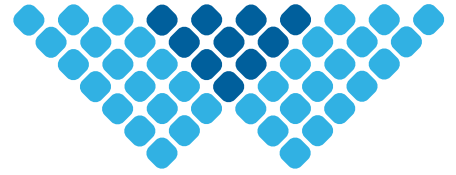
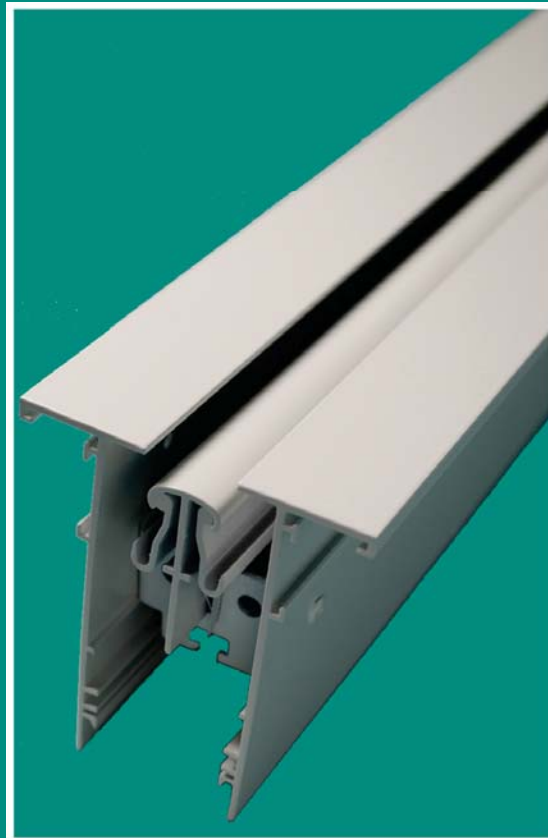


waterloo



# Operating and Maintenance

**CS** Linear Slot Diffusers





## CS Diffuser Installation

CS

### Product Description

- CS-F** Standard 28mm flange for general purpose
- CS-P** Narrow 18mm flange for flush / recess mounting
- CS-J** Medium 25mm flange for general purpose

### Tools Required

- 1 x Medium Cross Head Screwdriver

**Note:** Power tools are not recommended for this installation due to the risk of damage caused by the over-tightening of the hanging bracket screws.

### Plenum Box Installation

- 1- Align the centreline of the plenum box with the centre of the ceiling opening
- 2- Install the plenum box, suspending it from its mounting holes with Drop Rods (supplied by others). Use locknuts and washers above and below the mounting holes to set the plenum box height. If using gripple wire, 4 No. lengths must be used to fix the plenum to individual fixings in the soffit, located vertically, in line with the plenum mounting holes.
- 3- Check that the plenum box is level and aligned with the ceiling opening, ensuring that the distance from the bottom of the hem to the ceiling face is within the 45 to 55mm range (Figure 1). When this has been achieved, tighten the locknuts to secure the plenum position.

It is essential that all the plenums be installed in the ceiling void prior to the diffuser installation.

For continuous diffuser runs, Waterloo recommend that longitudinal angle (supplied by others) are attached to the sides of the plenums to prevent the plenum boxes pulling the diffuser out of alignment.

Waterloo also recommends that all mitre sections be installed prior to the fitting of continuous runs of active or dummy diffusers.

