

Plasterline Linear Grilles

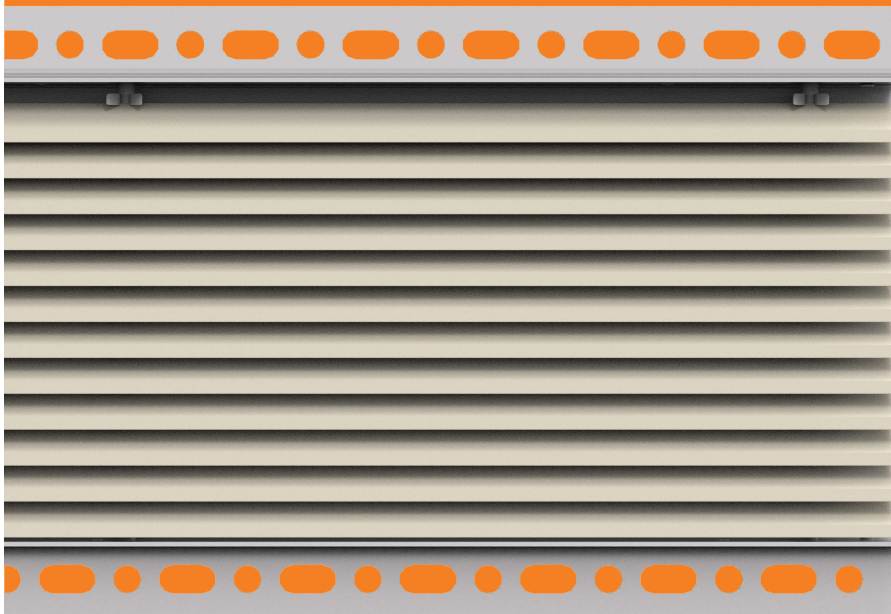
APN 0° 6mm thick blade, 12.5mm pitch

APM 15° 6mm thick blade, 12.5mm pitch

APF 45° 5mm thick blade, 12.5mm pitch

APG 0° 3mm thick blade, 12.5mm pitch

APJ 15° 3mm thick blade, 12.5mm pitch



Plasterline Linear Grilles

APN / APM / APG / APJ / APF

Introduction

Waterloo Plasterline Linear Grilles have been designed to satisfy air diffusion and engineering requirements while providing a narrow plaster-in border to meet architectural specifications. Plasterline grilles may be used in modular or continuous situations for sidewall, cill or bulkhead applications. The range is available with a wide variety of special options and fabrications to suit most project requirements. Ceiling applications can be achieved with the use of a non standard fixed core version.

Product Description

APN	0° 6mm thick blade, 12.5mm pitch
APN2	APN with rear set of adjustable blades
APM	15° 6mm thick blade, 12.5mm pitch
APM2	APM with rear set of adjustable blades
2APM	APM with 2 way core
APG	0° 3mm thick blade, 12.5mm pitch
APG2	APG with rear set of adjustable blades
APG10	APG with 10mm pitch blades
APJ	15° 3mm thick blade, 12.5mm pitch
APJ2	APJ with rear set of adjustable blades
2APJ	APJ with 2 way core
APJ10	APJ with 10mm pitch blades
APF	45° 5mm thick blade, 12.5mm pitch
2APF	APF with 2 way core
ED	Equalising deflector
OBSS	Allen Key operated opposed blade damper

Finishes

PPG9010 (RAL 9010 Gloss - 80% Gloss White)

PPM9010 (RAL 9010 Matt - 20% Gloss White)

PPM9006 (RAL 9006 Matt - 30% Gloss Silver)

Other colours available on request

Sizes

Because of their nature, the sizing for Plasterline grilles is exceptional in that measurements are for the internal opening at the front face. Opening cut-out in the substrate should be 15mm more than the stated nominal grille size.

Minimum size: 150 wide x 50 high

Maximum size: 2000 wide x 500 high

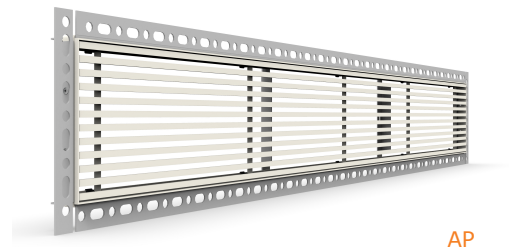
Continuous grilles can be supplied in sections for butt joining on site. Refer to Head Office for widths up to 3000 in one piece.

