

VAV ARCHITECTURAL SQUARE



The Variflow™ diffusers are the latest in state-of-the-art VAV technology. The VARI-FLOW square diffuser is a VAV ceiling diffuser designed for a grid ceiling system. It functions as an air diffuser, a zone of temperature control, and a VAV box.

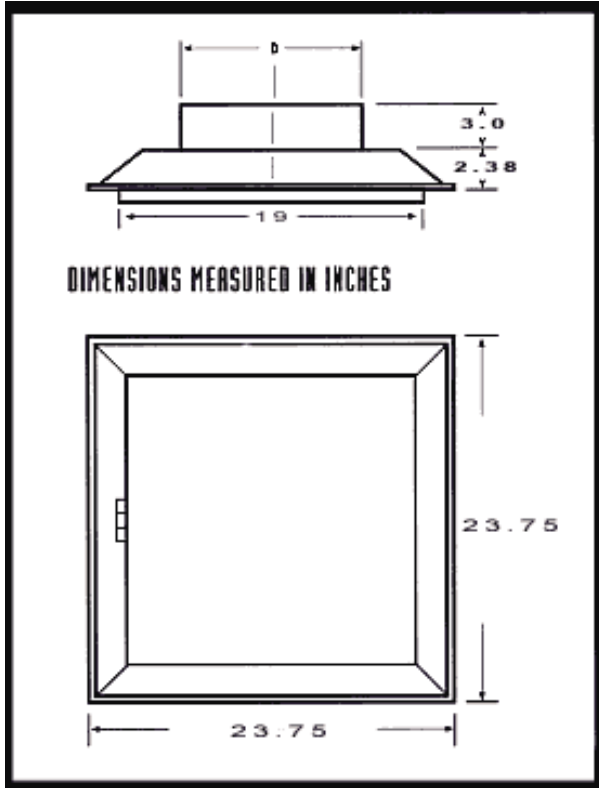
The VARI-FLOW™ architectural VFS "D" diffuser operates the same as a standard VFS, but is designed to accept a ceiling tile. This allows the architect to match the existing ceiling tile pattern creating a harmonious appearance with the ceiling system.*

The VARI-FLOW™ (VFS Series) provides individual temperature control for cooling at each diffuser, adjustable from 70 to 78 degrees Fahrenheit. This will provide constant uniform temperature within a large office space or in smaller individual offices regardless of heat load conditions. The net result is uniform comfort and energy saving as none of the conditioned space is over or under cooled.

The VFS-24 diffuser is totally self-contained and self-powered by a thermal element. The element functions in the unit as the thermostat and "motor" to power the unit. The principle of operation of the element is a basic and simple one, that of thermal expansion when a substance changes state, in this case from a liquid to a solid. The element uses a mixture of synthetic wax and copper powder for the medium, blended to respond in the desired operating range. The energy provided by the thermal element is coupled to an efficient operating mechanism to operate the damper on the unit.

FEATURES

- Totally self contained control system
- Warm-up feature (optional) provides constant volume heating
- Self-powered, thermally-actuated, individual VAV room control
- Variable discharge area
- Heating and cooling with automatic change over
- Reduces installation costs
- All controls accessible from unit face
- Saves energy on existing and new systems
- Calibrated VAV cooling set point
- No controls contracts
- Low profile induction guide



Sleeve Damper

The VFS-24 uses a unique sleeve type damper to vary the diffuser outlet area in response to the thermal element's call for more or less air. (See sketch) This moving sleeve solves the basic problem inherent to the earlier types of thermally actuated diffusers which used disk, plate or multiple diffusion blades dampers.

Thermally powered diffusers are designed to make use of the temperature sensitive characteristic of the thermal mechanical pressure applied to the shaft of the element. The temperature operating curve of the element is stable at a constant mechanical pressure. If the pressure on the element were to vary in operation, the temperature operating band would also vary.

A disk or plate type is subject to widely varying forces when it tries to close against the velocity and static pressures in the diffuser neck. The pressure on the disk creates greater pressure on the element shaft resulting in large fluctuations in temperature set point of the thermal element. The net effect on room temperature control is temperature resetting. The force needed to move a sliding sleeve damper is not affected by changes in system air pressure on the sleeve. The VFS thus assures the system designer of the full 70 to 78 degree operating range of the diffuser, regardless of system pressure variations or damper position.

Adjustable Constant Volume Heating

Units equipped with the optional constant volume heating feature have a change over thermal element located on the operating mechanism in the neck of the unit.

The constant volume heating adjustment sets the damper opening and volume when the unit is in the heating cycle.

The adjustability is from a full closed to a full open damper position. The unit goes into the heating mode when the supply air temperature is 78 degrees or higher. The change over element senses the elevated supply air temperature and opens the damper to the pre-set volume set by the constant volume heating damper adjustment. The unit will switch back to VAV cooling when

ACCESSORIES/OPTIONS

- **Frames:** Surface mount, Spline or Fine line frame
- Baffle kit available to alter discharge pattern—
1, 2, 2-way corner or 3-way
- 14" x 14", 16" x 16", and 20" x 20"
nominal panels available
- Refer to VFSOI94-100 for tile installation

MODEL NUMBER

VF	S	24	D	4	H	10	W
var-flow series	square	nominal size in inches (24 & 12)	(A) orobitectural appearance panel, (B) perforated face	direction of discharge — 4 low way	(C) vav cooling only (H) vav cooling, constant volume heating	inlet size (08, 10, 12, and 14) inches available	finish: (W) white, (B) black, (S) special

the supply air temperature drops below 70 degrees Farenheit. The change over element senses the lower supply temperature and returns control to the room element.