

Security Grilles

SG1 High Security Grilles

SG2 Medium Security Grilles

SG3 Low Security Grilles



Security Grilles

SG1 / SG2 / SG3

Introduction

The Waterloo SG series security grilles have been designed in conjunction with the prison service for supply and extract of air in places where security is a priority - from prison institutions, courts and police stations to young offenders institutions and secure buildings.

Manufactured from 3mm thick mild steel plate, SG series grilles are available in three versions - SG1, SG2 and SG3 - able to meet ventilation needs in high, medium or low security applications. The series offers rectangular or square size options from 100mm up to 600mm.

Product Description

- SG1** High Security Grille With Rear Fixing
- SG2** Medium Security Grille With Face and Rear Fixing
- SG3** Low Security Grille With Face Fixing
- OBSS** Allen Key Operated Opposed Blade Damper
- PB** Plenum Box

Features

- Low, Medium or High Security Applications
- Side or Top Entry Connections Available
- 3mm Perforated Face-plate

Sizes

Minimum size - 75 x 75

Maximum size - 1000 x 600

Fixing

Security fixings by others

Finishes

Zintec coating as standard.

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

Specification of Perforations in Front Face

Perforations are 3mm diameter at a 5mm pitch

Please note that security grilles with face fix are not supplied with screws.

Weights

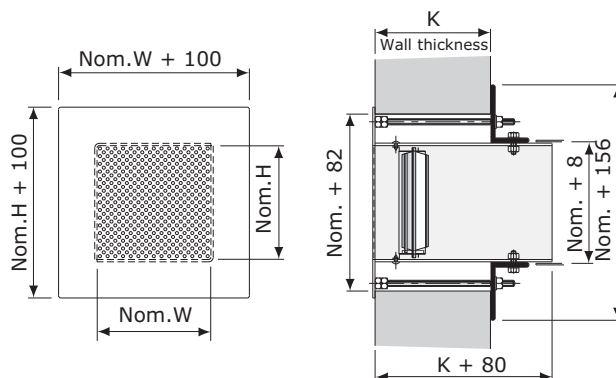
SG1 - SG2 for the approximated weight use the formula below:

$$((W+100)(H+100) + 250(W+H+100) + 2(W+H)(K+80) - 0.35WH) 2.4 \times 10^{-5} \text{ Kg}$$

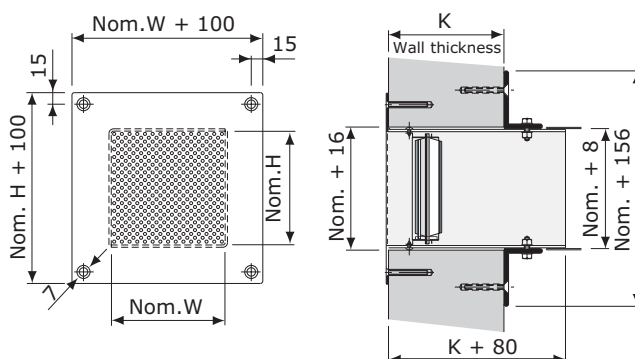
SG3 for the approximated weight use the formula below:

$$((W+50)(H+50) + 100(W+H) - 0.35WH) 2.4 \times 10^{-5} \text{ Kg}$$

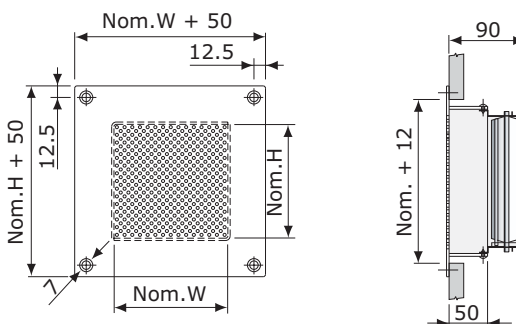
Free Area
35%



SG1 + OBSS



SG2 + OBSS



SG3 + OBSS

ORDER EXAMPLE

SG1/300/300/150/OBSS/9010-Matt

Type _____
 Nominal Width _____
 Nominal Height _____
 Depth (k) _____
 Damper _____
 Finish _____

Security Grilles

SG1 / SG2 / SG3

Selection Criteria

Throw data is based on a free jet under isothermal conditions and is presented for a terminal velocity of 0.5m/s.

