

# **Anemostat Electric Single Duct VAV / Duct Heater**

## **Installation Instructions Heater Models ADH-E, ADH-V & ADH-R**

### **General for all Models**

Inspect heater for any possible damage. Check all insulators for breakage and inspect heater element wire(s) for any deformation or damage that could cause a short circuit to ground. Make sure all fasteners are tight. Electrical connections such as pressure terminals should be checked for tightness.

### **For ADH-E Models**

For ADH-E Models Heaters which may be installed in horizontal or vertical ducts, the following instructions must be followed for safe and optimal performance.

1. Install Heater a minimum of (4) feet from heat pumps or central air conditioners.
2. Install at least (4) feet downstream from an air handler
3. Install at least (2) feet either side from an elbow or turn.
4. Install at least (4) feet from any canvas duct connector or transition section for change in duct size.
5. Install at least (4) feet downstream from an air filter
6. Install at least (4) feet upstream from a humidifier

\* Refer to Electrical Requirements section and General Operating Requirements sections for additional requirements.

For ADH-E slip in model Duct Heaters for horizontal and vertical applications the following instructions must be followed for safe and optimal performance.

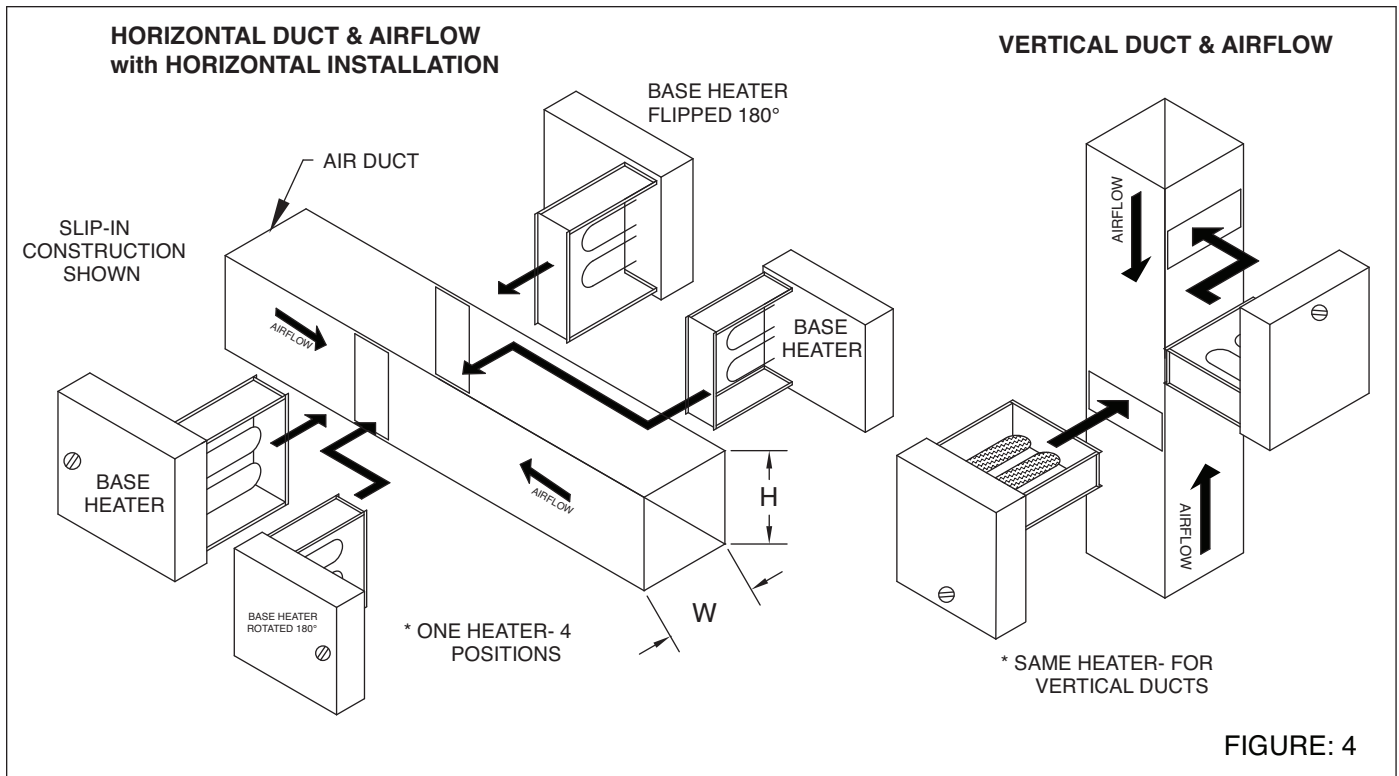
To install cut an opening in the duct of the appropriate size to allow the heater to slip in while maintaining a proper mounting and sealing surface. Insert the heater and use the heater box as a template for the mounting screw locations. Remove heater and drill mounting holes. Mount unit to duct using sheet metal screws. Large heaters may require hangers. Connect high and low voltage supplies as required.

