

HELIOS® PLUS

Model: H300-50



Home Use Guide

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To obtain information about a warranty, if any, contact CAIRE Inc.'s Technical Services Department, or your local representative.

Covered by one or more of the following U.S. Patents and foreign equivalents: 6,742,517 and 6,575,159.

Caution: Federal law (U.S.) restricts this device to sale by or on the order of a physician.

To contact CAIRE Inc.'s representative: Call 1.800.482.2473 or your local CAIRE Inc. representative.

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H300-50 Safety Information

This section contains important safety information related to general use of the *HELiOS[®] Plus* H300-50 Personal Oxygen System, which consists of the H300-50 Portable and a Reservoir.

Other important safety information appears throughout the manual in sections that relate specifically to the precautionary information. Be sure to read all text surrounding all precautionary information.

Before use, carefully read this manual and all precautionary information in boldface type, and product specifications.

Warnings



Warnings are identified by the WARNING symbol shown above or other relevant symbols, as shown on the following two pages.

Warnings alert the user to potential serious outcomes (death, injury, or adverse events) to the patient or user.



WARNING: Oxygen supplied from this equipment is for supplemental use and is not intended to be life supporting or life sustaining. This equipment is not intended for use by patients who would suffer immediate, permanent, or serious health consequences as a result of an interruption in the oxygen supply.



Do not smoke near this equipment. Keep cigarettes or burning tobacco away from the area where equipment is operated.



Keep flammable materials away from this equipment. Oils, grease, including facial creams and petroleum jelly, ignite easily and may burn rapidly in the presence of oxygen. Never lubricate any part of this equipment.



Do not touch liquid oxygen or parts that have been in contact with liquid oxygen. Liquid oxygen is extremely cold (-297 °F / -183 °C). When touched, liquid oxygen, or parts of the equipment that have been carrying liquid oxygen, can freeze skin and body tissue.



Always keep the Reservoir in an upright position.



Always keep the H300-50 Portable in one of the following positions: upright, flat on its back or any position in between.



Name and address of manufacturer



WARNING: When transporting the H300-50 Portable, position the H300-50 horizontally, flat side down, to ensure it does not tip over. Tipping over and falling off a transport surface could damage the H300-50 Portable or cause personal injury.



Keep this equipment away from electrical appliances. Use and store Reservoir and H300-50 Portable at least five feet from electrical appliances that may cause heat or sparks.



Keep oxygen equipment away from open flames. Use and store Reservoir and H300-50 Portable at least five feet away from equipment such as furnaces, water heaters, and stoves that may contain open flames.



Keep equipment in a well-ventilated area at all times. The Reservoir and H300-50 Portable periodically release small amounts of oxygen gas that must be ventilated to prevent buildup. Do not store liquid oxygen equipment in a closet, car trunk, or other confined area. Do not place blankets, draperies, or other fabrics over equipment.



Do not carry the H300-50 Portable under your clothing. The Reservoir and H300-50 Portable normally vent oxygen. Wearing a H300-50 Portable under clothing may saturate fabrics with oxygen and cause them to burn rapidly if exposed to sparks or flame. It may take several hours for oxygen levels in fabric to return to normal.



Keep dry.



WARNING: Never tamper with the equipment. Doing so could create a hazardous condition and possibly cause the equipment to work improperly.



WARNING: Do not open the vent valve during non-fill use, or put it into any position other than the closed, upright, or vertical position. Excessive discharge of liquid oxygen could create a fire hazard and/or cause personal injury.



WARNING: Fill the H300-50 Portable only with liquid oxygen.

Cautions



Cautions are identified by the CAUTION symbol shown above.

Cautions alert the user to exercise care necessary for the safe and effective use of the H300-50 Personal Oxygen System.



CAUTION: Consistent with the recommendations of the medical community on the use of conserving devices (which includes the nasal cannula), it is recommended that the H300-50 Personal Oxygen System be qualified on patients in the situations it will be used (rest, exercise, sleep). Differences in nasal cannula design may vary the ability to trigger a conserving device.



CAUTION: There are no specific risks associated with the disposal of any components within this device. Please, dispose of used parts or components in accordance with local environmental laws and regulations. Faulty components that are under warranty may be returned to the manufacturer for disposal.



Notes



Notes are identified by the NOTE symbol shown above.