Jet throws to a terminal velocity of 0.25m/s can be obtained by applying a factor of 1.5.

Noise data is presented in terms of sound power based dBA levels and is valid for supply and exhaust applications

Selection Example

SG1/300/300 for an Supply application

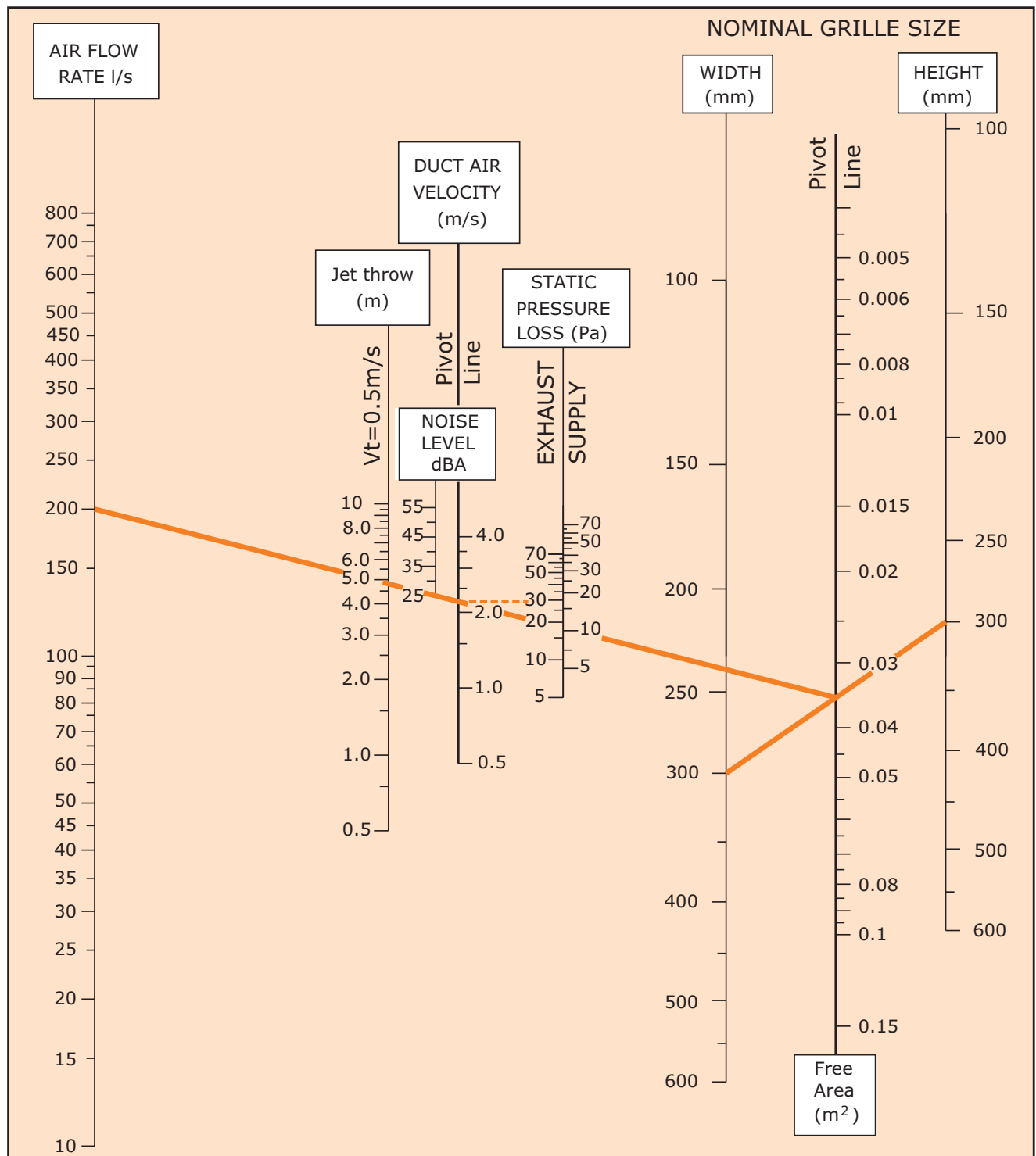
Air flow rate 200 l/s

Jet throw 4.8 m

Pressure loss 18 Pa

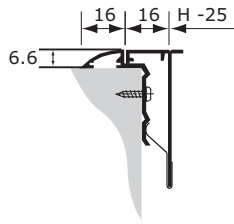
Noise level <25 dBA

Performance Nomogram

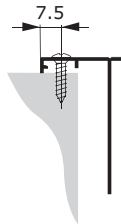


Controls and Fixing Options

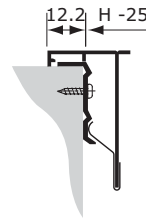
Fixing Options



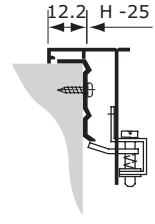
Frame: R16
Mounting: RCCF