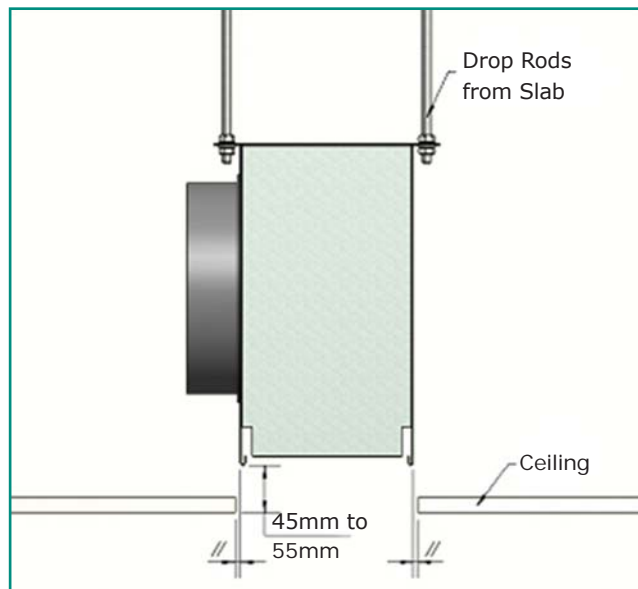


Figure 1- Plenum installation detail



## CS Diffuser Installation

**The installation of the CS-F, CS-P & CS-J variants of the CS Linear Slot Diffuser is as follows:**

1- Remove any Tee bars or flow control vanes that coincide with the diffuser cross stay fixing holes (Figure 2), and store to avoid damage. Ensure that these parts are identified to make sure that they are replaced in the same diffuser section as supplied.

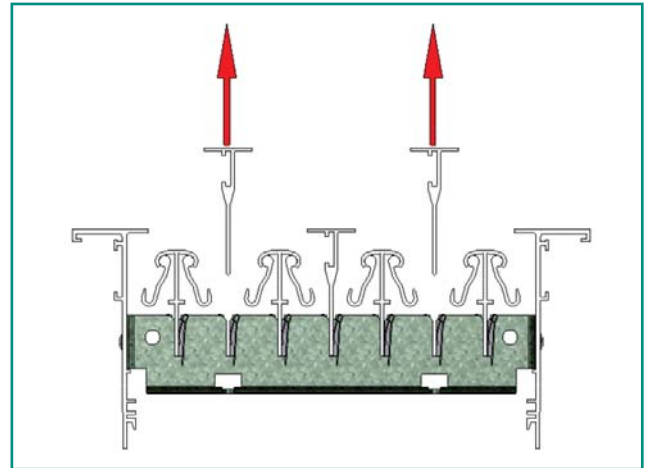


Figure 2: Remove Tee Bars & Vanes as required

2- Position the plenum hanging brackets (PHB) on the rear of the diffuser over the top of the cross stays that fall within the area where the plenum is to be fitted (Figure 3).

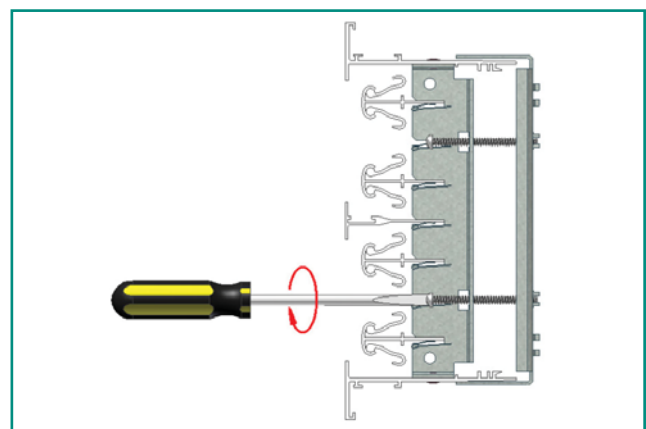


Figure 3: Loosely fit PHB to Stay

3- Using the screws supplied, loosely attach the PHB's to the rear of the diffuser where it is to attach to the plenum box. Tighten just 2 – 3 turns.

