



1. Product Name

- E Series Electric Duct Heater

2. Manufacturer

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3. Product Description

Basic Use

The E series, EDH and EVH, products, brings innovation and flexibility to the electric duct heater and variable air volume, (VAV), heater markets. Both series are UL, cETLus and cULus tested and approved and include symmetrical design features that provide flexibility during installation at a project or work site.

Duct heaters are used in forced air applications to provide stand-alone space heat or to supplement existing heating systems. Installation examples:

- Space heating
- Primary heating
- Reheat
- Multi-zone or VAV
- Replacement of existing
- Secondary/auxiliary heating

For EVH Models

- Minimum Air Velocity: 70 CFM per KW (75-80 recommended)
- Maximum Inlet Air Temp: 100 degrees F
- Maximum Heater KW: 16.5 KW per ft² of duct cross section

For EDH Models

- Minimum Air Velocity: 70 CFM per KW (75-80 recommended)
- Maximum Inlet Air Temp: 100 degrees F
- Maximum Heater KW: 18 KW per ft² 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.

Composition and Materials

All sheet metal housing. 0.034+0.008/-0.00 minimum spangle galvanized sheet steel grade G-90.

Standard Features

- Open-coil element
- Airflow switch
- Detailed wiring diagram
- Control terminal board
- Grounding lugs



Flippable Electric Heater

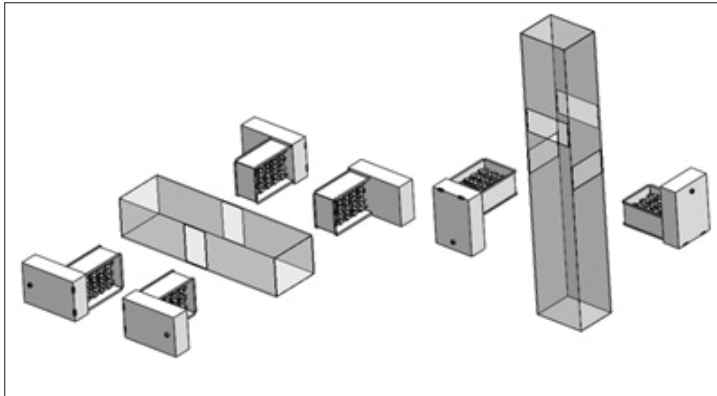


Flippable Electric Heater

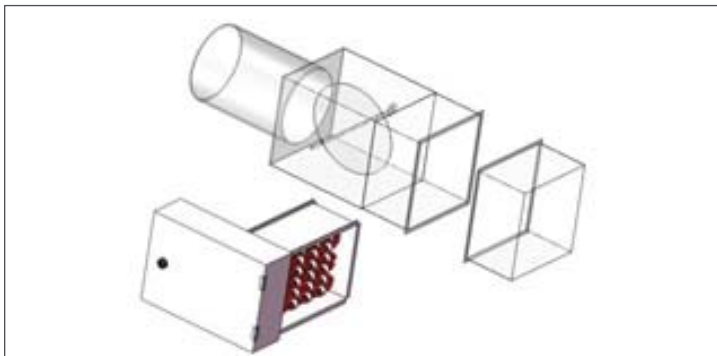
- Power fusing over 48 amps included
- A disconnecting magnetic control contactor per stage or each 48-amp circuit within a stage
- Automatic high-limit switch for primary over-temperature protection
- Manual reset high-limit switch for secondary over-temperature protection
- The wire rack element suspension system allows for a low-pressure drop across the coils
- In horizontal applications, airflow can travel in either direction without any modification, allowing for easy field modifications
- Control box features hinge and latch for easy access

E-series Benefits and Advantages:

- Patent pending flippable design
- Symmetrical design; fewer part numbers, easier site installation
- UL, cETLus and cULus tested and approved
- Better heater coverage
- Lower coil watt density



NEW EDH- Horizontal and Vertical Orientations



Option- Flange mount

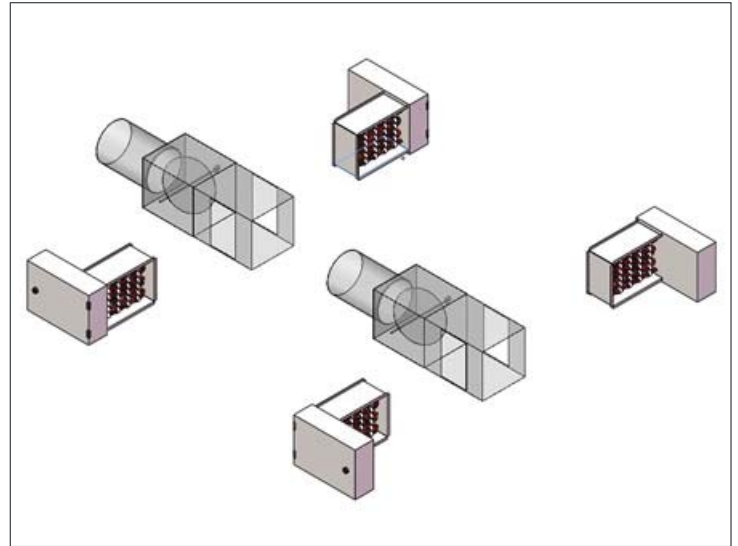
- Integration with VAV Single Duct valves and controls
- Design program offers wider distribution of kilowatt sizes
- Tutco solid state relay controls
- Quality and fast delivery: E-specifications are automatically configured and processed on precision state-of-the-art cutting and forming equipment
- The rugged, efficient, open frame duct heaters offers the capability to heat large volumes of air with fast warm-ups and cool-downs
- Our open design provides low pressure drops with no build up of excessive temperatures and the low static pressures allow you to use smaller, more economical blowers
- A range of sizes are available to meet your specific need; including voltages up to 600 volts: single and three phase
- Flippable; can be installed six different ways