Notes are listed before or after procedural steps or information and provide additional guidelines or information on the subject being described.

Definition Of Symbols

Symbol	Definition
	Portable Full
	Portable Empty



An oxidizing material may or may not burn itself, but will release oxygen or another oxidizing substance, and thereby causes or contributes to the combustion of another material.

Introduction

Your *HELiOS® Plus* H300-50 Personal Oxygen System is designed to store and deliver oxygen at a prescribed rate. The system consists of the H300-50 Portable and a Mark III or Mark 4 Reservoir.

It is recommended that you breathe your prescribed oxygen rate from the H300-50 Portable. You may fill the H300-50 Portable with liquid oxygen so you can be free to move about your home or leave your home for extended periods.

The H300-50 System was designed to maximize your freedom of movement. You can fill the H300-50 Portable with liquid oxygen from the Reservoir every day to use as far from the Reservoir as you desire.

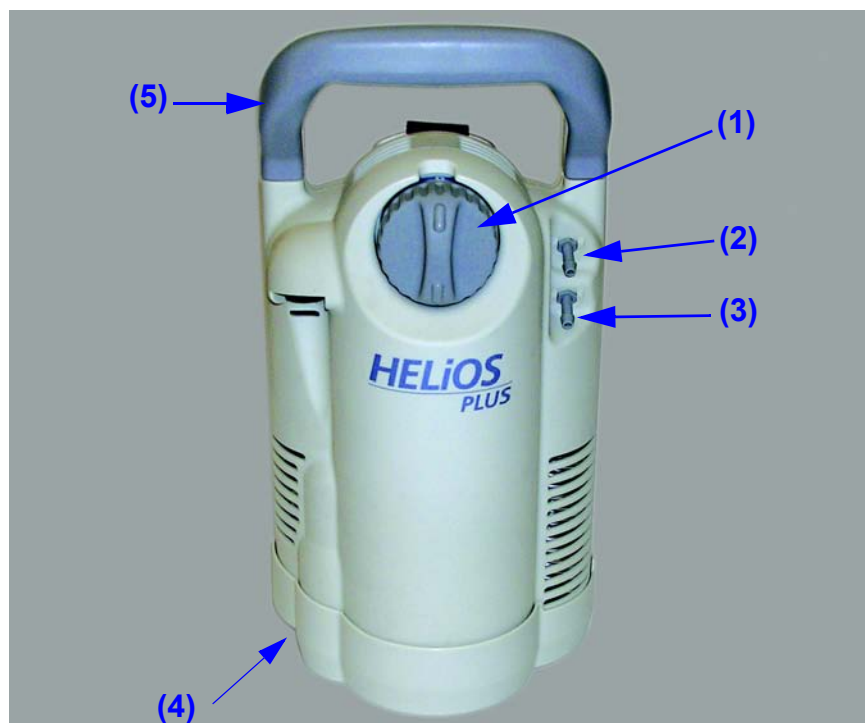
Your oxygen supplier or Homecare Provider must refill your Reservoir periodically depending upon your rate of oxygen use.

Reservoir



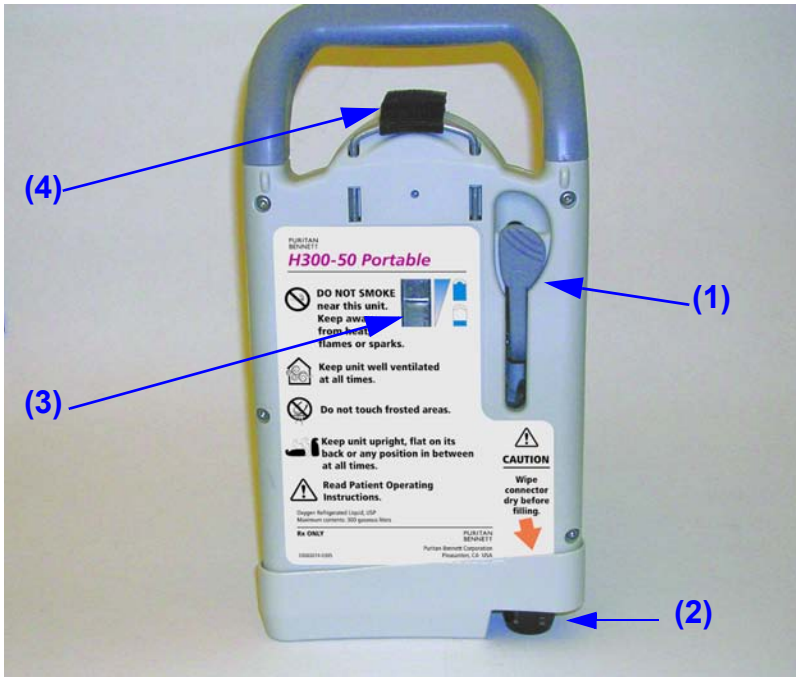
- (1) **Liquid Oxygen Fill Connector:** Used to fill the H300-50 Portable with liquid oxygen.
- (2) **Contents Indicator:** Displays amount of liquid oxygen remaining in the Reservoir (Mark 4 only).