Free Area					
Pitch	Type				
	APG	APJ	APF	APM	APN
10mm	68%	68%	-	-	-
12.5mm	74%	74%	44%	49%	49%

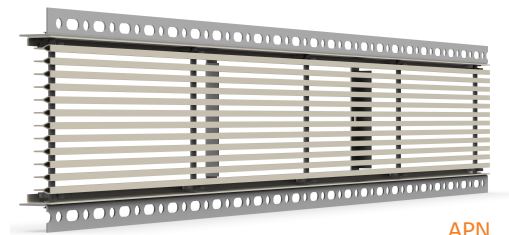
ORDER EXAMPLE

APG/1000/150/SF/9010-Matt/OBSS

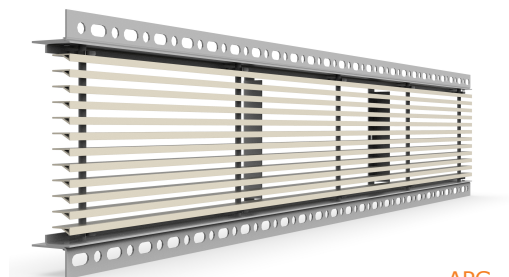
Type _____
 Nominal width _____
 Nominal height _____
 Fixing _____
 Finish _____
 Damper _____



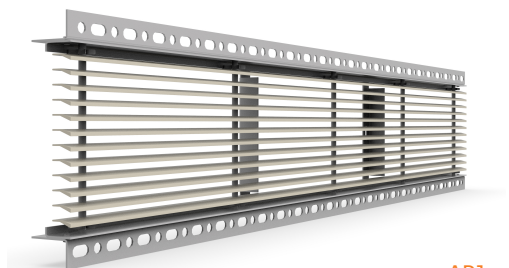
APN



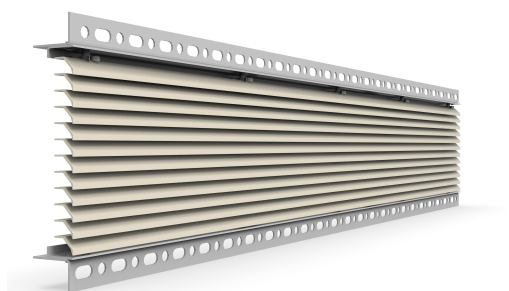
APN2



APG



APJ



APF

Plasterline Linear Grilles

APN / APM / APG / APJ / APF

Selection Criteria

Performance data is derived from tests carried out at isothermal conditions for a 1.25m long grille mounted 0.2m below a ceiling surface. Throw is the horizontal distance to where the envelope velocity equals 0.5m/s.

Correction Factors

Grille Length Correction Factors						
Length (m)	0.25	0.5	1.25	2	2.5	3
L_w	-6	-3	0	+2	+3	+5
Throw	x 0.9	x 0.9	x 1.0	x 1.0	x 1.1	x 1.1

Non-isothermal Jet Correction Factors			
Differential	10°C cooling	0°C	10°C warming
Sidewall throw	x 0.9	x 1.0	x 1.1
Cill throw	x 0.9	x 1.0	x 1.1

Terminal Velocity Correction Factors				
V_t (m/s)	0.6	0.5	0.4	0.3
Throw multiplier	x 0.8	x 1.0	x 1.3	x 1.66

Selection Example (Supply)