4- Offer the diffuser up to the ceiling opening. Locate the PHB's between the plenum box hems and push into position. It should be noted that some deflection of the hems is required to clear the PHB's (Figure 4)

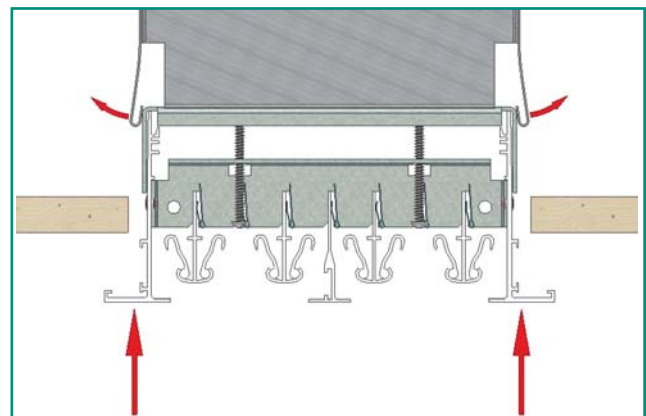


Figure 4: Push Diffuser into Plenum

5- Whilst holding the diffuser in position, push the PHB screws upwards. This will force the PHB past the hems of the plenum, so allowing them to spring back into their natural position (Figure 5). Carry this out on all PHB's on the diffuser.

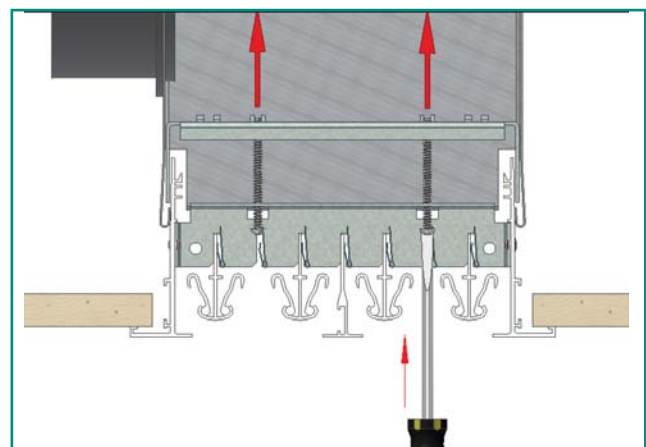


Figure 5: Push PHB Screws upwards



## CS Diffuser Installation

6- Pull the diffuser downwards to allow the PHB's to locate in the plenum box hems (Figure 6).

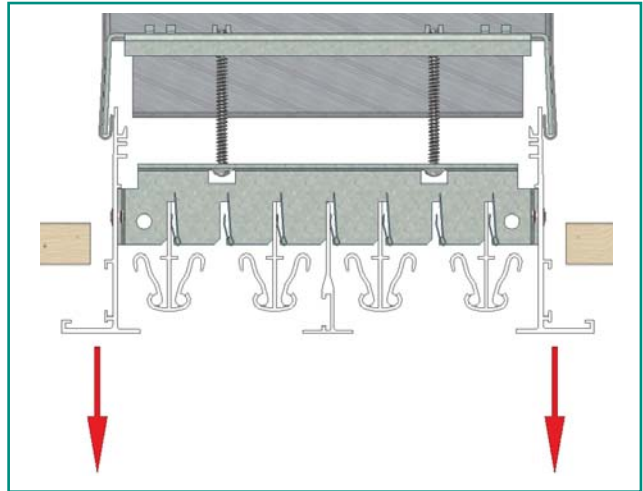


Figure 6: Pull diffuser downwards

7- Slide the alignment strips into the extruded tracks on the outer frame and Tee bars (Figure 7).

