

# Isolation Dampers

## Supplemental Manual for Options

HE07 through HE20  
HE3X through HE8X  
LE-Series



Typical Damper Shown



<b>1.0 INSTALLATION</b>	<b>4</b>
1.1 DAMPER LOCATIONS ON OUTDOOR ERVS.....	4
1.2 DAMPER LOCATIONS ON INDOOR ERVS.....	4
1.3 DAMPER LOCATIONS IN HE07, HE10, HE15, AND HE20 ERVS .....	4
1.4 DAMPER LOCATIONS IN HE6X, HE7X, AND HE8X ERVS .....	4
<b>2.0 OPERATION</b>	<b>5</b>
2.1 SEQUENCE OF OPERATION.....	5
2.1.1 At start-up .....	5
2.1.2 At shut-down .....	5
2.2 COMMISSIONING.....	5
<b>3.0 MAINTENANCE</b>	<b>6</b>
3.1 TESTING AND REPLACEMENT OF DAMPERS AND ACTUATORS.....	6
<b>4.0 TROUBLESHOOTING</b>	<b>6</b>
<b>5.0 FACTORY ASSISTANCE</b>	<b>6</b>



**NOTE:** This unit is an energy recovery ventilator, or ERV. It is commonly referred to throughout this manual as an ERV.

## 1.0 INSTALLATION

Damper(s) are factory installed and fully wired in all ERV models.

**Outdoor Installations:** For H and F orientations, attach ductwork to the ERV cabinet or to the outer flanges of the damper frame.

For R and V orientations, attach ductwork to the curb before installing the ERV to the curb.

**Indoor Installations:** Attach ductwork directly to the ERV cabinet or to the outer flanges of the damper(s) frame.

### 1.1 DAMPER LOCATIONS ON OUTDOOR ERVS

#### IMPORTANT

It is important to understand and use the equipment airstream terminology as it is used in this manual. The airstreams are defined as:

- **OUTSIDE AIR (OA):** Air taken from the external atmosphere and, therefore, not previously circulated through the system.
- **SUPPLY AIR (SA):** Air that is downstream of the enthalpic cores and is ready for conditioning or for return to the Occupied Space.
- **RETURN AIR (RA):** Air that is returned to the ERV from a conditioned space.
- **EXHAUST AIR (EA):** Air that is removed from a heating or cooling appliance or from the Occupied Space and discharged.

Damper(s) are located at the OA location (underneath the air intake hood) and at the RA location for all units except HE07, HE10, HE15, HE20, HE6X, HE7X, and HE8X. The OA and RA locations are marked on the outside of the ERV. The damper actuators are located inside the ERV and are accessible through the ERV core door.

### 1.2 DAMPER LOCATIONS ON INDOOR ERVS

Damper(s) are located at the OA location and at the RA location for all units except HE07, HE10, HE15, HE20, HE6X, HE7X, and HE8X. The OA and RA locations are marked on the outside of the ERV. The damper actuators are located inside the ERV and can be accessed through the ERV core door.

### 1.3 DAMPER LOCATIONS IN HE07, HE10, HE15, AND HE20 ERVS

Damper(s) are located at the SA location and at the EA locations. The SA and EA locations are marked on the outside of the ERV. The damper actuators are located inside the ERV. The SA and EA actuators are accessible through the left door.

### 1.4 DAMPER LOCATIONS IN HE6X, HE7X, AND HE8X ERVS

Damper(s) are located at the OA location and at the EA locations. The OA and EA locations are marked on the outside of the ERV. The damper actuators are located inside the ERV. The OA actuator is accessible through the ERV core door, while the EA actuator is accessible through the right ERV blower door.



**NOTE:** In some ERV models, the intake hoods must be installed over the damper.

## 2.0 OPERATION

### 2.1 SEQUENCE OF OPERATION

#### 2.1.1 At start-up

When the ERV receives an external call for ventilation, the blowers will not turn on immediately. The damper(s) are opening inside the ERV. It will take approx. 45 seconds to open, at which point a low voltage end switch in the actuator closes. The end switch call on the VFD or the motor starter to turn on the blower.

#### 2.1.2 At shut-down

When the ERV no longer calls for ventilation, the damper(s) will begin closing (spring return). When the damper(s) are approx. 75% closed (15-20 seconds), the end switch will open and the blowers will stop.

### ⚠ CAUTION

The blowers will still be spinning, but will stop. Do not try to manually slow the fans down.

