

Catalogue

# air diffusion

Fixed 45° Blade  
Linear Ceiling  
Diffusers



Model LCD



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## Features

1 or 2 Way Linear Ceiling Diffuser

Individual or Continuous Lengths

Mitre Corner Sections

Fixed or Removable Core

3 Flange Styles

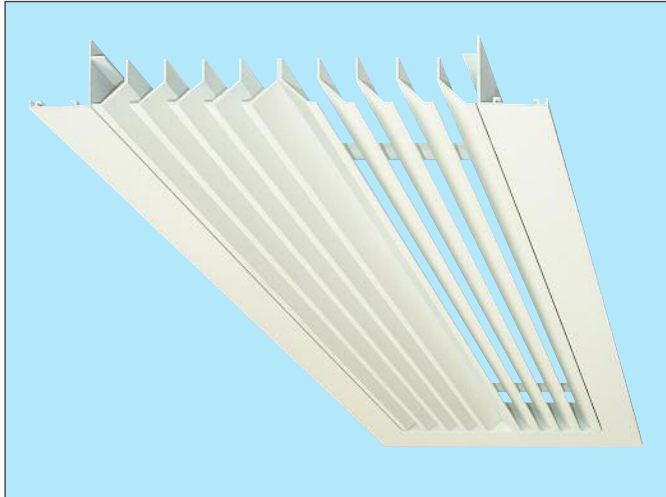
Concealed or Screw Fixing

Standard or Special Colour Finishes

Opposed Blade Dampers Available

Plenum Boxes designed to suit

# Introduction



The model LCD fixed blade linear ceiling diffuser is designed to provide 1 or 2 way direction, while capable of a high air volume. Having as standard a 32mm wide flat surface flange frame with blades fixed at 45°, set on a maximum pitch of 15mm.

Model LCD is suitable for use on supply or exhaust systems. The high air volume capacity and low resistance make it ideal for use with ceiling mounted fan coil units.

A choice of individual or continuous diffuser lengths can be selected. Mitre corner sections maintain a continuous appearance.

To locate the diffuser off centre, the 2 way format blades can be arranged into an unequal split to distribute more air in one

direction. The diffuser can also be used for combined supply and exhaust air applications.

An array of flange widths include the standard 32mm wide flat flange, 20mm wide flat flange or 27mm wide bevel edge flange. The standard un-drilled flange frame allows for simple lay in installation, alternatively countersunk screw holes or a concealed bracket fixing can be provided.

As standard the diffuser core is non-removable although a removable core version is available. Two types of removable core can be supplied. Either; sprung mullion removable core or screw fix removable core.

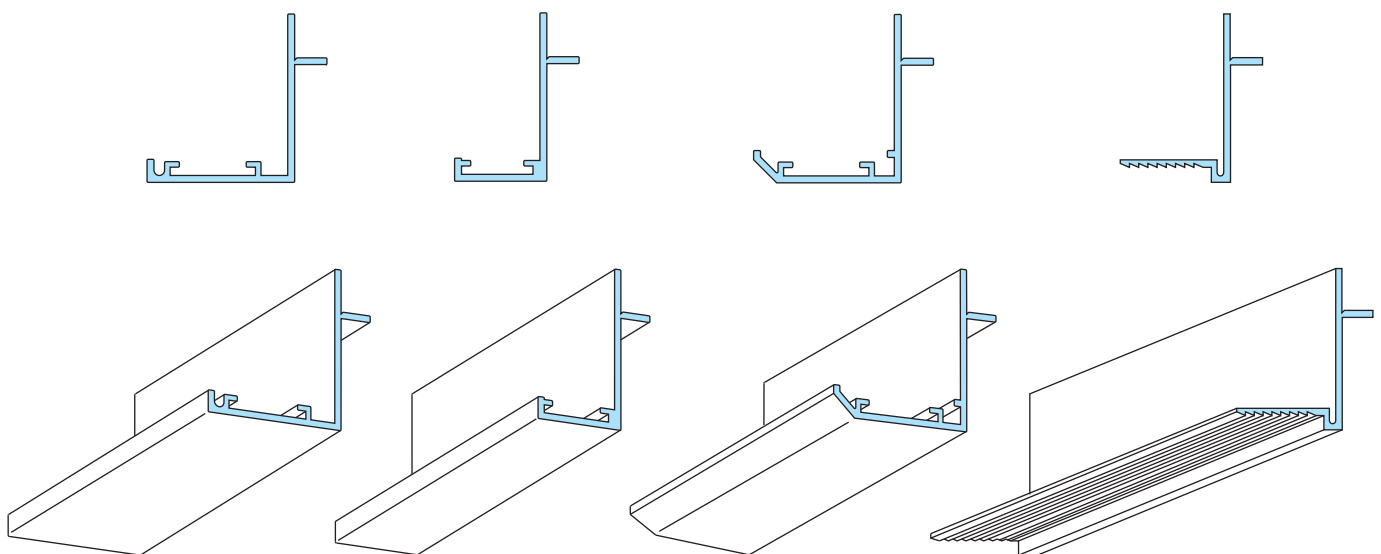
A stove enamel white or silver finish is offered as standard. Special stove enamel paint finishes or anodised finish to mechanically cleated grilles may also be provided.

Each diffuser can be fitted with an opposed blade damper, operated by concealed screw cam accessed through the diffuser blade.

Purpose designed and individually selected plenum boxes ensure the performance and characteristics of the diffuser.

As standard the plenum box is from galvanised steel with a single circular side entry spigot and is plain unlined without a spigot damper. For more critical areas a 6mm class 'O' foam internal lining can be used. Other options, such as equalising grids and a range of spigot variations are also available.

## Flange Options



Standard 32mm  
Flat Flange

Optional 20mm  
Flat Flange

Optional 27mm  
Bevel Edge Flange

Optional Plaster Frame  
4mm Linear Frame (4P)

# Diffusers Specification

## Material

Extruded aluminium.

## Construction

Flange frame corners are mitred and fixed by either mechanical cleats or argon arc welding. Blades are joined by rods and tube spacers.

Frames supplied with either flat surface or bevel edge flange. Standard is 32mm flat surface flange.

Where mullions are provided the tube mullions are at approximately 350mm centres.

Individual sections are butt jointed together using joiner plates to give a continuous appearance.

## Standard Installation Method

A plain undrilled flange frame allows for lay-in installation on all flanges (32mm, 27mm and 20mm). (Type FO fixing).

## Installation options

Countersunk screw holes on 32mm flat flange or 27mm bevel edge flange only.