150mm high grille supplying 400 l/s/m

• APG 10

$P_s = 16$ Pa 32 dBA

• APG

$P_s = 15$ Pa 31 dBA

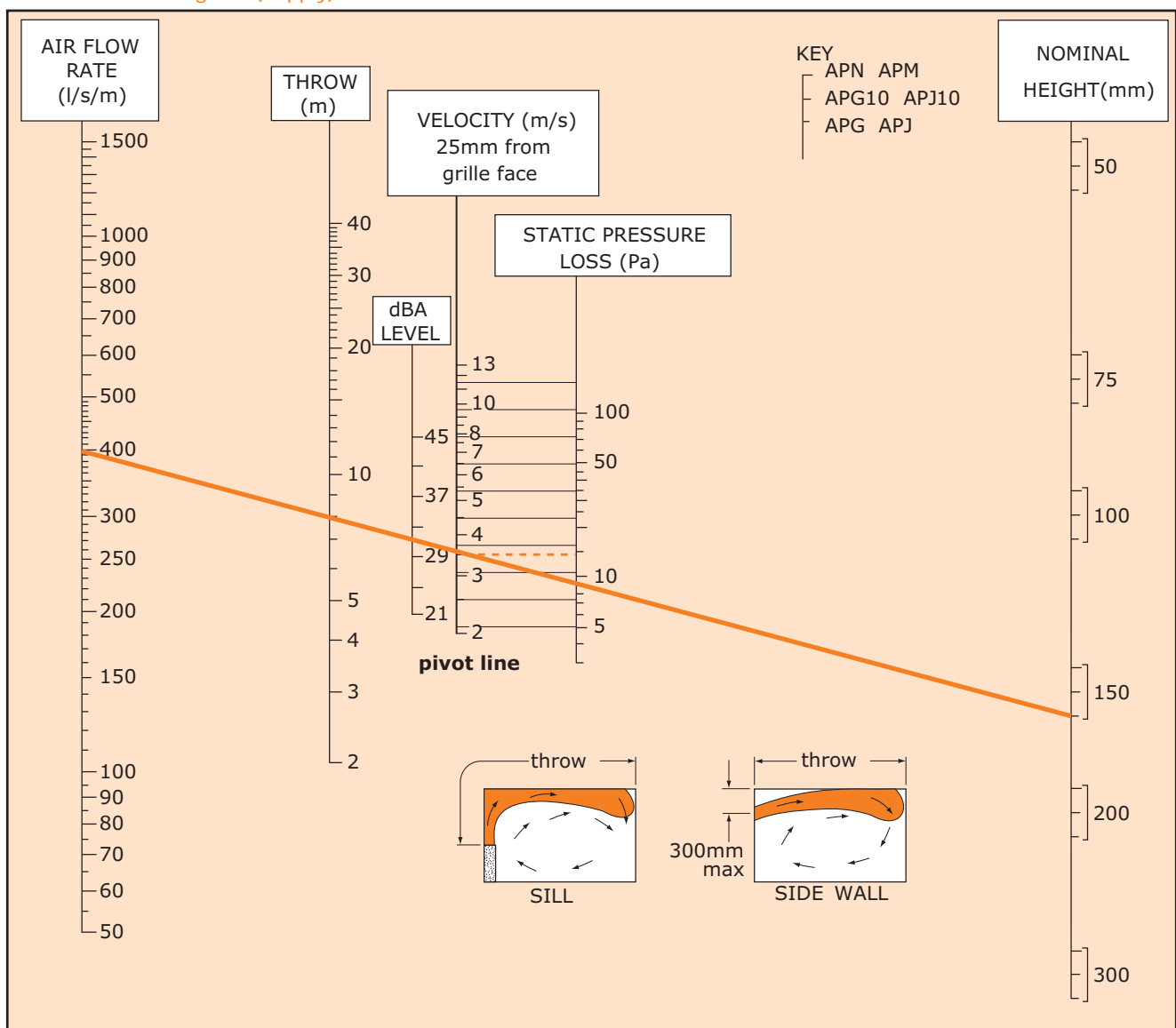
• APG 10/OBSS

$P_s = 24$ Pa 35 dBA

• APG/OBSS

$P_s = 22.5$ Pa 34 dBA

Performance Nomogram (Supply)



Plasterline Linear Grilles

APN / APM / APG / APJ / APF

Selection Example (Exhaust)

100mm high grille supplying 200 l/s/m

• APF

$P_s = 46 \text{ Pa}$ 40 dBA

• APN

$P_s = 15 \text{ Pa}$ 31 dBA

• APF/OBSS

$P_s = 69 \text{ Pa}$ 43 dBA

• APN/OBSS

$P_s = 23 \text{ Pa}$ 34 dBA

Notes

For grilles with OBSS opposed blade damper (open), multiply the pressure loss by 1.5 and add 3dB to the Noise level.

