HVAC Air-Trap™

DMS-Series: IOM

Negative and/or Positive Pressure Waterless Trap

DESIGNED AND ASSEMBLED IN THE U.S.A.

This is a guide to the user of a DMS-Series Air-Trap during installation, commissioning, operation, or periodic maintenance. **For use as condensate trap for Mini-split and Fan-coil AC units.**

Product Description

The DMS-Series *Air-Trap* allows water to drain from HVAC equipment and simultaneously prevents air from escaping from or entering the equipment by way of the condensate drain line.

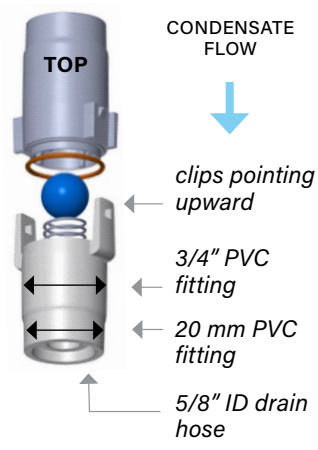
The DMS-Series *Air-Trap* does not require standing water to prevent gas (typically air) from flowing through the condensate drain line. With the occurrence of condensate, or other water sources within the unit, the water flows out of the HVAC unit, but no gas enters or leaves. When there is no production of condensate or water, there is no water in the trap and there is no gas flow through the trap. Install the DMS-Series *Air-Trap* in a vertical orientation.

DO NOT USE EXCESS CEMENT. When connecting drain line to the trap connections, use of too much cement could interfere with connecting tabs or ball valve movement.

Installation

When operating with negative pressure (supply fan drawing through the coil) or positive pressure (supply fan blowing through the coil) install the DMS *Air-Trap* in a vertical orientation with the open end of the connection clips pointing upward (**TOP** written on top end) as shown in ***Figure 1***. Condensate enters the top end of the trap.

Figure 1. *DMS operation is vertical*

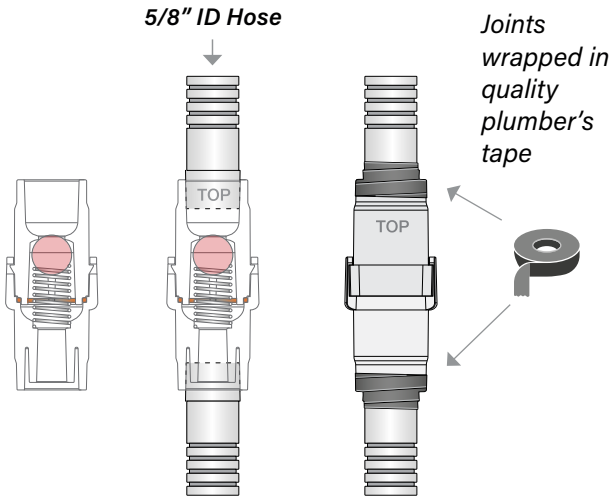


The connections are designed to be used with either: a 5/8" ID drain hose inserted within the DMS connections as shown in ***Figure 1 & 2*** - or - 3/4" or 20 mm PVC fitting on the outside of connections ***(Figures 1 & 3)***

5/8" ID tubing ***(Figure 2)*** snugly connect the 5/8" tube into the DMS-Series Air-Trap top and/or bottom openings.

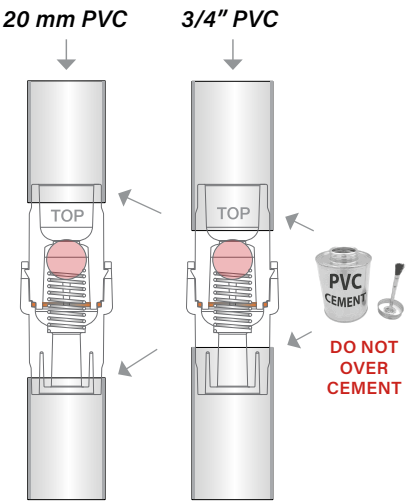
The resulting joint should be wrapped with good quality PVC or silicone self-sealing plumber's tape to ensure a good structural and leak proof joint.

Figure 2. *5/8" ID drain hose inserted*



PVC fittings ***(Figure 3)***, PVC cement should be used to ensure a permanent connection.