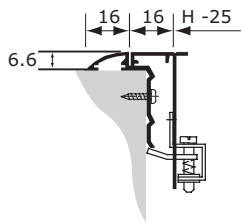
Frame: R25 / R32
Mounting: SF



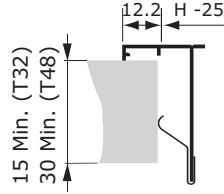
Frame: R25 / R32
Mounting: AFCF



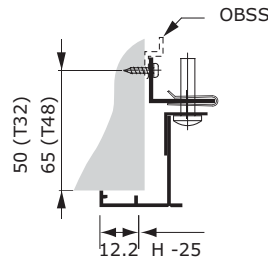
Frame: R25 / R32
Mounting: AFHS



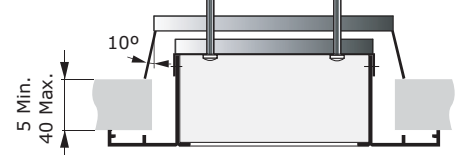
Frame: R16
Mounting: RCHS



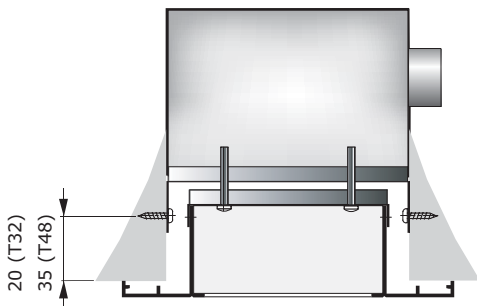
Frame: R16 / R25 / R32
Mounting: CF



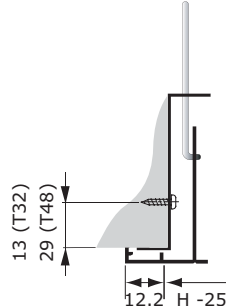
Frame: R16 / R25 / R32
Mounting: CRB



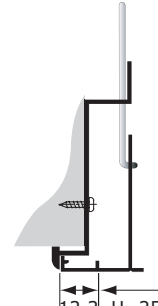
BSSBD (R16 / R25 / R32)
Duct / Plasterboard fixing



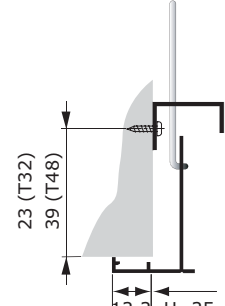
BSSBP (R16 / R25 / R32)
Plenum fixing (-15mm)



