RenewAire
Energy Recovery Ventilation

# AUTOMATIC BALANCING DAMPER

## Supplemental Installation Manual for Accessories

ABV-4
ABV-5
ABV-6

ABV-4, ABV-5, ABV-6

CLASSIFIED
C UL US
R38089

### TABLE OF ILLUSTRATIONS

# 1.0 OVERVIEW

## 1.1 DESCRIPTION

The ABV damper is an automatic balancing damper that maintains a constant airflow volume in HVAC applications. The engineered damper blade and stainless steel spring are laboratory calibrated to automatically adjust to varying pressures—using physics not electricity—giving the ABV damper true pressure independence.

NOTE: The ABV-4 is for 4" ducts; the ABV-5 is for 5" ducts and the ABV-6 is for 6" ducts.

The ABV damper is a reversible product—it can be used for exhaust or supply applications.

However, the ABV damper is air flow dependent and the direction of airflow through the product is critical for proper operation.

Classified by UL to UL 2403 for heat release rate and smoke optical density.

Suitable for application in temperature from 25º to 150ºF (-4º to 65ºC).

# 2.0 INSTALLATION

## 2.1 INSTALLATION OVERVIEW

ABV dampers can be installed in rigid duct, duct collars, plenum/register boxes or anywhere a constant volume of air is required.

Assure that the Airflow Direction shown on the product is properly aligned for your application. (see Figure 1.1.0)

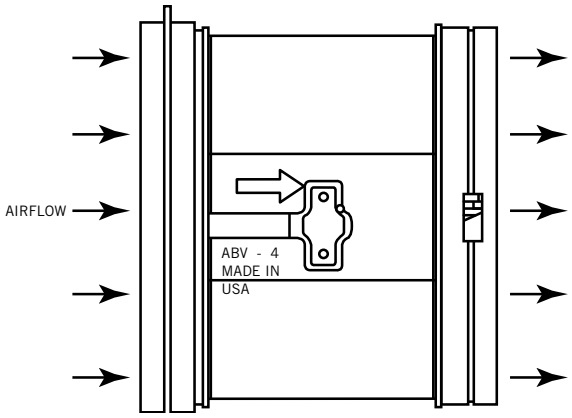
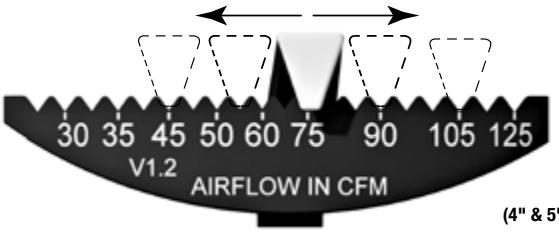



FIGURE 2.1.0 AIRFLOW DIRECTION

The ABV damper is designed for installation without the need for any screws or fasteners. The adjustment of the airflow is accomplished through the set-points and set-point ridges on the face of the damper (See Figure 2.1.1).

Each ridge of the set-point adjustment indicator has been laboratory calibrated in accordance with ANSI/AMCA 500-D-12.




(4" & 5" SET POINTS SHOWN)

FIGURE 1.1.1 SET POINT ADJUSTMENT

ABV dampers can be installed in any orientation vertically or horizontally (see Figure 2.1.2).