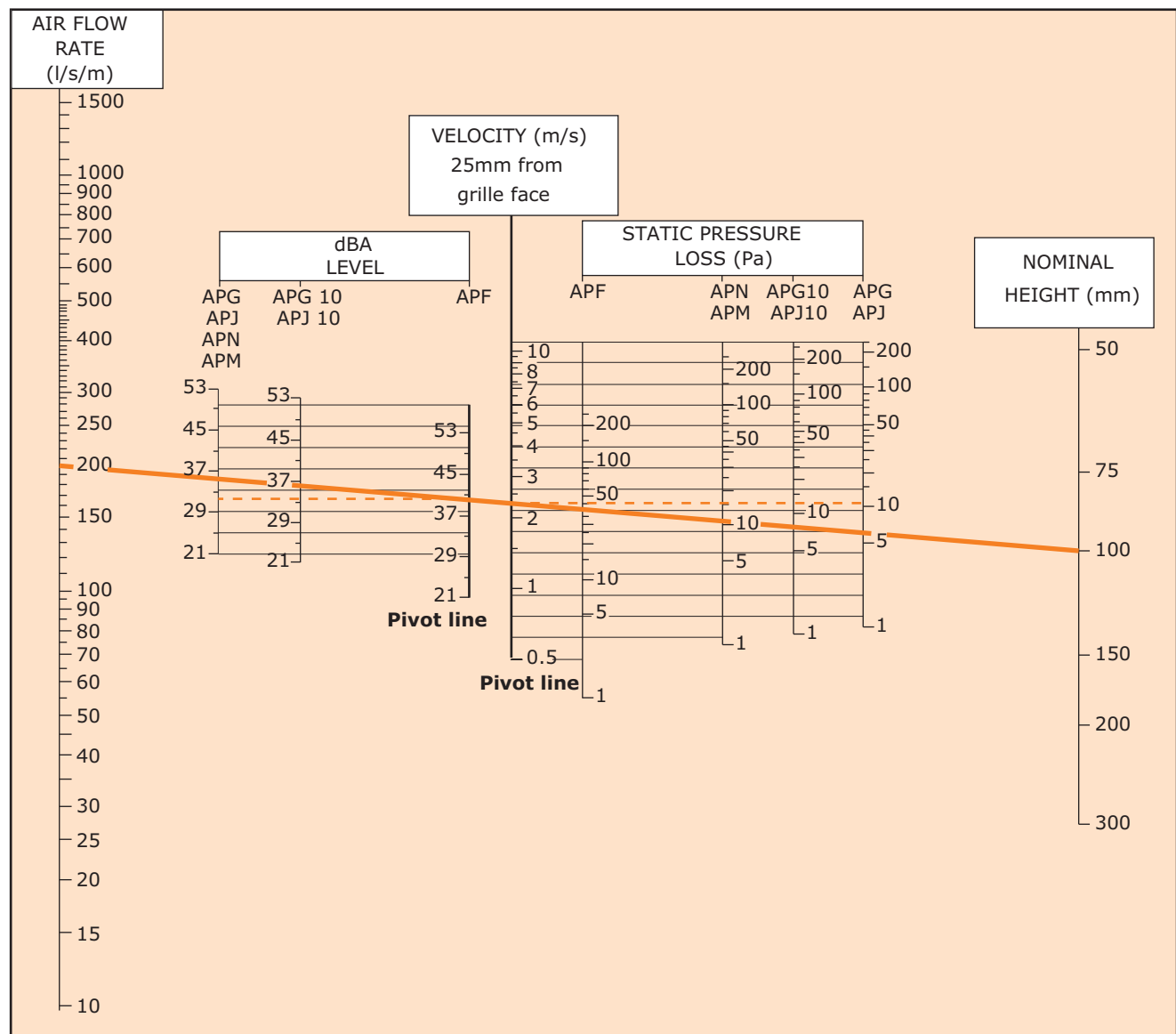
Where AP2 grilles are used multiply $P_s \times 3.0$ and add 6dB to Noise level.

Grille selections for sidewall and cill applications should be based on a minimum discharge velocity of 2m/s.

For sidewall grilles that are to be mounted more than 0.2m from the ceiling, it is preferable to use a 15° blade format.

For sidewall grilles mounted 0.3m or more below ceiling level the throw is reduced by $\frac{1}{3}$.

Performance Nomogram (Exhaust)



Grilles

Control Options - Grille Mounted

OBSS Opposed Blade Damper (Volume Control Damper)

Introduction

Waterloo OB Opposed Blade Dampers are manufactured to suit virtually the whole of our square / rectangular Air Terminal range and can be fitted to the neck of the terminals or inside plenum box.

They are adjustable from the front of the Grille or Diffuser with a screwdriver as standard, but are also available with cord- or lever-operation.

