

Pleur-evac® Sahara® Series Chest Drainage System

Dry Suction, Dry Seal

- A Dry Suction Control Dial:** Suction level determined by position of edge of red stripe. Rotate and click to prescribed setting.
- B Suction Control Indicator:** Orange float in window means prescribed suction is imposed. A flow rate of only 6 LPM is required to achieve this.
- C Dry Seal and Patient Air Leak Meter:** A “dry” check valve provides a one-way patient seal, eliminating the need for a water seal. Pre-packaged 20 mL sterile fluid may be used to quantify the size and progress of air leak.
- D Collection Chamber:** Marking surfaces are for making notations. Use pen or pencil.
- E Quick Disconnect with Needleless Sample Port:** Locking connectors (red and blue) are provided in the patient tube for quick connection to a new chest drainage system. Use only a standard luer lock syringe to withdraw samples from the connector.
- F Negative Pressure Indicator:** Negative pressure exists in the collection chamber when “YES” can be seen.
- G Filtered High Negativity Relief Valve:** Manually vent excessive negativity by briefly depressing the button to allow filtered air to enter the unit.
- H Floor Stand:** Helps prevent tipover. Swings out for stability during use. The floor stand contains an automatic locking mechanism that maintains the floor stand in the open position. To close, press locking tab to retract floor stand.



Pleur-evac® S-1100-08LF

Setup Instructions:

Setup instructions may differ among devices, refer to Instructions For Use for each unit.

1. Connect patient drainage tube (NUMBER 1 RIGHT) to thoracic catheter to establish one-way seal for patient protection. Patient is now protected from atmospheric air re-entry.
2. For air-leak diagnostics, add pre-packaged 20 mL sterile fluid to air leak meter through the injection port (NUMBER 2 RIGHT). Fill to the 20 mL line.
3. If suction is required, connect the suction source to suction port (NUMBER 3 RIGHT). Increase source suction until orange float appears in Suction Control Indicator window.

Sahara System Features and Benefits

Dry Suction Control Chamber

The dry suction control delivers from -10 to -40 cm of water suction with calibrated control and accuracy. The suction control feature functions as a true regulator: as fluctuations occur in source suction or airflow from a patient leak, the desired imposed suction level is automatically maintained without the need for clinical intervention. The orange float appears in the window when prescribed suction is attained, eliminating guesswork. Setup is quick and easy, with no need to fill suction chamber with water.



To Increase Suction

The Pleur-evac Sahara unit is preset at -20 cm of water. Rotate the red dial to the prescribed suction level. The dial clicks in place. Increase source suction until the orange float appears in the indicator window. Source suction must be capable of delivering a minimum of 6 liters per minute (LPM) airflow.

To Decrease Suction – Filtered High Negativity Relief Valve

Rotate the red dial to the prescribed suction level. The dial clicks in place. When suction setting is changed from a higher to a lower setting, the patient negativity may remain at the higher level unless the negativity is relieved. Depress the **filtered high negativity relief valve (Feature G)** located at the top of the unit to reduce patient negativity to desired level.

Gravity Drainage

If gravity drainage is prescribed, suction port should remain uncapped and free of obstructions.

One-way Valve (Dry Seal)

The Sahara System one-way valve allows air to exit from the pleural cavity while preventing air re-entry. The one-way valve is automatic with no need to fill a water seal. The one-way valve protects the patient seal, even when the unit is tipped over. There is no need to replace the unit if tipped, as fluid stays in its own chamber.



Monitoring Patient Air Leaks

The patient air leak meter quantifies the size of an air leak from 1 (low) to 7 (high). The higher the numbered column through which bubbling appears, the greater the magnitude of the air leak. Observe bubbling at the bottom of the columns of the air leak meter. By documenting the number, the clinician can monitor air leak increase or decrease. The fluid in the air leak meter is used for air leak detection only and is not a water seal.

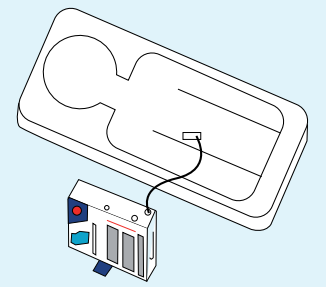


Automatic Positive Pressure Relief Valve and Automatic High Negativity Relief

The automatic positive pressure relief valve automatically opens with increases in positive pressure if the suction tube or port is blocked, minimizing the risk of tension pneumothorax. The automatic High Negativity Relief Valve limits negative pressure to approximately -50 cm of water.

Collection Chamber

The long patient tubing connects to the thoracic catheter. Drainage flows into the graduated collection chamber. The write-on surface allows for easy measurement and recording.



