

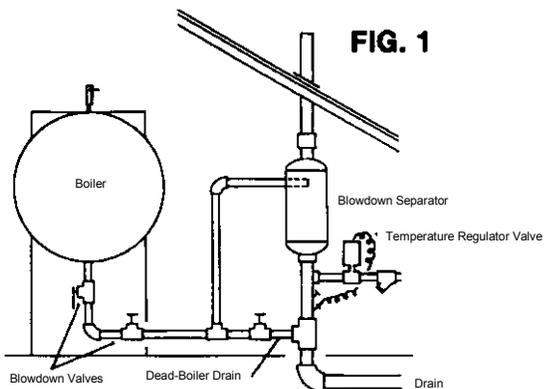
## INSTALLATION INSTRUCTIONS AND SYSTEMS FOR THE PENN BLOWDOWN SEPARATOR

Installation of the Penn Blowdown Separator is not complicated. However, proper installation is necessary and the following may suggest the system to use. The boiler, blowdown valves, and piping to and from the separator is shown as an example of the installation and would be provided by others.

The inlet should be piped from the boiler blowdown valves, using sch. 80 min. code rated materials. The piping pressure rating to the inlet should be rated to the design pressure of the boiler. A dead boiler drain should be provided off the inlet piping as shown.

The Penn Separator is an instantaneous separator, therefore drainage from the unit should be as fast as the blowdown flow is separated. The floor drain should be steel, cast iron, or concrete of the same size or larger than the separator drain and aftercooler. Drains should be sloped a minimum of 1' per 100'. More slope or larger size should be used on obstructed or angled drains.

The vent should also be as direct as possible to atmosphere to limit pressure drop. The same size pipe as the separator vent should be used. The vent should be extended above buildings, work areas, and personnel to a safe point of discharge. Flashing should be used when vent is through a composition roof.

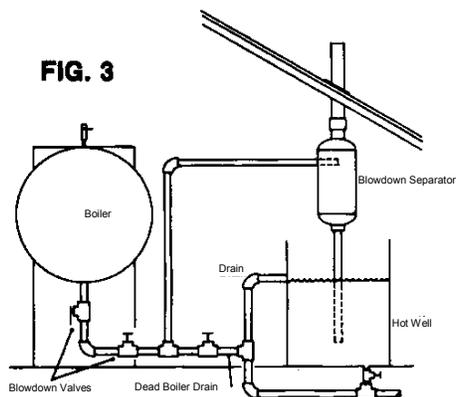
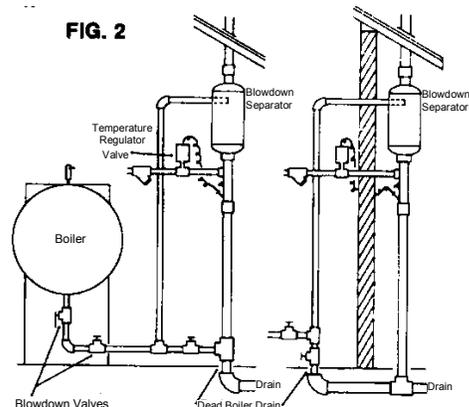


At the left shows the simplest and most practical installation since it provides ready drainage for most heating or process boilers. A dead boiler drain is also included. The boiler, piping, and blowdown valves would be provided by others.

Optional angle iron legs can be provided to support the separator off the floor. These legs vary in length depending on the size of drain and type of aftercooler used.

As an option water tempering may be added to the separator as shown. Our water tempering aftercooler package includes Aftercooler fitting, temperature regulator valve, strainer and bi-metal thermometer. A check valve and pressure reducing valve, "not shown" could also be provided as an option. Cooling water pressure to the valve should be limited to 60 psig. See our additional instructions B-2 for the aftercooler fitting installation and PS Series brochure for temperature regulator valve.

Elevated installations, right may be used where boiler room floor space is at a premium. Another space saving installation would be an outside installation. This has become a more popular installation because "under roof" space is not consumed. The installation can be off the ground as shown above or an elevated installation show to the right. Being a self-draining separator there is not chance of freezing. The temperature regulator valve should be located indoors and the bulb and capillary protected from freezing. Wall mounting brackets can be supplied as an option for wall mounted installations.



Localities requiring storage tempering may use a blowdown separator only if discharged to a holding device such as an open, closed but vented, slotted or grid top receiver. The receiver should be capable of holding accumulation of two blowdowns. Manual drain or a siphon drain may be used on the receiver. The siphon drain turn should be located at the top of the first blowdown level. The separator should be located at a sufficient height so that additional blowdown mixes well with the cooled blowdown being held in the receiver. A manual drain should always be provided on the receiver for periodic cleaning.

Local regulations prevail at all times. Check for local regulations and your insurance agency concerning the use and installation of Blowdown Separators for additional requirements. Welding on an ASME Code pressure vessel require a certified welder who carries the appropriate stamp required for the procedure. These separators handle hot steam and condensate. Caution should be used when working on or around these pressure vessels. Should there be additional questions concerning blowdown separator systems or installation, either our sales representative or the factory would be pleased to help. Please provide a sketch when submitting problems.

## **OPERATION and MAINTENANCE INSTRUCTIONS PENN BLOWDOWN SEPARATORS**

The Penn Separator is an integrally welded unit with no removable or replaceable parts. The only maintenance required on the separator would be to keep the vessel exterior clean and free of rust.

Normal Boiler Blowdown procedures as recommended by the boiler manufacture should be used as the operating procedure for the separator.

To minimize shock and water hammer when opening the blowdown valve the first time it should be opened slowly to allow the blowdown line and separator to warm. This can also help cooling water mixing to start.

Refer to Page B-2 Installation and Operation Instructions for Penn Aftercoolers for separators with drain water cooling accessories.

Since the Separator is self-draining - self-drying there are no other instructions - Just the normal Boiler Blowdown procedure.