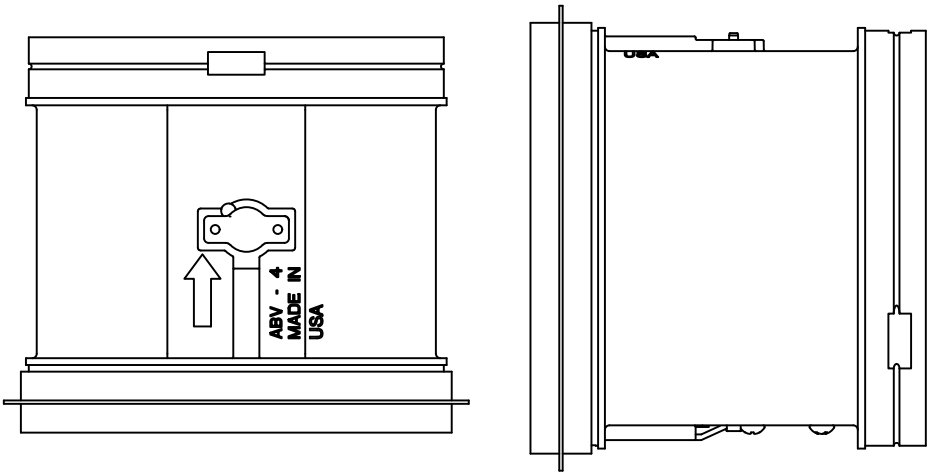



**FIGURE 2.1.2 INSTALLATION ORIENTATIONS**

If installed with the set-point arrow point sideways, the damper will still function, but the CFM volume may be outside of the +/- 10% range of the selected volume (see Figure 2.1.3).

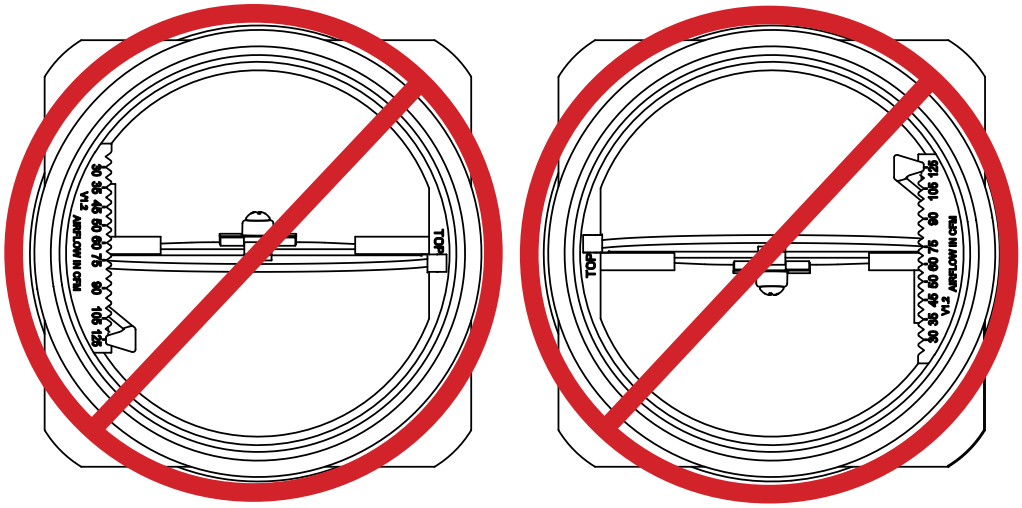



**FIGURE 2.1.3 SET POINT ORIENTATIONS**



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## 2.2 ROUND DUCT/OPENING INSTALLATION

The ABV damper can be pressed into round duct without any need for fasteners. The provided perimeter gasket provides sufficient grip to hold the valve in place without the need for any fasteners or adhesives.

Simply remove the quick adapter plate from the end of the ABV damper and slide into the rigid round duct (see Figure 2.2.0).

NOTE: The perimeter gasket material can be removed from one end and moved to the opposite end if needed for installation.

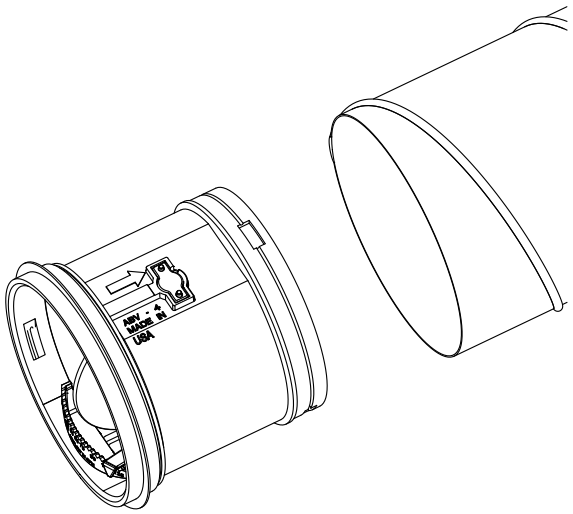

FIGURE 2.2.0 DAMPER AND ROUND DUCT INSTALLATION

## 2.3 SQUARE/RECTANGULAR DUCT/OPENING INSTALLATION

Installation into square/rectangular duct requires a square/rectangular to round transition. A square (or rectangle) to round plate should be fabricated or purchased for the ABV damper model (see Figures 2.3.0 and 2.3.1).