Frame: R25
Mounting: AFVS

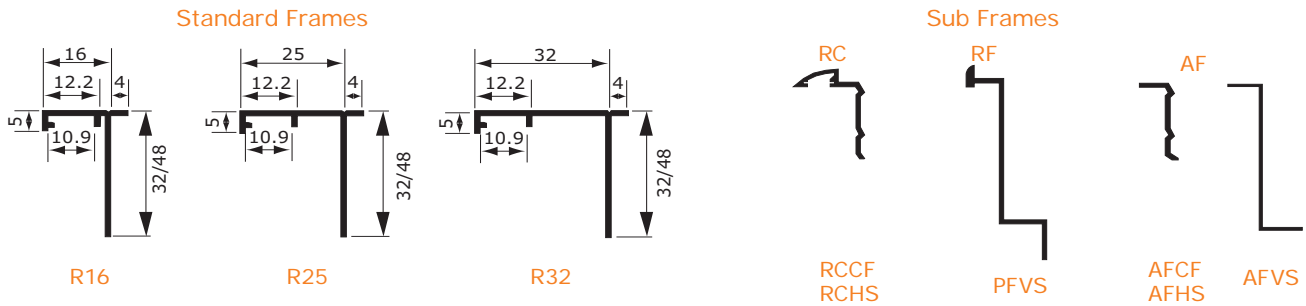


Frame: R25
Mounting: PFVS



Frame: R16 / R25 / R32
Mounting: VS

Standard Frames



Overall Grille Sizes

Grille with R16 = Nominal W/H + 7mm
Grille with R25 = Nominal W/H + 25mm
Grille with R32 = Nominal W/H + 39mm
Grille with RC = Nominal W/H + 39mm
Grille with PF = Nominal W/H + 21mm

Note:

AF and RC subframes can be made to a maximum size of 800mm in any direction in one piece. For sizes above that, we supply in parts for assembly on site by others.

DT-2M - Duct Fitted

The hinged strip is used to calibrate the amount of air desired, by altering the angle of the blades and therefore altering the amount of disruption to the airflow.

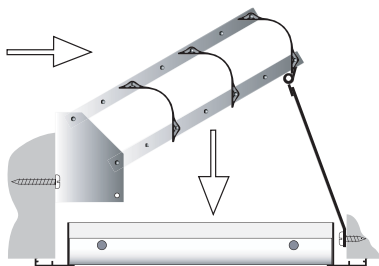
Sizes for DT-2M

Width = 100 - 1225

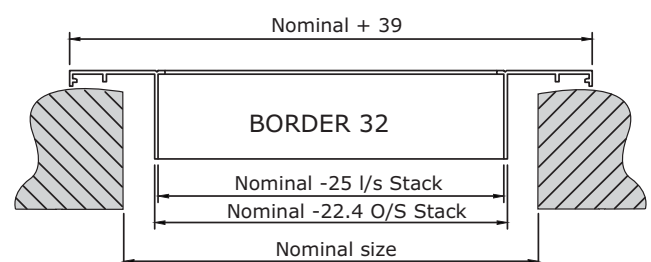
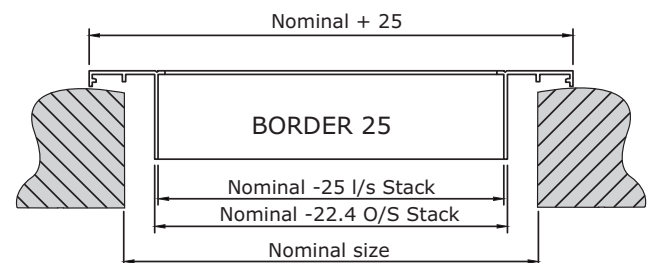
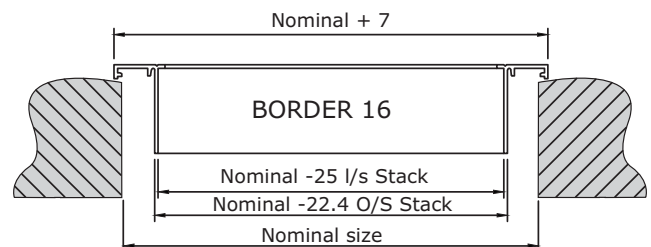
Height = 75 - 425