Secret strap and secret strap with 'U' bracket for use on 32mm, 27mm and 20mm flange widths. (Type F4 or F6 fixing).

Spring clips for use on 32mm, 27mm and 20mm flange widths. (Note suitable for ceiling or high sidewall type F2 fixing).

Ceiling clips (details to be supplied i.e. type of ceiling spring tees type F8 fixing).

For more fixing details see page 10.

## Accessories

Removable core with either type F9 screw fixing or F10 spring mullion.

For details see page 8.

Separate mitre corner sections to maintain continuous appearance. (Corner sections only with fixed core).

Opposed blade dampers can be fitted to the rear of the diffuser. Operation is by concealed screw cam located through a hole provided in the diffuser blade.

Purpose designed plenum boxes, with either side or top entry, circular, square or rectangular spigots, can also be supplied.

## Finish

Standard finish is polyester powder coat.  
White to RAL9010 (30% gloss)  
White to RAL9016  
White to RAL9003  
Silver to RAL9006  
Black to RAL9010.

A full range of polyester powder coat paint finishes is available on request.

## Standard Model Types

**LCD1G** - 1 way direction diffuser only  
NO OBD.

**LCD2G** - 2 way direction (equal split)  
diffuser only NO OBD.

**LCD1R** - 1 way direction diffuser  
WITH OBD fitted.

**LCD2R** - 2 way direction (equal split)  
diffuser WITH OBD fitted.

# Plenum Boxes Specification

## Material

0.7mm thick galvanised steel as standard or galvanised mild steel available as an option.

## Construction

Fabricated in 3 sections having ends spot welded and sealed to centre section. Spigot fitted centrally in plenum length. Plenum boxes supplied as standard with straight edges and no hem (F0), hemmed plenum edges available for use with secret fixing brackets (F6).

## Standard Installation Method

The capped ends of the plenum box incorporate an indent for 8mm drop rod fixings, which allows for holes to be drilled without disturbing the active section.

## Installation options

Fixing lugs can be factory fitted if preferred or other special fixing methods may be used.

For details of plenum fixings see page 10.

## Accessories

Additional circular spigots may be fitted, rectangular or square spigots are also available.

Spigot dampers include; quadrant, teleflex operation or cord operated.

6mm thick Class 'O' internal lining.

Equalising grids (50% free area mesh).

Fixing lugs or other special fixings.

Flush / indented ends.

Hemmed edge plenum boxes (type F6 diffuser fixing brackets are used as standard).

## Finish

Self finish galvanised steel as standard.

## Standard Model Types

**PBL-1** Standard unlined linear plenum having centrally located circular side entry spigot, no damper or equalising grid.

**PBL-2** Standard unlined linear plenum box having either a circular or square top entry spigot.

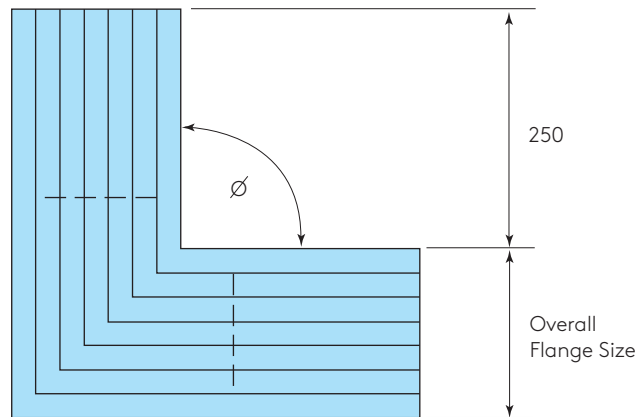
**PBL-3** Unlined linear plenum box with joggle section having either a circular or square side entry spigot.

**PBL-4** Unlined linear plenum box with joggle section having either a circular or square top entry spigot.

# Selection Guide

## Mitre Corners

Mitred Corners are available and are manufactured to order.  
 Mitres can be cut to any angle - state angle at time of order.  
 (Fixed core only).



## Standard Size Chart

Nominal Width	Overall Flange 32 Frame	Overall Flange 20 Frame
90	135	111
100	145	121
120	165	141
150	195	171
200	245	221
225	270	246
250	295	271
300	345	321

## Selection Procedure

Establish the volume rate per linear metre. Determine whether one or two way throw is required. Obtain the available throw. Take a straight edge to the nomogram from the throw rate. Make a line through the required throw ensuring the corresponding values for sound and pressure levels do not exceed permissible limits. The nominal width is read from the point of intersection with the sizes on the far right of the nomogram.

## Example

The example shows a suitable selection of a 150mm nominal width LCD2, 1 metre long handling 150l/s with a throw of 3.05 metres, with a sound level of NRLW 27 and pressure drop of 12N/m<sup>2</sup>.

## Pressure Drop and Sound Ratings

The pressure drop given is for supply diffuser with damper fully open. When the diffuser is installed with plenum box, the pressure loss of the box has to be added to the diffuser.

