ELECTRIC DUCT HEATER

FLIPPABLE
EK SERIES SHOWN

RH SERIES
RH-W SHOWN

RENEWAIRE ERV + ELECTRIC DUCT HEATER: A SINGLE-SOURCE SOLUTION

RENEWAIRE EVERYWHERE
EVERY GEOGRAPHY, EVERY CLIMATE, EVERY HOME, EVERY BUILDING AND EVERY APPLICATION
FOR THE MOST COMPLETE AND CURRENT INFORMATION VISIT RENEWAIRE.COM

OPTIONS & ACCESSORIES

Specifications may be subject to change without notice.

- A single source reduces time and costs: A single information source, a single purchase point and a single approval package for ERVs and heaters reduces design time and costs, and streamlines logistics for design engineers and contractors.
- More flexibility: RenewAire offers design engineers the capacity to specify ERVs with a matching heater to boost flexibility and provide heated air to a single space or multiple spaces.
- Easy installation: A ZERO clearance rating to combustibles allows designers and contractors to apply RenewAire heaters with less restrictions onsite.
- Ultimate reliability: RenewAire heaters come with our two-year warranty and unmatched reliability. Single-source responsibility offers contractors and end users peace of mind and a single call location for technical, start-up and commissioning questions.
- Highly certified: CSA certified and evaluated to the applicable ANSI/UL and CSA Standards, for use in the U.S. and Canada.

RenewAire offers the highest-efficiency energy recovery ventilators (ERVs) on the market. However, during winter conditions, supply air from the ERV may be less than optimal for space conditions. By adding RENEWAIRE'S ROUND ELECTRIC DUCT HEATER as an option to our single/multi-family and light commercial ERVs, RenewAire can now heat supply air during cooler months to enhance indoor comfort, all via one package for ERVs and heaters from a single source.

**RH SERIES**

**RH-W SHOWN**

**KEY BENEFITS**

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**OPTIONS & ACCESSORIES AVAILABLE ON SINGLE/MULTI-FAMILY AND LIGHT COMMERCIAL UNITS (SOME EXCEPTIONS APPLY)**

**RH Series Electric Duct Heater (1-11.5 kW)**

**SPECIFICATIONS**

- **Heater Type:** Electric Duct Heater
- **Typical KW Range:** 1–11.5 kW (1, 2, 3, 4, 5, 6, 8, 10, 11.5 kW)
- **Voltages & Phase:** Single phase - 120, 208 and 240V
- **Control Voltage:** 24 VAC

**Standard Features:**
- Open-coil element
- High grade nickel-chrome element wire
- Thermostat - Integral (RH-D), Wall mount (RH-W)
- Modulating heat output (SCR control)
- Vertical or horizontal operation
- Automatic limit switch for primary over-temperature protection
- Manual reset limit switch for secondary over-temperature protection
- Airflow sensor
- Standard control transformer - 24 VAC
- Corrosion resistant galvanized steel
- Round duct collars
- High voltage terminal block connections
- Grounding lug
- Mounting flanges

**Note:** Electric duct heater designed for indoor ductwork installation only.

**Download specification at:** renewaire.com/specifications

<table>
<thead>
<tr>
<th>Duct Collars</th>
<th>kW</th>
<th>V</th>
<th>Size</th>
<th>Width (X)</th>
<th>Height (Y)</th>
<th>Depth (Z)</th>
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<td>1.00</td>
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<td>11 1/2&quot;</td>
<td>8&quot;</td>
<td>11 1/2&quot;</td>
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<td>8&quot;</td>
<td>1.00, 2.00</td>
<td>208</td>
<td>B</td>
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<tr>
<td>12&quot;</td>
<td>1.00, 2.00, 3.00, 4.00, 5.00, 6.00</td>
<td>240</td>
<td>C</td>
<td>15 1/2&quot;</td>
<td>12&quot;</td>
<td>15 1/2&quot;</td>
</tr>
</tbody>
</table>

**Minimum Airflow (CFM) | Heater Capacity (kW)**

| 30  | 1.00 |
| 60  | 2.00 |
| 90  | 3.00 |
| 120 | 4.00 |
| 150 | 5.00 |
| 180 | 6.00 |
| 240 | 8.00 |
| 300 | 10.00 |
| 345 | 11.50 |

**Dimensions in Inches**

<table>
<thead>
<tr>
<th>Size</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>C</td>
<td>15.5</td>
<td>12.0</td>
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RenewAire offers the highest-efficiency Energy Recovery Ventilators (ERVs) on the market. However, during winter conditions, supply air from the ERV may be less than optimal for space conditions. By adding CONFIGURABLE ELECTRIC DUCT HEATERS as an option to our commercial ERVs, RenewAire can now heat supply air during cooler months to enhance indoor comfort, all via one package for ERVs and heaters from a single source.

