**Atrium OCEAN**

**Water Seal Chest Drain**

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**What to check during system operation**

- **Suction control stopcock**
  The suction control stopcock regulates vacuum to the chest drain. It provides effective control of suction control bubbling and allows efficient use with any unregulated suction source. The stopcock must be ON for initial system setup and should not be turned OFF during patient use. During patient transport or when suction is not operating, it is not recommended to turn the stopcock off or to clamp off suction tube.

- **Observing graduated water seal column for changes in patient pressure**
  Patient pressure can be determined by observing the level of the blue water and small float ball in the graduated water seal column. With suction operating, patient pressure will equal the suction control setting plus the graduated water seal column level only. For gravity drainage (no suction) patient pressure will equal the graduated water seal column level only.

- **Continuous bubbling in the water seal air leak monitor**
  For those models with a graduated air leak monitor, air leak bubbling can range from 1 (low) to 5 (high). Air bubbles create an easy to follow air leak pattern for monitoring patient air leak trends.

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- **Verifying system operation**
  Water seal and suction control chambers must be filled and maintained to prescribed levels to ensure proper operation and should be checked regularly when used for extended periods. Water seal should be maintained at 2 cm line and suction control chamber should bubble gently when connected to suction. Adjust stopcock or suction source as needed to increase or decrease suction control bubbling. As required, additional water may be added by a 19 gauge or smaller needle and syringe via the grommet located on the back.

- **Placement of unit**
  Always place chest drain below the patient’s chest in an upright position. To avoid accidental knock-over, open the floor stand for secure placement on floor or hang the system bedside with the hangers provided.

- **Recording drainage volume**
  The collection chamber incorporates a writing surface with easy-to-read fluid level graduations. Please refer to individual product inserts for specific model graduations.

- **Observing water seal for patient air leaks**
  When air bubbles are observed going from right to left in the air leak monitor, this will confirm a patient air leak.

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**Set up**

**Step 1. Fill water seal**

Hold funnel down and fill to the top. Raise funnel to empty water into water seal to 2 cm line.

**Step 2. Fill suction control**

Remove the tethered vent plug, pour water, and replace vent plug.

**Step 3. Connect chest drain to patient**

Connect chest drain to patient prior to initiating suction.

**Step 4. Connect chest drain to suction**

To apply suction, connect suction source line directly to the suction control stopcock or suction connector provided. Adjust the suction control stopcock or suction control source as needed to increase or decrease suction control bubbling.

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**Have a question or need help in a hurry? Call Maquet toll free at 1-800-528-7486.**

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- **Intermediate bubbling with float ball oscillation will confirm the presence of an intermittent air leak.**
- **No bubbling with minimal float ball oscillation at bottom of water seal will indicate no air leak is present.**

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**High negativity float valve**

- **The high negativity float valve, with its controlled release action, enables the thoracic patient to draw as much intrathoracic pressure as is required during each respiratory cycle.**
- **During prolonged episodes of extreme negative pressure, the controlled release system will automatically relieve excess vacuum to a lower pressure level.**

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Troubleshooting

What happens when:

- There is no bubbling in the suction control chamber?
  Check to be sure the suction tubing is conn-
ected to the chest drain and to the wall
regulator and the suction source is turned
on. Adjusting the suction control stopcock is
required for constant gentle bubbling.

- There is vigorous bubbling in the suction control chamber?
  Vigorous bubbling causes quicker evapora-
tion and produces excessive noise. Constant,
gentle bubbling is all that is required to impose
the prescribed amount of suction. The suc-
tion control stopcock, located on the suction
tubing, can be used to adjust bubbling. The
suction source regulator can also be adjusted
to turn suction control bubbling up or down.

Should the suction control stopcock be
turned off for gravity drainage or for patient
transport?
No. The patient is protected two ways: first
by the one-way valve created by the water
seal to maintain the desired patient vacuum
pressure, and second, the patient is protected
by the integral positive pressure valve in the
event the stopcock is turned off. It is not
necessary to turn off the stopcock, clamp, or
cap the suction line during gravity drainage
or patient transport. Both the water seal and
the positive pressure valve provide patient protec-
tion when either the suction line or stopcock
remain open or closed.

How can I connect multiple chest drains to
one suction source easily?

With models equipped with a suction control
stopcock, connection of two or more chest
drains to a common suction source is made
easier. Place a 1/4” x 1/4” x 1/4” Y connector
on the wall suction tubing.

Now you have two open ends of suction line
Heating for the Y connector to be placed. Turn
on suction and adjust the suction control
stopcock on each drain to achieve constant,
gentle bubbling with each.

How do I confirm my patient has an air leak
when there is:

- No bubbling in the water seal?
  If there are no air bubbles observed going
from right to left in the air leak monitor, there
is no patient air leak. In order to confirm that
your patient’s chest catheter(s) are patent,
temporarily turn suction off and check for
oscillation of the patient pressure float ball in
the water seal column coinciding with patient
respiration.

- Bubbling present in the water seal?
  Whenever constant or intermittent bubbling
is present in the water seal air leak monitor, this
will confirm an air leak is present. Oscillation
of the patient pressure float ball at the bottom
of the water seal without bubbling will indi-
cate no apparent air leak. Bubbling from right
to left must be present to confirm an air leak.
To determine the source of the air leak (patient
or catheter connection), momentarily clamp
the patient tube close to the chest drain and
observe the water seal. If bubbling stops, the
air leak may be from the catheter connections
or the patient’s chest. Check the catheter
connectors and patient dressing for a partially
withdrawn catheter. If bubbling continues after
temporarily clamping the patient tube, this will
indicate a system air leak requiring system
replacement.

If the chest drainage system has been
knocked over, can I use it and what should I
do?
After a chest drainage system has been kno-
ccked over, set it upright and immediately
check the fluid levels of the water seal and
suction control chambers for proper volumes.
We provide convenient diaphragms for access
with a 20 gauge or smaller needle and syringe
to adjust the water level in each chamber, if
required. Alcohol swab the needle access area
and aspirate any overfill that may have occur-
red. If the water seal has an inadequate fluid
level, simply replace the lost volume. If a signifi-
cant amount of blood has entered the water
seal, it may be advisable to change the system
for a new one.

How do I lower the water seal column?
Changes in your patient’s pressure will be
reflected by the height of the water in the
water seal column. These changes are usually
due to mechanical means such as milking or
stripping patient drainage tubes, or simply by
depression of your patient after all air
leaks have subsided. If desired, the height of
the water column and patient pressure can be
reduced by deep temporarily depressing the filtered
manual vent, located on top of the drain, until
the float valve releases and the water column
lowers to the desired level. Do not lower water
seal column when suction is not operating or
when patient is on gravity drainage.

Is it normal for the patient pressure float
tube to fluctuate up and down (tidal) near the
bottom of the water seal column?
Yes. Once your patient’s air leak is resolved,
you will generally observe moderate tidalizing in
the water seal column. Increases in intrathorac-
ic pressure will cause the water level to rise
(the ball rises) during patient inspiration and
will lower or decrease (the ball drops) during
expiration. This diagnostic tool will help to
confirm patency of your patient’s catheter(s).
Minor “bouncing” of the water seal level can
also be caused by vigorous bubbling of the
suction control chamber. To accurately assess
patient catheter patency, momentarily occlude
suction to stop the suction control chamber
bubbling and observe the water seal’s physio-
logical response.

How do I dispose of the system?
Disposal of chest drains and its contents
should be in accordance with all applicable
regulations.

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