Manufactured with linked aluminium extruded blades, in sizes to suit any Waterloo Grille or Diffuser, they are useful for fine airflow regulation and can be adjusted from fully open to closed low-leakage position.

Product Description

- OBSS** Opposed Blade Damper, Screwdriver operated
OBCO Opposed Blade Damper, Cord operated
OBSL Opposed Blade Damper, Short Lever operated
OBLL Opposed Blade Damper, Long Lever operated
BLACK Painted black to prevent through vision

Features

- Linked aluminium extrusions for limited extra weight
- Large choice of adjustments to suit any configuration
- Can be fitted to virtually any Waterloo Grille or Diffuser

Finishes

Extruded aluminium blades

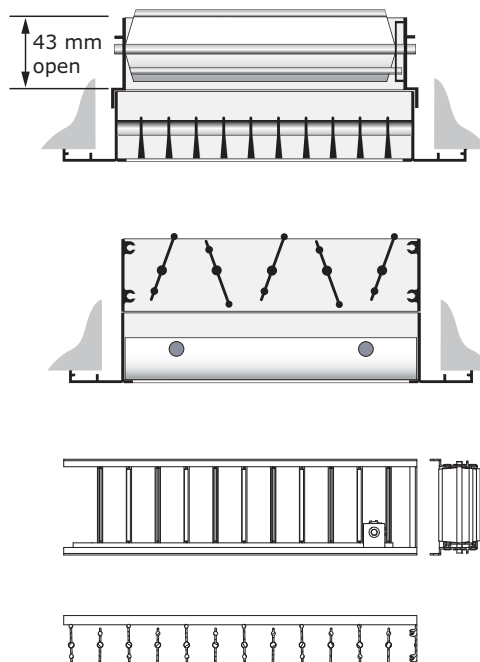
Sizes

Minimum Size - 100 x 75

Minimum Size for Plasterline - 100 x 50

Maximum Size - single section 800x600mm

Multiple sections will be banked to accommodate larger terminal sizes.



ORDER EXAMPLE

OBSS/300/300/Black/ To suit a 1H
Damper type |
Terminal length |
Terminal width |
Options |
Terminal type |

ED Equalising Dampers (Directional Blades Incapable of Shut Off)

Introduction

Waterloo ED Equalising Dampers are manufactured to suit virtually the whole of our square / rectangular Air Terminal range and can be fitted to the neck of the terminals or inside plenum box.

They are individually adjustable to control air direction and may be used for localised blanking.

Manufactured with aluminium extruded blades, in sizes to suit any Waterloo Grille or Diffuser, they can be adjusted manually by removing the Grille or Diffuser core.

Product Description

- ED** Equalising deflector
BLACK Painted black to prevent through vision

Features

- Aluminium extrusions for limited extra weight
- Individually adjustable for fine airflow regulation
- Can be fitted to virtually any Waterloo Grille or Diffuser

Finishes

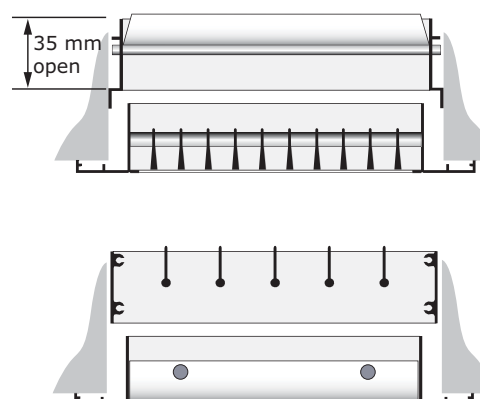
Extruded aluminium blades

Sizes

Minimum Size - 100 x 50

Maximum Size - single section 800x600mm

Multiple sections will be banked to accommodate larger terminal sizes.



