

Supplemental Instructions for Optional Isolation Dampers

Installation

Dampers are factory-installed and fully wired in all ERV models.

Rooftop (Outside) Installations: in some ERV models the intake and exhaust hoods must be installed over the dampers.

Inside Installations: Attach ductwork directly to the unit cabinet using the flanges provided. Do not attach the ductwork to the frame against which the damper closes.

NOTE: the dampers cannot be inspected from inside the ERV. You may wish to install an access panel in the ductwork to allow for visual inspection of the dampers.

NOTE: Provide access to the damper actuators, which are located outside of the duct, so that they can be inspected in the future.

Damper Locations on Rooftop Units

Isolation dampers are located at the Outside Air (OA) location (underneath the intake hood) and at the Exhaust Air (EA) location (underneath the exhaust hood). The OA and EA locations are marked on the outside of the unit. The damper actuators are located underneath the OA and EA hoods.

Damper Locations on Indoor Units

Isolation dampers are located at the EA and Fresh Air (FA) locations. The EA and FA locations are marked on the outside of the unit. The damper actuators are located on the outside of the installed ductwork and can be accessed without removal of the installed ductwork.

Damper Locations in RTC Models

In RTC models one damper is located in the EA hood and the other damper is located between the OA blower and the energy-recovery cores.

Damper Locations in HE6X & HE8X Models

In these units one damper is located inside the unit, behind the Outside Air inlet. The other damper is located between the cores and the EA blower.

Sequence of Operation

At start-up:

When the ERV unit receives an external call for ventilation, the blowers should not turn on immediately. The isolation dampers are opening inside the unit. It will take less than 60 second for the dampers to open, at which point a low-voltage end switch in the actuator closes. The end switch calls on the VFD or motor starter to turn on the motor. If the option VFD(s) are supplied, the VFD displays the increasing speed of the motor in hertz.

Sequence of Operation

At shut-down:

When the ERV no longer calls for ventilation, the isolation dampers will begin closing. Once the dampers are approx. 75% from closure (15-20seconds), the end switches open, and the motors will stop.

Note: Isolation dampers are shut down and in the closed position when the unit is not operating.

Note: Isolation dampers return to the closed position if power to the unit is interrupted.

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.

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.

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).
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: The above procedure does not confirm proper operation of the actuator end switches.

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.

Model HE1X: if only one motor starter is provided, the damper end switches are connected in series and both actuators need to be checked.

Troubleshooting

Actuator:

Refer to supplied Installation Instructions from manufacturer.

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.

Maintenance

Damper bearing 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.

Electrical Schematics

See separate Supplemental Wiring Schematics Manual.