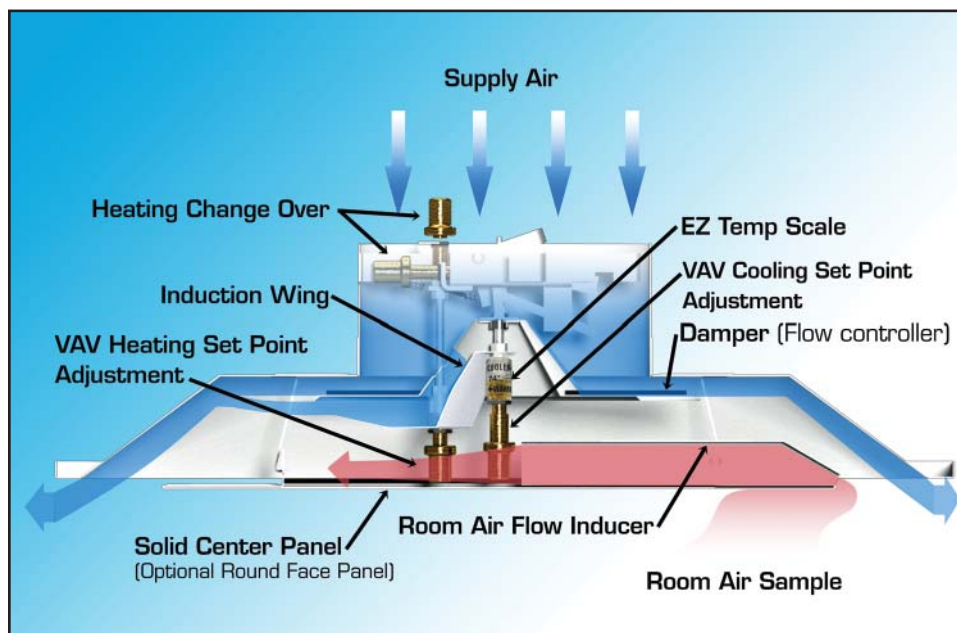
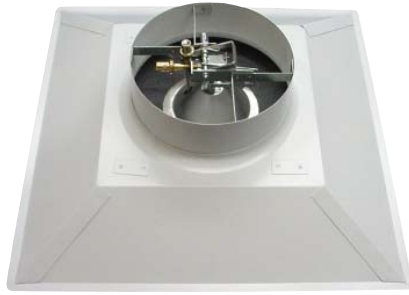


HOW IT WORKS

The SFPV/SHPV is a thermally powered VAV diffuser which is completely self-contained and self-powered. The mechanism is operated by four thermostatic actuators. The actuators provide VAV room temperature control in heating and cooling. The simple design is based on fewer moving parts to hinder the actuator's response. A cone shaped diffusion damper creating less turbulence allows complete and even air distribution. The diffusion damper has 1/8" foam padding for quiet operation. Room air is induced across actuators #3 and #4 by use of a simple induction wing. This diverts a small amount of supply air which induces a room air sample through an induction trough located on the back side of the plaque panel.



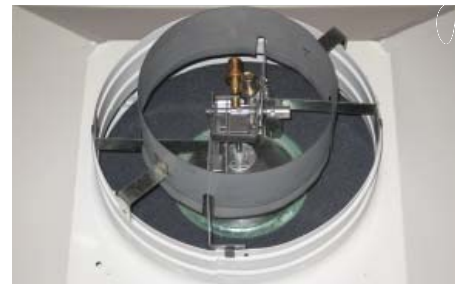


INSTALLATION

1. Inspect carton before opening. Notify shipper if external damage exists
2. Remove face panel protector.
3. Install in ceiling T-bar frame flat and down on the sides. Do not blow directly against surface mount light fixtures or ceiling obstructions.
4. Connect and tape or zip tie the inlet duct to the collar for a leak proof connection. The collar O.D. is 1/8" smaller than the normal duct size. Flexible duct should be formed in less than a 5 foot radius turn. A horizontal inlet cap should be used where clearances prevent reasonable turns.
5. Four earthquake hangers are provided and should be used where applicable.

Relief Inlet Connection: Relief inlet connections may be added to all diffusers if excessive duct pressure occurs when the diffusion damper is in the closed or near closed position. Place relief collar with 2 legs on the outside of the diffuser collar and install screws. A slight induction effect may exist at full open. As the disc closes, the excess air will be discharged through the opening between the duct connection and the outlet ring.

Caution: Do not obstruct the relief area with duct.



Face Panel Removal

The solid face panel is held in place by four spring clips. To remove the face panel for room temperature adjustments, approach panel from the induction trough side (the rectangle opening) reach above the panel on both sides with your forefingers until you are able to place your forefingers behind the spring clips. Using your thumbs on the front edge of the panel push the panel back or away from you while pulling the spring clip forward or toward you with your forefingers. Lower the panel and pull forward to disconnect the panel from the rear spring clips. When reattaching face panel the induction trough must be positioned directly opposite of induction wing.