With the damper aligned in the direction of airflow, press the gasketed end into the round opening of the square/rectangular to round transition.

From the other side of the round opening, simply 'snap' the Quick Connect Adapter Ring in place for a tight, fastener-free, tool-free installation (see Figures 2.3.0 and 2.3.1).

NOTE: The perimeter gasket can be moved from one end of the valve to the other as needed for proper airflow and space contraints.

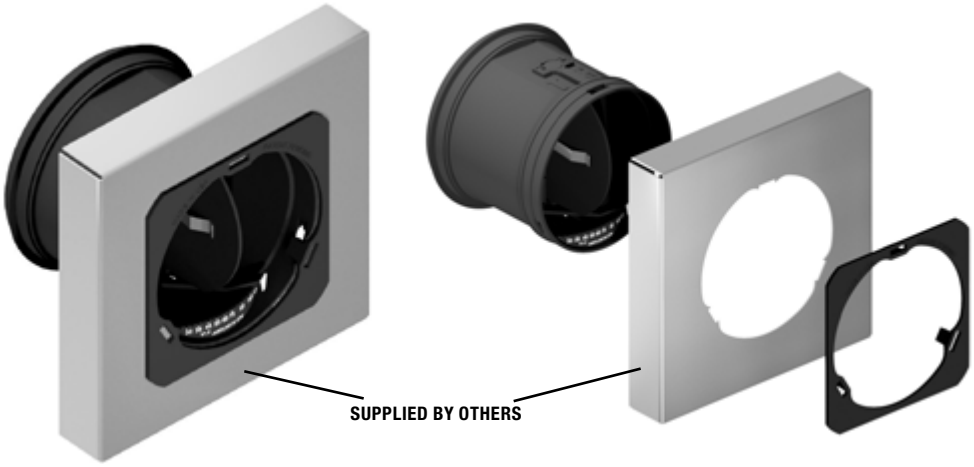


FIGURE 2.3.0 DAMPER AND SQUARE TRANSITION INSTALLATION

FIGURE 2.3.1 DAMPER AND SQUARE TRANSITION INSTALLATION EXPLODED

Finally, the square/rectanuglar to round transition can be inserted into a square/rectangular duct (or plenum box) (see Figure 2.3.2). Sheet metal screws can then be used to fix the ABV damper and transition into place.

NOTE: If the damper is installed in a continous duct run, an access panel or door should be provided for periodic cleaning, inspection or adjustment.

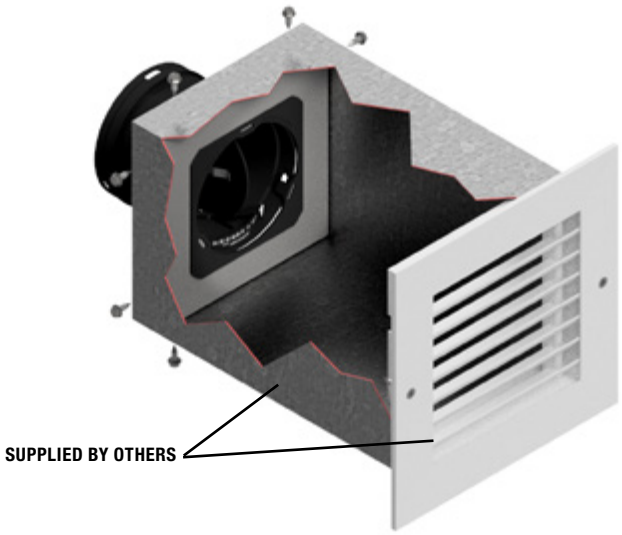


FIGURE 2.3.2 DAMPER AND SQUARE DUCT/BOX INSTALLATION

**CAUTION**

The ABV damper should only be adjusted by means of the adjustment arm. DO NOT OPERATE THE DAMPER VIA THE BLADE. Adjusting or operating the damper by the blade can change the tension of the staninless steel spring and can possibly change the operating range of the damper.

## 2.4 GRILLE BOX INSTALLATION

The ABV damper can be installed into a grille mount box fabricated in the field or supplied by others (see Figure 2.4.0).

