

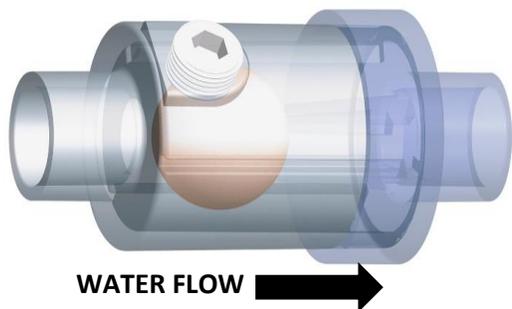
## NOTE: WATER FLOW IN DIRECTION OF ARROWHEAD ►

# Installation, Operation, and Maintenance Manual for Waterless Trap

**HVAC Air-Trap™**

**N-SERIES**

**Negative Plenum Pressure**



Patent Pending

These installations, operation, and maintenance instructions are given as a guide to the user of an N-SERIES Air-Trap during installation, commission into service, operation, or periodic maintenance.



**MADE IN THE USA**

## Product Description

The N-SERIES Air-Trap allows water to drain from HVAC equipment and simultaneously prevents air from entering the equipment.

The N-SERIES Air-Trap does not require standing water to prevent gas (typically air) from entering the HVAC unit. With the occurrence of condensate or other water sources within the unit, the water flows out of the HVAC unit but no gas enters. When there is no condensate or water produced, there is no water in the trap and there is no gas entering through the trap. The N-Series Air-Trap is installed horizontally.

## Delivery Check

Upon receipt of the air-trap(s), inspect for damage that may have occurred during shipment and check to ensure delivered items match purchased items.

## Resolving Shipping damage

If damage is found or items are missing:

1. Report all claims of shipping damage to the delivering carrier (transporter) immediately, and schedule an inspection.
2. Make specific notations concerning the damage on the freight bill.
3. Keep damaged material in the same location as received. It is the receiver's responsibility to provide reasonable evidence that damage was not incurred after delivery.
4. Photograph damage if possible.
5. Do not move or discard damaged freight packaging materials.
6. Notify the sales representative, or Ascent, Inc., of the damage. Do not attempt to repair the unit without consulting the sales representative or Ascent, Inc. Ascent, Inc. IS NOT RESPONSIBLE FOR SHIPPING DAMAGE.

## Storage Considerations

When storing an N-SERIES Air-Trap for a period before installation, it must be protected. **The warranty will not cover damages to the trap due to negligence during storage.**

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**Installation**

For pressurized cooling section(s) the drain pan should always be connected directly to a trap to ensure proper drainage of condensate.



Figure 1

**Important:** Make sure a strainer screen, as shown in **Figure 1**, is placed over the drain inlet prior to operation of the HVAC unit and before installing the trap. **An integral Union-Strainers™ may also be inserted in the drain line upstream of the Air-Trap as shown in Figure 7 and Figure 8.**

1. Install the N-SERIES Air-Trap as shown in **Figure 2**. The trap has to be installed level in a horizontal plane with the ► in the direction of water flow. The trap must be installed at a minimum equal to the negative plenum pressure in inches of water column, x. This is a requirement for proper movement of the internal components.
2. Trap must be installed horizontally only for negative plenum pressure systems. **DO NOT INSTALL VERTICALLY.**
3. The trap must be installed in accordance with manufacturer's instructions and with all applicable local or national plumbing, drainage and mechanical codes. **NEVER CONNECT CONDENSATE DRAIN DIRECTLY TO A SANITARY DRAIN LINE.**