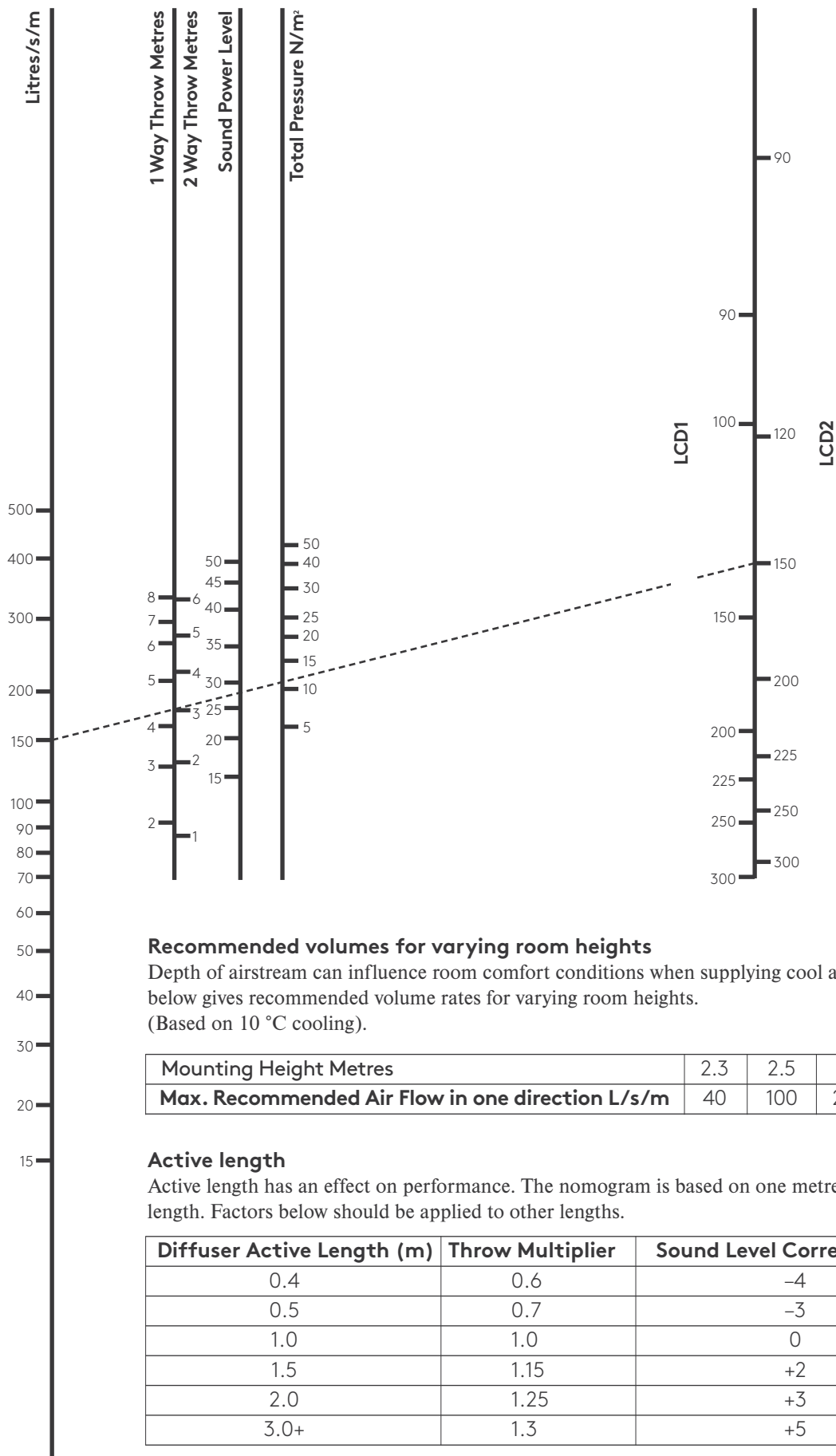
Spigot Velocity m/s	1.5	2.0	2.5	3.0	3.5	4.0
Pressure Drop Pa*	2	4	6	8	12	16
Sound Level NR*	-	-	25	30	35	40

\* The figures given are approximate - dependent upon spigot entry conditions.

## Plenum Box Spigot Volumes

Diameter (mm)	Spigot velocity m/s					
	1.5	2.0	2.5	3.0	3.5	4.0
100	10	15	19	22	26	30
125	18	24	30	35	41	47
150	25	34	42	51	60	68
175	35	46	58	70	82	94
200	45	60	75	91	109	121
225	58	77	96	117	137	151
250	71	95	120	142	170	191
275	86	115	145	172	205	230
300	103	139	172	208	240	275
325	120	160	200	240	280	320
350	140	188	235	280	328	375
400	185	245	310	370	430	495