ORDER EXAMPLE

ED/300/300/Black/ To suit a 1H
Damper type |
Terminal length |
Terminal width |
Options |
Terminal type |

Grille Fixing Selection

Types	SF	CF	CRB	VS	AFVS	PFVS	BSSB	AFCF	AFHS	RCCF	RCHS
1H / 2H / 1V / 2V	A/C	A	A/C	A/C	A/C	A/C	A/B/C	A	A/C	A	A/C
1KH / 2KH	A/C										
1KV / 2KV	A/C										
1HM / 2HM	A/C										
1VM / 2VM	A/C										
PER / 3HF	A/C	A		A/C	A/C	A/C		A		A	
GC5 / 3HG / 3HJ	A/C	A	A/C	A/C	A/C	A/C	A/B/C	A	A/C	A	A/C
ALF / 2ALF	A/C	A		A/C	A/C	A/C		A		A	
ALN / ALM / ALG / ALJ	A/C	A	A/C	A/C	A/C	A/C	A/B/C	A	A/C	A	A/C
ALG2 / ALJ2	A/C	A	A/C	A/C	A/C	A/C		A	A/C	A	A/C
ALM2 / ALN2	A/C	A	A/C	A/C	A/C	A/C		A	A/C	A	A/C
2ALM / 2ALJ / ALG10 / ALJ10	A/C	A		A/C	A/C	A/C		A		A	A/C
NSA / NSB / DVA / DVB	A/C										
DVC / NSC	A/C	A		A/C	A/C	A/C		A		A	
RTC / 2RTC	A/C										
BORDER STYLES	25T/32T	16T/25T/32T	16T/25T/32T	16T/25T/32T	25T/32T	25T	RTC/16T 25T/32T	25T/32T	25T/32T	16T/RTC-R16	16T/RTC-R16

A = SUITABLE FOR DUCTING AND WALL

B = SUITABLE FOR PLASTERBOARD

C = SUITABLE FOR CEILING

Removable Cores

Types	Removable	RCCF	RCHS	PFVS	AV	AFCF	AFHS	RTC	RCG - GC5	Special
1H/2H/1V/2V	Grille	B	B	B	N	N	N			
PER/GC5	Grille	B	B	B	N	N	N			
RCG - GC5	Core								B	
3HG/3HJ	Grille	B	B	B	N	N	N			
3HG/3HJ	Core							B		B
3HF/ALF	Grille	B		B	N	N				
3HF/3HJ	Core							B		B
ALN/ALM/ALG/ALJ	Grille	B	B	B	N	N	N			
ALN/ALM/ALG/ALJ	Core							B		B
APN/APM/APG/APJ	Core									
ALG10/ALJ10	Grille	B		B	N	N				
ALG10/ALJ10	Core							B		B
NSC/DVC	Grille	B		B	N	N				
RTC/2RTC	Grille	B								
RTC/2RTC	Core							B		

B = BEADED FRAME

N = NON BEADED FRAME

RTC = R5 OR R16 FRAME WITH CORE AND PACKERS

SPECIAL = PART 6200001 FRAME WITH CORE AND BRACKET INCORPORATING TERRY CLIP

Note: If OBSS or ED are selected access to the duct work will not be possible.

Grille Plenum Boxes

Introduction

Correct selection and sizing of distribution plenum chambers is critical because grille air resistance is very low relative to the distribution ductwork resistance. It is therefore recommended that whenever possible grilles are served by low velocity stub ducts from branch ducting systems fitted with correct balancing controls. Where it is necessary to specify and use grille plenums a generous allowance for commissioned noise generation should be made.

Product Description

PBG	Individual grille plenum
PBG/LL	Low line grille plenum
NRG	Neck reducer
PBLG	Linear grille plenum
PBLG/LL	Low line linear grille plenum
PBSG	Security grille plenum

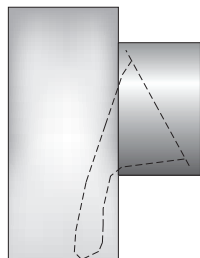
Spigot Options

SE	Side Entry
TE	Top Entry
1CC	1- Circular Connection
1RC	1- Rectangular/Square Connection
1FO	1- Flat Oval Connection

Features

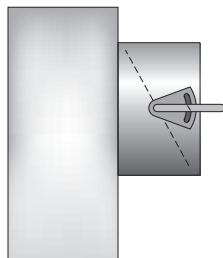
- Plated steel with stitched seam joints.
- Standard circular connection diameters: 97, 122, 157, 197, 247, 312 and 397 Ø
- Available with circular, square, rectangular or flat oval spigots in either top or side entry applications
- Standard or Low-line configurations
- Optional 6mm internal thermal/acoustic lining

Control Options



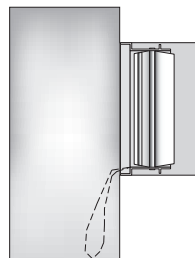
FDC

Cord operated flap damper for mounting within circular spigots to plenum chambers. The cord should be fed through the air terminal device ready for commissioning.



