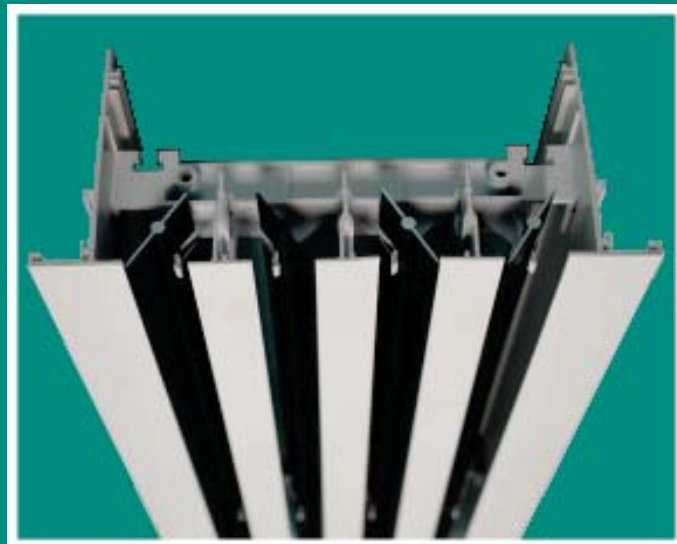


waterloo



# Operating and Maintenance

**LCS** Linear Slot Diffusers





## LCS Diffuser Installation

LCS

### Product Description

- LCS-F** 28 mm flanged general purpose
- LCS-P** 18 mm flange for flush/recess mounting
- LCS-J** 25 mm flange for flush/recess mounting

### Tools Required

- 1 x Medium Flat 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.

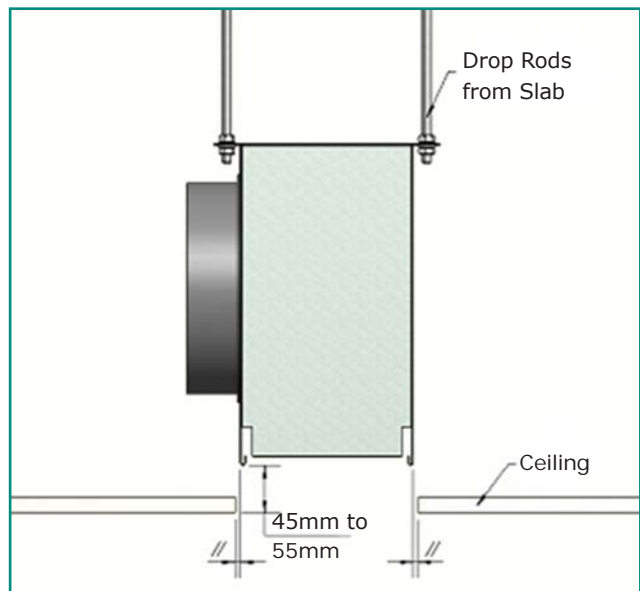


Figure 1- Plenum installation detail



## LCS Diffuser Installation

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

1- Rotate the paddle blades to the fully open position that coincide with the diffuser cross stay fixing holes. (Figure 2).

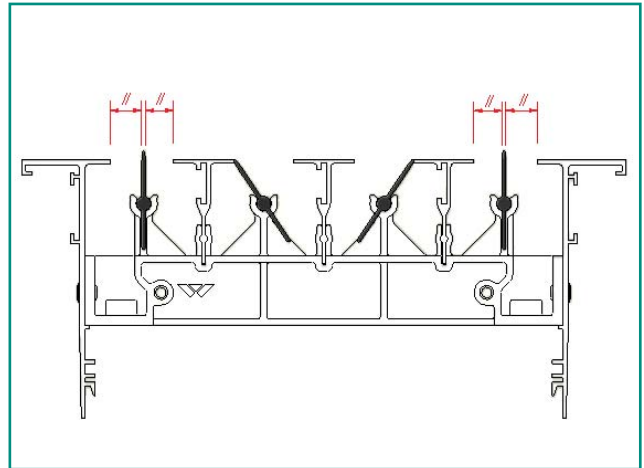


Figure 2: Remove Tee Bars & Vanes as required

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).

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.