H300-50 Portable — front view



- (1) **Flow Control Knob:** Adjustable, rotary valve used to control the rate of oxygen delivery and to select either continuous flow or demand flow.
- (2) **Oxygen Delivery Connector:** Attach one tube of dual-lumen cannula to receive oxygen from the H300-50 Portable.
- (3) **Sense Connector:** Attach one tube of dual-lumen cannula to start and stop oxygen flow with each breath.
- (4) **Liquid Oxygen Fill Connector (on the bottom):** Used to connect H300-50 Portable to the Reservoir during the filling process.
- (5) **Carrying Handle**

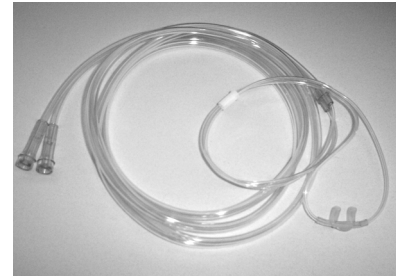
H300-50 Portable — rear view



- (1) **Vent Valve:** Used to start and stop the filling process.
- (2) **Liquid Oxygen Fill Connector:** Used to fill the H300-50 Portable with liquid oxygen.
- (3) **Contents Indicator:** Displays the amount of liquid oxygen in the H300-50 Portable.
- (4) **Contents Indicator Strap:** Used to lift the H300-50 Portable to measure the amount of oxygen it contains.

Other parts of your personal oxygen system include:

Dual-lumen
Cannula



Carrying Bag
(optional)



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How To Use Your H300-50 Personal Oxygen System

Filling the H300-50 Portable

Fill the H300-50 Portable from the Reservoir as follows:



WARNING: Using a dry, lint free cloth that is clean, wipe the fill connector dry on both the Reservoir and H300-50 Portable before filling to prevent freezing and possible equipment failure.



WARNING: Keep equipment away from open flames and flammable materials.



WARNING: Keep equipment in a well-ventilated area at all times.

1. Check the contents indicator on the Reservoir (Mark 4 only) to ensure there is enough liquid oxygen for filling purposes.
2. Using a clean, dry, oil-free cloth, wipe the female fill connector on the Reservoir and male fill connector on the H300-50 Portable.

3. Ensure that the H300-50 retaining nut (p/n: 10003365) is attached to the Reservoir fill connector (Figure 1a). If the Reservoir has the old retaining nut installed (Figure 1b), call your local Homecare Provider and ask them to install the new retaining nut.

(a)
H300-50 retaining
nut, p/n: 10003365



(b)
Old retaining nut;
do not use

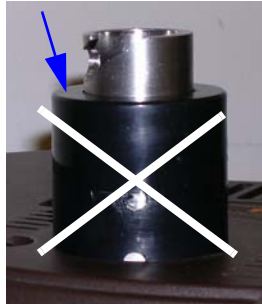


Figure 1: Reservoir retaining nut

4. On the H300-50 Portable, ensure that the flow control knob is in the OFF position (the “0” setting).
5. Position the H300-50 Portable over the quick coupler on the top of the Reservoir. (Figure 2).



Figure 2: Positioning the H300-50 Portable for filling

6. Carefully lower the H300-50 Portable into place, vertically aligning the Portable fill connector with the Reservoir quick coupler.

7. Gently place the Portable on top of the Reservoir ensuring that the Portable fill connector fits into the Reservoir quick coupler (Figure 3).



