INSTALLATION AND OPERATION INSTRUCTIONS

INLINE ENTRAINMENT SEPARATORS

The Penn Inline Entrainment Separators are designed to give maximum separation when installed in an air, steam, or gas line. For maximum separation the line on which the separator is installed should be adapted to the size of the inlet and outlet connections on the separator.

The Separator works by centrifugal force. The angled inlet throws the entrainment to the outside walls where it fall and collects in the bottom of the unit. A drainage coupling is provided for removal of the entrainment. This action also causes a low pressure vortex area to the center of the unit. The clean flow follows this vortex to the outlet of the unit.

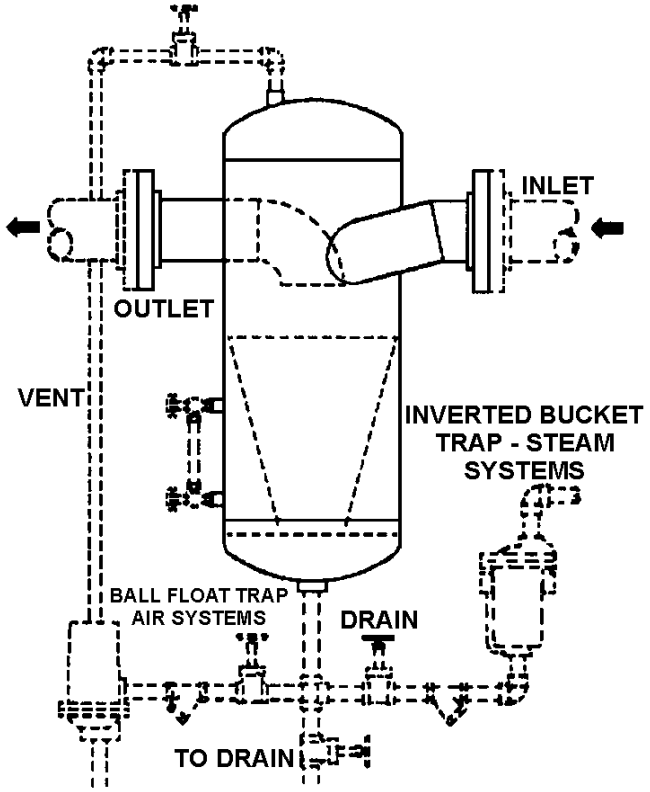
Installation and piping are simplified by Penn Separators because all Separators are inline type. It is only necessary to allow for the inlet and outlet distance given for the specific Separator chosen.

Install the separator in the air, steam or gas line so the flow enters the separator inlet going into the side of the separator on an tangent and goes out the outlet which comes straight out the side of the unit, supporting the unit and piping as required. The drain through which the entrainment is removed is located on the bottom of the separator. This line should have a suitable trap so that the entrainment can be removed but the flowing gas remains in the system. The trap and accessories shown are optional items.

TRAPPING THE SEPARATOR—ON STEAM SYSTEMS
Inverted bucket traps work very well. The trap should be adequately sized for the actual entrainment or an estimated maximum 12% entrainment in the system. The most critical point for discharging the entrainment is during start up. To compensate for proper drainage a safety factor of 2-3 times should be used. Penn Brochure page C-7, D-7 shows a trap selector chart for most applications. The pressure rating on the trap should be checked to comply with the separator requirements. The trap should be located below the separator drain.

TRAPPING THE SEPARATOR—ON AIR SYSTEMS
Where no oil is present a ball float trap should be used for there is no air loss through this type of trap. The trap should be located as close as possible to the separator. Select the trap for air using 5% moisture by weight and a safety factor of 2-3 times. As shown we would recommend the trap be back vented. This is to insure proper operation of the trap. To protect against grit hanging up in the trap seating, all the lines should be blown down before installation of the trap. In addition a strainer can be used up stream of the trap.

Where oil is present an inverted bucker trap such as the Armstrong No. 213BVSW should be used. A smaller trap than this would become air bound. There is a small amount of air loss in this type of application, but the dependability of the trap on oil air mixtures justifies its use. The inverted bucket trap must be primed by filling it with water before the air is turned on. As above the trap should be installed as close to the unit as possible, and be located below the separator drain.



All Separators are constructed and stamped ASME Code for maximum allowable working pressure. This information is stamped on the nameplate of the unit. Any installations where the pressure could be greater than the separator rating, a safety relief valve suitable stamped should be used to protect the Separator.

It is recommended that inlet and outlet supports be used on smaller units, and that on large units (6” and larger) the inlet and outlet supports be used in addition to a central hanger support.

Warning: Entrainment Separators can contain high pressures and hot condensate. Caution should be used when working around these vessels.