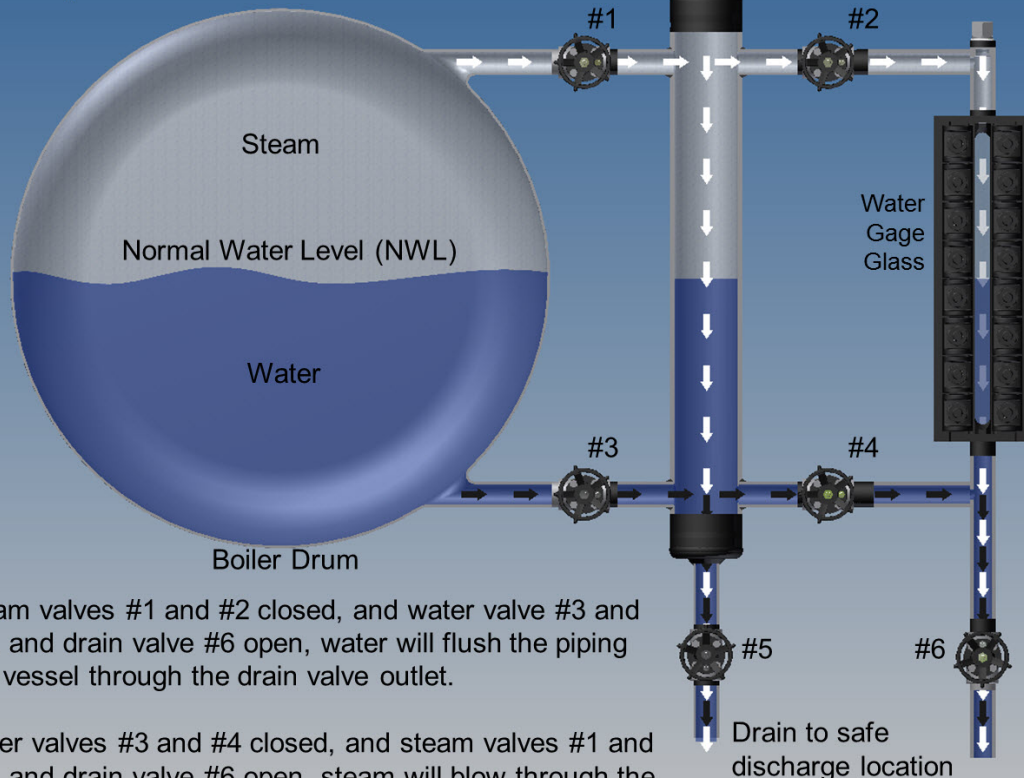


Recommended Blowdown Procedure

Isolation valves between the drum and water column (#1 and #3) are optional by code; but when installed must be locked open under normal operating conditions.



Notes:

- 1) With steam valves #1 and #2 closed, and water valve #3 and #4 open, and drain valve #6 open, water will flush the piping from the vessel through the drain valve outlet.
- 2) With water valves #3 and #4 closed, and steam valves #1 and #2 open, and drain valve #6 open, steam will blow through the gage glass and the drain valve outlet.

Caution: Before proceeding, follow any and all plant lock out - tag out procedures required. Verify that all power is turned off to the probes. If under pressure, the equipment should be isolated, or the boiler should be shut down *before* proceeding with the installation. Open drain valve to eliminate any trapped pressure. Any trips or alarms connected to the controller should be bypassed. All inspection and installation steps should be performed by a qualified technician and should be executed in accordance with all applicable national and local codes.

The importance of proper cleaning and maintenance of the water column and the water gage glass, or sight glass, cannot be stressed enough. The water column must be kept clean to ensure the water level in the gage glass accurately represents the water level in the boiler. Note that the frequency and method of blow-down may affect service life and performance of the water column and gage glass.

The water gage glass on a boiler enables the operator to visually observe and verify the actual water level in the boiler. However, if not properly cleaned and maintained, a gage glass can seem to show that there is sufficient water, when the boiler is actually operating in a low or low water condition. A stain or coating can develop on the inside of the glass where it is in contact with boiling water. After a time, this stain gives the appearance of water in the boiler, especially when the glass is completely full or empty of water.

Users must consider proper blowdown procedures, in order to keep the water piping clean, even if the probes remain clean for extended operational periods. By simply opening the drain valve to conduct a blowdown, this does not ensure flow thru the water piping between the drum and the Electrolev, even when the water in the column is pushed out the drain connection with steam. The risk of blockage in the steam piping is low. The risk for sediment build-up in the water piping is greater. Therefore, period blowdowns are suggested on a quarterly to monthly basis. The frequency can be determined by the user and plant rules. The user may also consider their water quality as an influencing factor to determine the blowdown frequency. After performing the blow-down procedure, if the water level does not return to normal promptly, the connecting piping may be partially clogged and have to be cleaned.

Clark-Reliance suggests the following blow-down procedure:

1. Close both the steam and water valves between the boiler drum and the water column or water gage.
2. Open the drain valve fully on the bottom of the water column or water gage.