Figure 3: Connecting the Portable to the Reservoir

- Engage the fill connector by pressing downward and twisting the Portable clockwise until the Portable can no longer be turned (Figure 4).



Figure 4: Engaging the connectors



Caution: Do not over-twist or force the connector into position. This could damage the fill connectors.



WARNING: Do not lean against the Reservoir while filling the Portable.



WARNING: Keep area clean and well-ventilated.

- While holding the H300-50 Portable in the fill position, Figure 5, pull down and hold the vent valve lever in the open position (90° from the normal OFF position). A hissing noise should be noticeable.



WARNING: Do not open the vent valve during non-fill use. Excessive discharge of liquid oxygen could create a fire hazard and/or cause personal injury.



Do not touch liquid oxygen or parts that have been in contact with liquid oxygen. Liquid oxygen is extremely cold (-297 °F / -183 °C). When touched, liquid oxygen, or parts of the equipment that have been carrying liquid oxygen, can freeze skin and body tissue.



Figure 5: Filling the H300-50 Portable



Note: Fill time is usually between 30 and 40 seconds when the H300-50 Portable is empty. The amount of time to fill the H300-50 Portable depends on the amount of oxygen remaining in the H300-50 Portable.



WARNING: Do not leave the H300-50 Portable unattended during the filling operation.

10. When you *first* notice a change in the sound of venting gas followed by a dense, white vapor forming around the Reservoir cover, close the H300-50 Portable vent valve by returning the vent lever to the upright position.



WARNING: Do not try to overfill the H300-50 Portable. Once you hear the change in the sound of venting gas and see the cloud of white vapor, the H300-50 Portable is full. Continuing the fill process will not put any more oxygen in the H300-50 Portable. Overfilling may cause drops of liquid oxygen to spray from the bottom of the H300-50 Portable.



CAUTION: If the vent valve fails to close and the hissing continues, remove the H300-50 Portable by gently rotating the Portable counterclockwise to disengage the connector. Ensure that the Portable is kept upright and is not tipped at all during this time. The H300-50 Portable will stop venting in a few minutes. Allow the H300-50 Portable to warm until you can close the vent valve. The H300-50 Portable may require as much as 60 minutes to restore adequate pressure for proper oxygen flow.



Note: For shorter planned use times, you can partially fill the H300-50 Portable by closing the vent valve sooner than normal.

11. Disengage the H300-50 Portable from the Reservoir by gently rotating the Portable counter-clockwise to disengage the connectors (Figure 6). Lift the H300-50 Portable off the Reservoir quick coupler.

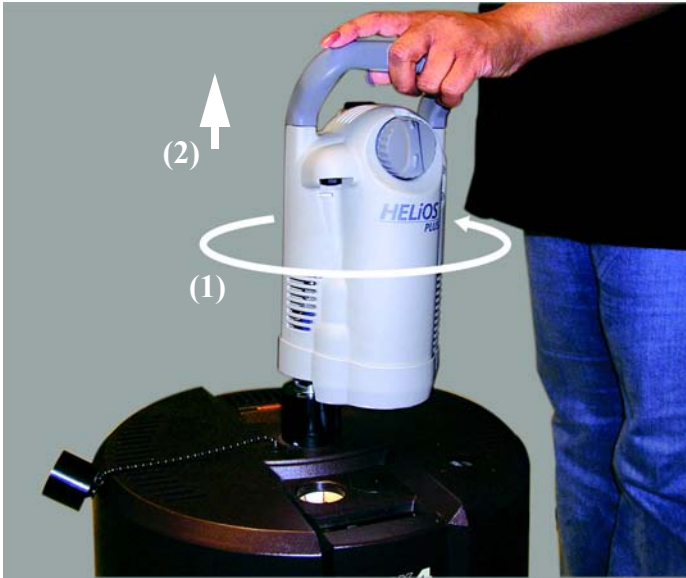


Figure 6: Disengaging the H300-50 Portable

- (1) Rotate the H300-50 Portable counter-clockwise.
- (2) Lift H300-50 Portable up and off the Reservoir.



CAUTION: If the H300-50 Portable will not disengage easily from the Reservoir, they may have become frozen together. Do not use force. Simply allow a few minutes for the frozen parts to warm, then disengage the H300-50 Portable when the ice has melted.



