Ventless Boiler Blowoff Tank
Model BTANK-10-C
Instruction Manual
Read this manual before installing and using this product. Failure to do so can result in serious injury or death.

You have just purchased a quality boiler blowoff tank designed to the ASME Boiler Code and registered with the National Board of Boiler Inspectors. Treat this industrial equipment with care and respect. It is safe when installed, maintained, and used properly. Read the instruction carefully and contact the factory if you have any questions.

This manual contains safety messages. Each of the safety messages are preceded by one of the following signal word panels:

- **DANGER**: Safety messages preceded by this label contain information, that if not followed will result in death or serious injury.
- **WARNING**: Safety messages preceded by this label contain information, that if not followed could result in death or serious injury.
- **CAUTION**: Safety messages preceded by this label contain information, that if not followed could result in minor or moderate injury.
- **NOTICE**: Messages preceded by this label contain important information, but are not hazard-related.

Important Safety Information

1. **GAUGE GLASS**: The gauge glass protector guards must be on at all times. When replacing the glass, be sure that the unit is not under pressure and is cool to touch. The gauge glass should be replaced once per year. If cracks or wear is evident, replace the gauge glass immediately.

2. **MODIFICATION/MISUSE**: This pressure tank has been designed and constructed in accordance with the ASME Boiler Code. Any modification or misuse can result in a dangerous situation. Reimers Electra Steam, Inc. is not liable for any product that has been modified or improperly used.

3. **REGISTRATION**: Most states and cities require boiler registration and inspection. Check with your government authorities.

4. **INSTALLATION AND REPAIR**: Installation and repair work of this unit must be performed only by experienced personnel. Before commencing a repair, ensure that the blowoff tank (may be referred to as a blowoff vessel) is cold and not pressurized. All standard steam safety precautions must be taken during testing.

5. **SAFETY VALVE**: The safety valve is designed to discharge hot steam when the set pressure is exceeded. Ensure that the discharge port is pointing toward the back of the unit away from the operator or any aisles. Test the safety valve periodically to ensure that it is operating properly. Test carefully at full pressure by lifting lever using pliers and “slapping” shut. Steam discharge can scald. Ensure no one is exposed.

6. **STEAM INSTALLATION**: Steam piping must be of black pipe, not galvanized. Work must be done by an experienced steam fitter. All state and local codes must be met as applicable.

Ensure that this manual is available to the boiler operator at any time.

Read carefully all safety labels attached to the boiler. If any safety label was damaged during shipment, contact the factory immediately:

Ph. 540-662-3811; e-mail: sales@reimersinc.com
General Information

All boilers must be blown off periodically to remove minerals, scale and other foreign matter, which accumulate inside the pressure tank. The concentration of this deposit depends in part upon the condition of the water in the area. Water softeners are suggested in hard water areas to minimize the formation of hard scale on heating elements. Another factor affecting water condition is the amount of condensate, if any, that is being returned to the boiler. Since condensate is essentially clean distilled water, it contains very few impurities. If a large part of the condensate is being returned and little make-up water is used, the boiler need not be blown down as often as when little or no condensate is returned to the boiler. We recommend blowoff of newly installed steam boilers once per day until the first heating element and pressure tank inspection is performed (refer to boiler instruction manual). If no significant amount of sediment is found at the bottom of the boiler pressure tank and on the heating element sheaths, then the boiler blowoff frequency can be reduced accordingly. The safest method to blowoff RB- and AR-series electric steam boilers is to install a Reimers Electra Steam, Inc. properly sized and fully trimmed blowdown tank, either ventless model BTANK-10-C or vented model BTANK-10. Reimers blowdown tanks comply with the National Board NB-27 document; are designed & constructed to Section VIII, Division I of the A.S.M.E. Code, and are inspected by a commissioned National Board Boiler inspector.

1. Installation
   a. Place the Tank ensuring sufficient clearance from other equipment to allow tank draining, cleaning, and service.
   b. Pipe the Blowoff Tank Drain Valve (1) and Blowoff Tank Vacuum Breaker Valve (1A) to a compliant safe discharge point preventing contact with persons.
   c. Confirm the boiler’s control features then pipe boiler to tank per FIGURE1, FIGURE2 or FIGURE3. Piping and pipe fittings (3) shall be of steel and 3/4” in size.
   d. Regardless of piping FIGURE used install a Blowoff Piping Drain Valve (4) in lower horizontal portion of blowoff piping. The ball valve shall be a pad lockable handle type. Ensure valve is closed and locked.
   e. Pipe discharge of Blowoff Tank Safety Relief Valve (2) and Blowoff Piping Drain Valve (4) to compliant safe discharge points preventing contact with persons should hot water or steam be released from them.

