Allegheny Bradford Corporation ships filter housings fully assembled including dome to base closure with seal and (1) set of spare seals. Carefully unpack and check each item received against the packing slip. Unless otherwise noted in your quotation, accessories such as clamps, gaskets, vent valves, and pressure gauges are not normally included.

For details relating to specific housings, please refer to your Allegheny Bradford quotation and final Record Drawing.

NOTE: DO NOT DISCARD ANY PACKING MATERIAL UNTIL THE HOUSING AND FILTER ARE INSTALLED AND OPERATING PROPERLY.

WARNING: TO AVOID SERIOUS INJURY DO NOT OPERATE FILTER HOUSINGS ABOVE THE MAXIMUM OPERATING CONDITIONS

The following lists standard operating pressure and temperature for specific housings. However, many housings are custom designed per specifications provided by our customers, therefore for the maximum operating pressure the record drawing or ASME code data provided with your housing should be consulted along with the stainless steel equipment tag or etching affixed to the Housing.

**Standard Design Pressure**

- 4” diameter housings with heavy duty clamp with wing nut:
  - 150 psig @ 250° Fahrenheit (10 bar @ 121° Celsius)
- 4” diameter ASME Code housing with 4-bolt high-pressure clamp:
  - 150 psig @ 350° Fahrenheit (10 bar @ 149° Celsius)
- 8” to 14 ¾” diameter housing with swingclamp or swingbolt closure:
  - 150 psig @ 350° Fahrenheit (10 bar @ 149° Celsius)

Steam-in-place sterilization requires full steam penetration onto all internal surfaces of the housing. The housing dome must have an appropriate valve installed that remains slightly open during the steam cycle to ensure proper steam penetration into the vent port.

Housings should be installed to provide sufficient overhead clearance for installing and removing the filter element. (Split-dome housings can be provided for installation with limited clearance).

<table>
<thead>
<tr>
<th>Cartridge Length</th>
<th>Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>10”</td>
<td>30” (762 mm)</td>
</tr>
<tr>
<td>20”</td>
<td>49” (1244.60mm)</td>
</tr>
<tr>
<td>30”</td>
<td>69” (1752.60 mm)</td>
</tr>
<tr>
<td>40”</td>
<td>88” (2235.20 mm)</td>
</tr>
</tbody>
</table>
For custom designed housings, consult your record drawing for dome height (double the dome height + 10” for an approximate clearance distance).

Refer to your record drawing for inlet/outlet, vent, drain, and gauge port size and style.

If a gauge port is provided in the top of the housing dome, attach a pressure gauge. Normally the gauge port is a 1 ½” sanitary connection (see your record drawing) for which an appropriate clamp and gasket should be used to attach the pressure gauge. For non-sanitary designs a threaded connection may be provided.

The housing normally comes with the o-rings installed. In addition, a complete set of spare o-rings and gaskets (if appropriate) comes with each Housing.

**Disassembling the Filter Housing**
1. Loosen the closure bolts and move the swingclamps (or swingbolts) from their respective flange slots or remove the housing clamp. Refer to your record drawing for closure details for your specific housing.

2. Remove the dome from the manifold or socket-base.

**Installing locking Filter Elements**
1. Wet the filter element o-rings with water using the highest quality water available at your facility.

2. Install the filter element into cartridge plate by applying a simultaneous inward force and twisting motion until element is fully seated per element manufacturer installation instructions.

**Assembling the locking-element Filter Housing**
1. Install the positioning plate by simply placing it so each element protrudes through the holes in the plate. (When installed, the plate will be held in place by the dome).

2. Make certain the housing dome-to-cartridge-plate and base-to-cartridge-plate o-rings or gaskets are properly seated in the base and cartridge-plate grooves.

3. Carefully replace the housing dome and secure it with the swingclamps, swingbolts, bolts or clamp. (Refer to your record drawing for specific closure design for your housing).

4. Hand-tighten bolted closures. Tighten two or four-piece clamps in a cross pattern to ensure uniform sealing.

5. Hand-tighten bolted closures. Tighten in a cross pattern to ensure uniform sealing.

6. Tighten an additional ¾” turn using a wrench, or tighten to approximately 40 ft/lbs when using a torque wrench.

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*To avoid possible false pressure readings, always use 1 ½” gaskets and not 1” gaskets.