WARNING: If a major liquid oxygen leak from the Reservoir fill connector occurs when you disengage the H300-50 Portable (that is, a steady stream of liquid oxygen) step away from the Reservoir and notify your Homecare Provider immediately. Stay away from the Reservoir until your supplier ensures that it is safe.



CAUTION: If a minor liquid oxygen leak from the Reservoir fill connector occurs when you disengage the H300-50 Portable, re-engage and disengage the portable to help dislodge any ice or other obstruction. If the liquid oxygen leak persists, notify your Homecare Provider.



Note: Immediately after filling, you may hear a slight hissing sound from the H300-50 Portable. This is normal and will stop after a few minutes.



CAUTION: If the hissing sound from the H300-50 Portable does not stop within a few minutes after a fill, and excessive visible frosting develops on the Portable, see Note 3 in the *Troubleshooting* section.

12. Check the oxygen contents indicator, Figure 7, to make sure the H300-50 Portable is filled to the desired level. The amount of liquid oxygen contained in the H300-50 Portable is measured by an internal scale that is built into it. To operate the contents indicator:
 - a. Lift the H300-50 Portable by the contents indicator strap;
 - b. Push the bottom backside of the H300-50 Portable so that it is straight up and down; and

- c. Observe the green bar that displays the liquid oxygen contents level inside the clear window.

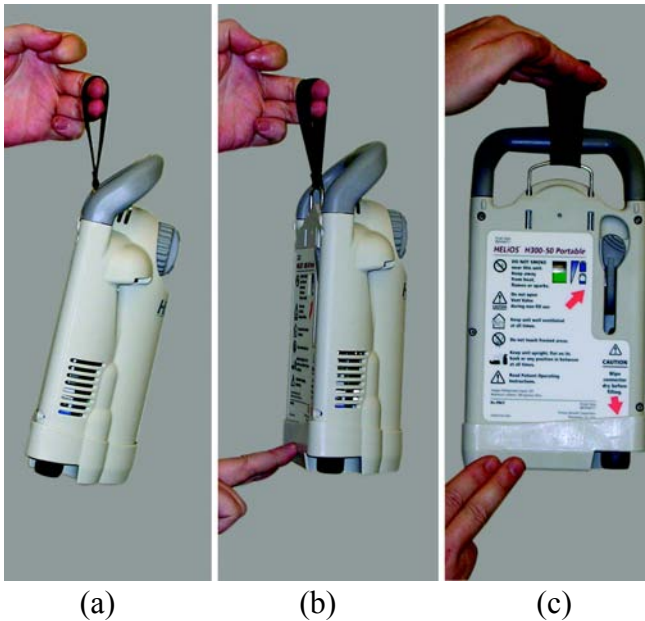


Figure 7: Checking H300-50 Portable oxygen contents

Notes:



1. After each fill, do not try to refill the H300-50 Portable again for at least 30 minutes. This will prevent the possibility of the H300-50 Portable wasting oxygen and prevent the vent valve from potentially freezing.
2. The number of times that you have to fill up or top off your H300-50 Portable depends on which setting is prescribed by your doctor and the frequency of your breath rate. On average, a setting of 2 in demand mode lasts about 6–7 hours. However, the actual time may vary

depending on your particular circumstances. For example, if you use your H300-50 Portable in the rain, excess moisture may reduce oxygen duration of the H300-50 Portable.

3. To ensure optimum pressure for proper oxygen delivery, wait approximately 10–12 minutes after each fill before using the H300-50 Portable.
4. The H300-50 Portable can be filled from Mark III and Mark 4 Reservoirs.

Breathing From the H300-50 Portable

In order to breathe from your H300-50 Portable, you must do so through a dual-lumen nasal cannula. The nasal cannula has two connections at the H300-50 Portable. One connection is used to sense when you inhale, the other connection is used to supply oxygen into your nose as you inhale.

Connect a dual-lumen cannula to your H300-50 Portable as follows:

1. Attach both ends of the dual-lumen cannula to the H300-50 Portable as shown below. Either end of the dual-lumen cannula may be attached to either connector on the H300-50 Portable (Figure 8).



Figure 8: Attaching the dual-lumen cannula



Note: The lower connector is used to sense when you inhale. The upper connector is used to supply oxygen to your nose.