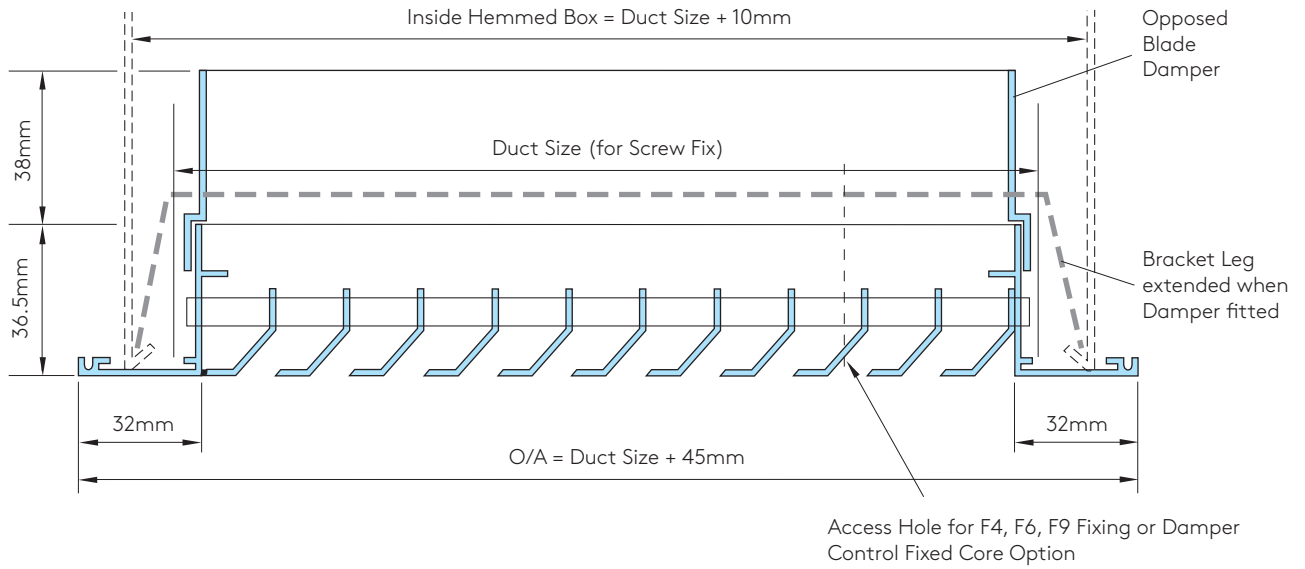
# Selection Nomogram



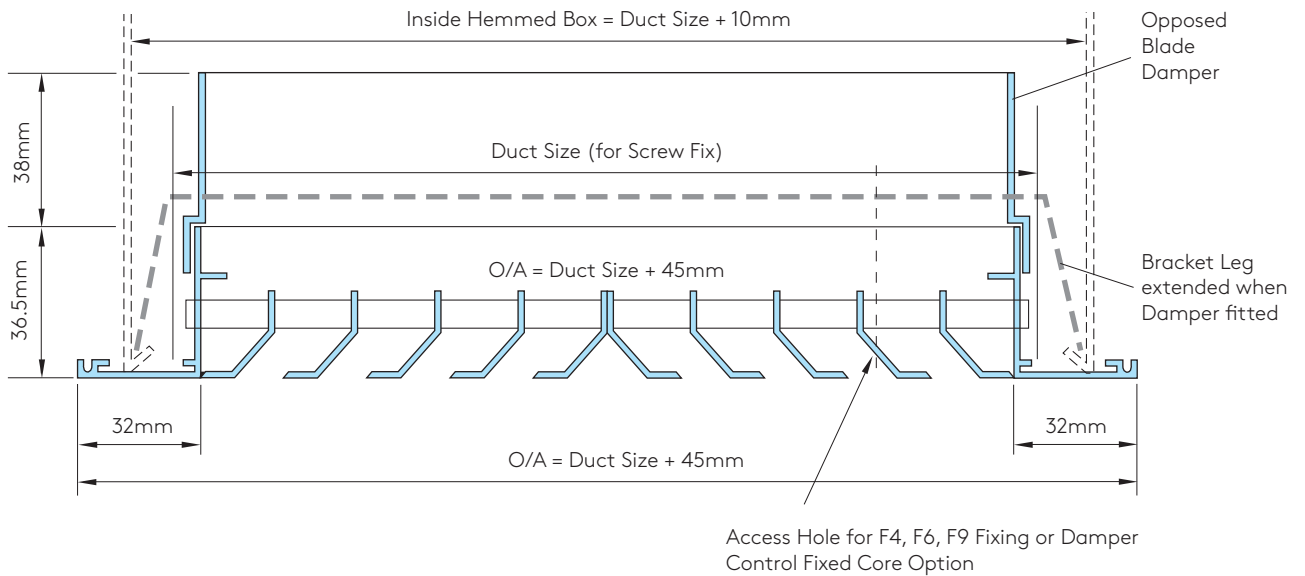
Throw is based on a terminal velocity of 0.5m/s.

# Diffuser Dimension Data

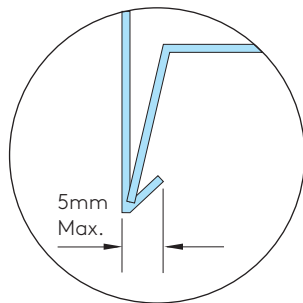
## Model LCD 1R



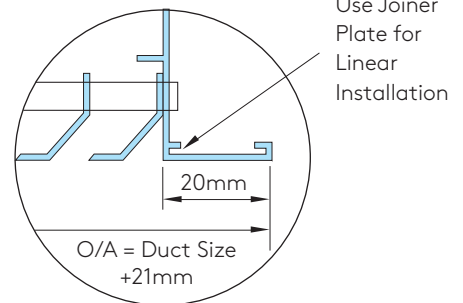
## Model LCD 2R



### Box Hem Detail



### Alternative Flange Size

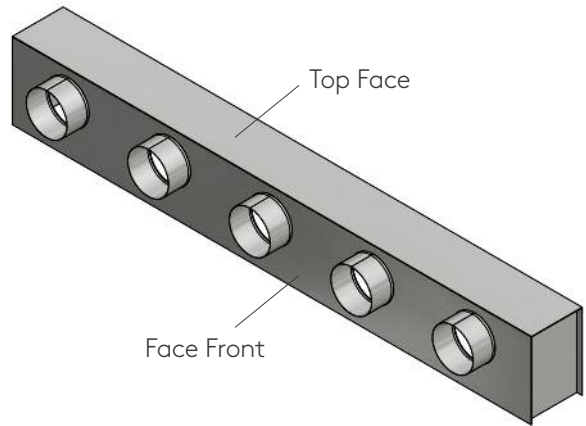
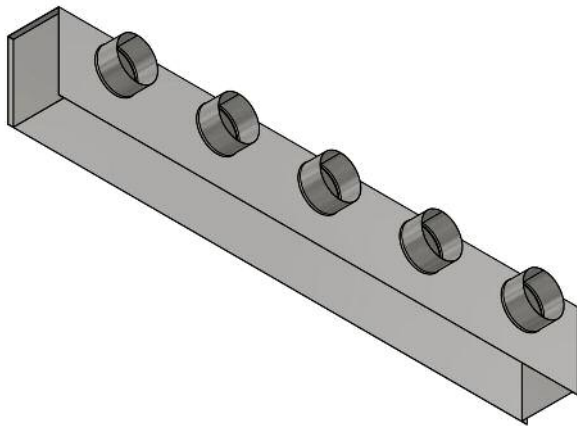


**Note:** Duct Size = Nominal Size

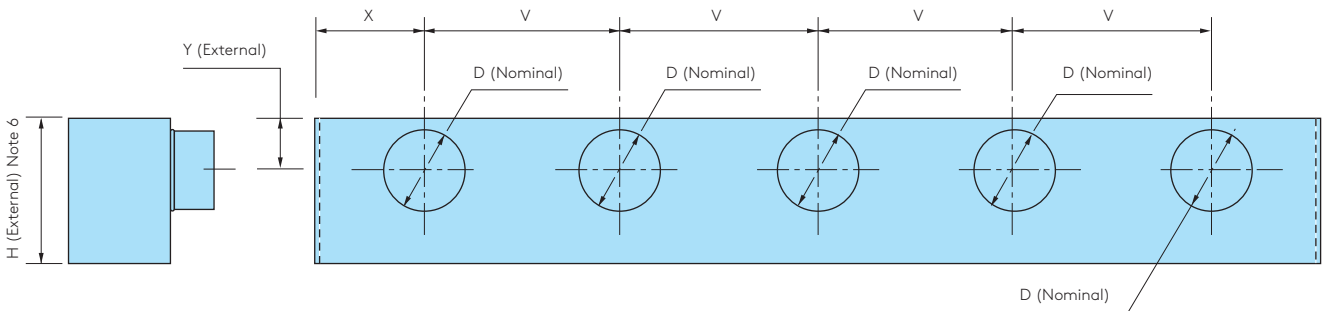
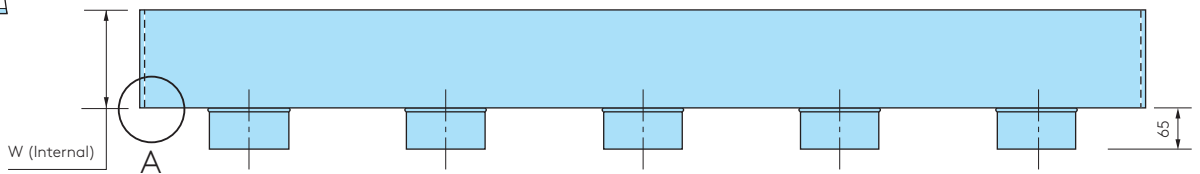
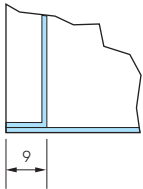
# Plenum Box Dimensions