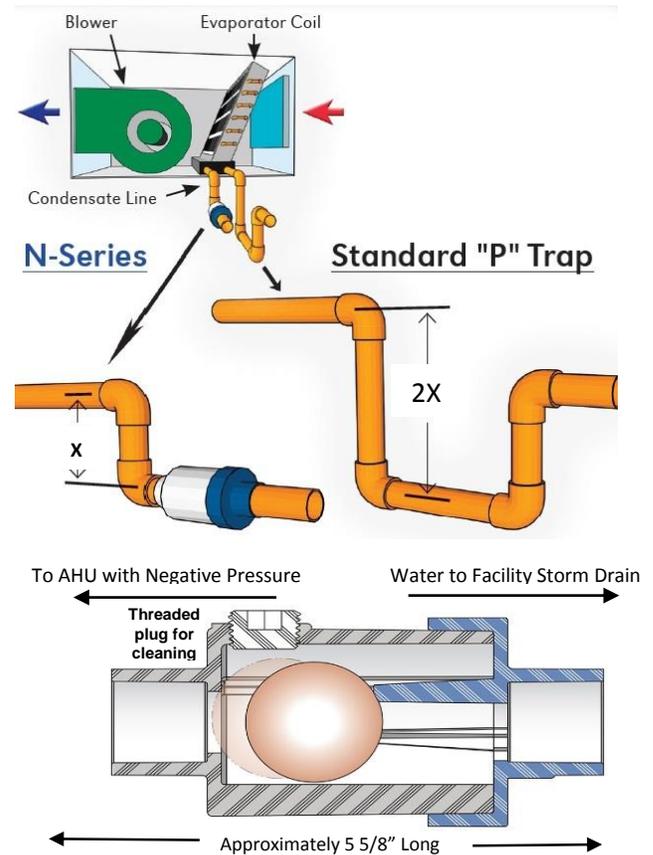


Figure 2

**Operation**

The N-SERIES Air-Trap operates dry when no water removal is required and wet when it is required. When dry, essentially no air is drawn into the HVAC unit. When removing water, the water exits the unit but essentially no air is drawn into the unit through the drain connection. **One of the principal advantage of the N-SERIES Air-Trap is that it operates in a horizontal position. This allows the centerline distance between the unit drain connection and the trap to be approximately the same as the negative pressure in inches of water column within the negative pressure plenum. See Figure 2.**

When there is no water to remove the negative pressure within the plenum draws the internal valve against the valve seat and essentially no air enters the AHU through the drainpipe. If the trap is used for water from a sump pan with a dump valve then the drain valve should be installed between the AHU and the

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trap. When condensate forms then water builds up in the vertical pipe. When the water level equals the negative air pressure, in inches of water column, the force of the water head becomes equal or greater than the negative pressure, the internal valve moves to the right and water flows, as shown in **Figure 2**. When there is no requirement to remove water then the negative pressure returns the internal valve to the valve seat and prevents airflow to the unit plenum. The internal rails aid in returning the internal valve to the seat in case the variable speed fan is operating at a low flow and low negative pressure. The N-SERIES Air-Trap will allow flow of 2 GPM at 1-inch of head at the inlet with minor resistance on the exit side. **Figure 2** illustrates the distance between the unit drain connection and the centerline of the trap is approximately half. This could be a great advantage if the height from the AHU drain to the floor or roof is less than required by a conventional “P” Trap.

The N-SERIES Air-Trap accomplishes the following:

- Reduces sludge buildup that normally accumulates in standard “P” traps
- Prevents water blow out when condensate begins to form at the beginning of cooling season when trap has dried and air is rushing into HVAC unit plenum, causing water spray into fan plenum compartment
- Prevents freezing of trap during cold periods since there is no water in the trap.
- Reduces the trap height by approximately 50% as compared to the “P” trap

### Techniques for Cleaning the N-SERIES Trap

In some operations, particulate matter may move from the HVAC unit through the drain line and into the N-SERIES Air-Trap. The accumulation of particulate matter in the trap may potentially cause the trap to operate less efficiently. Therefore, a means to remove the crud is required. A stainless steel filter screen over the drain inlet extends the time between maintenance but more than likely the time will come.

There are several options for cleaning. Option one is to order the standard N-SERIES Air-Trap with a ½-inch cleanout port in the trap housing. This will allow insertion of a water or air hose for washing or blowing

away material that may be hampering operation of the trap. See **Figure 2**

Option two is to isolate the N-SERIES Trap from the main drain line by installing DCT **Union-Strainers™** upstream of the Air-Trap. See **Figure 3** and **Figure 4**. The DCT **Union-Strainer™** is also a convenient way to prevent unwanted creatures from entering the terminus of the drain line, like snakes, rats, lizards, and insects.



**Figure 3: N-SERIES Air-Trap isolated from the main drain line by DCT Union-Strainers™ at the entrance and exit of the trap.**



**Figure 4: DCT Union-Strainers™**

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To Purchase Contact Andrew Osborn with Ascent, Inc.  
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## **Maintenance**

Inspect the N-SERIES Air-Trap on an annual basis, remove any sludge or foreign materials that might obstruct proper operation of the valve contained within the trap or general drainage of the drain line. Remove obstacles utilizing the clean out port located on the top of the Air-Trap or in the drain pipe. Caution - do not damage the internal valve inside the N-SERIES Air-Trap. Properly dispose of any contaminated materials.

## **Limited Warranty**

Warrants to the original consumer purchaser ("Purchaser") of its product, the N-SERIES Air-Trap, that it is free from defects in material or workmanship. If within the 12-month period from the date of the original consumer purchase this product shall prove to be defective, it shall be repaired or replaced at Manufacturers' option. Your original receipt of purchase is required to determine warranty eligibility. The warranty does not cover damage due to misuse, misapplication, lack of maintenance, or failure to comply with the manufacturer's installation instructions or recommendations or any other loss or damage exceeding the purchase price of the equipment purchased from Ascent, Inc.

Ascent, Inc. assumes no responsibility for damage or injury resulting from chemical incompatibility between its products and the process fluids to which they are subjected. This warranty is limited to repair or replacement of the N-SERIES Air-Trap only and is the only warranty issued by Ascent, Inc. on its trap products.