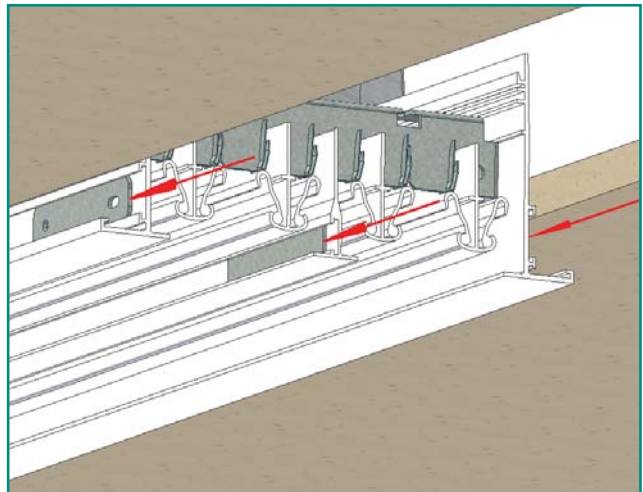


Figure 7: Slide Alignment Strips into place

8- Install the adjoining diffuser sections in the same manner and slide the alignment strips into the adjacent section (Figure 8).

These diffuser sections can if desired, be joined by screwing or riveting the alignment strips in position using the pre-punched holes in the outer frames on continuous runs.

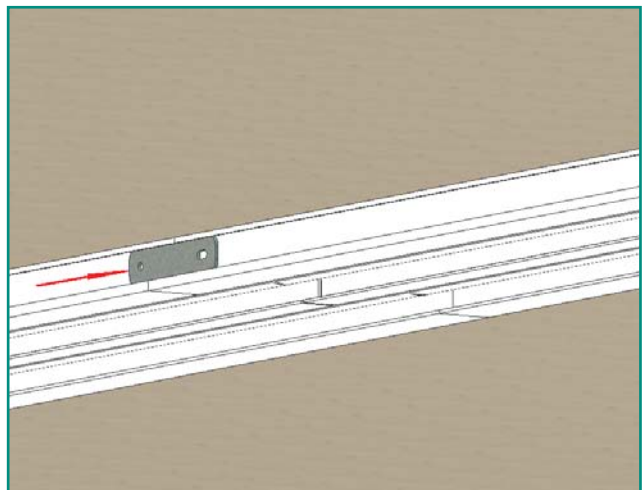


Figure 8: Position Alignment Strips



## CS Diffuser Installation

9- Tighten the PHB screws progressively until the diffuser sections are pulled up to the ceiling face (Figure 9). Take care not to over-tighten them, as this will cause damage to the diffuser cross stays.

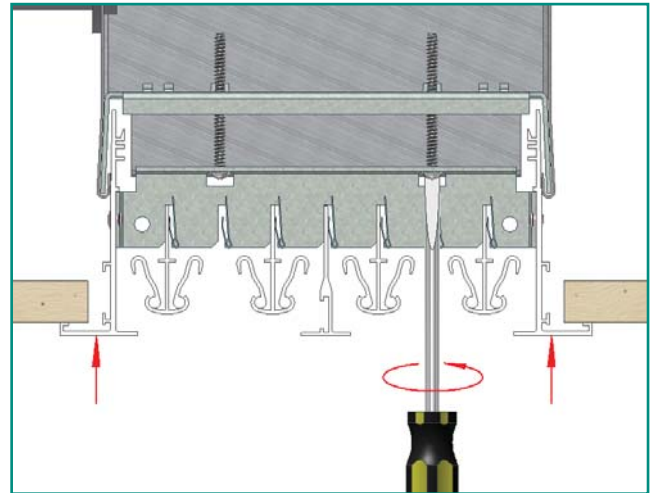


Figure 9: Tighten Screws

10- Replace the flow control vanes and Tee bars (Figure 10) taking care to ensure that these are inserted to the correct side of the retaining spring in the cross stay.