2. The H300-50 Portable has two delivery modes: continuous and demand. Turn the flow control knob on the top of the H300-50 Portable clockwise from 0 to .75 for continuous flow and, continuing clockwise, from 1-4 for demand flow. (Figure 9).



Figure 9: Setting the flow rate

Set your rate to the setting prescribed by your physician. The flow setting value should be clearly readable in the center of the window. The H300-50 Portable will not deliver oxygen to you if the flow control knob is set between flow settings.

When a demand mode setting is selected, oxygen will be delivered only while you inhale. You should notice a small pulse at the beginning of each breath. Oxygen is delivered during this pulse, and continues as long as you inhale.

Oxygen flow stops when you stop inhaling. It is normal for the device to occasionally skip a breath or to pulse twice in one breath.

When continuous mode is selected, oxygen is delivered continuously at the rate displayed on the flow control knob. For example, the .75 setting delivers continuous flow oxygen at .75 L/min.

The table below shows approximate use times for your H300-50 Portable after it has been completely filled. The usage values shown reflect a breathing pattern that is typical for oxygen patients.

Approximate Use Times for a Full H300-50 Portable Note: Your Use Times May Vary	
Flow Control Setting	Duration in Hours
Continuous Flow	
.12	19
.25	16
.5	11
.75	6
Demand Flow	
1	9
1.5	8
2	7
2.5	6
3	5
3.5	4
4	3



Note: Your use time may vary substantially from the use times listed in the table. You should learn through experience how long the H300-50 Portable will last given your particular breathing patterns and activity level.



CAUTION: You must use a dual-lumen cannula of 7-foot length or shorter (see accessories list at the end of this manual) to ensure proper oxygen delivery from the H300-50 Portable. Make sure both connections of the dual-lumen cannula are firmly attached to the H300-50 Portable oxygen outlet and sensor connectors.

3. With the tips of the cannula and lip rest pointing downward and toward you, place the two tips into your nostrils. Run the tubing over your ears and then slide the sleeve up under your chin until the cannula feels comfortable (Figure 10). Then breathe normally.

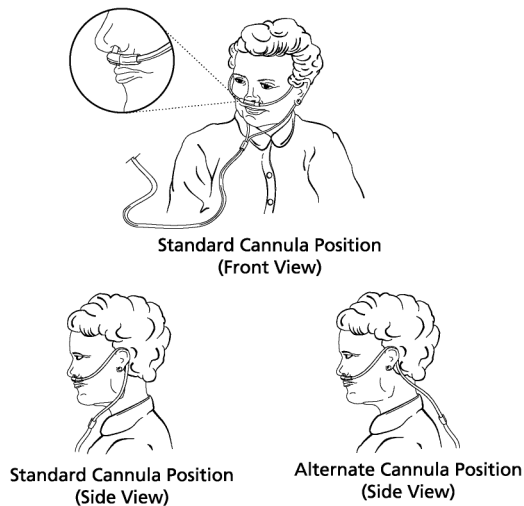


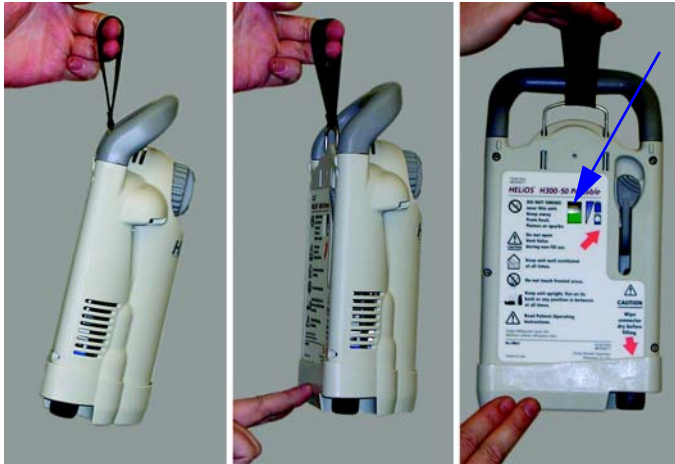
Figure 10: Cannula placement



Notes:

- Make sure that the tips remain in your nostrils and do not slide to one side.
- Occasionally water droplets caused by exhaled humidity may accumulate in the cannula. This may disrupt the operation of the oxygen conserving device. If this happens, replace the moist cannula with a dry one. Allow the moist cannula to dry before using it again.
- Currently, there are two dual-lumen cannula designs available for use with the H300-50. One cannula provides sensing and delivery of oxygen in each nostril. This is the best one to use when experiencing a blocked nasal passage. The second provides oxygen only to one side of the nose and senses when to provide oxygen on the other. Also, the tips of this second type are slightly smaller and softer.

