

## Pneumatic No Air Loss Drain

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### PNLD 52 Operation

Condensate from an intercooler, aftercooler, air receiver, dryer, drip leg or any other low spot in the compressed air system of not more than 200 PSIG is directed to either the upper inlet (H), or the lower inlet (J) of the drain reservoir. A pressure differential line must be run from the top center port of the drain to a point immediately downstream of the point of drainage. This avoids a buildup of head pressure as the drain fills and allows for smooth flow of condensate into and out of the drain. The lowest point of the vessel being drained must be no lower than the upper condensate inlet (H) of the drain.

As the condensate level rises in the reservoir of the drain, the internal float (A) rises. When the accumulated condensate reaches a quantity of 52 ounces, the position of the actuating linkage (D) moves from being vertically aligned to slightly angular. This lowers the Viton plug (E) away from the pilot air nozzle, allowing 55 PSIG (minimum) compressed air to enter the actuating chamber and flow through to the articulating actuator. Under air pressure, the shaft of the actuator extends, opening the ½" discharge ball valve (G), allowing the condensate to exit.

As the condensate exits, the internal float (A) drops, following the level in the reservoir. As the level reaches approximately 10 ounces, the actuating arm (C) rotates counterclockwise, returning the linkage from its angular position to vertically aligned, thus plugging the pilot air nozzle, stopping

the flow of compressed air to the actuator. A relief port (F) located at the top of the actuator assembly allows compressed air trapped behind the actuator's piston to escape. With no air pressure to maintain the actuator in the extended position, the spring (internal to the actuator) returns the shaft to its original position, closing the discharge ball valve (G). The drain is now prepared for the next cycle.

Pilot air pressure should be clean, dry air (the unit also filters the pilot air prior to entry to the actuating chamber). It must be between 55 and 120 PSIG to assure proper, long-term operation. In order to assure that it is clean and dry, the pilot air should ideally come from an instrument air source. In the event that instrument air is not available, plant air can be used. However the pilot air filter should, in this case, be checked frequently and replaced as necessary. During the entire operation, reservoir air pressure and pilot air are isolated from each other, thus it is not necessary that they come from the same source, nor that they be the same pressure.