For ADH-E Flange mount models insert the heater between two sections of flanged duct and bolt into place. For additional strength the duct flange(s) should be doubled as shown in Fig. 2 for ADH-V Models. Large heaters may require hangers. Connect high and low voltage supplies as required.

For ADH-E models with an optional diffuser/radiant screen that must be rotated move the air diffuser/radiant screen to the opposite side such that it is on the inlet air side of the heater as represented in Fig 1 For ADH-V & ADH-R Models. For heaters with no diffuser simply flip or rotate as needed as represented in Fig. 4.

For ADH-E model Duct Heaters (horizontal or vertical) applications the air duct should be installed in accordance with the Standards of the National Fire Protection Agency for the Installation of Air Conditioning and Ventilating Systems (Pamphlet No. 90A) and Warm Air Heating and Air Conditioning Systems (Pamphlet No. 90B).

Additionally do not "Bank" heaters (side by side). If greater capacity is required, proportion smaller heaters in separate runouts. Heater control boxes must be completely accessible and located to provide ventilation at all times.



### For ADH-V Models

For ADH-V slip in & flanged models for use with Single Duct VAV re-heat and cooling only valves for horizontal applications the following instructions must be followed for safe and optimal performance.

For re-heat valves the heater should be installed in the cut out section provided as long as it meets the minimum distance requirement of 20 inches from valve actuator to Heater inlet face (see Fig. 1 ) with the air diffuser/radiant screen on the inlet air side. If the heater must be rotated move the air diffuser/radiant screen to the opposite side such that it is on the inlet air side of the heater.

For cooling only valves, or instances where no cut out is provided, cut an opening in the duct of the appropriate size that meets the 20" to actuator minimum (see Fig. 1) to allow the heater to slip in while maintaining a proper mounting and sealing surface. If the heater must be rotated move the air diffuser/radiant screen to the opposite side such that it is on the inlet air side of the heater.

Insert the heater and use the heater box as a template for the mounting screw locations. Remove Heater and drill mounting holes. Mount unit to duct using sheet metal screws. Large heaters may require hangers. Connect high and low voltage supplies as required.

For ADH-V Flange mount models insert the heater between two sections of flanged duct insuring that the air diffuser/radiant screen is on the inlet air side and bolt into place. For additional strength the duct flange(s) should be doubled as shown in Fig. 2 . Large heaters may require hangers. Connect high and low voltage supplies as required.

### For ADH-R Models

For ADH-R slip in & flanged models for use in horizontal applications the following instructions must be followed for safe and optimal performance. Note the Duct outlet to Duct Inlet ratio can not exceed 4:1.

For ADH-R Slip in models, cut an opening in the duct of the appropriate size that meets the 20" from smaller inlet discharge minimum as shown in (see Fig. 3 ) to allow the heater to slip in while maintaining a proper mounting and sealing surface. If the heater must be rotated move the air diffuser/radiant screen to the opposite side such that it is on the inlet air side of the heater.

Insert the heater and use the heater box as a template for the mounting screw locations. Remove Heater and drill mounting holes. Mount unit to duct using sheet metal screws. Large heaters may require hangers. Connect high and low voltage supplies as required.