Temperature Adjustment

Cooling Adjustment

Diffusers feature an easy to read room temperature set-point scale. Room temperature adjustments are made by simply turning the VAV room temperature control thermostatic actuator #4 clockwise for a cooler room temperature and counter clockwise for a warmer room temperature. Determine room temperature set-point by aligning the end of the actuator with the indicators on the temperature scale. Each full rotation or each indicator on the temperature scale will equal plus or minus two degrees. For factory set-point of 74 degrees, turn actuator clockwise to stop, then turn counter clockwise three full turns.



Heating Adjustment

The room temperature set point is controlled by the red actuator #3. For a cooler room temperature turn actuator #3 clockwise. For a warmer room temperature turn actuator #3 counter-clockwise. Each full turn equals plus or minus 2 degrees.



The diffuser utilizes significant spring pressure to accurately control the thermal actuators sensitivity to temperature change and reduce inherent stress and wear.

Note: When actuators are warm they may be slightly difficult to adjust.

Temperature Adjustment Scale



BALANCING

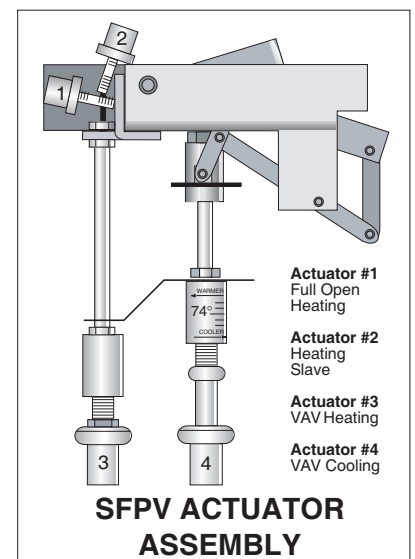
All diffuser units are of variable discharge area type. There are no applicable AK actors and the volume (cfm) must be measured with a balancing hood. The discharge disc acts as an outlet damper but does not eliminate the need for a branch (spin in) damper. The volume is adjusted at the balancing damper and the velocity is raised or lowered by rotating the disc to the desired position. A measurement of 1250 FPM at the maximum demand volume is desirable unless it creates excessive noise or drafts. Maximize the discharge velocity to the space requirement at the maximum design volume.

OPERATION

Change over between heating and cooling modes is determined by supply air temperature. When heating cycle is initiated, actuator #1 will react first, lowering damper to full open position (full heating).

Then actuator #2, the heating slave, reacts at 78 degrees or greater, positioning the heating u-arm to engage actuator #3, the room thermostat for heating control.

As the room warms, actuator #3 begins to sense room temperature to vary the heating supply volume to achieve and sustain the desired room temperature. The factory set point of 74 degrees is adjustable between 72 - 78 degrees. For less heating, turn actuator #3 clockwise. For more heating turn actuator #3 counter-clockwise. Each full turn will equal plus or minus 2 degrees. A drop in room temperature and unit will respond by



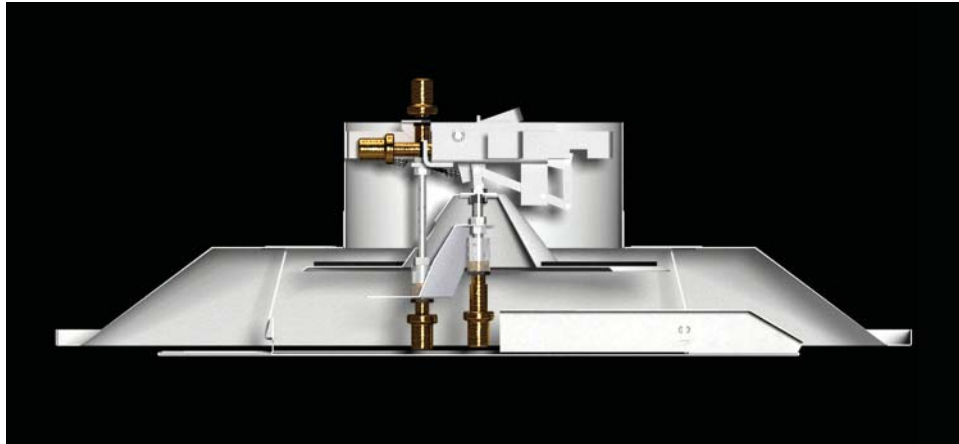
opening to increase heating volume until the room temperature reaches the desired set point.

VAV cooling control is initiated when supply air is below 68 degrees.

In cooling mode actuators #1 & #2, do not react. This engages the cooling control actuator #4 which will vary the supply air when cooling. A rise in room temperature and unit will respond by allowing cool air into the space until the room temperature reaches the desired set point. All units are factory set at 74 degrees, and are adjustable between 72 and 78 degrees.

For a cooler room temperature turn actuator #4 clockwise. For a warmer room temperature turn actuator #4 counter-clockwise.

Determine room temperature set point by aligning the end of the actuator with the indicators on the temperature scale. Each full turn or indicator will equal plus or minus 2 degrees.



MAINTENANCE

Diffusers are designed to be virtually maintenance free. We do recommend that the outer surfaces of the diffuser be kept clean. Wipe with water and mild detergent.

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