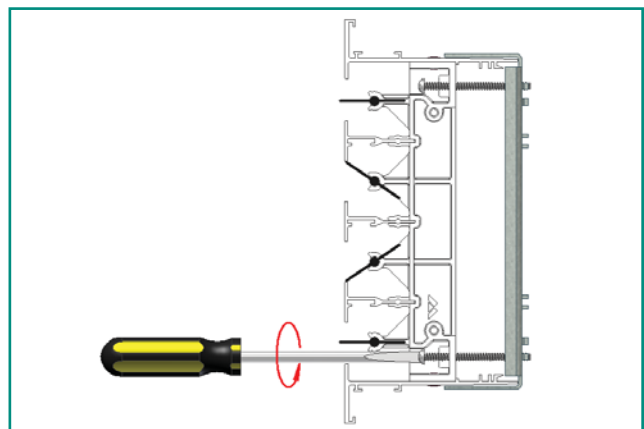


Figure 3: Loosely fit PHB to Stay

3- 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)

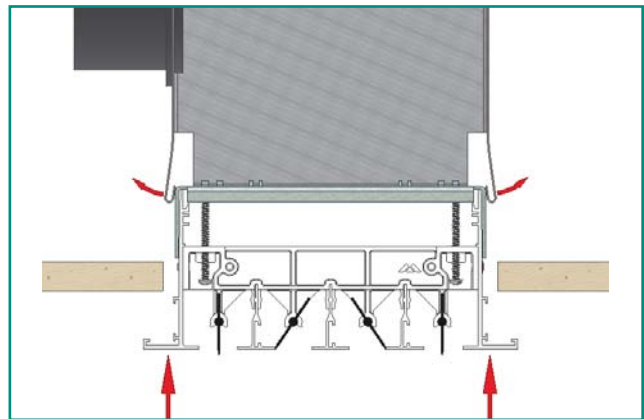


Figure 4: Push Diffuser into Plenum

4- 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.

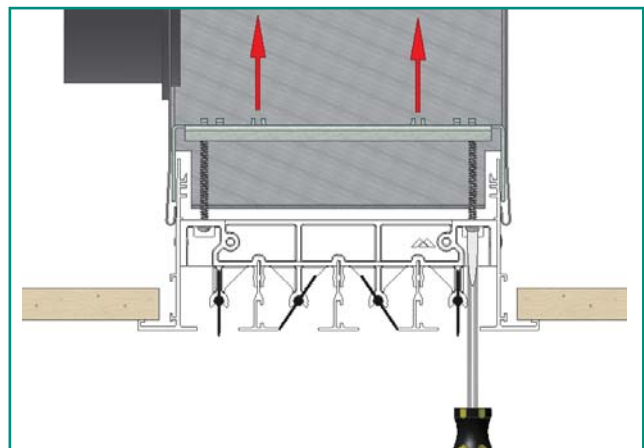


Figure 5: Push PHB Screws upwards



## LCS Diffuser Installation

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

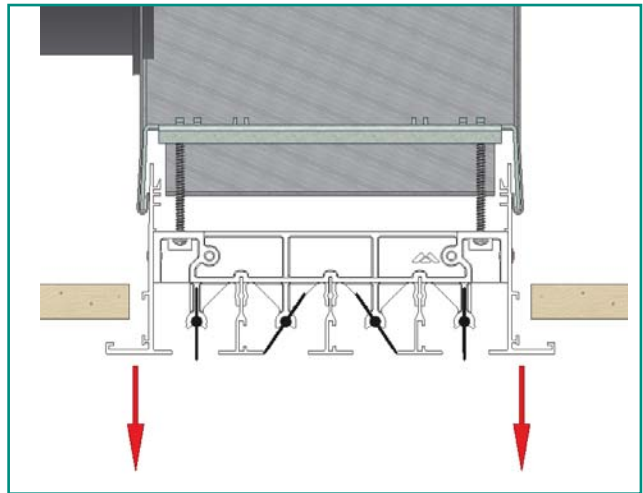


Figure 6: Pull diffuser downwards

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

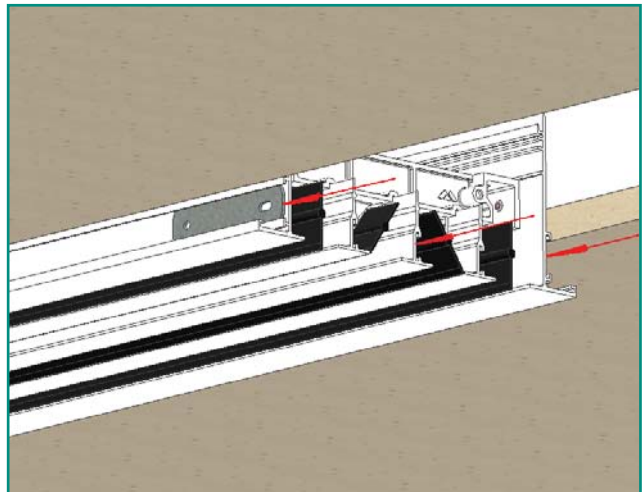


Figure 7: Slide Alignment Strips into place

7- 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.