For ADH-R Flanged Models, insert the heater between two sections of flanged duct insuring that the air diffuser/radiant screen is on the inlet air side and bolt into place. For additional strength the duct flange(s) should be doubled as shown in Fig. 2 . Large heaters may require hangers. Connect high and low voltage supplies as required.

**NOTE:** For ADH-V & ADH-R Refer to Electrical & General Operating Requirements sections for additional requirements.

# ANEMOSTAT ELECTRIC-SINGLE DUCT VAV HEATER

(1) HEATER USED FOR (4) POSITIONS, ANEMOSTAT'S "SINGLE DUCT" VAV HEATER CAN BE FLIPPED AND ROTATED TO FIT YOUR APPLICATION, (SEE BELOW). PLEASE NOTE THIS DOES NOT APPLY WHEN MERCURY CONTACTORS ARE REQUIRED.

NOTE: WHEN USED WITH SINGLE DUCT VAV ENSURE THE DIFFUSER SCREEN IS ON THE INLET AIR SIDE (AS SHOWN BELOW).

PLEASE NOTE THE ENTIRE VALVE CAN BE FLIPPED AFTER THE HEATER HAS BEEN INSTALLED, AS WELL.

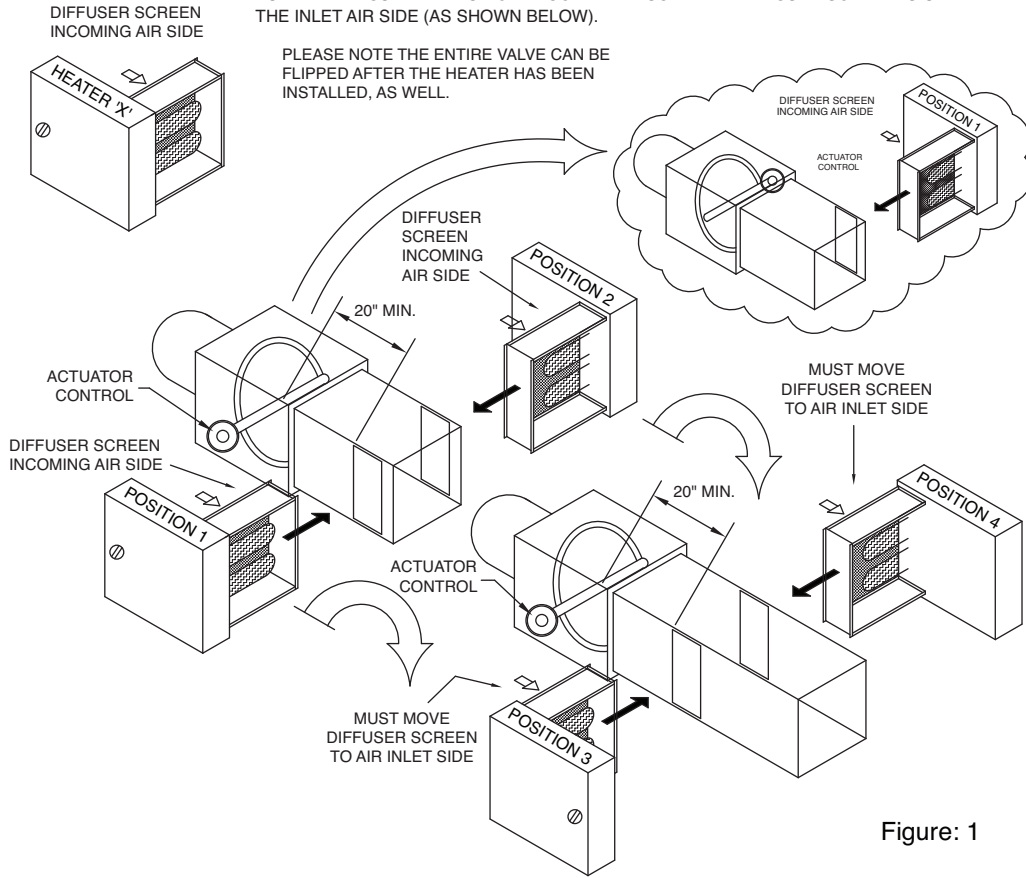


Figure: 1

## SINGLE DUCT VAV HEATER ADH-V Model Flanged

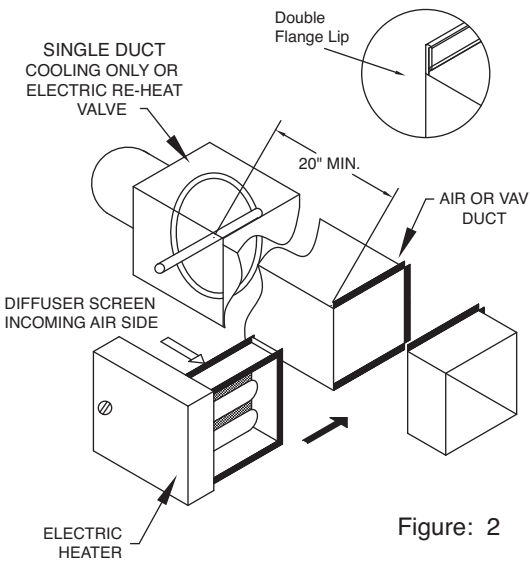


Figure: 2

## RESTRICTED INLET DUCT HEATER ADH-R Model Slip In

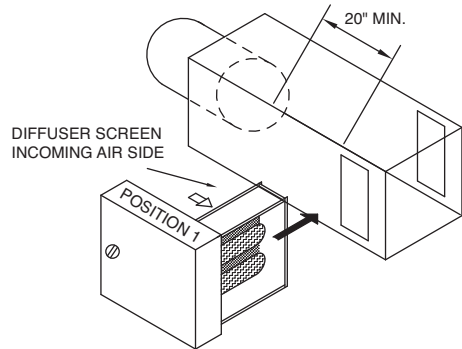


Figure:3

## ELECTRICAL REQUIREMENTS

Refer to attached wiring diagram and wiring diagram on inside of cover. Make sure line and control voltage of system matches that noted on wiring diagram.

Wire in accordance with N.E.C. and any existing local codes.  
Check tightness of all factory and field electrical connections.  
Make sure fan interlock is wired in if the Heater does not have an air flow switch.  
Use 90 deg. C (194 deg. F) copper wire.  
Control must be wired for N.E.C. Class 1 unless otherwise specified.

