ensure your hands are clean & free of oil or greasy products
- > Select a full cylinder
- > Place the cylinder in the cart (tighten retaining screw) or slide into carry bag
- > Remove the plastic integrity seal from the neck of the cylinder by pulling up on the ring to separate the green cover
- > Examine the regulator for any visible damage
- > The flow selector must be set at the zero (0) or OFF setting
- > Verify there is a washer over the largest pin of the regulator
- > Slip the regulator over the cylinder neck. Line up the pins on the regulator towards the holes in the cylinder neck. Position the two pins and one washer into the matching holes



- > Tighten the hand-screw clockwise to hold the regulator on the neck of the cylinder. Never use excessive force or tools to screw the regulator on to the cylinder



## Using the Cylinder

- > Position yourself so that the cylinder is between yourself and the regulator (cylinder valve outlet facing away) when opening the cylinder valve. Never stand in front of the cylinder outlet while opening the valve
- > When the regulator is in place, SLOWLY open the cylinder valve on the top of the cylinder post using a cylinder wrench
- > Turn the wrench as far counterclockwise possible, then back ¼ turn clockwise



- > If you hear or feel a loud leak, close the valve by turning clockwise and tighten the regulator's hand-screw further
- > Read the amount of pressure in the cylinder on the pressure gauge
- > A full oxygen cylinder should have approximately 2000 psi pressure regardless of size
- > Pressure gauges work like a gas tank in a car, as you use the gas the indicator falls, if you turn the car off then back on, the indicator will show how much gas is left in the tank
- > Eventually the tank will be empty and the cylinder will need to be refilled
- > Check the remaining contents of the oxygen cylinder on a regular basis when in use
- > Review the consumption tables for the duration of the cylinder at your flow setting
- > Connect the cannula to the oxygen outlet
- > Turn the flow selector on the flowmeter until the indicator is set at your prescribed liter flow

**Always close the cylinder valve when not in use. Turn the cylinder valve by turning the wrench clockwise, allowing the pressure to drain from the display gauge, when the needle is pointing to zero on the gauge, turn the flow selector to zero.**



## Replacing an Empty Cylinder

- > Replace the cylinder when the pressure gauge reads 100 psi or when the contents remaining will not accommodate your planned time away from home
- > Never empty the cylinder completely (e.g. in the first quarter of the indicator red zone)
- > Turn the cylinder valve off first, allowing the pressure to drain from the display gauge, when the needle is pointing to zero, turn the flow selector to zero (0) or OFF setting and then the regulator can be disconnected
- > Loosen the hand-screw until the regulator pins are out of the pinholes, lift regulator off of the cylinder
- > Loosen the cart retaining screw and remove the empty cylinder from the cart or slide empty cylinder out of carry bag
- > Safely store the empty cylinder in a separate area from the full cylinders
- > Follow the instructions for setting up a new cylinder

## Important items to Remember

- > Always secure cylinders (cart or bag) before use
- > Turn the cylinder valve off when cylinder is not in use
- > Cylinders should be secured in a vehicle so that they do not roll around and bang one another while the vehicle is in motion

## Deliveries

- > In many areas, cylinders and/or supplies can be picked up at your local VitalAire office
- > Your health care professional will advise you as to normal oxygen delivery dates/schedules (if applicable)
- > All deliveries are made during normal working hours
- > Please phone one day in advance of the delivery day for your area to order oxygen supplies
- > After hours services are for equipment malfunction or urgent calls only

## Cylinder Duration Tables for Regulator Use

\*\* The following are estimates only; actual duration may vary.

### Size 3 (D size, 390L) cylinder





Pressure	Hours of use based on flow setting				
	1 lpm	2 lpm	3 lpm	4 lpm	5 lpm
Full 2000 psi	6.5	3.25	2	1.5	1.25
¾ Full 1500 psi	5	2.5	1.5	1.25	1
½ Full 1000 psi	3.25	1.5	1	.75	.5
¼ Full 500 psi	1.5	.75	.5	.3	.25

### Size 5 (E size, 690L) cylinder

Pressure	Hours of use based on flow setting				
	1 lpm	2 lpm	3 lpm	4 lpm	5 lpm
Full 2000 psi	11.5	5.75	4	3	2.25
¾ Full 1500 psi	8.5	4.25	3	2	1.75
½ Full 1000 psi	5.75	3	2	1.5	1
¼ Full 500 psi	3	1.5	1	.75	.5

## Troubleshooting Portable Cylinders

Problem	Possible Cause	Solution
Oxygen is not flowing	Flow selector turned to OFF position.	Turn the flow selector to prescribed flow.
	The tubing has become disconnected.	Reconnect the tubing.
	The oxygen tubing is leaking.	Replace the tubing.
	The cylinder is empty.	Replace the cylinder.
Oxygen is leaking from the connection to the cylinder	Cylinder is turned off.	Turn on the cylinder.
	Regulator is not tight enough on the cylinder. No washer between regulator and cylinder.	Use the wrench to tighten the wing nut on the regulator. Replace washer or call VitalAire for a new one.

