

Model: CSS-VAV-E Diffuser

The Holyoake CSS - VAV - E is an externally controlled pressure dependant* VAV Diffuser, complete with a control damper positioned by a 24 V AC actuator, via an onboard Electronic control system, incorporating a supply air duct sensor and a fascia mounted room sensor.

Designed to control the temperature in a space by having the ability to change the supply air volume between a minimum and maximum setting, as detailed in the performance data. **[The Primary Air Temperature is not controlled by this system and would require an input from the building system temperature control].**

As Standard the CSS - VAV - E is suitable for lay-in applications into a typical 600 mm ceiling grid and comprises of the following:

CSS 24, or CSS 48 Ceiling Slot Swirl Diffuser.

Premi-Aire™ Pre-Insulated Side Entry Cushion Head Box.

Single Blade Control Damper.

24 V AC motor.

Electronic Control System

Supply and Room Temperature Sensors.

The CSS - VAV - E is one of the strongest performing diffusers on the market, capable of handling a wide range of air flows. Using the CSS range of Square Ceiling Slot Swirl diffusers with slots set in a radial angled pattern, providing a circular swirling airflow, which achieves strong room air induction into the supply air path, which results in mixing at high level, reducing draughts and uneven temperature gradients.

By combining the flexibility of a fully integrated stand alone control system, with excellent air distribution performance, the CSS - VAV - E becomes the latest solution of choice for any VAV diffuser application.

The Holyoake CSS - VAV - E is designed to automatically control a conditioned space without the need for a complex controller, or a wall mounted thermostat. Because all of the control components are built into the CSS - VAV - E diffuser, all that is required is a 24 V AC feed (Optional Transformer available).

*An additional system static pressure device may be required.

***Products suitable for providing pressure dependant control can be found in Section G and Section K of the Holyoake Industries Component Manual.**

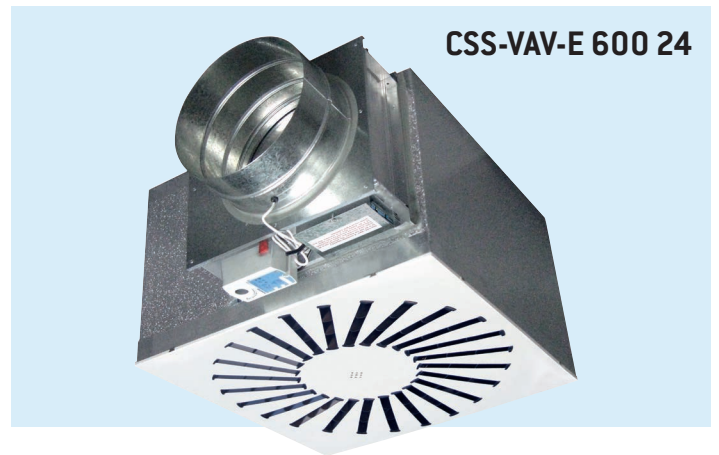


Ceiling 'T Rail' Installation

Installation is simple due to the light weight, square, lay-in design. The assembly can easily be placed into the 'T - Rail' ceiling grid and the supply duct connected to the side entry damper spigot.

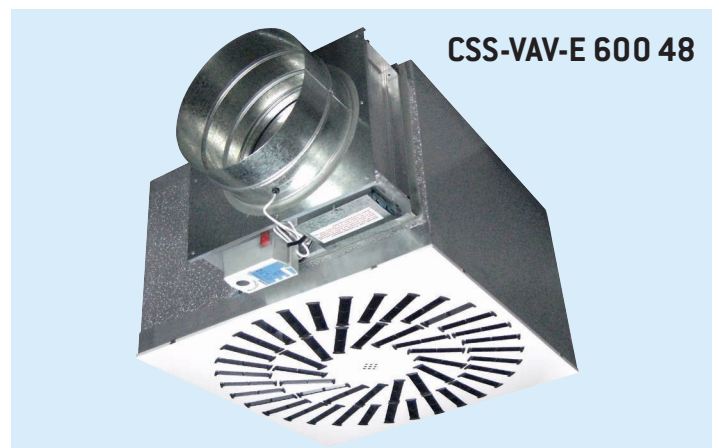
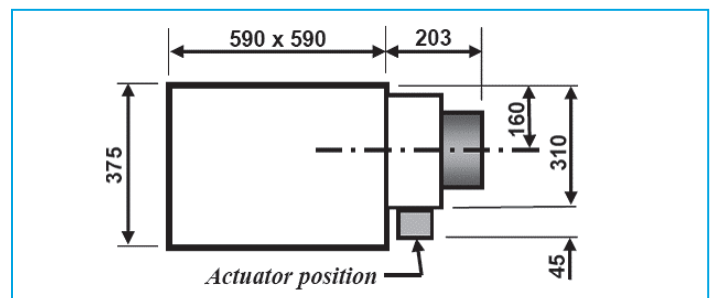
Construction

The CSS - VAV - E face plate is constructed of powder coated zinc coated steel, with tough UV stabilised air pattern elements, available in black, or white. Complete with centre holes for the control of the IR Remote Sensor, Temperature Thermistor and to display the LED's. The Supply plenum box is assembled from Premi-Aire™ board and is complete with a galvanised steel side entry connecting spigot and an Aluminium single blade damper, with a 24 V AC motor and controls positioned for easy access for wiring and maintenance through an adjoining ceiling tile.