When Heater has integral transformer for control voltage to thermostat, use thermostat with isolating contacts to prevent interconnection of class 2 outputs.

Disconnect all electrical power before servicing. When servicing heater, make sure all components are repositioned in the proper location and reconnect per wiring diagram.  
Replacement parts must be identical to the original components.  
Contact factory for replacement parts.

## GENERAL OPERATING REQUIREMENTS

### For ADH-V & ADH-R Models

Minimum Air Velocity: 70 CFM per KW (75-80 Recommended)  
Maximum Inlet Air Temp: 100 Deg. F  
Maximum Heater KW: 16.5 KW per Square Foot of Duct cross Section

### For ADH-E Models

Minimum Air Velocity: 70 CFM per KW (75-80 Recommended)  
Maximum Inlet Air Temp: 100 Deg. F  
Maximum Heater KW: 18 KW per Square Foot of Duct cross Section

All Models may be flipped and rotated as long as the diffuser/radiant screen is moved to the inlet air side where applicable except when mercury contactor option is used.

**NOTE:** All Models must be installed at least (4) feet from any type of equipment or canvas duct and at least (2) feet on either side from an elbow or turn with the exception of a VAV valve or inlet restriction as described for ADH-V & ADH-R Models.

**NOTE:** Minimum air flow or greater must be maintained uniformly over the entire face of the heater. The velocity of air should NEVER be lower than the specified minimum. In cases where this is not true the KW must be reduced or the velocity of air increased.

**NOTE:** Observe at least one Heating cycle to insure that cycling of safety limit controls does not occur under normal operating conditions before leaving the installation.