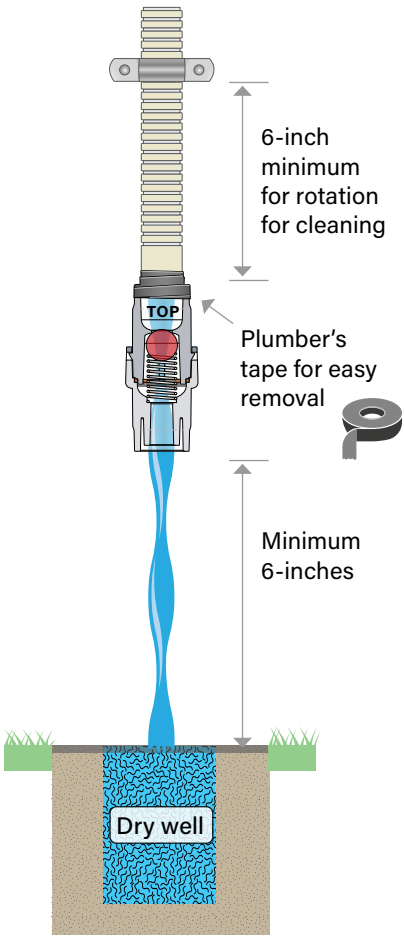
Figure 3. *PVC fittings on outside of connections*



Preferred DMS Air-Trap Installation for Single Family Installations

For ease of maintenance and drain line cleaning the condensate trap location is best placed at the very end of the drain line as shown in ***Figure 4***. Simply attach the DMS *Air-Trap* to the end of the drain line using plumber's tape so that it can be easily removed from the line. Once removed, simply wash the trap with water to remove any debris.

Figure 4. *Preferred DMS Air-Trap installation for a ductless mini-split for ease of cleaning trap and drain line*



Then, if necessary, connect the drain line to a drain clearing gun or a shop vacuum for a more thorough cleaning. Items shown below. (can be purchased at Amazon.com).

Do not attempt to clean drain line without removing the DMS trap.

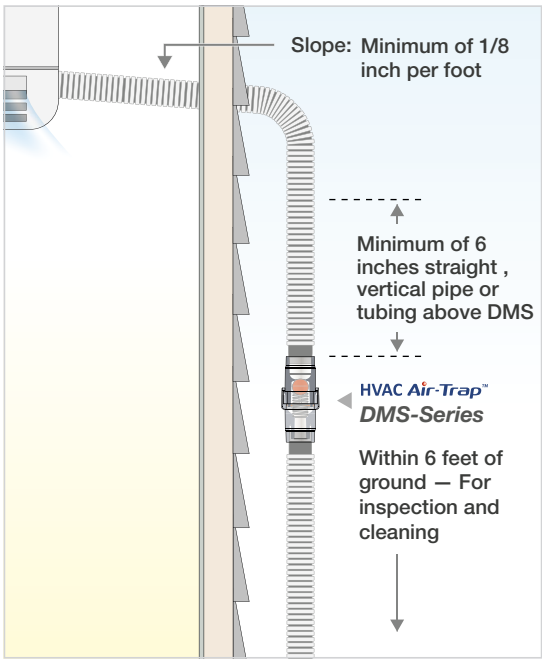
Drain clearing gun

Diyvac® shop vacuum attachment

Operation

DMS *Air-Traps* will properly drain condensate for negative pressures to -1" WC and positive pressures to +5/8" WC while allowing essentially no air to enter or leave through the drain line. After condensate production ceases there will be no standing water within the drain line or trap if line is installed per code, i.e. 1/8" per foot slope or greater toward final drain point and no sags in the line.

Figure 5



To ensure proper condensate drainage apply the following:

- The drain hose must exit the mini-split with a minimum of 1/8" per foot slope toward final drain point (per code)
- There should be at least 6 inches of vertical drainpipe above the trap
- The trap must be installed vertically with “TOP” section on top
- Where possible, install the trap within 6 feet of the ground and clearly visible for inspection and cleaning

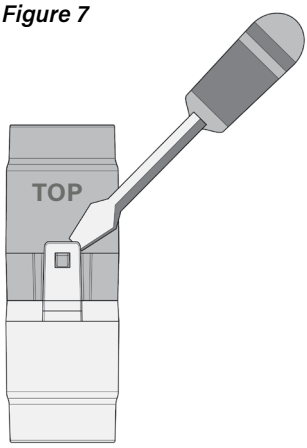
When fully assembled, the stainless-steel spring is preloaded to a force of 3/4" WC. So, if it is operating at -1/2" WC then the column of water above the ball seat is 1 ¼” and if it is + 1/4" WC then the column of water is 1/2" above the ball valve.

Figure 6

Cleaning

To clean the trap and/or drain line, first try hooking the exit of the drain to the suction side of a shop vac and suck the accumulated material into the cannister. If that does not work, then separate the two parts of the DMS *Air-Trap* using a small screwdriver, as shown in ***Figure 7***, making sure to retain the spring, ball, and O-ring for reassembly. Clean as necessary and reassemble as described below.