KEY BENEFITS

- A single-source responsibility reduces time and costs: A single information source, a single purchase point and a single approval package for ERVs and heaters reduces design time and costs, and streamlines logistics for design engineers and contractors.
- Easy installation: A ZERO clearance rating to combustibles allows designers and contractors to apply RenewAire heaters with less restrictions onsite.
- Highly certified: UL Listed (UL1996 Standard) and CSA certified.

APPLICATIONS

RenewAire ERV and heater combinations can be applied anywhere ERVs are installed, with a focus on commercial and institutional buildings. However, VRF systems, hydronic panels and areas where non-ducted systems are applied offer an exclusive installation opportunity. RenewAire heaters can suit site restrictions in size, configuration or orientation, and can be designed for preheat capabilities in certain extreme weather conditions.

Other applications include existing installations that require additional heat, increased heat or simply replacement heaters. RenewAire heaters can be designed for 70°F comfort conditions, or warmer, and since ERV supply air is ducted into the space, tempering outdoor air for space conditions or offering supplemental heat is easy and simple. RenewAire heaters are for indoor use only.

MODELS

RenewAire EK heaters can be rotated 180°, and are capable of vertical up/down airflow.

<table>
<thead>
<tr>
<th>EK SERIES (FLIPPABLE)</th>
<th>CAPACITY</th>
<th>1-175 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN. DUCT SIZE (H x W)</td>
<td>8” x 8”</td>
<td></td>
</tr>
<tr>
<td>MAX. DUCT SIZE (H x W)</td>
<td>99” x 99”</td>
<td></td>
</tr>
</tbody>
</table>

ELECTRIC DUCT HEATER (1-175 KW)

STANDARD FEATURES

- Open-coil element with slip-in mount installation
- Airflow switch
- Duct stat and duct sensor
- Disconnect switch, control terminal board and transformer
- Power fusing over 48 amps included
- Grounding lugs

OPTIONS AND ACCESSORIES

ELECTRONIC STEP CONTROLLER

Provides electronic sequencing control of an electric duct heater up to 4 steps. When interruption of power occurs, all the stages will recycle to off. Upon the restoration of power, re-energize the switches in a stepping sequence. Commonly used with a 2–10 vDC from a stand-alone T-stat, 2-10 vDC from a DDC building automation system and 4-20 mA from a building automation system.

PILOT LIGHTS

Side-panel installation for indicating heater is energized. Control voltages are available as 24 or 120 volts.

SCR CONTROLS

SCRs provide the finest in electric duct heater control with 100% step-less modulating control. Utilizes Solid State Relays (SSR’s) to switch current to the heating elements on a time-proportioned basis. Heaters with SCR controls have internal thermal protection to prevent overheating.

CONSTRUCTION AND INSTALLATION

RenewAire heaters have been designed to match our existing product offering heat capacities that range from 1–175 kW and the ability to handle airflows from 200–11,000 CFM.

Our heaters are factory-assembled and wired for the electrical specialties and controls of each project, and can be installed as a slip-in or flanged configuration. The heaters are shipped loose, can be duct-installed onsite and are designed for post-installation if necessary. Heaters are wired with a separate power source to be placed anywhere downstream of the ERV or to be split to serve different areas with a single ERV.

FLANGE INSTALLATION

Installed by connecting the heater between two sections of flanged ductwork.

SLIP-IN INSTALLATION

Installed by slipping the heater into a ductwork spooling.
RenewAire offers the highest-efficiency ERVs on the market. However, during winter conditions, supply air from the ERV may be less than optimal for space conditions. By adding RENEWAIRE’S ROUND ELECTRIC DUCT HEATER as an option to our residential and light commercial ERVs, RenewAire can now heat supply air during cooler months to enhance indoor comfort, all via one package for ERVs and heaters from a single source.

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- **Easy installation:** A zero clearance rating to combustibles allows designers and contractors to apply RenewAire heaters with less restrictions onsite.
- **Highly certified:** CSA certified and evaluated to the applicable ANSI/UL and CSA Standards, for use in the U.S. and Canada.

APPLICATONS
RenewAire ERV and round electric heater combinations can be applied anywhere residential and light commercial ERVs are installed with 6”, 8”, 10” and/or 12” round ductwork. The varying kW sizes and single phase electric power offerings allow the round electric heaters to be applied to suit any project’s requirements for supplemental electric heating. Other applications include existing installations that require additional heat, increased heat or simply replacement heaters. RenewAire heaters can be designed for 75°F comfort conditions, or warmer, and since ERV supply air is ducted into the space, tempering outdoor air for space conditions or offering supplemental heat is easy and simple. RenewAire heaters are for indoor use only.

MODELS
RenewAire’s RH series single-phase round electric duct are available in two models: RH-D and RH-W. In the RH-W model the heater temperature control is wall mounted in the room, while for the RH-D the heater temperature controller is integral to the unit.