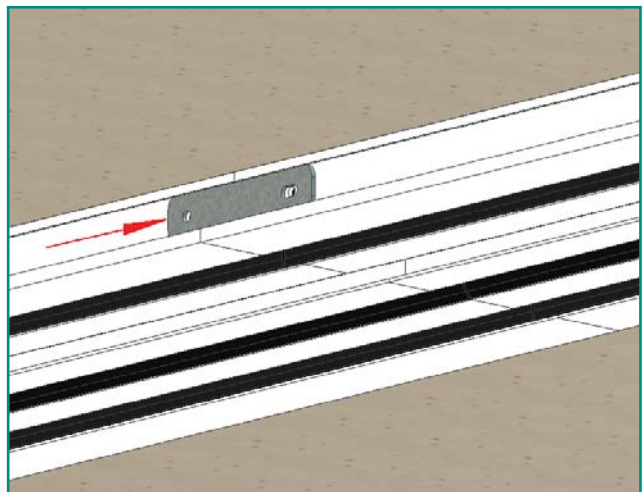


Figure 8: Position Alignment Strips



## LCS Diffuser Installation

8- 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.

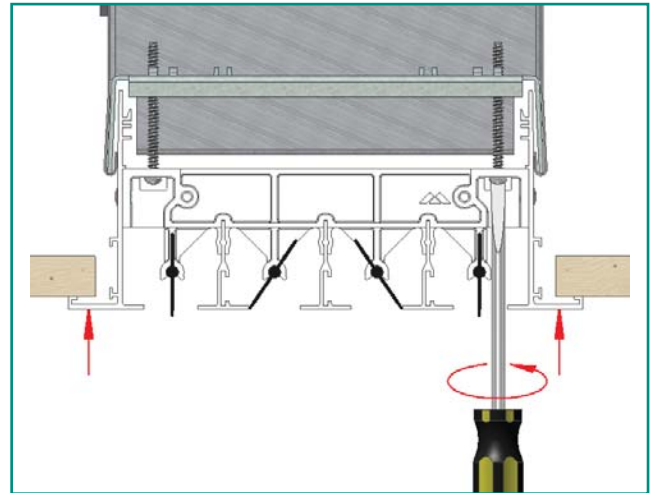


Figure 9: Tighten Screws

9- Set the angle of the paddle blades to give the desired air distribution pattern (Figure 10).

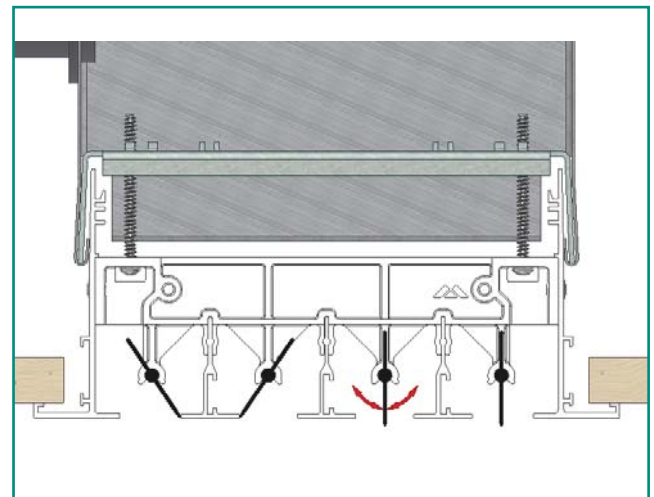


Figure 10: Adjust Paddle Blades



## LCS 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 11).

2- Slide the DHB to its required position then rotate it so that the DHB is 90° to the diffuser face (Figure 12).

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 13).