Type PBL-1 Indented

All dimensions are in millimetres (mm)



Detail A  
Indented Detail



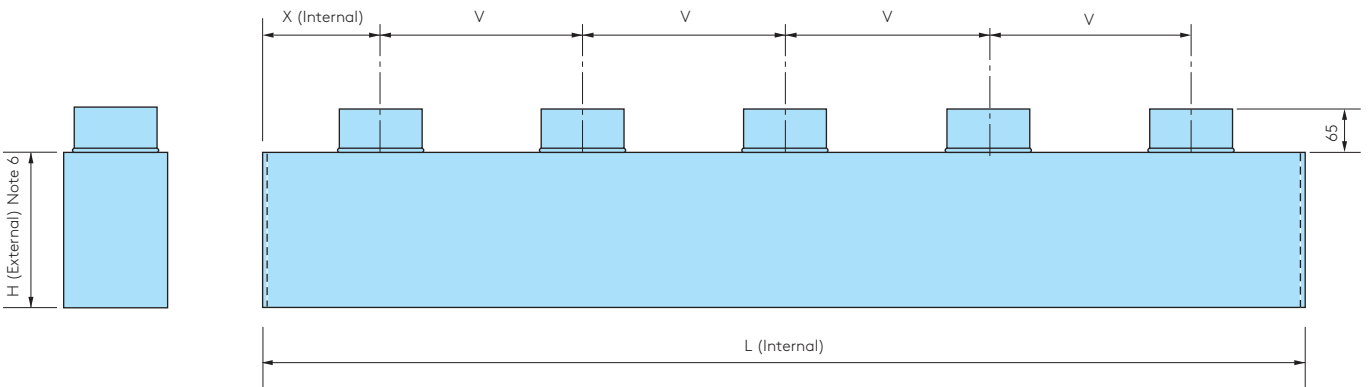
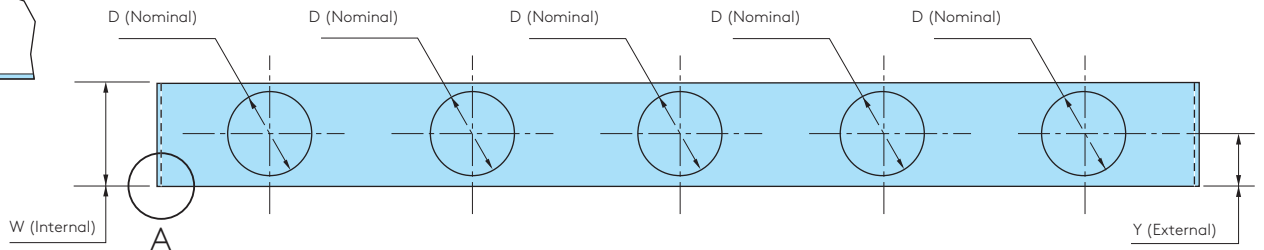
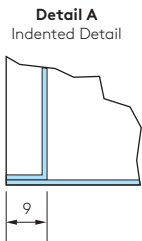
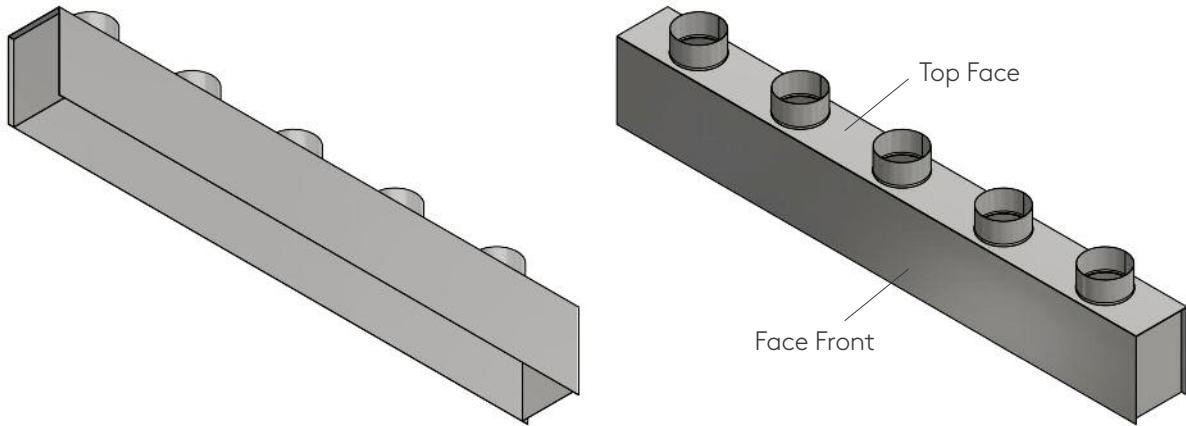
## Type PBL-1 Dimension Key

- L** - Length of Plenum (Internal)
- W** - Width of Plenum (Internal)
- H** - Height of Plenum (External)
- C** - Height of Cut-out (from bottom edge)
- R** - Lining Cutback distance (from bottom edge)
- D** - Nominal Spigot diameter
- A** - Square Spigot Width (Nominal)
- B** - Square Spigot Height (Nominal)
- V** - Spigot Spacing (Between centres)
- X** - Spigot Start Dimension ( Internal face)
- Y** - Spigot Vertical Position (External face)
- G** - Equalising Grid Length (Overall)
- Z** - Equalising Grid Height (from bottom edge)
- Wo** - Outlet Width of Plenum (Internal)
- Ko** - Outlet Height of Plenum (External)
- Q** - Outlet Width Offset (External)
- P** - Outlet Length Offset (External)
- Di** - Circular Adaptor Spigot Diameter (Nominal)

# Plenum Box Dimensions

Type PBL-2 Indented

All dimensions are in millimetres (mm)