Correction for Grille + Damper

Supply 0° spread	dBA + 2	$P_s \times 1.3$
Supply 45° spread	dBA + 2	$P_s \times 1.1$
Exhaust	dBA + 2	$P_s \times 1.2$



Grille Nominal Sizes



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
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

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

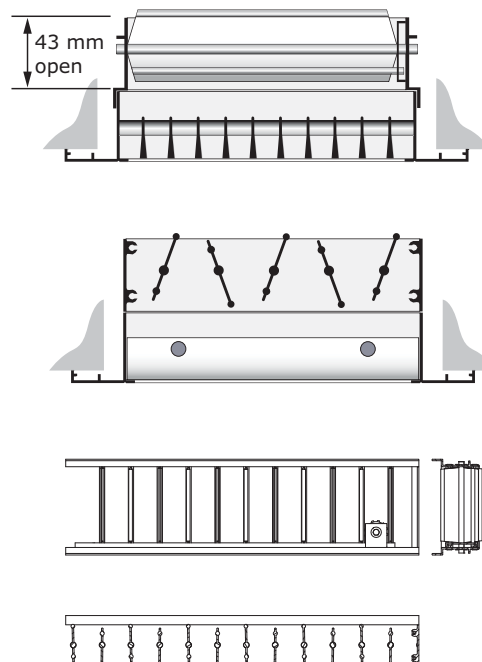
Sizes

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

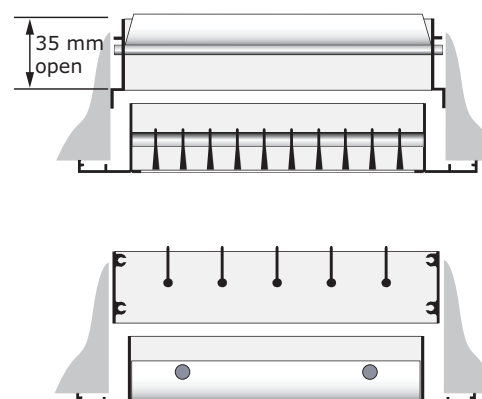
Extruded aluminium blades

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 |

Plenum Box to suit SG Security Grilles

PBSG / NRSB Neck Reducer

Introduction

The plenum boxes for our range of Security Grilles (SG1, SG2, SG3) are designed to guarantee a good distribution of the air prior to diffusion through the terminals. Available with Side or Top Entry connections to customer-specific diameter/shape, these can be fitted with Spigot Flap Dampers, cord- / quadrant-operated, as well as 6mm acoustic lining (optional) reaction to fire class C-s3-d0 to EN 13501-1: 2007 to avoid noise generation.

An internal baffle plate can be fitted to the plenum box to help evenly distribute the airflow over the whole surface of the grille if used for Supply air, or prevent through vision for Return air.

Product Description

PBSG Plenum box for Security Grilles (SG1, SG2, SG3)

NRSB Neck Reducer for Security Grilles (SG1, SG2, SG3)

SE Side Entry spigot

TE Top Entry spigot

CC Circular Connection

RC Rectangular Connection

FO Flat Oval Connection

FDC Cord-operated Flap Damper (optional)

FDQ Quadrant-operated Flap Damper (optional)

LINED 6mm acoustic lining (optional) reaction to fire class C-s3-d0 to EN 13501-1: 2007

BFL Internal perforated baffle plate (optional)

BLACK Plenum painted black to prevent through vision (optional)

Features

- Thick 16 gauge galvanised steel, riveted construction
- 1 or 2 connections – Circular, Rectangular or Flat Oval (reduced plenum height)
- Side or Top Entry spigots with optional airflow control damper
- Oblong holes on top plate for easy drop rod installation
- Internal baffle plate for optimum air distribution / non-vision (optional)