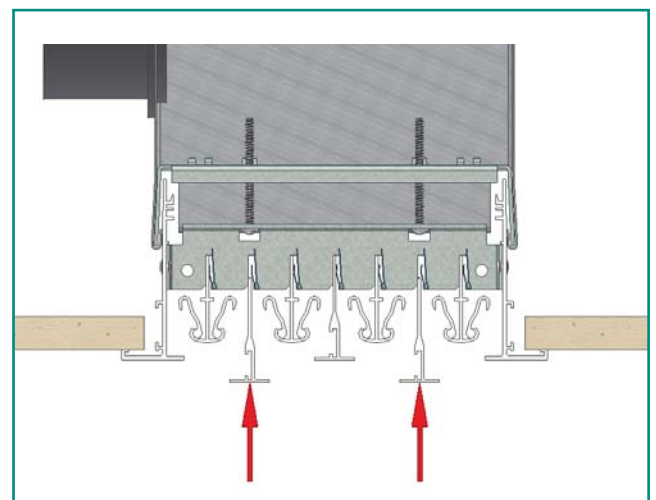


Figure 10: Push the Tee Bars Home

11- Set the angle of the flow control vanes to give the desired air distribution pattern (Figure 11).

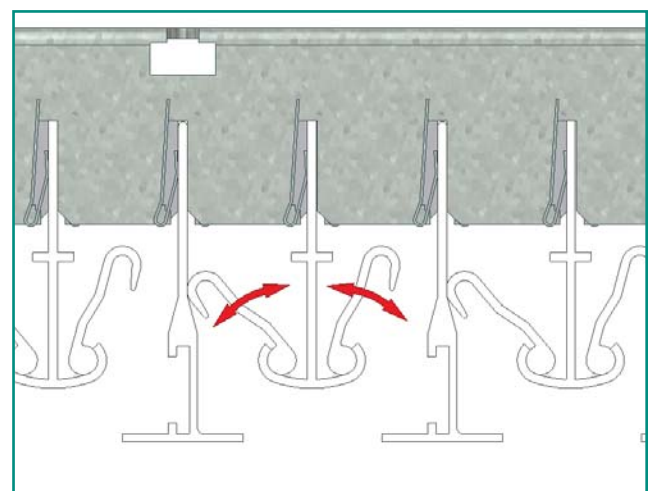


Figure 11: Adjust Control Vanes



## CS Diffuser Installation

### Dummy Section Installation

Waterloo recommend the use of dummy hanging brackets (DHB) for the installation of dummy sections, and it should be noted that they are supplied to order and the quantity requirement should be based on 2 x off per 1m length of diffuser (i.e. 2 x off for a 1m diffuser, 3 x off for a 1.5m diffuser, etc).

However, the diffuser sections can be installed using support wires or straps (supplied by others) if preferred.

The details of installation using DHB's is as follows:

1- Locate the ends of the DHB in the extruded tracks on both outer frames of the diffuser to be installed, & position an angle of 45° as shown in (Figure 12).

2- Slide the DHB to its required position then rotate it so that the DHB is 90° to the diffuser face (Figure 13).

3- Install the diffuser using drop rods attached to the DHB at each end (or as required), not forgetting to fit the alignment strips as described in the diffuser installation.

Final adjustment of the fit of the diffuser to the ceiling is made via the locknuts on the drop rod. (Figure 14).