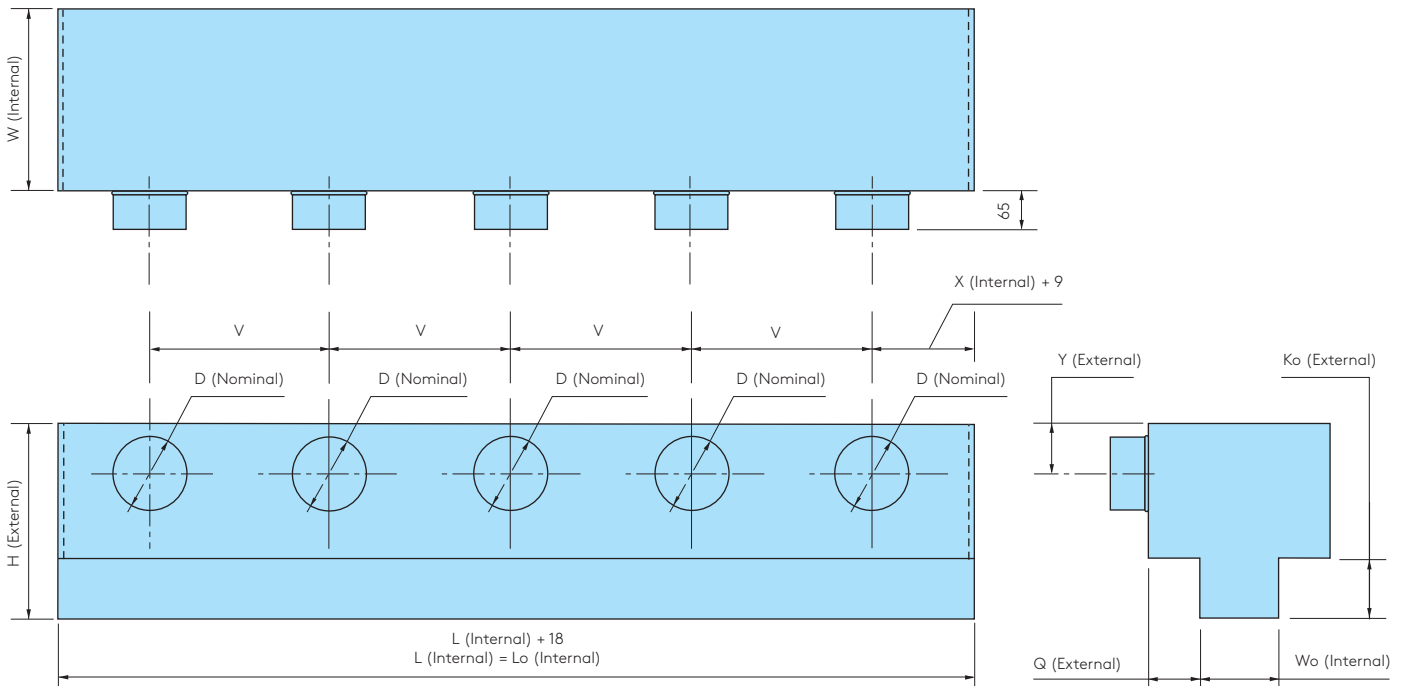
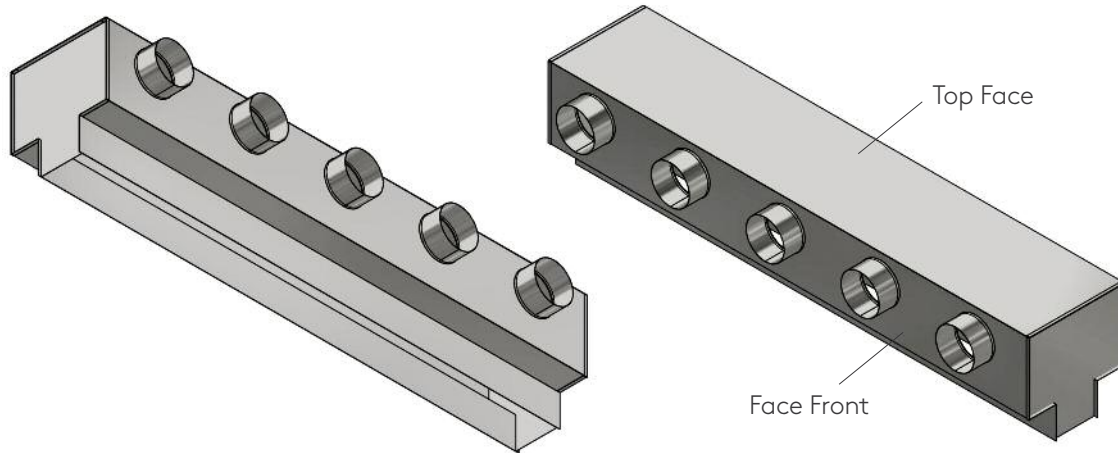
## Type PBL-2 Dimension Key

- L** - Length of Plenum (Internal)
- W** - Width of Plenum (Internal)
- H** - Height of Plenum (External)
- C** - Height of Cut-out (from bottom edge)
- R** - Lining Cutback distance (from bottom edge)
- D** - Nominal Spigot diameter
- A** - Square Spigot Width (Nominal)
- B** - Square Spigot Height (Nominal)
- V** - Spigot Spacing (Between centres)
- X** - Spigot Start Dimension ( Internal face)
- Y** - Spigot Vertical Position (External face)
- G** - Equalising Grid Length (Overall)
- Z** - Equalising Grid Height (from bottom edge)
- Wo** - Outlet Width of Plenum (Internal)
- Ko** - Outlet Height of Plenum (External)
- Q** - Outlet Width Offset (External)
- P** - Outlet Length Offset (External)
- Di** - Circular Adaptor Spigot Diameter (Nominal)

# Plenum Box Dimensions

Type PBL-3 Indented

All dimensions are in millimetres (mm)



