



## DIRECTIONS FOR USE

### SCOTTCART MEMBRANE PES & SCOTTCART AQUA FINAL FILTERS

#### 1. INSTALLING FILTER CARTRIDGES IN HOUSINGS:

- 1.1 Cut open the bottom end of the plastic bag (at the O-ring end of the cartridge). Leave the bag on the cartridge to protect it while installing it in the housing base.

*Note: If installing a used (and properly stored) cartridge, wear gloves when handling and installing the cartridge.*

- 1.2 Wet the O-rings with water.
- 1.3 To install the cartridge, ease the O-ring end into the housing base. While doing so, hold the cartridge at both ends. Do not tilt the filter cartridge while installing into the housing since this may damage the adapter to cause one or more O-rings to slip out of position.

*Note: For cartridges that have the code 7, 226 O-ring adapter with locking tabs – when twisting the cartridge into place, ensure that you hold the cartridge as close as possible to the adapter on the bottom. Do not twist solely from the middle or top because this can damage the welds below (between the 10" segment) and lead to possible bypass.*

- 1.4 Remove the bag from the cartridge.

#### 2. RINSING/WETTING

This step should be conducted with **pre-filtered water**, in the direction of filtration.

- 2.1 Open the vent valve on the upstream pressure gauge (on top of the housing) and partially close the outlet valve\* on the downstream (filtrate) side.
- 2.2 Fill the filter cartridge housing with water until water escapes from the vent valve. Then, close the vent valve and continue rinsing by completely opening the outlet valve.
- 2.3 Continue to wet the media by running ambient temperature water (in a loop to save water) through the housing for 5-20 minutes (depending on the number of cartridges). Make sure the housing is full, and all air is vented out by periodically opening the vent valve. If no water escapes from the vent valve when opened, the housing is not staying full.

Tip: To save time or where there isn't sufficient water velocity to keep the housing full during this process, partially close the outlet valve so that the outlet gauge registers < 5psi. Vent the top from time to time to release any trapped air.

- 2.4 Continue to sterilization or integrity testing.

\* If you are unable to adjust outlet pressure, conduct the rinsing/wetting process at a flow rate of 145 gal/m<sup>2</sup>/hour (88 gal/hr/10" segment) at a working  $\Delta p^{**}$  of 22 dpsi

\*\* (working  $\Delta p$  (dpsi) = inlet pressure - outlet pressure)

#### 3. STERILIZATION

The following sanitization procedures assume the rinsing/wetting step has just been performed and the housing is full of ambient temperature water.

- 3.1 Determine if sterilization will be achieved with steam or hot water.

Note: If steam and hot water are not available, cartridges may be chemically sanitized.

### 3.2 If sterilizing with **STEAM:**

- Drain the housing by opening all valves

Note: **Large, multiple round housings** may be drained faster by applying (oil- and water-free) compressed air or gas (max  $\Delta p = 0.3$  bar/4 psi) to the upstream side of the filter; water drains out on the downstream (filtrate) side through the sampling valve or runoff valve. Slightly open all valves on the cartridge housing during this process. Do not exceed the max  $\Delta p$  of 0.3 bar/4 psi because this may risk thermal warping during the steam sanitization. **Do not empty a single round housing with compressed air or gas.**

- Begin applying steam and wait for steam to escape from the filter outlet.

Note: Refer to the product tech sheet for pressure and temperature limits (typically, max  $\Delta p = 5$  dpsi).

- Continue the steam sterilization for 30 minutes after steam first escapes from the filter outlet. The best practice is to steam at 121°C/250°F for 20 minutes. You can safely steam for longer periods at a lower temperature. Steaming at the cartridge temperature limits will shorten the lifespan of the cartridges limiting multiple uses.
- Stop applying steam and close the inlet valve so that ambient temperature air isn't pulled in from outside the housing to create a vacuum.
- Then, either let the housing come to temperature naturally by keeping the inlet side closed and outlet valve open, or introduce filtered hot water to decrease media temperature slowly. This is critical to avoid warping the cartridge(s).
- After the setup has cooled, repeat the rinsing/wetting process from section 2.

### 3.3 If sterilizing with (pre-filtered) **HOT WATER:**

- Begin introducing 140°F-149°F water to the system to slowly raise the temperature of the cartridge. Continue this process until the temperature of water leaving the outlet is also 140°F-149°F.
- Begin the sanitization by introducing 185°F-194°F water. Continue this process until the temperature of water leaving the outlet is also 185°F-194°F.

Note: Refer to the product tech sheet for pressure and temperature limits (typically, max  $\Delta p = 5$  dpsi).