### 2.2 COMMISSIONING

Check all dampers and insure they open and close properly and without binding. Apply power to motorized dampers to ensure the actuator opens and closes the damper as designed.

To check damper operation without operating blowers:

1. Turn off power to unit by rotating unit disconnect switch to "off" position (Warning! Line side of disconnect switch is still hot!)
2. Temporarily disconnect motor control(s):
  - a. Units with one or two motor starters: disconnect blue low-voltage wire leading to transformer from terminal 96 of all of the motor starters.
  - b. Units with one or two variable frequency drives (VFDs): Disconnect low-voltage wire leading to damper end switches from terminal 9 or 12 of all VFDs. Alternately use VFD keypad to set motor speed to 0 (Warning! control equipment you install in the next step might over-ride this setting).
  - c. Units with molex plugs connecting the motor wire harnesses to power and control wire harnesses: Unplug the low voltage motor control harnesses (two pin connection).
3. Consult unit wiring schematic and make temporary or permanent connections of jumpers or controls to call for unit operation.
4. Turn on power to unit.
5. Using the jumper(s) or controls installed in step 3, call for unit operation. Dampers should open.
6. Disconnect power to the unit; dampers should close.
7. Reconnect the motor control(s) by reversing what you did in Step 2, above.



NOTE: Dampers(s) are spring return and are in the shut or closed position when the ERV is not operating.



NOTE: Dampers(s) return to the closed position if power to the ERV is interrupted.



NOTE: Check for unobstructed operation.



NOTE: For indoor units, the dampers are located inside the ductwork attached to the unit. Therefore, check damper operation after installing the first lengths of ductwork that cover the damper, but before completing the ductwork and making it inaccessible.



NOTE: This procedure does not confirm proper operation of the actuator end switches.

### 3.0 MAINTENANCE

Damper bearings are an impregnated bronze material and do not need lubrication.

Clean out wind-born debris such as leaves from the sealing surfaces of OA dampers in rooftop units at the same time you change filters.

#### 3.1 TESTING AND REPLACEMENT OF DAMPERS AND ACTUATORS

If dampers fail to open at the signal for ventilation, disconnect power to the unit. To determine if the actuator is defective, disconnect the 24V power source. Connect the actuator directly to a known 24V power source with an appropriate cable. If the damper operates correctly, the problem is in the internal wiring connections.

### 4.0 TROUBLESHOOTING

Damper:

Low air flow: Unit damper(s) not fully open, check for unobstructed operation. Clear any obstruction; re-tighten the actuator u-clamp; or replace damper actuator.

Dampers open, but blowers don't run: check end switch closure.

### 5.0 FACTORY ASSISTANCE

In the unlikely event that you need assistance from the factory for a specific issue with the ERV or its Isolation Damper Option, make sure that you have the information called for in the Unit Records pages at the front of this manual. The person you speak with at the factory will need that information to properly identify the unit and the installed options.

**To contact RenewAire Customer Service:**

**Call 800-627-4499**

**Email: [RenewAireSupport@RenewAire.com](mailto:RenewAireSupport@RenewAire.com)**

Remember that RenewAire Customer Service can only assist with the ERV and its options, it cannot resolve engineering issues that result from air handling system design by others.

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## About RenewAire

For over 40 years, **RenewAire** has been a pioneer in enhancing indoor air quality (IAQ) in commercial and residential buildings of every size. This is achieved while maximizing sustainability through our fifth-generation, static-plate, enthalpic-core **Energy Recovery Ventilators (ERVs)** that optimize energy efficiency, lower capital costs via load reduction and decrease operational expenses by minimizing equipment needs, resulting in significant energy savings. Our ERVs are competitively priced, simple to install, easy to use and maintain and have a quick payback. They also enjoy the industry's best warranty with the lowest claims due to long-term reliability derived from innovative design practices, expert workmanship and **Quick Response Manufacturing (QRM)**.

As the pioneer of static-plate core technology in North America, RenewAire is the largest ERV producer in the USA. We're **committed to sustainable manufacturing** and lessening our environmental footprint, and to that end our Waunakee, WI plant is 100% powered by wind turbines. The facility is also one of the few buildings worldwide to be LEED and Green Globes certified, as well as having achieved ENERGY STAR Building status. In 2010, RenewAire joined the Soler & Palau (S&P) Ventilation Group in order to provide direct access to the latest in energy-efficient air-moving technologies. For more information, visit: [renewaire.com](http://renewaire.com)

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