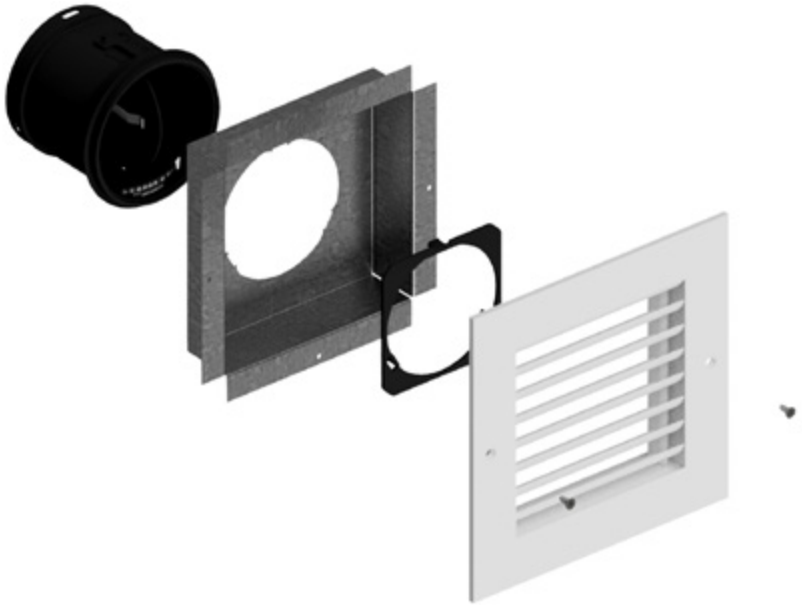

FIGURE 2.4.0 GRILLE BOX INSTALLATION

If fabricated in the field, follow similar dimensional guidelines as in Figure 2.4.1. Dimensions A-C will be variable depending on the ABV damper diameter and grille size.

Special considerations should be given to flange length (flange is optional) as well as the box depth in order to fit grille by others.

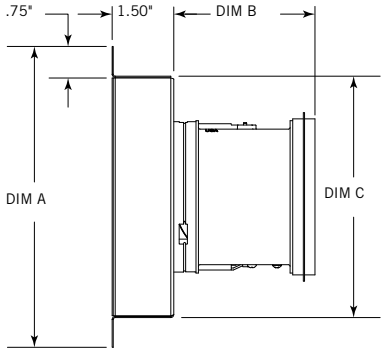


**FIGURE 2.4.1 DIMENSIONAL GUIDELINES**

# 3.0 OPERATION

## 3.1 AIRFLOW ADJUSTMENT

Each ABV damper has a broad range of laboratory calibrated airflow set points – that are easily viewable, accessible and adjustable with the product installed. The most commonly specified CFM volumes are labeled on each unit's adjustment ridge:

| CFM SET POINTS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ABV-4, ABV-5 | 30 | 35 | 45 | 50 | 60 | 75 | 90 | 105 | 125 | -- |
| ABV-6 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 180 | 205 | 240 |

**FIGURE 3.1.0 CFM SET POINTS TABLE**

CFM ratings for every adjustment set point (not just the ones that are labeled) can be found in our Submittal

While the ABV damper is pressure independent, the accuracy of the damper is impacted by duct pressure. The operating pressure range and accuracy of the ABV is 0.2 to 2.0" WG. (It is recommended to keep static pressure below 1.0" WG. in most applications to reduce the potential for leakage, noise, and wasted energy.)

The ABV damper should only be adjusted by means of the adjustment arm. DO NOT OPERATE THE DAMPER VIA THE BLADE. Adjusting or operating the damper by the blade can change the tension of the stainless steel spring and can possibly change the operating range of the damper.

# 4.0 MAINTENANCE

Generally, no maintenance is required for the product to operate as designed. In addition, all ABV damper models incorporate Steri-Balance™, a non-caustic antimicrobial agent, molded into all plastic components in the damper to inhibit microbial growth.

Blowing pressurized air into the damper is normally sufficient to keep the damper clean and dust free. If necessary, the damper can be removed and washed with water. No solvents should be used in cleaning as they could damage the damper or gasket.


## About RenewAire

For over 30 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

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