



# Armstrong Ball Float Drainers

## Installation and Maintenance

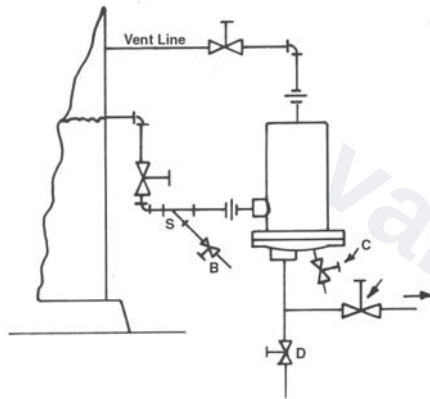
**Pipe Fitting.** Before hooking up drainers, clean the pipes carefully after cutting and threading. To clear the pipes of dirt, pipe cuttings and other foreign objects, blow-down the drainer connected to the system at full pressure.

**Strainers** are necessary if there is a chance that scale and sediment can be carried to the drainer.

**Blow-Down Valve, "C"** as shown in Figures 1 and 2 may also prove useful.

**Shut-off Valves and Unions** should be installed so the drainer can be examined and/or serviced without shutting down the unit being drained by the drainer.

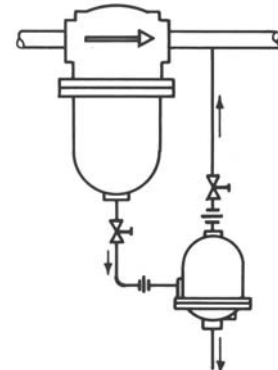
**Operation.** Maximum operating pressure is stamped on the drainer. Do not exceed this pressure.



**Figure 1.** Installation of ball float drainer for medium or heavy loads. Strainer blow-down valve "B" and drainer blow-down valve "C" are optional. Discharge line valve "D" not required if drainer discharges water to ground.



**Figure 2.** Installation of drainer when amount of liquid is small enough so liquid can flow to drainer countercurrent to gas displaced. Note: Drain line should be 3/4" minimum and kept as short as possible. A gate valve must be used.



**Figure 3.** Installation of drainer for separator applications where back venting is necessary. Notice that the drainer is vented to the downstream side of the separator.

### Testing Schedule:

A regular schedule should be set-up for drainer testing and preventative maintenance. Drainer size and operating pressure determine how frequently drainers should be checked. Drainers on normal industrial applications should be checked as follows:

- High pressure drainers - 250 lbs. and up.  
Check anywhere from daily to weekly.
- Medium pressure drainers - 60 to 250 lbs.  
Test weekly to monthly.
- Low pressure drainers - 1 to 60 lbs. Test monthly to annually.  
Large 1-1/4" to 2" drainer on high capacity applications can be tested more frequently to good advantage.

Drainers on gas and other critical applications should be checked at the same time valves and other line equipment are inspected. Your own experience will determine the required testing schedule.

### Troubleshooting:

#### A. Drainer Does Not Discharge

1. Insufficient liquid coming to drainer to permit discharge. Continue operation.
2. Drainer filled with dirt or sludge. Remove drainer cap and mechanism, clean thoroughly. Install strainer on inlet side of drainer.

1. Drainers must be located below the drain point.
2. Back venting is usually required.
  - a. Pressure vessels should be vented back to any convenient point above the liquid level.
  - b. Separators and drip points should be vented to the downstream side of the unit.
  - c. On very light loads, 20 lbs. per hour or less, venting is not necessary; but use at least a 3/4" connection between the vessel and the drainer.

Typical installations of liquid drainers are shown in Figures 1 thru 3.

3. Differential pressure across drainer too high. Check inlet and outlet pressure. If the difference exceeds the maximum pressure stamped on the drainer, the drainer will remain closed. Reduce differential pressure if possible, or install properly sized mechanism in drainer.
4. Worn valve seat. As the seat becomes worn, the seating area enlarges, lowering the drainer's maximum operating pressure. Replace with new mechanism.
5. Inlet or outlet valves closed. Open valves.
6. Strainer clogged. Clean strainer screen.
7. Float defective or collapsed. Replace float.

#### B. Drainer Discharges Continuously

1. If drainer discharges full stream of liquid continuously and vessel fills full of liquid:
  - a. Drainer too small for job. Replace with correct size.
  - b. Abnormal amounts of liquid coming to drainer. Remedy cause or replace with drainer that has a larger capacity and will handle peak loads.

#### C. Drainer Blow Through

1. Dirt or scale on valve or seat. Remove cap, clean drainer as well as valve and seat.
2. Worn valve or seat that is wire-drawn. Remove cap, replace mechanism.

In the event of any unusual maintenance or operational difficulty, consult your Armstrong representative or the Armstrong Steam and Condensate Group at Phone: (269) 273-1415.