2. Operation

2.1 Manual Blowoff Procedure

Perform a manual boiler blowoff by following the steps below:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure that the blowoff tank is empty. No water should be visible in the Gauge Glass (6). If water is visible in the gauge glass proceed to Step 11.</td>
</tr>
<tr>
<td>2</td>
<td>Ensure that the Blowoff Piping Drain Valve (4) is closed.</td>
</tr>
<tr>
<td>3</td>
<td>Ensure that the Blowoff Tank Drain Valve (1), and Vacuum Break Valve (1A) are closed</td>
</tr>
<tr>
<td>4</td>
<td>Ensure that the boiler steam pressure is between 5 – 85psig.</td>
</tr>
<tr>
<td>5</td>
<td>Open the Blowoff Tank Shutoff Valve (7)</td>
</tr>
<tr>
<td>6</td>
<td>Close the Blowoff Tank Shutoff Valve (7).</td>
</tr>
<tr>
<td>7</td>
<td>Close the Boiler Controller Power Switch (10) to the OFF-position</td>
</tr>
<tr>
<td>8</td>
<td>Close the Blowoff Tank Shutoff Valve (7).</td>
</tr>
<tr>
<td>9</td>
<td>Open the Blowoff Tank Shutoff Valve (7)</td>
</tr>
<tr>
<td>10</td>
<td>Turn the Boiler Controller Power Switch (10) to the ON-position. The boiler is ready now to resume normal operation.</td>
</tr>
<tr>
<td>11</td>
<td>Wait until the Pressure/Temperature Gauge (5) indicates a temperature lower than 140°F and 5 psi. This may take several hours.</td>
</tr>
<tr>
<td>12</td>
<td>Ensure that the Boiler Blowoff Valve (8) is closed then open Blowoff Piping Drain Valve (4) and Blowoff Tank Shutoff Valve (7).</td>
</tr>
<tr>
<td>13</td>
<td>Slowly open the Blowoff Tank Drain Valve (1) and Blowoff Tank Vacuum Breaker Valve (1A). Allow all water to drain from tank (observe Gauge Glass (6).</td>
</tr>
<tr>
<td>14</td>
<td>Release valves (1) and (1A) and confirm they return to closed position.</td>
</tr>
<tr>
<td>15</td>
<td>Close the Blowoff Piping Drain Valve (4) and Blowoff Tank Shutoff Valve (7).</td>
</tr>
</tbody>
</table>

2.2 Pressure Triggered (Automatic Flush & Drain Unit OPT1016) Automatic Blowoff Procedure

Before performing a boiler blowoff, ensure the blowoff tank drain line is properly installed and the Blowoff Piping Drain Valve (4) is closed.

Before performing a boiler blowoff, ensure that the blowoff tank is properly installed and the Blowoff Piping Drain Valve is closed.
This method of automatic boiler blowoff is intended for non-24/7 boiler applications in which the boiler is turned off over night or for an extended period of time during daytime.

The basic concept of this boiler blowoff method is to turn OFF the boiler and close the steam outlet valve (9). The steam pressure in the boiler drops due to heat losses. As soon as the steam pressure in the boiler reaches a preset value, the Automatic Flush & Drain Unit (12) opens the motorized ball valve for a preset time during which the blowoff occurs. At the end of the blowoff cycle, the motorized ball valve closes. After turning ON the steam boiler for operation, the boiler controller performs a boiler blowoff monitoring procedure. If not sufficient water was blown off the boiler, the boiler controller will indicate this with a flashing “1” in its display (Please refer to the boiler instruction manual for details).

Perform a pressure triggered automatic boiler blowoff by following the steps below:

**Step** | **Action**
---|---
1 | Ensure that the blowoff tank is empty. No water should be visible in the gauge glass (6). If water is visible in the gauge glass, then proceed to Step 11.
2 | Ensure that the Blowoff Piping Drain Valve (4) is closed.
3 | Ensure that the Blowoff Tank Drain Valve (1) and Vacuum Break Valve (1A) are closed.
4 | Ensure that the boiler steam pressure is between 5 and 85psig.
5 | Close the Boiler Steam Outlet Valve (9).
6 | Open the Blowoff Tank Shutoff Valve (7) and the Blowoff Piping Shutoff Valve (12).
7 | Turn the Blowoff Enable Switch (11) to the ENABLE-position.
8 | Turn the Boiler Controller Power Switch to the OFF-position.
9 | As soon as the boiler steam pressure reaches the Automatic Flush & Drain Unit preset value, the Motorized Boiler Blowoff Valve (8) opens for a preset time and the boiler blowoff occurs.
10 | As soon as the steam boiler is needed for operation, turn the Boiler Controller Power Switch (10) to the ON-position. The boiler is ready now to resume normal operation.