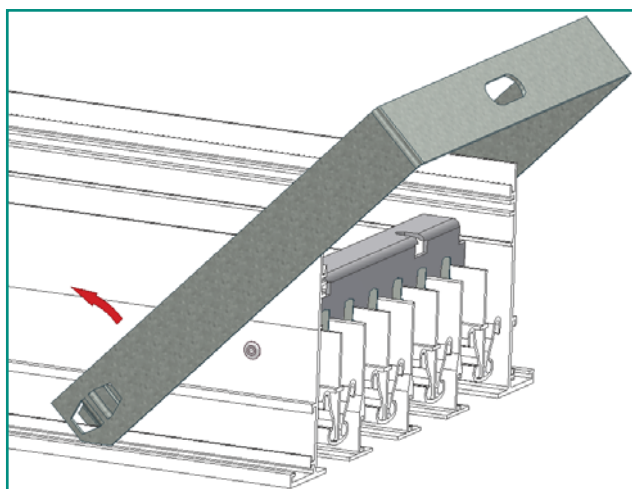


Figure 12: Locate DHB in Outer Frames

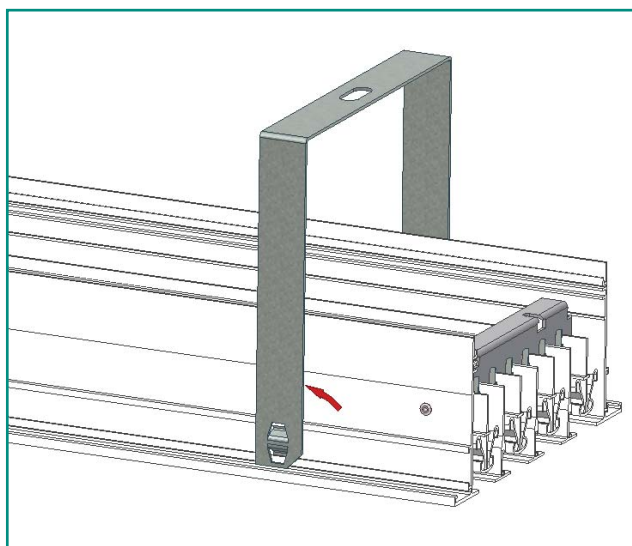


Figure 13: Rotate DHB to lock in place

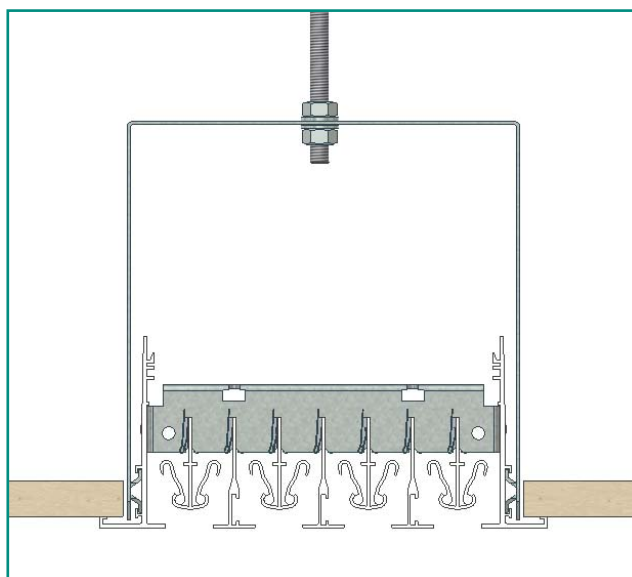


Figure 14: Install using Drop Rod





## CS Diffuser Installation

### Mitre Section Installation

Fit the DHB's in the positions shown in (Figure 15), and then install in ceiling opening using drop rods as previously described in the dummy section installation, remembering to fit the alignment strips as previously described.

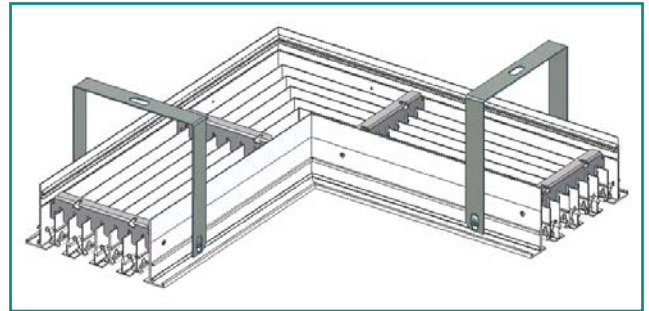


Figure 15: DHB locations on Mitre Section

### Cleaning and Maintenance

Waterloo recommend that the diffuser faces are cleaned with warm soapy water. For regular cleaning, a simple wipe down of all accessible faces will suffice.