Finish

PBSG/NRSB 16 gauge galvanised sheet steel

Dimensions

Length Security Grille length

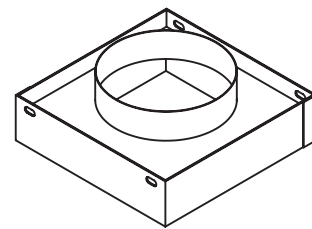
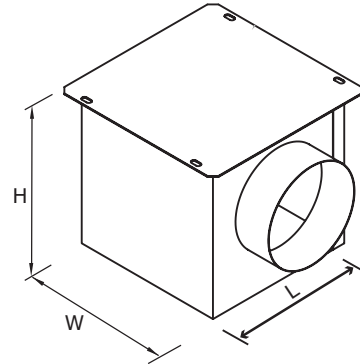
Width Security Grille width

Height SE – Spigot diameter or height + 100mm as standard

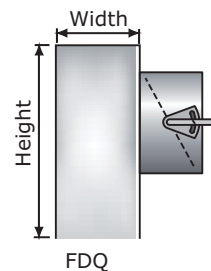
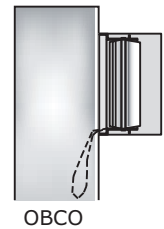
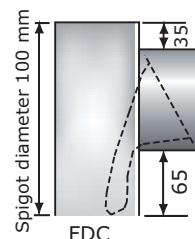
TE – as specified by customer (200mm minimum recommended)

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).



Control Options



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

PBG-1H/570/570/400/SE/1CC/157dia/Lined

Type _____

Plenum box length _____

Plenum box width _____

Plenum box height _____

Spigot position _____

Spigot type _____

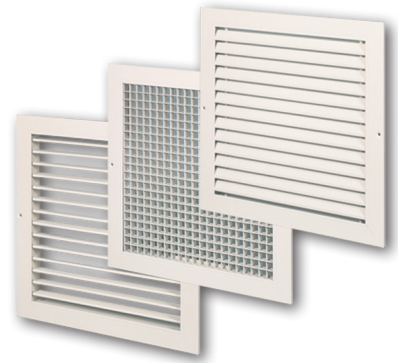
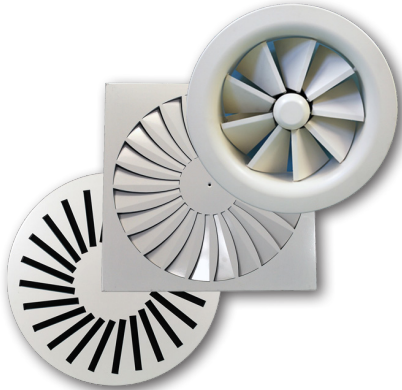
Spigot size _____

Acoustic lining _____

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

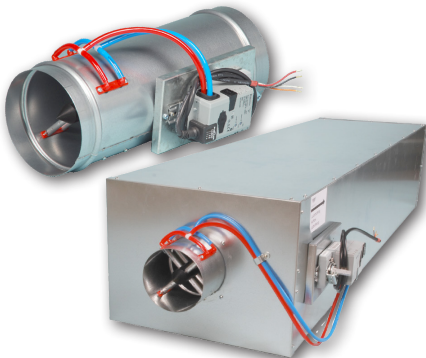
Designed to be installed in various ceiling systems, we have a complete range to suit both performance and aesthetical requirements. Most diffusers are made from aluminium and can be ordered with or without plenum boxes for easy duct work. Diffusers can be ordered in customer specified colours (PPM/G);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



Waterloo Air Products Ltd

Head Office:

Mills Road, Aylesford,
Maidstone, Kent ME20 7NB
Tel: +44 (0)1622 711 500
Fax: +44 (0)1622 710 648
email: sales@waterloo.co.uk
internet: www.waterloo.co.uk

Northern Office:

Hyde Park House, Cartwright Street,
Newton, Hyde SK14 4EH
Tel: +44 (0)161 367 1264
Fax: +44 (0)161 367 1262
email: sales@waterloo.co.uk
internet: www.waterloo.co.uk



FM 27823



EMS 590755

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