Positioning the Pleur-evac Sahara System

Position Sahara system below the patient's chest at all times. Avoid positions that create loops in patient tubing.

To Clamp or Not to Clamp

Chest tubes should not be clamped unless changing the unit or ordered by a physician. Clamp on patient tube should be placed away from patient, avoiding accidental closure. If clamping is necessary, clamp near the color-coded quick-disconnect (red and blue) connectors.

Recording Patient Drainage

Mark the level of drainage with date and time of measurement on white “write-on surface”. Sahara units feature an easy-to-read calibrated measurement scale: 2cc increments up to 200cc, 10cc increments up to 2000cc.

Sampling Patient Drainage or Replacing Units Using the Color-Coded Quick-Disconnect (Red and Blue) Connectors

The needleless sampling port in the connector allows clinicians to obtain fresh samples of patient drainage. Use a standard luer lock syringe for withdrawing samples. Color-coded quick-disconnect (red and blue) connectors and clamp on drainage tube allow for quick and easy Sahara unit replacement. Prepare new unit prior to changing current unit.

Disposal: The Pleur-evac unit should be handled and disposed of in accordance with all applicable regulations including, without limitation, those pertaining to human health and safety and the environment.

Nursing Considerations and Troubleshooting

Dry Suction Control

Is the dial set at the prescribed suction?

Turn the dial to click into the correct suction setting (-20 cm water suction is most common for adults).

Is the Orange Float in the Indicator Window?

The orange float indicates that the desired suction has been achieved. This visual indicator replaces the bubbling noise of a water suction control system.

The suction source must be capable of delivering a minimum of 6 liters per minute (LPM) of airflow. The suction source must deliver greater than 6 LPM when multiple chest drains are connected to a single source.

If the orange float falls out of the indicator window, the wall suction source must be increased.

If the orange float still does not appear, check to make sure that all connections are secure and the suction tubing is not kinked, clamped, or occluded. You may need to bypass the wall canister. When multiple drains are Y-ed together, connect the Y close to the suction source rather than closer to the chest drainage units.

Does the water rise in the small arm of the air leak meter when the dry suction setting is lowered?

This is normal. It simply reflects the previous higher setting. If the patient does not have an air leak, vent the excess negativity by depressing the high negativity relief valve.

CAUTION: If suction is not operative, or if operating on gravity drainage, depressing the high negativity relief valve can reduce negative pressure within the collection chamber to zero (atmosphere) with the resulting possibility of a pneumothorax.

Negative Pressure Indicator

Is the Negative Pressure Indicator Visible?

Negative pressure exists in the Collection Chamber when “YES” can be seen in the indicator window. During gravity drainage, the indicator may intermittently indicate a negative pressure in the collection chamber with patient respiration. During suction drainage, the pressure indicator should indicate negative pressure continuously.

CAUTION: If the negative pressure indicator does not show “YES,” as described: 1) check patient connections for leaks, 2) check tubing connections on the unit. If all connections are secure and the “YES” does not appear, replace the unit. The negative pressure indicator does not confirm drainage tube patency. Routinely check the drainage tube patency.

Air Leak Meter

Is There Bubbling?

Identify the source of the air leak:

- Check and tighten connections.
- Check the tubing for leaks using progressive clamping method with booted (or padded) chest tube clamp.
- If leak is in the tubing, replace the unit.
- If the leak is determined to originate from the patient, contact the patient's physician.

Is the Bubbling Continuous or Intermittent?

Note the pattern of the bubbling. If it fluctuates with respiration (i.e., occurs on exhalation in a patient breathing spontaneously), the most likely source is the pleural cavity. Document the magnitude of a patient air leak using the air leak meter. The higher the numbered column through which the bubbling occurs, the greater the degree of air leak.

Notify physician of any new, increased, or unexpected air leaks that are not corrected by the above actions.

Drainage Tubes

Are All Connections Securely Taped or Banded?

Reconnect any loose connections and tape securely; assess for a new or increased air leak. Notify physician if new or increased air leak presents.

Is the Clamp Open?

The tube should be left unclamped unless:

- a. You are changing the unit. Clamp only briefly.
- b. Specifically ordered by the physician.

Collection Chamber

WARNING:

- Chest tubes should not be clamped except when changing the Pleur-evac unit. In the event of a patient air leak, clamping the chest tubes could lead to a tension pneumothorax.
- Stripping the patient drainage tube must be done with the patient tubing clamp OPEN. Stripping with the clamps closed can result in the build-up of excessive positive pressure.

Immediately contact the patient's physician if any of the following are observed:

- Changes in drainage color.
- Rate of drainage suddenly increases or decreases.
- Drainage stops suddenly.

NOTE: This is a troubleshooting guide only. Please refer to the Instructions For Use for full operating and set-up instructions.