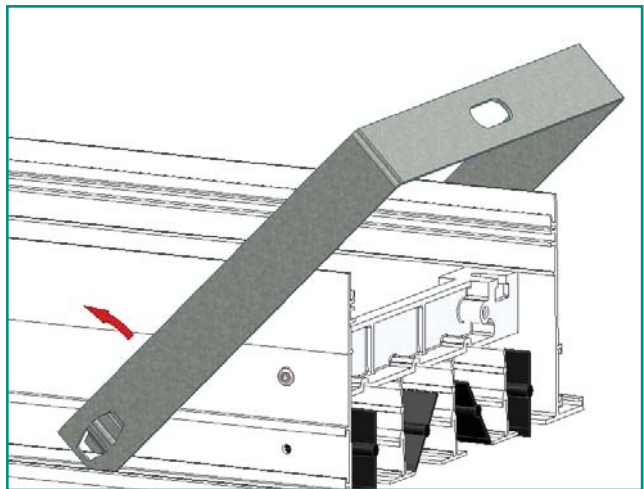


Figure 11: Locate DHB in Outer Frames

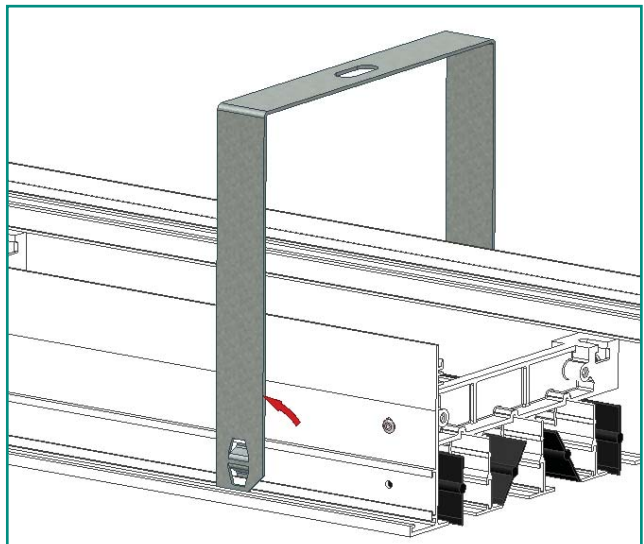


Figure 12: Rotate DHB to lock in place

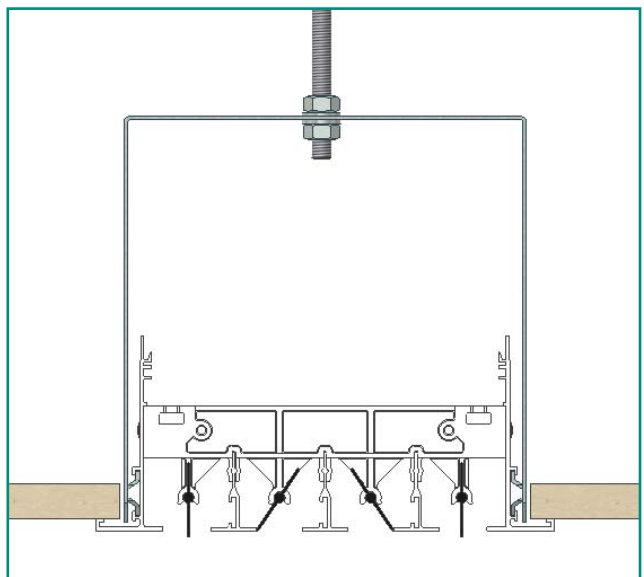


Figure 13: Install using Drop Rod



## LCS Diffuser Installation

### Mitre Section Installation

Fit the DHB's in the positions shown in (Figure 14), 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.

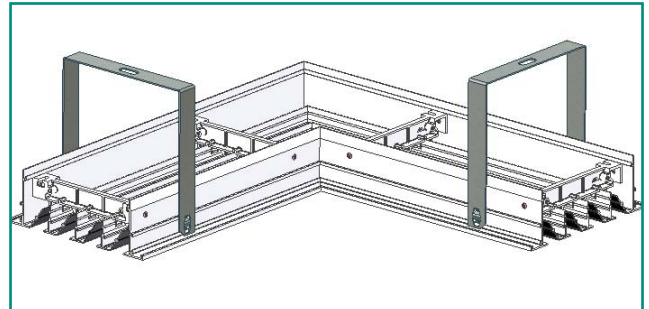


Figure 14: DHB locations on Mitre Section

### 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 follow this simple procedure:

1- Remove the paddle blades from their clip locations on the cross stays, by pulling them downwards. (Figure 15).