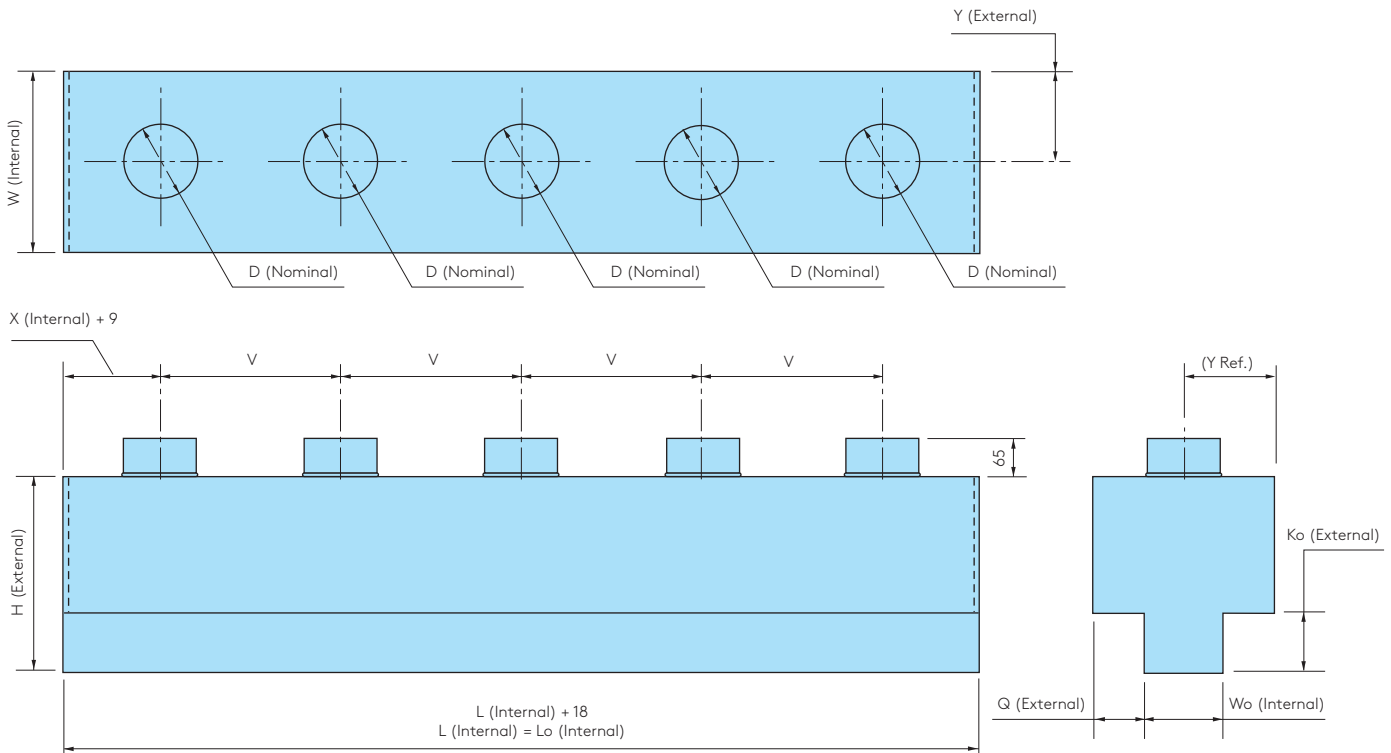
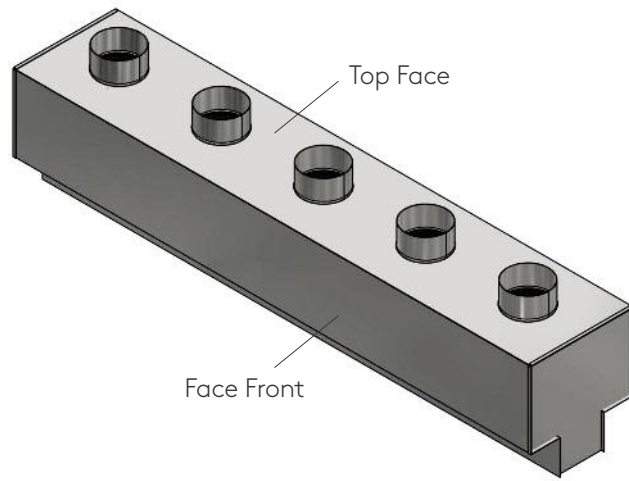
## Type PBL-3 Dimension Key

- L** - Length of Plenum (Internal)
- W** - Width of Plenum (Internal)
- H** - Height of Plenum (External)
- C** - Height of Cut-out (from bottom edge)
- R** - Lining Cutback distance (from bottom edge)
- D** - Nominal Spigot diameter
- A** - Square Spigot Width (Nominal)
- B** - Square Spigot Height (Nominal)
- V** - Spigot Spacing (Between centres)
- X** - Spigot Start Dimension ( Internal face)
- Y** - Spigot Vertical Position (External face)
- G** - Equalising Grid Length (Overall)
- Z** - Equalising Grid Height (from bottom edge)
- Wo** - Outlet Width of Plenum (Internal)
- Ko** - Outlet Height of Plenum (External)
- Q** - Outlet Width Offset (External)
- P** - Outlet Length Offset (External)
- Di** - Circular Adaptor Spigot Diameter (Nominal)

# Plenum Box Dimensions

Type PBL-4 Indented

All dimensions are in millimetres (mm)



## Type PBL-4 Dimension Key

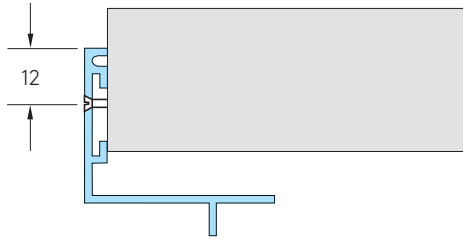
- L** - Length of Plenum (Internal)
- W** - Width of Plenum (Internal)
- H** - Height of Plenum (External)
- C** - Height of Cut-out (from bottom edge)
- R** - Lining Cutback distance (from bottom edge)
- D** - Nominal Spigot diameter
- A** - Square Spigot Width (Nominal)
- B** - Square Spigot Height (Nominal)
- V** - Spigot Spacing (Between centres)
- X** - Spigot Start Dimension ( Internal face)
- Y** - Spigot Vertical Position (External face)
- G** - Equalising Grid Length (Overall)
- Z** - Equalising Grid Height (from bottom edge)
- Wo** - Outlet Width of Plenum (Internal)
- Ko** - Outlet Height of Plenum (External)
- Q** - Outlet Width Offset (External)
- P** - Outlet Length Offset (External)
- Di** - Circular Adaptor Spigot Diameter (Nominal)

# Installation Methods

## Fixing Details

### Type F1

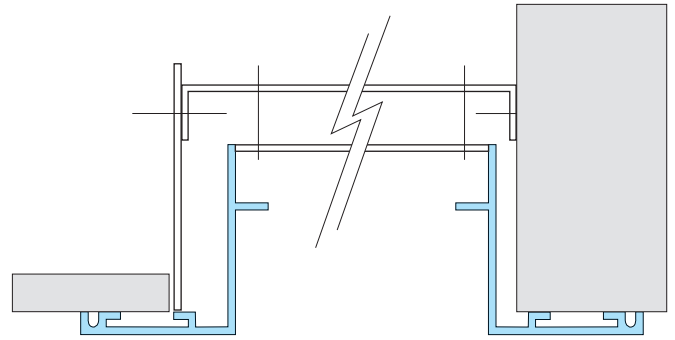
Standard face countersunk holes for screw fixing.



### Type F4 - Fixed Core

Optional rear strap.