Types

Two frame types are available: slip in and flange. (See Drawing 1)

Models

- EVH Model: electric valve heater, for use with single duct re-heat valve
- ERH Model: electric restricted inlet heater, for use with ducted airflow systems which contain dimensional changes for inlet/discharge dimensions and or ducted transitional areas
- EDH slip in model duct heaters for horizontal and vertical applications. Standard low watt density coil



EVH- Horizontal Orientations- Same part number fits all 4 positions. VAV Single Duct

Limitations

The Tutco E Series electric duct heater is designed for indoor ductwork installation only. Consult the factory for optional solutions.

Accessories/Options

All are separate accessories depending on configuration.

Electronic step controller, power fusing, control transformer, main power terminal block, time delay relay, pilot light, pressure electric, (PE), switch, solid state relay, (SSR), and disconnect switch

Custom features [available here](#).

4. Technical Data

Applicable Standards

Canadian UL (cULus)

- CSA C22.2

Electrical Testing Labs (ETL)

- ETL Report No. 100147043CRT-002 (Control No. 3124970)

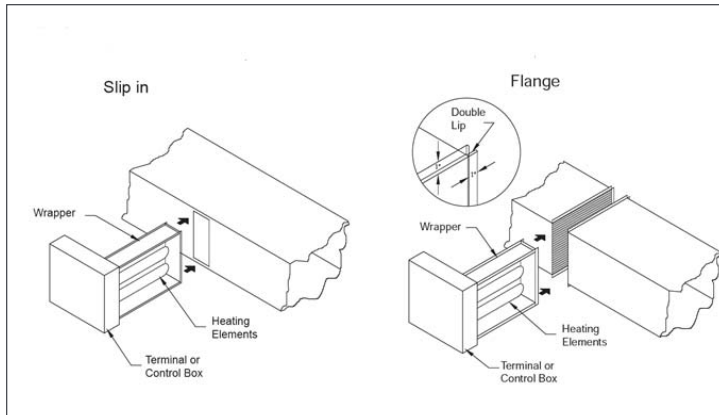
UL International

- UL File Number: E33341
- UL1996

5. Installation

General for Heater Models EVH and EDH

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.



Drawing 1: Slip in and flange frame types

General Operating Requirements:

- Minimum Air Velocity: 70 CFM per KW (75–80 recommended)
- Maximum inlet air Temp: 100 degrees F
- Maximum heater KW: 18 KW per square foot of duct cross section

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.

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.

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 degree 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.

EVH Models

For EVH slip in and 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

with the air diffusor/radiant screen on the inlet air side. If the heater must be rotated move the air diffusor/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 inches to actuator minimum to allow the heater to slip in while maintaining a proper mounting and sealing surface. If the heater must be rotated move the air diffusor/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 EVH flange-mount models insert the heater between two sections of flanged duct insuring that the air diffusor/radiant screen is on the inlet air side and bolt into place. For additional strength the duct flange(s) should be doubled. Large heaters may require hangers. Connect high and low voltage supplies as required.

EDH Models

For EDH model 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 four feet from heat pumps or central air conditioners.
2. Install at least four feet downstream of an air handler.
3. Install at least two feet either side from an elbow or turn.
4. Install at least four feet from any canvas duct connector or transition section or change in duct size.
5. Install at least four feet downstream from an air filter.
6. Install at least four feet upstream from a humidifier.

Refer to Electrical Requirements section and *General Operating Requirements, Flip-able Installation Manual* sections for additional requirements.

For EDH 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 EDH 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. Large heaters may require hangers. Connect high and low voltage supplies as required.

For EDH models with an optional diffusor/radiant screen that must be rotated move the air diffusor/radiant screen to the

opposite side such that it is on the inlet air side of the heater. For heaters with no diffuser simply flip or rotate as needed.

For EDH model duct heaters in 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). Available from NFPA.

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.

6. Availability and Cost

Availability

Ten day standard lead time with up to 24 hour expedited orders.

Cost

Please contact manufacturer for pricing information.

7. Warranty

Tutco offers a limited 18 month warranty. Please contact manufacturer for complete warranty information.

8. Maintenance

E-series duct heaters do not require any specialized preventative maintenance other than electrical connections should be checked for tightness annually, a periodic visual inspection, and any filters associated with the system should be changed at regular intervals.

9. Technical Services

Manufacturer provides direct engineering/technical support.

10. Filing Systems

- ConstructConnect
- Additional product information is available from the manufacturer upon request ↪