- Recirculate the hot water for 30 min once the temperature of water leaving the outlet has reached 185°F-194°F.
- Stop the recirculation of water and begin introducing incrementally colder water to decrease the media temperature slowly. **This is critical to avoid warping the cartridge(s).**

## 4. INTEGRITY TESTING

Perform an integrity test before and after each use to ensure that the filter cartridges will function and have functioned correctly. Please refer to the individual cartridge technical data sheet for bubble point and diffusion test values. (See [Pressure Hold Testing Instructions](#) or [Bubble Point Testing Instructions](#)).

**Before performing an integrity test**, ensure the following:

- The housing and the filter cartridge(s) have cooled down to the ambient temperature before performing an integrity test.
- The cartridge has been thoroughly wetted (by the process outlined in step 2).
- Upstream connections such as the valves and pressure gauge are completely leak-tight.

**If the system fails the integrity test** (pressure reading on the gauge drops by more than the allowable amount during the test time):

- The system might be leaking. Check the inlet and outlet valves, the pressure gauge/venting unit, and the O-ring at the bottom of the housing bell.
- The filter cartridges may not have been sufficiently wetted or rinsed. Repeat the process described in step 2 or conduct a power flush (also outlined in step 2).

- The cartridges may not have been correctly installed.
- The gaskets may not be in good condition (cracked or stretched).
- The gaskets may not be in the correct positions.

## 5. FILTRATION

Once the cartridge has passed the integrity test, it is ready to use for filtration. Completely vent the housing at the beginning of filtration by slightly opening the vent valve. Venting is complete when water flows from the vent valve.

*Note: Scott Laboratories sizes membrane filters, so that standard flow rates generate a working  $\Delta p^*$  of 5-7 dpsi for the majority of the run. At 20 dpsi, flow rates are significantly reduced. At 30 dpsi, little to no filtrate would be observed on the outlet side. Max pressure of the media is usually 73 dpsi at 68°F.*

\* working  $\Delta p$  (dpsi) = inlet pressure - outlet pressure

## 6. REGENERATION

### WHEN TO REGENERATE

- Perform a **warm water regeneration** before the working  $\Delta p$  during filtration reaches 14.5 dpsi. If that doesn't lower the working  $\Delta p$ , try a **chemical regeneration**. If a chemical regeneration also doesn't lower the working  $\Delta p$ , the cartridge may need to be replaced.
- At the very least, perform a **warm water regeneration** prior to storing cartridges for later re-use. Consider performing a **chemical regeneration**.

### WARM WATER REGENERATION

Note: regeneration should be performed in the direction of filtration. All water used for regeneration should be pre-filtered.

1. Assuming the housing and cartridge are full of product, empty the housing and lines by applying gas to the inlet valve.
2. Flush out residual product in the direction of filtration with ambient temperature water until water runs clear on the outlet side. For multiple-round cartridge housings, consider bringing up the back pressure slightly (<5 psi) to force product out faster.
3. Begin introducing 100°F-140°F water to the system to slowly raise the temperature of the cartridge. Continue this process until the temperature of water leaving the outlet is also 100°F-140°F.
4. Recirculate the hot water for 15 min.
5. Proceed with filtration after the cartridge has been properly cooled, or conduct a heat sanitization step if desired (see section 3)

### ALKALINE/CHEMICAL REGENERATION

Note: regeneration should be performed in the direction of filtration. All water used for regeneration or preparation of chemicals should be pre-filtered.

1. If the housing and cartridge are full of product, empty the housing by applying gas to the inlet valve. Flush out residual product in the direction of filtration with ambient temperature until water runs clear on the outlet side. For multiple-round cartridge housings, consider bringing up the back pressure slightly (< 5psi) to force product out faster.
2. Begin introducing the prepared cleaner to the filter inlet valve (Either 2% NaOH or KOH at 140°F-149°F OR AIRD Destainex-LF at 104°F-140°F)
3. Recirculate the cleaner for 30 min
4. Neutralize appropriately based on the cleaner used



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## 7. CHANGING THE FILTER CARTRIDGES

**The filter cartridges are spent and must be changed in the following cases:**

- If the maximum differential pressure (73 psi) has been attained.
- The flow rate cannot be improved even after regeneration (chemical regeneration can be done before reaching 20 dpsl).

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### VIDEO PROTOCOL

For a video explanation of these steps, [click here](#).

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### PRODUCT TRACEABILITY/LABELING

Part and lot information for ScottCart and ScottCart Aqua cartridges are laser etched on the filter (select SKUs) and/or printed – usually on both the inner and outer packaging labels. These identifying numbers allow full product traceability back to raw material lot numbers. The date the filter was manufactured and sealed in the bag is shown on the bag label (select SKUs).

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### LIABILITY

The filter cartridges manufacturer shall not assume liability for defects or damage resulting from improper handling of membrane filter cartridges. In particular, if the user does not follow these directions for use, the filter cartridges will be considered improperly handled. In the interest of further development of the products, we reserve the right to make changes to the specifications of these products without notice.