Technical Data	
Swirl Type	CSS24, or CSS48
Box Type	Premi-Aire™
Thermal Rating	R1.0
Control Damper	Single Blade
Actuator	24 V AC
Spigot Diameter	250mm
Gross Weight	10.9 Kg++
++Tandem Unit	9.6Kg
Control System	Electronic**

**With Optional IR Remote



Features

- Electronic Control Package.
- Lightweight Premi-Aire™ Box Construction.
- Infinite Range of Throw Patterns.
- High Induction Swirl.
- 24 V AC Actuator.
- Pressure Dependant Control.*

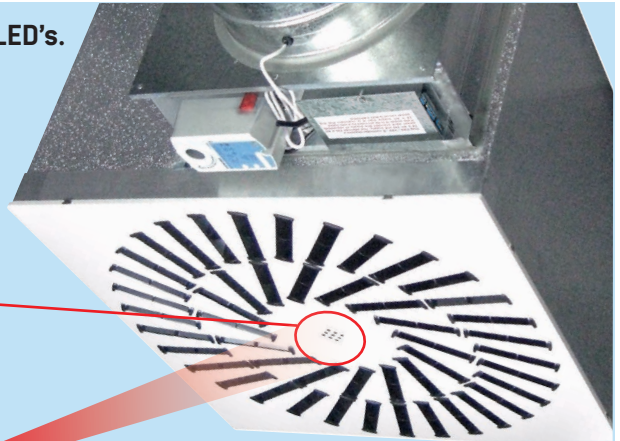
The whole CSS - VAV - E assembly, including diffuser, supply plenum box, damper, motor and control system is a light weight 10.9 Kg. (CSS - VAV - E Tandem unit 9.6 Kg).

CSS-VAV-E – Ceiling Swirl Electronic VAV Diffuser

Model: **CSS-VAV-E Diffuser**

Facia mounted Infra Red Sensor, Room Temperature Thermistor and LED's.

The CSS-VAV-E diffuser utilises the induced room air flowing around the facia mounted on-board sensing element, to control the space temperature.



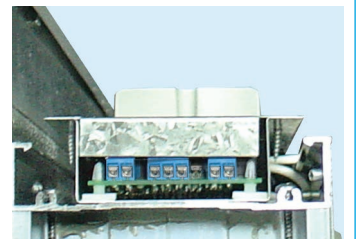
Infra Red Remote Controller

The temperature set-point for the occupied space is Factory pre-set at 21 Degrees C. Other temperatures can be factory pre-set if specified at the time of order, or can be adjusted on site with an Optional Infra Red Remote Controller.



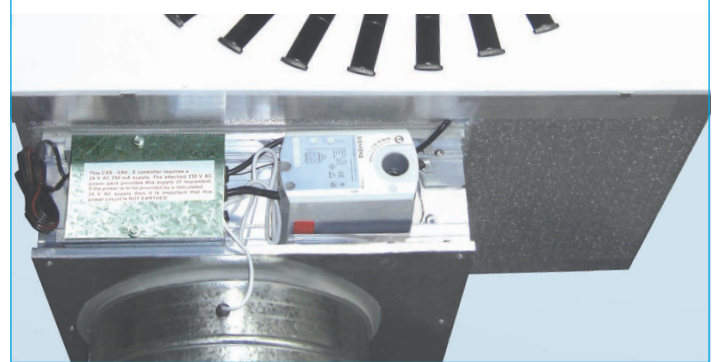
Motor Controls and Wiring

Because all of the control components are built into the CSS-VAV-E diffuser, all that is required is a 24 V AC feed (optional Transformer available). *An additional system static pressure device may be required.



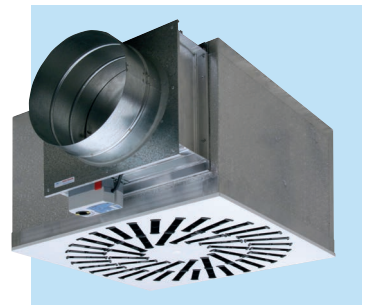
Induct Sensor

Incorporated within the diffuser is an air temperature sensor that reverses the action of the damper depending on whether the supply air system is in heating, or cooling mode. The damper itself is controlled by an actuator that gives the diffuser an infinite range of adjustment between the minimum and maximum settings.



Tandem Unit

The Holyoake CSS-VAV-E Tandem Unit is constructed as the CSS-VAV Product, but is complete with a 24 V AC actuator and is linked in parallel to the Master CSS-VAV-E unit controller, so as to provide the same airflow performance, without the need for an additional controller, or sensors*; providing it is installed in the same zone, or area (Uses Standard CSS 600 24 or 48 diffusers). *An additional system static pressure device may be required.



Options

- CSS - VAV - E Tandem Unit.
- 230 Volt to 24 Volt AC Transformer.
- Infra Red Remote Controller.
- 'T Rail' Support Frame (For Surface mounted applications).

Notes

1. The performance data for CSS - VAV on pages 119D and 120D, can also be used for the CSS - VAV - E and CSS - VAV - E Tandem Units, providing Flow Rates and Static Pressure are maintained (with the exception of the actuator signal values, which are not relevant to these versions); as it is based on static pressure behind the diffuser remaining constant.
2. All testing was carried out using Spiro-set Semi-Rigid Aluminium ducting. For all VAV applications we would recommend the use of Spiro-set ducting.

3. Performance testing was completed with Isothermal Air.
4. Tandem Units would need to be on the buildings same pressure and system temperature control zone, to provide the same performance. A maximum of 2 CSS – VAV – E Tandem Units can be operated from a Master CSS – VAV – E with controller.
5. Space will be required for manoeuvrability above the T Rail ceiling supports and will be dependant on site conditions and other services. (A separate 'T' Rail support frame is available for conventional Plasterboard ceilings if required).