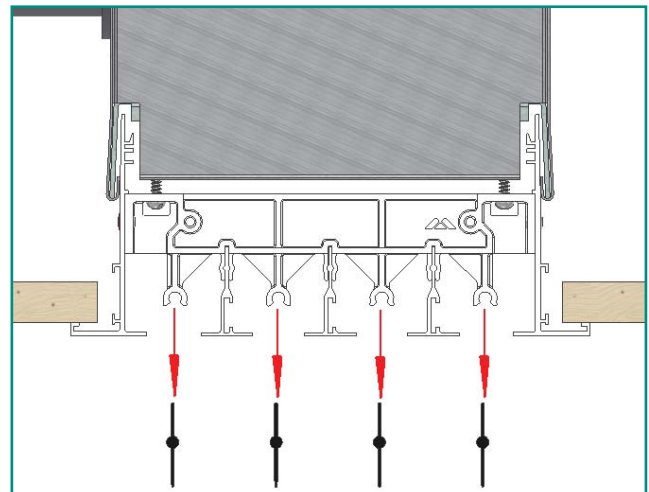


Figure 15: Remove Paddle Blades

2- Remove the Tee Bars from their clip locations on the cross stays, by pulling them downwards (figure 16). DO NOT wriggle them excessively from side to side, as this could cause damage to the retaining clips.

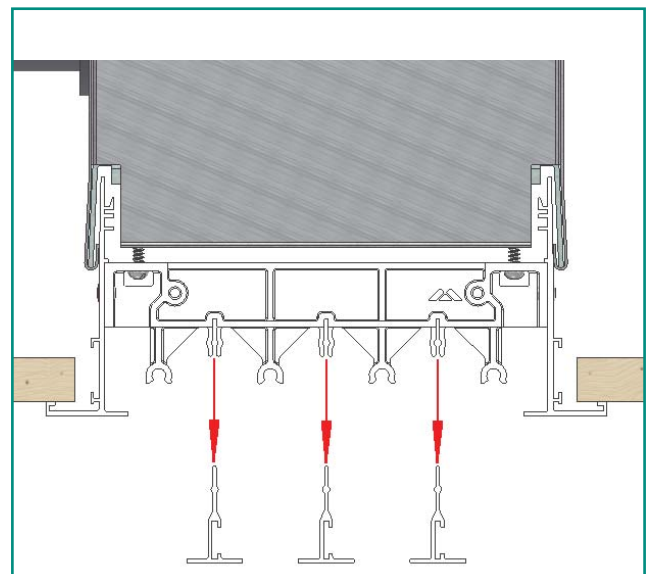


Figure 16: Remove Tee Bars



## LCS Diffuser Installation

### Cleaning and Maintenance

- 3- Clean the interior faces of the diffuser body, the Tee bars, and paddle blades.
- 4- Reassemble the diffuser by first replacing the Tee bars (1), then the paddle blades (2) as seen in figure 17
- 4- Reset the paddle blades to give the required air distribution pattern as previously described in the diffuser installation instructions.

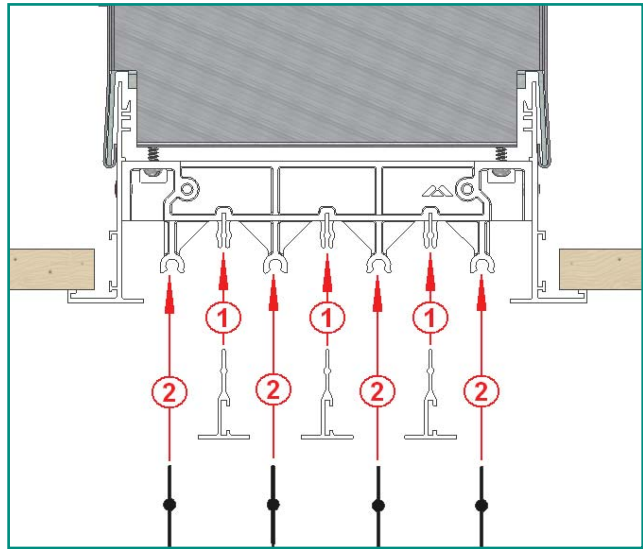


Figure 17: Replace Tee Bars, then Paddle Blades



# Waterloo Product Range



## 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

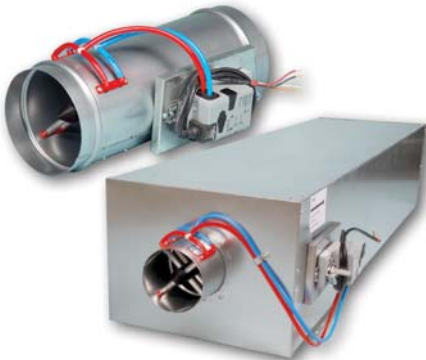
Designed to be installed in various ceiling systems, we have a complete range to suit both performance and aesthetic requirements. Most diffusers are made from aluminium and can be ordered with or without plenum boxes for easy duct work. Diffusers can be ordered in customer specified colours (PPM/G); 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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