

**PLEUR-EVAC<sup>®</sup>**



Pleur-evac<sup>®</sup>  
Rain Series  
Chest Drainage System  
Wet Suction, Wet Seal

**Teleflex<sup>®</sup>**

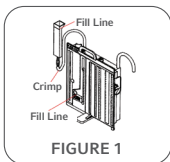
# Pleur-evac® Rain Series Chest Drainage

## Setup Instructions

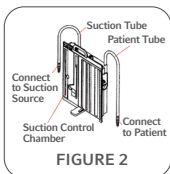
Setup instructions may differ among devices, refer to Instructions for Use for each unit.

If suction is prescribed, follow steps 1 through 5. If suction is not required, follow steps 1 and 2 only.

1. Fill water seal chamber to the “Fill Line” on the water seal pressure scale to establish the one-way seal for patient protections. This is the 2 cm water level which will require approximately 70 mL of sterile water or saline (**FIGURE 1**). A funnel is provided to facilitate filling. Attach the funnel to the connector on the suction tube.



2. Connect the patient tube to the thoracic catheter (**FIGURE 2**). Patient is now protected from atmosphere.
3. Connect suction tube to suction source (**FIGURE 2**).



4. Fill the suction control chamber with sterile water or saline. Remove the atmospheric vent cover (muffler) and fill through atmospheric vent to the 20 cm level or as prescribed. Replace the atmospheric vent cover after filling.
5. Turn on suction. Increase suction until gentle bubbling occurs in the suction control chamber (**FIGURE 2**). The height of the water in the suction control chamber determines the approximate amount of suction imposed regardless of the degree of bubbling.

**NOTE:** Source suction must be capable of delivering a minimum of 2–4 liters per minute (LPM) air flow.

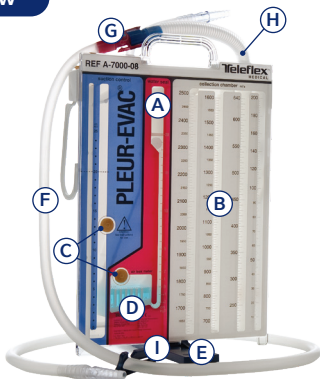
**CAUTION:** Keep Pleur-evac below patient’s chest level at all times.

**AVOID:** Dependent loops in patient tubing.

**DO NOT:** Clamp patient tubing during transport (patient has protection of water seal).

# Drainage System – Wet Suction, Wet Seal

## Overview



Pleur-evac® A-7000-08LF

- A High Negativity Float Valve:** Preserves the water seal in the presence of high negativity. Water floats the valve up into the closed position when excessive negativity occurs; valve opens upon decrease in negativity.
- B Collection Chamber:** Marking surfaces are for making notations. Use pen or pencil.
- C Self Sealing Diaphragms:** Provided on the face of the unit to adjust the fluid levels (sterile water or saline) in the suction control and water seal chambers.
- D Patient Air Leak Meter:** Quantifies the size (1) low to (7) high and progress of air leak. The higher the numbered column through which the bubbling occurs, the greater the degree of air leak.
- E Floor Stand:** Helps prevent tipover. Swings out for stability in use. The floor stand contains an automatic locking mechanism that locks the floor stand in the open position. To close, press locking tab to retract floor stand.
- F Patient Tubing:** Not made with natural rubber latex.
- G 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.

**H Filtered High Negativity Relief Valve:** Provided to vent excessive negativity. Depress the button to relieve negativity. Filtered air will enter the unit and the water level in the water seal will drop. Release the button when the desired level of negativity, as indicated by the water level in the water seal pressure scale, has been attained.

**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.

**I Patient Tube Clamp:** Clamp on patient tube should be placed away from patient, avoiding accidental closure.

## Nursing Considerations and Troubleshooting

### Collection Chamber

#### Measurement of Drainage

When reading collection chamber calibrations, please note there may be a decrease in original volume of first column after fluids spill over into the next (this may be attributed to surface tension “build up”). The actual volume of the previous section(s) should therefore be checked if accuracy of the total reading is critical. “Spillover” from one column to the next should also be noted after the Pleur-evac unit has been moved or handled.

#### Full Collection Chamber

When drainage reaches 2500cc, the unit is filled to capacity. Replace unit. Prepare new unit prior to changing full unit.

#### WARNING:

- The collected contents of the Pleur-evac unit should not be used for reinfusion
- 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

## Nursing Considerations and Troubleshooting

### 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.

### Changes in Drainage

Immediately contact the physician if any of the following are observed:

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

### Water Seal Chamber

#### Level of Water in Water Seal Chamber

The water level should be at 2 cm. Sterile water or saline may need to be added due to evaporation. Fluid may need to be withdrawn if the chamber is overfilled. To adjust water seal level, use a syringe with an 18 gauge (1.27 mm) or smaller needle. Angle the needle downward to withdraw fluid.

#### Determining Patient Negativity:

WITHOUT SUCTION, the pressure in the chest cavity is read directly by the fluid level in the calibrated water seal pressure scale.

WITH SUCTION, add the reading from the wet suction pressure scale to the reading of the water seal pressure scale. (Example: -20 suction plus -10 water seal = -30 cm H<sub>2</sub>O patient negativity.)

**CAUTION:** Patient is at risk of exposure to atmospheric air upon tipover. If tipped, replace unit immediately.

*Nursing Considerations and Troubleshooting continued on back.*



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### Air Leak Meter

*(A-7000 Model contains a quantifiable air leak meter;  
A-8000 Unit contains air leak window only)*

### Water Rising in Small Arm of the Water Seal / Air Leak Meter?

If water has risen to an undesired level of negativity, the manual High Negativity Relief Valve may be used. Filtered air will enter the unit. Release the button when desired level of negativity, as indicated by water level in Water Seal Pressure Scale, has been attained. Depress the manual high negativity relief valve until the water level reaches the desired negativity.

**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.

### 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 System – Wet Suction, Wet Seal

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## Suction Control Chamber

### Suction Control Pressure Scale

When suction is applied and bubbling occurs, the approximate level of suction imposed is determined by the original fluid level. To avoid spillover of water from the suction control chamber into the water seal chamber, gentle and controlled bubbling in the suction control chamber is recommended. Check the unit periodically to ensure that adequate suction is being applied to the unit and that gentle bubbling is present in the suction control chamber.

**NOTE:** Evaporation may cause a decrease in the fluid level. Monitor fluid level periodically by momentarily discontinuing suction and observing the fluid level in the calibrated suction control pressure scale. If needed, fluid may be added through the atmospheric vent or the self-sealing diaphragm (while suction is discontinued) to achieve prescribed level. Be sure to resume suction after adding fluid.

In the presence of a large patient air leak, air flow through the Pleur-evac unit may be increased by increasing source suction. This will NOT increase suction imposed on the patient.

### Atmospheric Vent

Use the atmospheric vent opening for filling the suction control chamber. This is also the vent to atmosphere. Do not cover the vent with anything other than the atmospheric vent cover (muffler). The muffler allows air to enter the suction control chamber, reduces evaporation, and dampens the noise of the bubbling.

### Suction Tube

If gravity drainage is prescribed, the suction tube should remain UNCAPPED and free of obstructions to allow air to exit and minimize possibility of tension pneumothorax.

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

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