- The contents indicator will show approximately how much liquid oxygen remains in the H300-50 Portable. To ensure you have enough oxygen to meet your needs, check the indicator periodically. When checking the contents, remove any carry accessories and make sure your nasal cannula is not pulling on the H300-50 Portable.



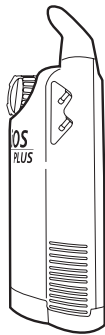
Positioning of H300-50 Portable During Use



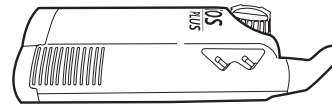
WARNING: Always keep the H300-50 Portable in one of the following positions: upright, flat on its back or any position in between.

Your H300-50 Portable was designed to operate in a variety of positions for your convenience:

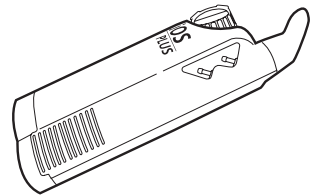
- a. sitting upright
- b. lying flat on its back
- c. angled, anywhere in between upright and flat on its back.



(a)



(b)

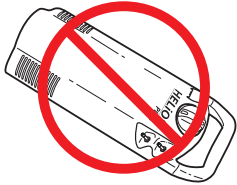


(c)

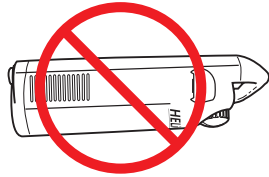
It is important to always keep the H300-50 Portable in one of these positions or liquid oxygen may escape. This will shorten the time you can be away from home.

Unacceptable H300-50 Portable positions include:

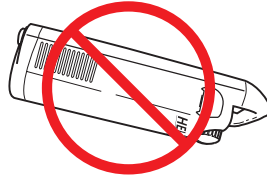
- a. lying on its back with the handle lower than the bottom of the H300-50 Portable
- b. lying on its front or edge
- c. lying on its front with the handle lower than the bottom of the H300-50 Portable.



(a)



(b)



(c)



CAUTION: If your H300-50 Portable was placed in an unacceptable position for more than five minutes, check the contents level to see how much oxygen remains, and set the H300-50 Portable in an acceptable position for at least 15 minutes before attempting to fill it. Placing the H300-50 Portable in an unacceptable position may cause loss of oxygen or vent valve lever to become too cold for filling.

Maintenance

Cleaning

Do not use alcohol, solvents, polishes, or any oily substance on oxygen equipment. If cleaning is necessary, use only warm water and a mild dish washing detergent. Dampen a cloth in the detergent and water solution and wipe the outside surfaces of the equipment until clean.



CAUTION: Do not allow water into any of the controls, the fill connector, or the oxygen delivery and sense connectors.



CAUTION: Never attempt to repair or disassemble this equipment. You could create a hazardous condition or cause equipment failure. If you have problems, questions, or are unsure if equipment is operating properly, call your Homecare Provider.

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Troubleshooting

The following information is intended to help you troubleshoot and solve simple operational problems that you may experience when using your H300-50 Portable.

1. The H300-50 Portable does not pulse after filling.

If during the filling process, the H300-50 Portable is disengaged with the vent valve lever down, pressure may be reduced within the H300-50 Portable causing a delay in the conserving device function. It may require as much as 60 minutes to restore adequate pressure for proper oxygen flow. Additionally, improper filling or lower than normal operating pressure in the Reservoir will contribute to the H300-50 Portable not pulsing.

2. The H300-50 Portable makes a hissing sound.

Hissing can occur to maintain the correct operating pressure within the H300-50 Portable. It is most likely to hiss after filling or when the position of the H300-50 Portable is changed. Hissing can last for approximately 10 minutes after filling. Additionally, it can occur when the flow control valve is at a low setting.