**NOTICE**

- The following steps must be done manually after each automatic boiler blowoff:
  11 Wait until the Pressure/Temperature Gauge (5) indicates a temperature lower than 140°F and 5 psi. This may take several hours.
  12 Close the Blowoff Piping Shutoff Valve (12), slowly open the Blowoff Piping Drain Valve (4) and then the Blowoff Tank Shutoff Valve (7).
  13 Open the Blowoff Tank Drain Valve (1) and Vacuum Break Valve (1A) at the same time.
  14 When all water is drained from the Tank release the valve’s spring return handles and confirm they return to the closed-position.
  15 Close the Blowoff Piping Drain Valve (4) and Blowoff Tank Shutoff Valve (7).

### 2.3 Timer Triggered (OPT1001) Automatic Blowoff Procedure

**CAUTION**

Before performing a boiler blowoff, ensure that the blowoff tank is properly installed and the Blowoff Piping Drain Valve is closed.

This method of automatic boiler blowoff is intended for 24/7 boiler operation in which the boiler can only be turned OFF for a short period of time for blowoff. A Digital Timer (13) with preprogrammed boiler blowoff time and blowoff duration controls the opening and closing of the Motorized Boiler Blowoff Valve (8). In addition, the digital timer also turns OFF the boiler control circuit during boiler blowoff so that the boiler can automatically refill and resume operation after completion of the blowoff procedure.
Step | Action
--- | ---
1 | Ensure that the blowoff tank is empty. No water should be visible in the gauge glass (6). If water is visible in the gauge glass, then proceed to Step 7.
2 | Ensure that the Blowoff Piping Drain Valve (4) is closed.
3 | Ensure that the Blowoff Tank Drain Valve (1) is closed.
4 | If not open yet, open the Blowoff Tank Shutoff Valve (7) and the Blowoff Piping Shutoff Valve (12).
5 | Turn the Blowoff Enable Switch (11) to the ENABLE-position.
6 | As soon as the Digital Timer (11) reaches the preset time, the Motorized Ball Valve (8) opens for a preset time and the boiler blowoff occurs.

**NOTICE**

The following steps must be done manually after each automatic boiler blowoff:

7 | Wait until the Pressure/Temperature Gauge (5) indicates a temperature lower than 140°F and 5 psi. This may take several hours.
8 | Close the Blowoff Piping Shutoff Valve (12) and slowly open the Blowoff Piping Drain Valve (4) then open Blowoff Tank Shutoff Valve (7).
9 | Slowly open the Blowoff Tank Drain Valve (1) and Vacuum Break Valve (1A) at the same time and drain all water from the tank.
10 | Release the spring return handle of the Blowoff Tank Drain Valve (1) and Vacuum Break Valve (1A) and confirm they move to the closed-position.
11 | Close the Blowoff Piping Drain Valve (4) and Blowoff Tank Shutoff Valve (7).

### 3. Maintenance

Before performing maintenance work, ensure that the blowoff tank is not pressurized, cold, and drained and that the Boiler Blowoff Valve and Blowoff Tank Shutoff Valves are closed.

The boiler water blown into the blowoff tank contains a high concentration of sediments that accumulate at the bottom of the tank. These sediments must be removed periodically.

Clean the blowoff tank by performing the steps below:

Step | Action
--- | ---
1 | Close the Boiler Blowoff Valve (8) or if a Motorized Ball Valve (8) is installed, close the Blowoff Piping Shutoff Valve (12).
2 | Remove the Cleanout Plug (14) from near the bottom of the blowoff tank.
3 | Use a scraper to remove the sludge from the blowoff tank. Do not damage the threads of the cleanout opening. Clean debris from threads of the opening.
4 | Apply pipe sealing tape or dope to the cleanout plug, hand screw the plug in to the port threads and tighten plug with a wrench.

![FIGURE 4](image)

### Replacement Part List

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 1A</td>
<td>05286</td>
<td>BALL VALVE 1/2&quot; BRONZE SPRING RETURN</td>
</tr>
<tr>
<td>2</td>
<td>05234</td>
<td>SAFETY RELIEF VALVE 100#, ASME SEC. VIII</td>
</tr>
<tr>
<td>5</td>
<td>02385</td>
<td>TEMPERATURE/PRESSURE GAUGE (TRI-O-METER)</td>
</tr>
<tr>
<td>6</td>
<td>02002</td>
<td>GAUGE GLASS 0.625 X 12.25&quot; PYREX</td>
</tr>
<tr>
<td>7</td>
<td>02514</td>
<td>WATER GAUGE SET STANDARD SHANK ½&quot; NPT</td>
</tr>
<tr>
<td>7</td>
<td>02514</td>
<td>BALL VALVE 3/4&quot; NPT BRONZE</td>
</tr>
</tbody>
</table>