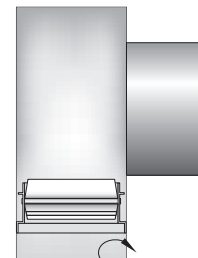
FDQ

Flap damper with external quadrant control for mounting within circular spigots to plenum chambers. The quadrant is accessible from outside the duct and the damper can be locked in any position.



OBCO

Cord operated opposed blade damper for installation within square or rectangular spigots to plenum chambers. The cord should be fed through the air terminal device ready for commissioning.



OBSS / ED

Standard opposed blade damper for diffuser or duct mounting. Adjustable by screwdriver inside the duct or through the face of the air terminal device. The ED is an individually adjustable blade device for equalising airflow across the diffuser.

Finish

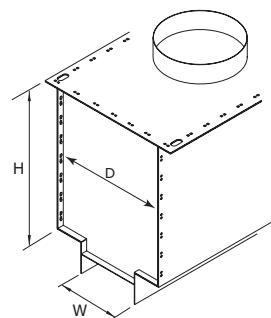
PBG/NRG	Galvanised sheet steel
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Dimensions

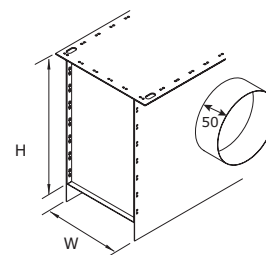
Length	Extract Grille length
Width	Extract Grille width
Height	SE – Spigot diameter or height + 100mm as standard
	TE – as specified by customer (200mm minimum recommended)

Order

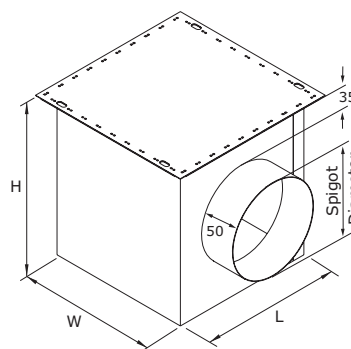
When ordering plenum chambers please specify length, width & height, spigot size and position (Top or Side Entry) and control options. Please note that the plenum height should in general be 100mm greater than the spigot diameter (Side Entry applications).



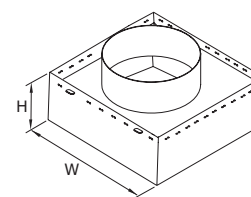
PBLG/LL - Top entry Low-line linear grille plenum box.



PBLG - Side entry Linear grille plenum box.



PBG - Side entry grille plenum box



NRG - Neck Reducer

Note: The connection between the grille and plenum is adequately sealed for most installations, although secondary additional sealing may be required at the discretion of the installers, if the leakage rate required is particularly low.

PLENUM ORDER EXAMPLE

Type	PBG-1H/570/570/400/SE/1CC/157dia/Lined
Plenum box length	
Plenum box width	
Plenum box height	
Spigot position	
Spigot type	
Spigot size	
Acoustic lining	

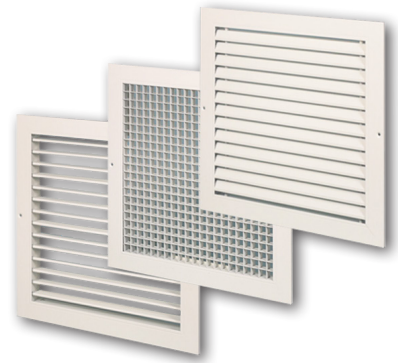


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Waterloo Product Range

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

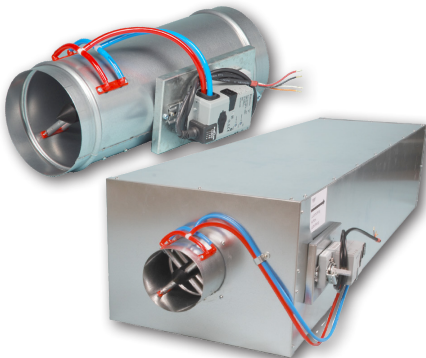
Designed to be installed in various ceiling systems, we have a complete range to suit both performance and aesthetical requirements. Most diffusers are made from aluminium and can be ordered with or without plenum boxes for easy duct work. Diffusers can be ordered in customer specified colours (PPM/G);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