If a deeper clean is required then simply remove the Tee bars and control vanes as described in the diffuser installation instructions, clean the interior faces of the diffuser body, the Tee bars, and control vanes then reassemble as previously described.



## CS Diffuser Installation

### Ceiling Cut out

The ceiling cut out width for CS slot diffusers are shown in the table. Please do not deviate from the dimensions shown to avoid issues with installation, particularly when installing into plasterboard.

If necessary the aperture for the diffuser should be cut back to the required dimension.

Diffuser Type	Dimension Reference	No of slots							
		1	2	3	4	5	6	7	8
CS-F	Ceiling Cutout Width	57	95	133	171	209	247	285	324
CS-P	Ceiling Cutout Width	50	89	127	165	203	241	279	317
CS-J	Ceiling Cutout Width	57	95	133	171	209	247	285	324
CS-M	Ceiling Cutout Width	48	86	124	162	200	238	276	315
CS-M TEG	Ceiling Cutout Width	48	86	124	162	200	238	276	315
CS-S & E-F	Ceiling Cutout Width	-	95	133	171	209	247	385	324
CS-TW	Ceiling Cutout Width	185	224	262	300	338	376	414	452





## Waterloo Product Range

### GRILLES

A complete range of products suitable for all wall, ceiling and floor applications. Most grilles are made from aluminium and have a range of fixed or moveable blades designed to give performance whilst remaining aesthetically pleasing to the eye. Grilles are made to customer specified sizes and colours (PPM/G); standard colour PPM9010 (20% Gloss White). The range is complemented by the Aircell range of polymer Grilles.



### DIFFUSERS

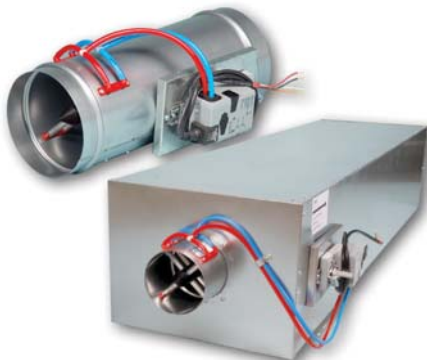
Designed to be installed in various ceiling systems, we have a complete range to suit both performance and aesthetic requirements. Most diffusers are made from aluminium and can be ordered with or without plenum boxes for easy duct work. Diffusers can be ordered in customer specified colours (PPM/G); standard colour is PPM 9010 (20% Gloss White). This range is complemented by the Aircell range of polymer Diffusers.



### ACTIVE AND PASSIVE CHILLED BEAMS

The finest quality range of high output active beams, used for ventilated heating and cooling applications. These units have 4 pipe coils to allow heating and cooling circuits to run simultaneously, giving constant and responsive control. The design allows a large optimum capacity and also allows the customer to specify the nozzle type and pitch for individual circumstances.

Active beams are made from steel to a large range of customer specified sizes and as such are suitable for various different ceiling systems. Standard finish is PPM 9010, however other (PPM/G) colours are available on request.



### AIR VOLUME CONTROL DAMPERS

Pressure independent Variable Air Volume and Constant Air Volume dampers made from zintec plate. Most volume dampers are regulated with an electronic motor and sensors and are calibrated to customer specifications before delivery.

The Constant Air Volume damper requires no power source as it is controlled via a mechanical device and calibrated before delivery. All volume dampers can be ordered with a single or double (insulation) skin.

### EXTERNAL LOUVRES

A quality range of products for external wall applications. Made from aluminium, with birdscreen or insect screen options. All louvres are made to customer specified sizes and (PPM/G) colours; standard colour is PPM 9006.



### DISPLACEMENT

A full range of recessed, semi-recessed, floor, wall and corner units providing high ventilation efficiency and excellent comfort. The very low pressure involved also offer quiet installations. Displacement units are available as wall or floor mounted, or indeed integrated within the architectural design.



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