Figure 7



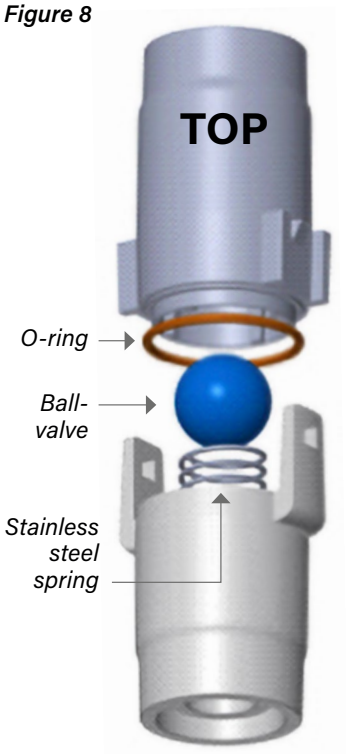
Assembly

There should be little, or no maintenance required for the DMS, but if there is, then when disassembling the DMS *Air-Trap* use a small flat head screwdriver and lightly, and slowly, pry the tabs outward a few thousandths of an inch until the two parts separate.

Reassembling requires that the O-ring be properly placed over the circular flange at the bottom of the TOP part and the ball-valve be properly positioned on the spring as shown in ***Figure 8***.

To reassemble the DMS, align the two clips that are part of the bottom section with the two guide slots that are molded in the top part and push them together until the two pieces come together and the holes in the clip latch over the knobs built into the slides. You will feel them latch into place.

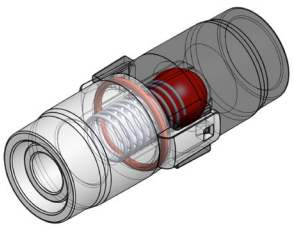
Figure 8



The benefits of the DMS *Air-Trap* are:

- Operates dry except when condensate is being produced
- Will not freeze and will never pass gas
- No sludge build-up in bottom of trap
- Easily comes apart for cleaning
- Operates under both positive and negative pressure

Condensate Drain Line and Condensate Trap Code Requirements as Outlined in the 2024 UMC (Uniform Mechanical Code) and 2021 IMC (International Mechanical Code) for Mini-split AC Equipment



2021 IMC Section 307.2.4.1 Ductless Mini-split system traps.

Ductless mini-split equipment that produces condensate shall be provided with an inline check valve in the drain line, or a trap.

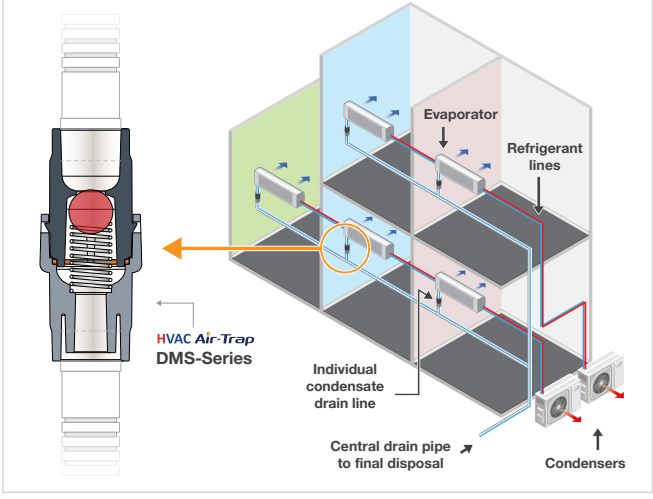
The DMS-Series *Air-Trap* by Des Champs Technologies is specifically designed to serve as the inline check valve/ trap for use with mini-split condensate lines.

2024 UMC Section 310.4. Appliance Condensate Drains. (excerpt)

Condensate drain lines serving more than one appliance connecting to a common indirect waste pipe shall have the connections to the indirect waste pipe protected by a sanitary waste valve complying with ASME A112.18.8, condensate trap complying with IAPMO IGC 196, or trap with a trap primer.

When multiple mini-split units are used to air-condition a building such as a school, nursing home, or condominium it is common practice to run individual condensate drain lines into a larger central drainpipe system that carries the water to a final disposal area. If this situation exists, the 2024 UMC code requires that each individual appliance drain line be fitted with a device as stated in Section 310.4 between the appliance and the common indirect waste pipe. The intent is to prevent air passage between conditioned spaces.

The DMS-Series *Air-Trap* meets the requirements of IAPMO IGC 196 and is designed for mini-splits, PTAC, and other fan-coil configurations.



Limited Warranty

Des Champs Technologies warrants to the original consumer purchaser ("Purchaser") of its product, DMS-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 Des Champs Technologies 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 Des Champs Technologies. Des Champs Technologies 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 DMS-Series *Air-Trap* only and is the only warranty issued by Des Champs Technologies on its trap products.

This product design is Patented by Des Champs Technologies LLC, Natural Bridge Station, Virginia 24579.

Des Champs Technologies also has a full line of Commercial grade Negative and Positive pressure traps. Call 1-540-228-1967 or go to the following websites for more information: www.deschampstechnologies.com -or- www.waterless-trap.com

Air-Traps meet IMC® Code Section M307.2.4.1

The *Air-Trap*™ concept has been incorporated into IAPMO IGC 196-2018 *Standard for Condensate Traps and Overflow Switches for Air-Conditioning Systems*.

ICC-ES Evaluated

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