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3. To clean the water piping, slowly open the water valve (lower valve) to allow a flow of water to pass through the line and out the drain. This will flush the water line and help keep sediment from collecting and causing a blockage in the line.
4. Allow the water to flow through the line for 20 seconds.
5. Close the water (lower) valve.
6. Crack open the steam valve (upper shutoff valve) and allow a gentle rush of steam to pass through the probe column or water gage. The steam should not pass through for longer than 20 seconds.
7. Close the steam valve.
8. Inspect the water gage to insure that all foreign matter is flushed from the glass or mica. If the gage is not visually clean, repeat steps 6 and 7. If the gage glass is visually clean, close the steam valve.
9. Close the blow-down valve and open the steam and water valves, slowly bringing the equipment back to a normal operating level.
10. Water should enter the gage glass quickly when the blow-down valve is closed. This will indicate that the line flows freely.

Note:

1. Any trip or alarm circuits that are actuated by the equipment being blown-down must be bypassed to prevent false alarms during the blow-down process. Remove the bypass when the procedure is complete.
2. Blow-down should be conducted on a weekly basis, or as necessary, based on water quality.

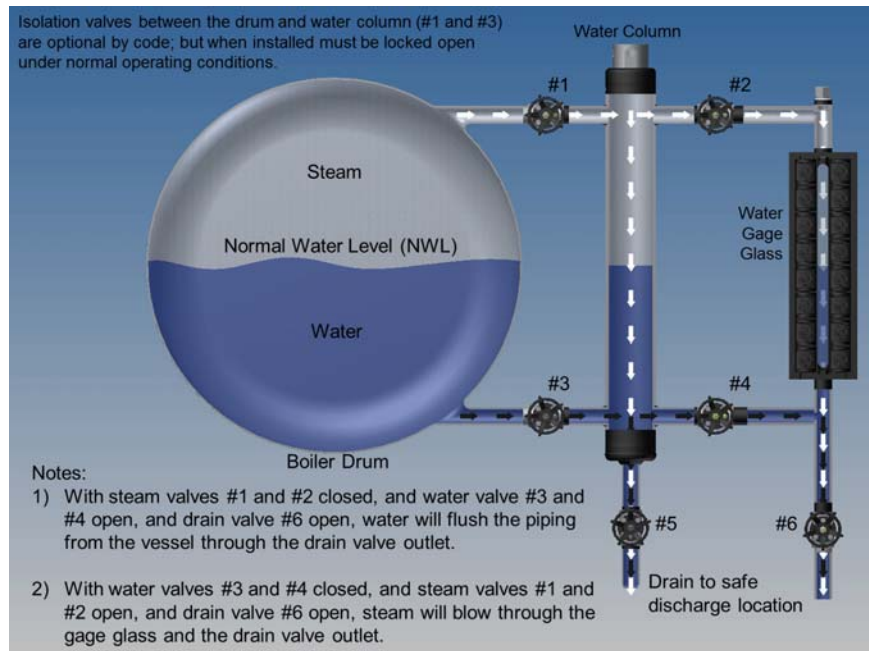


Figure. 1 Procedure for proper blowdown of a water column and gage glass

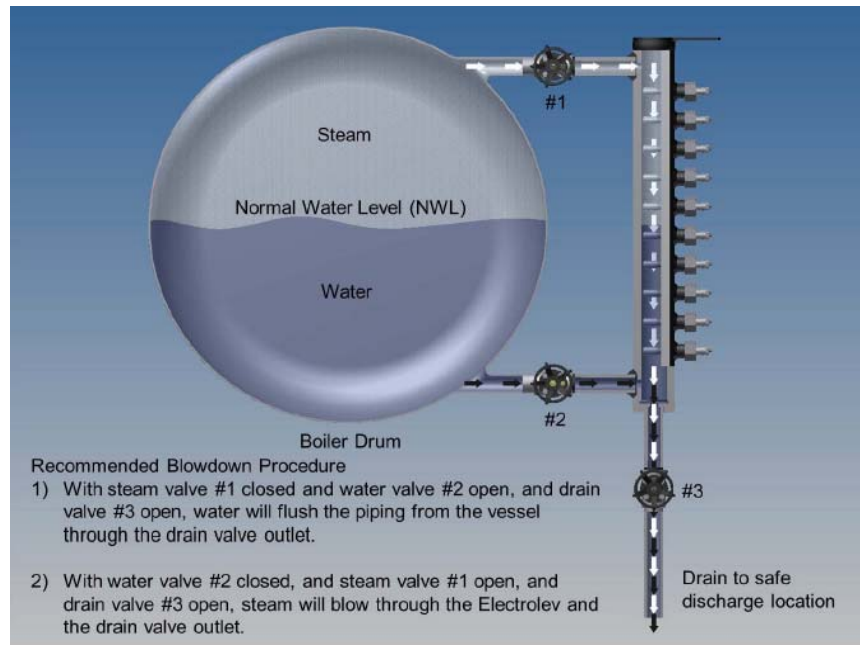


Figure. 2 Procedure for proper blowdown of an Electrolev column water column and gage glass

Visit our website RelianceBoilerTrim.com to view the video for Proper Blow Down Procedure.

Consult the factory or your local Clark-Reliance Representative with any questions. Please have the model numbers and/or reference drawing numbers available when calling. You can also contact us at our website www.relianceboilertrim.com or RelianceAppEng@clark-reliance.com.

Warning: If any equipment manufactured by Clark-Reliance is used in a manner not specified by Clark-Reliance, the protection provided by the equipment may be impaired. Only replacement parts manufactured by Clark-Reliance should be used to ensure safety and reliable operation

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