**Exceeding 40 ft/lbs could potentially result in galled bolting.*
Start-up, Filling and Draining the Housing

1. The filter element must be fully wetted for integrity testing and use. (Refer to your filter element manufacturer’s instructions for specific wetting solution and proper procedures).

2. Open the vent fully before introducing flow to the unit.

3. Open the inlet valve slowly to begin filling the housing with liquid.
   
   a. **CAUTION:** OPENING THE INLET VALVE TOO QUICKLY WILL FORCE LIQUID THROUGH THE VENT.
   
   b. When the housing is full, liquid will flow from the vent.

4. Direct the flow of liquid from the vent by attaching tubing from the vent to an appropriate container, drain, or by covering the vent with a beaker.

5. Close the vent tightly when a steady stream of liquid flows from the vent.

6. Make provisions to ensure that the outlet flow is properly directed. Liquid may also flow from the filter outlet.

7. Slowly open the housing vents and drains to relieve pressure and to drain the housing under the following conditions:
   
   a. At the end of a run
   
   b. Before opening the unit for cleaning or for changing the filter elements.

8. If drains are not integral to your housing design, drain the liquid remaining in the housing through a tee installed in both the inlet and outlet piping.
MAINTENANCE

Allegheny Bradford recommends using a preventative maintenance schedule for replacing seals. At a minimum, periodically inspect all o-ring and gasket seals as part of your cleaning and maintenance procedure.

Cleaning or Changing Seals

Cleaning or replacing the o-ring or gasket requires complete disassembly of the housing.

Your housing may consist of the following major components and seals (consult your record drawing for exact details of your specific housing).

1. Sanitary multi-element **Universal** T-Line or Inline Filter Housings:
   a. Dome. Normally one-piece but may be a 2 or 3-piece design.
   b. Removable cartridge manifold.
   c. Base. With collection chamber.
   d. Positioning plate. Designs utilizing non-locking elements will also have tie-rods with wing nuts.
   e. Two base-to-dome o-rings.
   f. Two inlet adapter o-rings

2. Sanitary multi-element **Opti-Clean** T-Line or Inline Filter Housings.
   a. Dome. Normally one-piece but may be a 2 or 3-piece design.
   b. Base with machined sockets.
   c. Positioning plate. Designs utilizing non-locking elements will also have tie-rods with wing nuts.
   d. One base-to-dome o-ring.

   a. Dome. Normally one-piece buy may be a two-piece design.
   b. Base with machined socket.
   c. One base-to-dome o-ring or gasket.
   d. Clamp.

I. Insure vent and drain valves are not directed toward operator. Verify that pressure is relieved before proceeding.

II. Slowly open the housing vents and drains to relieve pressure in the housing before disassembly.

III. Loosen the closure bolts, move the swing bolts out of their flange slots, or remove the housing clamp.

IV. Remove the dome from the housing base or manifold.

V. For Universal multi-element housings, remove the manifold from the housing base.
   i. Lift the manifold straight up while turning to free the manifold from the o-rings on the inlet adapter.
   ii. Multi-element housings have one large o-ring sealing the outer perimeter of the manifold to the base; single element housings have a single o-ring or gasket sealing the outer perimeter of the dome to the base.

VI. Remove all seals when the housing is fully disassembled.
VII. Inspect seals for cracks, splits or other defects. Replace any damaged seals.
   i. The life expectancy of seals varies depending on usage conditions such as type of product, temperature, and pressure.

**Cleaning Stainless Steel Housings**

Harsh abrasives, steel wool, or scouring pads can damage the sanitary finish by pitting or scratching the stainless steel and allowing corrosion to begin. Scoring the surface with create a non-sanitary surface.

**General Cleaning Instruction**

- Clean stainless steel housings with a non-abrasive lab cleaner
- For stubborn stains, scale or rust, use an appropriate cleaning solution that will not corrode or scratch stainless steel. Use your cleaning solution in accordance with the manufacturers directions. Allegheny Bradford can also supply mechanical polishing, passivation and electropolishing services in the event such services are deemed necessary. Please call Customer Service at 800-542-0650.
- Use a soft cloth or brush.
- After cleaning, rinse thoroughly with tap water followed by a deionized water rinse to prevent water spots.
- When air drying, position the housing to prevent water pooling.