<table>
<thead>
<tr>
<th>MODELS</th>
<th>RH-D (Integral Thermostat)</th>
<th>RH-W (Wall-Mounted Thermostat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSFORMER</td>
<td>AUTOMATIC RESET THERMAL CUT-OUT</td>
<td>AUTOMATIC RESET THERMAL CUT-OUT</td>
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<tr>
<td>AIRFLOW SENSOR</td>
<td>SWITCH</td>
<td>SWITCH</td>
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<tr>
<td>CONTROL</td>
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<td>BLOCK</td>
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<tr>
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<td>MANUAL</td>
<td>RESIST THERMAL CUT-OUT</td>
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<tr>
<td>BLOCK</td>
<td>POWER</td>
<td>TERMINAL</td>
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</table>

CONSTRUCTION AND INSTALLATION
RenewAire RH series heaters complement RenewAire EK Series electric duct heater offering heat capacities that range from 1–11.5 kW for round-duct diameters from 6” to 12”. They have the ability to handle airflows from 30–1,000 CFM. Each electric duct heater’s unique design allows air to flow freely for the lowest possible pressure drop. Our heaters are factory-assembled and wired for the electrical specialties and controls of each project, and are available with round duct connection collars. The heaters are shipped loose, can be duct-installed onsite and are designed for post-installation if necessary. Heaters are wired with a separate power source to be placed anywhere downstream of the ERV or to be split to serve different areas with a single ERV.
Electric Duct Heater (1-175 kW)

Accessories

Specifications:

Heater Type:
Electric Duct Heater

Typical KW Range:
1–175 kW

Standard Features:
- A disconnecting magnetic control contactor per stage or each 48 Amp circuit within a stage
- Open-coil element
- Staged on/off
- Control terminal board
- Grounding lugs
- Automatic limit switch for primary over-temperature protection
- Manual reset limit switch for secondary over-temperature protection
- Non-adjustable airflow switch
- Standard control transformer - 24 VAC
- Disconnect switch
- Duct thermostat with sensor for on/off control
- 60-20-20 (Ni/Cr/Fe) C Grade element wire with nickel-plated terminals
- Slip-in mount
- No left/right hand
- Vertical up/down flow

Voltages & Phase:
- Single phase - 120, 208, 240, 277
- Three phase - 208, 240, 480, 600

Control Voltage:
24 VAC

Dimensions:
- Minimum - 8” x 8” (W x H)
- Maximum - 99” x 99” (W x H)

Options:
- Flange mount
- 80-20 (Ni/Cr) A Grade element wire with stainless steel terminals
- Recessed control box 1”
- Gasketed cover - dust tight
- Power fusing, standard for heaters drawing more than 48 Amps
- 2-stage
- Electronic step controller (4-stage)
- SCR (up to 96 Amps)
- SCR Vernier (over 96 Amps)
- Pilot light

Accessory:
- Room thermostat
- Room/duct thermostat-sensor kit for SCR control

Note: Electric duct heater designed for indoor ductwork installation only.

Download specification at:
renewaire.com/specifications

FLIPPABLE CAPABILITIES

Unique to the EK series, this unit has the ability to flip 180°. Additionally, EK heaters feature both vertical up and vertical down airflow.
**MINIMUM AIR VELOCITIES**

The minimum uniform airflow in a duct heater is directly related to the inlet air temperature. Consideration must be given to both airflow across the heater and inlet air temperature.

1. To calculate the kilowatts per sq. ft. of duct area, divide the total kilowatts required by the duct area.
   
   **Example:**
   
   Duct Size = 2ft. x 3ft.  
   Total Kilowatts = 20  
   
   \[ \frac{20}{6} = 3.333 \text{ kW/Sq. Ft.} \]

2. If the air handler equipment is expressed in FPM, then a direct cross reference can be made by comparing the temperature of the air (as it enters the duct heater) to the kW rating on the chart of rated velocity (refer to chart at right).
   
   a. Draw a line horizontally from the kilowatt per sq. ft. required to the inlet air temperature being used.
   
   b. From this point of intersection on the inlet air curve, draw a line down vertically to establish the air velocity.
   
   c. The velocity should never be lower than the velocity as determined from the chart. In cases where this is not true, the velocity must be increased or the kW required must be reduced.

3. In cases where the air handling equipment is expressed in CFM, then convert to FPM by dividing the CFM by the duct area.
   
   **Example:**
   
   FPM = CFM ÷ Duct Area

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**LINE CURRENT CALCULATION**

Line Current (Amperes (A)) = Watts (W) / Line Voltage (V)

**Example:**

4 kW Heater = 4000 W  
Line Voltage = 240 V  

\[ \text{Line Current} = \frac{4000 \text{ W}}{240 \text{ V}} = 16.7 \text{ A} \]