3. Excessive frost and hissing.

- Some hissing and frosting on the H300-50 Portable is normal. If, however, the hissing sound from the H300-50 Portable continues after a fill or anytime during usage, combined with excessive frosting on the H300-50 Portable, stop using the H300-50 Portable and contact your Homecare Provider.
- Excessive frost formation on the H300-50 Portable 30 minutes after a fill while the Flow Control knob is in the OFF position may be a result of possible system malfunction. Stop using the H300-50 Portable and contact your Homecare Provider for service.

4. The H300-50 Portable stops pulsing during use.

- Ensure that both connections of the dual-lumen cannula are firmly attached to the Oxygen Outlet and Sense connectors.
- Change the cannula if water droplets are present from humidified exhaled gas. Replacing the cannula with a dry one enhances the ability of the H300-50 Portable to pulse.
- Ensure that the cannula is not kinked or pinched.
- Ensure that the cannula tips remain in your nostrils and do not slide to one side.
- Ensure that there is oxygen in the H300-50 Portable.

- With the cannula on, close your mouth and breathe only through your nose to verify that the H300-50 Portable has stopped pulsing.

5. The H300-50 Portable does not fill.

- Verify that there is oxygen in the Reservoir. If the Reservoir has a pressure gauge, make sure it reads between 47-psi and 58-psi.
- Ensure that the H300-50 Portable and Reservoir fill connectors are fully engaged throughout the filling process.

6. The H300-50 Portable vent valve does not close properly at the end of the filling process.

If the vent valve fails to close and the hissing sound and oxygen vapor cloud continue, carefully remove the H300-50 Portable by gently rotating the Portable counter-clockwise and lifting from the Reservoir. Venting from the bottom of the H300-50 Portable will stop in a few minutes. Keeping the H300-50 Portable upright, allow it to warm until you can close the vent valve. The H300-50 Portable may require as much as 60 minutes to restore adequate pressure for proper oxygen flow.

7. The H300-50 Portable does not disengage easily from the Reservoir after filling.



WARNING: Do not bend over the Reservoir fill connector when disengaging the Portable. Contact with liquid oxygen can cause personal injury.

The H300-50 Portable and Reservoir fill connectors may have become frozen. Do not use force. Allow a few minutes for the frozen parts to warm, then disengage the H300-50 Portable when the ice has melted. To prevent the Reservoir and H300-50 Portable from freezing together, always wipe the female fill connector on the Reservoir and the male fill connector on the H300-50 Portable with a clean, dry, oil-free cloth before filling.

Accessories

The following accessories are available to help you obtain the most benefit from your H300-50 System.



Dual-Lumen Cannula

An oxygen cannula delivers oxygen from the H300-50 Portable to your nose. The cannula has two connections: One senses when you inhale; the other delivers oxygen to you while you inhale.



H300-50 Carrying Bag

The H300-50 Portable Carrying Bag makes it convenient to carry the H300-50 Portable with you wherever you go.

Accessory Part Numbers	Description
B-701511-00	Dual-Lumen Cannula - 3 ft./0.9 m Length (Sense and delivery in each nostril)
6-778058-00	Dual-Lumen Cannula - 5 ft./1.5 m Length (Sense and delivery in each nostril)
6-778057-00	Dual-Lumen Cannula - 7 ft./2.1 m Length (Sense and delivery in each nostril)
B-701931-00	Dual-Lumen Cannula -4 ft./1.2 m Length (Sense and delivery in separate nostrils)
B-701930-00	Dual-Lumen Cannula - 7 ft./2.1 m Length (Sense and delivery in separate nostrils)
10003480	Carrying Bag, H300-50 Portable

Specifications

Environmental Specifications

Operating: -20 °C to 40 °C (-4 °F to 104 °F)
95% maximum relative humidity

Storage: -40 °C to 70 °C (-40 °F to 158 °F)
95% maximum relative humidity

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Important Information About Your Prescription

Your name: _____

Doctor's name: _____

Doctor's phone number: _____

Date your H300-50 Portable was received: _____

Prescribed oxygen flow setting:

- during sleep
- at rest
- during exercise

Homecare Provider's name: _____

Homecare Provider's phone number: _____

Emergency contact's name: _____

Emergency contact's phone number: _____

Special Instructions:

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CAIRE Inc.
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Ball Ground, GA 30107

Rx ONLY

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