1. Always Read Instructions 	2. No Smoking No Open Flames 	3. Use in a Ventilated Area 	4. Avoid Oxygen Enrichment 	5. Secure Upright or Lay Down 
6. Never Use Oil or Grease 	7. Connect Oxygen Cannula (7 foot max) 	8. Open Valve Slowly 	9. Adjust Flowrate as Prescribed 	10. Check for Flow 
11. Check Cylinder Contents 	12. Do Not Use Excessive Force 	13. Only Clean with a Damp Cloth 	14. Close Valve After Use 	15. Phone for Assistance if Required 

# Oxygen Conserving Devices (OCD) Details

Follow the instructions above for setting up, operating and replacing a cylinder. It is exactly the same instructions for a conserving device.

- > Some types of OCDs are battery operated. In those specific devices, check the battery energy level prior to attaching the regulator to the cylinder
- > Turn the flow selector on the OCD regulator to the prescribed flow
- > Ensure that the Pulse Flow/Continuous Flow switch is set on the PULSE setting
- > On those units with an “on/off” switch, turn to the “on” position
- > Always close the cylinder valve when not in use. Turn the cylinder valve off first, allowing the pressure to drain from the display gauge, (OCD must be in continuous flow mode to drain), when the needle is pointing to zero, turn the flow selector to zero
- > Do not use OCD while sleeping
- > Do not use with a mask, humidifier, or low flow cannula

## Cylinder Duration Table with an OCD

**Note:** Usage times for conserving devices vary upon cylinder size, device type, and respiratory rate. This chart is meant to be a general guide only. Your actual usage times may vary.

Flowrate (LPM)	M-6 (160L) Cylinder	Size 3 (D) (390L) Cylinder	Size 5 (E) (690L) Cylinder
1.0	8.3 hours	21.0 hours	34.5 hours
2.0	4.1 hours	10.5 hours	17.2 hours
3.0	2.8 hours	7.0 hours	11.5 hours
4.0	2.1 hours	5.2 hours	8.6 hours
5.0	1.7 hours	4.2 hours	6.9 hours
6.0 (if available)	1.4 hours	3.5 hours	5.8 hours

*(Calculated at 20 breaths per minute and set on pulse dose mode.)  
Check the pressure gauge periodically to ensure an adequate supply.*

## Troubleshooting Oxygen Conserving Devices

Problem	Possible Cause	Solution
<b>Oxygen is not being delivered even though the Pulse / Normal Breath indicator is flashing every time</b>	Oxygen supply is empty.	Check contents indicator on the device. If empty, switch cylinders.
	Oxygen supply is not turned on.	Turn the cylinder valve on by turning cylinder wrench counter clockwise.
<b>Cylinder not lasting as long as cylinder duration chart</b>	If OCD is responding to your breath rate, your breath rate may vary, which causes the operation time to vary.	OCD is probably working correctly.
<b>OCD will not pulse (battery or non battery operated)</b>	Is the battery good. (battery operated)	Check for function and replace battery if required.
	Oxygen supply is empty.	Check contents indicator on the device. If empty, switch cylinders.
	Oxygen supply is not open.	Turn the cylinder valve on by turning cylinder wrench counterclockwise.
	Unit is not turned on.	Switch to ON (battery operated) or Turn the rotary flow selector (non battery) to the appropriate setting.
	Unit is giving continuous flow.	Change the mode switch from continuous to pulse.
	Cannula must be inserted into the nose.	Check that all cannula connections are tight and the cannula is fit in the nose. Ensure tubing is not kinked.
<b>OCD is alarming (battery operated)</b>	Triggering sensitivity is temporarily interrupted due to pinched cannula, tubing, continuous flow use, etc.	Conserving device will adjust automatically within 1-2 minutes.
	Oxygen supply is empty.	Check contents indicator on the device. If empty, switch cylinders.
	Oxygen supply is not open.	Turn the cylinder valve on by turning cylinder wrench counterclockwise.
	Low Battery.	Replace battery.
<b>Conserving device works fine for a couple of minutes, then sensitivity seems to drift and may stop working</b>	Speaking or mouth breathing.	Encourage use of nasal breathing.
	Using pediatric cannula or any cannula that restricts continuous flow capacity of 10 lpm.	Replace with standard nasal cannula.
	Speaking or mouth breathing.	Encourage use of nasal breathing as excessive mouth breathing will not trigger the device.