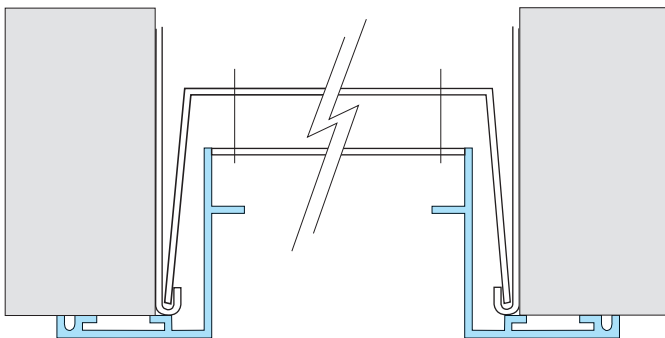
**Note:** Mating strap by others.



### Type F6 - Fixed Core

Optional rear strap + mating 'U' bracket.

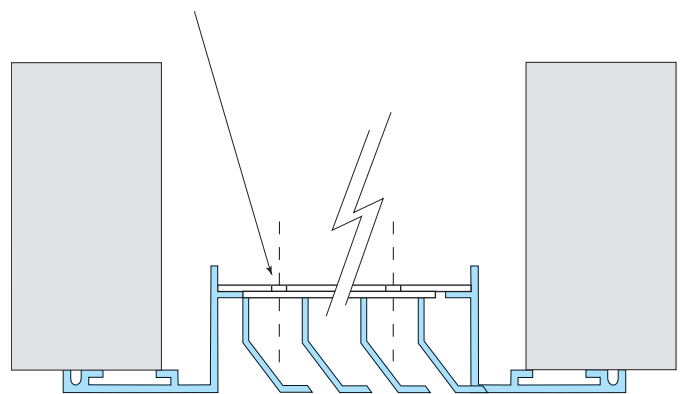
**Note:** Hemmed duct by others or plenums by us.



### Fixing Detail for Grilles

### Type F9 - Removable Core Screw Fix

Screw through strap  
on core into strap on  
outer flange



# Ordering Information

**Important Note:** All orders must be addressed to Swegon Air Management Ltd.

## Example

Flange Style	Model Type	Damper	Option	Fixing	Finish	Size
<b>32W</b>	<b>LCD1</b>	<b>G</b>	<b>RC</b>	<b>F6</b>	<b>3</b>	<b>1000 x 250</b>
	LCD1 One-Way Linear Ceiling Diffuser LCD2 Two-Way Linear Ceiling Diffuser	R Registers (diffusers with dampers) G Diffusers only	RC C/W Removable Core FC Fixed Core	F0 No fixing (e.g. for 'lay-in' fixing or where fixing holes are drilled on site) F1 Countersunk screw fixing holes in flanges (32C, 32W only - not available on 20C, 20W) F4 Secret Strap - mating strap in duct or opening provided by others F6 Secret Strap with 'U' bracket - normally requires internally hemmed duct edge by others - or we can provide plenum boxes with the required hem feature. F8 Spring clip (detail to be supplied, i.e., type of ceiling, spring tee) F9 Removable core - Screw fix	There are a large number of finish options as indicated below: 0 Mill extruded aluminium 2 Silver RAL 9006 polyester powder coat 3 White RAL 9010 polyester powder coat (30% gloss) 7 RAL 9003 polyester 16 RAL 9016 polyester 4 RAL 9005 polyester 5 Brushed (linished) natural aluminium face surfaces 6 Special finish on special request	
<b>20W</b>	20mm flange with mitred and welded corners					
<b>20C</b>	20mm flange with mitred and mechanically cleated corners					
<b>27BW</b>	27mm Bevel edge flange with mitred and welded corners					
<b>27BC</b>	27mm Bevel edge cleated construction					
<b>32W</b>	32mm flat surface flange with mitred and welded corners					
<b>32C</b>	32mm flat surface flange with mitred and mechanically cleated corners					

# Ordering Information Plenum Boxes

## Example

Model	Internal Lining	Spigot Damper	Options	Dimensions
<b>PBL-1</b>	<b>U</b>	<b>N</b>	<b>0</b>	
<b>Plenum Boxes</b>	<b>U</b> - Standard Unlined Plenum Box <b>L</b> - 6mm Class 'O' Black Internal Lining. (Standard)	<b>N</b> - Plain spigot no damper. <b>Q</b> - Quadrant damper. <b>C</b> - Cord operated damper fitted to spigot.	<b>0</b> - No options. <b>2</b> - Equalising grid. <b>3</b> - Fixing lugs fitted to side of plenum. <b>4</b> - Tongued ends on each end of plenum. <b>5</b> - Hemmed Edge for secret strap fixing.	<b>See example below</b>
<b>PBL-1</b>	Linear Plenum Box with either a circular or square side entry spigot			
<b>PBL-2</b>	Linear Plenum Box having either a circular or square top entry spigot			
<b>PBL-3</b>	Linear Plenum Box with joggle section having either a circular or square side entry spigot			
<b>PBL-4</b>	Linear Plenum Box with joggle section having either a circular or square top entry spigot			

# Product Range



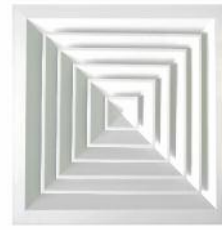
Flowbar High Capacity Slot Diffuser



Linear Slot Diffuser



Circular Ceiling Diffuser



Square and Rectangular Diffuser



Exhaust and Supply Air Valves



Egg Crate Grilles



Linear Narrow Blade Bar Grille



Circular Floor Swirl



Fixed Blade Grille



Linear Floor Grille



Single Deflection Grille



Perforated Face Ceiling Diffuser



Variable Air Pattern Ceiling Swirl Diffuser



Double Deflection Grille



Ceiling Swirl Diffuser



Non Vision Grille



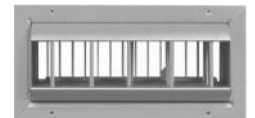
Linear Wide Blade Bar Grille



Security Grille



Fixed Blade External Louvre



Cylinder Jet Diffuser



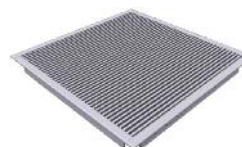
Displacement Ventilation Diffuser



Fixed Blade Linear Ceiling Diffuser



Jet Diffuser



Panel Floor Grille

**Note:** Redesign may occur which supersedes the information in this brochure. Please refer to our website for latest information.

**actionair | air diffusion | airfiltrera | airovolution | naco**

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