

Eyeball Diffusers

EBD Supply Air Nozzle



Supply Air Nozzles

EBD

Introduction

Waterloo EBD supply nozzles are capable of delivering air to spaces where long distance penetration and low noise levels are required. Suitable for cold and warm air supply applications, these versatile adjustable units are ideal for providing focussed ventilation or where precision is required. When grouped, penetration can be considerably enhanced.

EBD supply nozzles are made of pressed and spun aluminium, painted RAL 9010 20% gloss as standard although other colours are available upon request. Available in 7 sizes to suit standard duct dimensions. EBD's are manually adjusted to their chosen position, although a motorised option is available. Adjustment of up to 30° from the major axis is possible.

Product Description

- EBD** Supply Air Nozzle
- B1** Belimo LM24 motor, 24v - 2 position or continuous
- B2** Belimo LM230 motor, 230v - 2 position or continuous
- DMPR** Damper

Features

- 360° directional adjustment
- Excellent throw penetration
- High capacity
- Low noise levels
- Motorised version available

Finishes

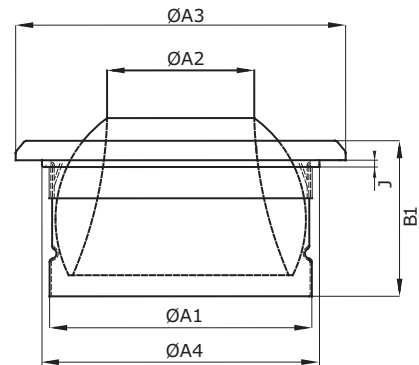
PPM 9010 as standard
Other colours available on request

Weights

Dimensions	Weights kg
100	0.6
125	0.8
160	1.0
200	1.4
250	1.9
315	2.0
400	2.6

Dimensions

Dimensions	ØA1	ØA2	ØA3	ØA4	J	B1
100	98	50	135	105	2	79
125	123	64	169	130	0	89
160	158	72	196	162	5	118
200	198	108	255	215	5	138
250	248	136	300	260	8	178
315	313	174	384	325	10	195
400	398	230	462	408	10	214



EBD

ORDER EXAMPLE

EBD/125dia/DMPR/LM24-CONT/9010-Matt

Type _____
 Nominal size _____
 Damper _____
 Motor Option _____
 Finish _____

Supply Air Nozzles

EBD

Selection Criteria

Temperature differential – 0 C (Isothermal)
 Terminal velocity – 0.25 m/s
 Noise level is sound power (L_w) in dBA less room absorption of 8 dB

Selection Example

EBD/P/-/100

Airflow Rate = 15 l/s
 Temperature differential = -5° C
 Throw = 14 m
 Noise level = <20 dBA
 Pressure Loss = 75 Pa
 Fall = 4 m

Thermal effects resulting in rise and fall of plume	
$\Delta t = -10$	See Performance Table
$\Delta t = -5$	See Performance Table
$\Delta t = 0$	See Performance Table
$\Delta t = +5$	See Performance Table
$\Delta t = +10$	See Performance Table

Angle of discharge effect on rise and fall of plume	
Angle of Discharge	Throw Multiplier
+10	1.08
+20	1.21
+30	1.35

Performance Table

EBD	Flow Rate	Throw	Pressure Loss	Lw	Rise/Fall $\Delta t = 0$	Rise/Fall $\Delta t = \pm 5$	Rise/Fall $\Delta t = \pm 10$
Size	l/s	m	Pa	dBA	m	m	m
100	13	10	35	<20	0.4	2.5	4.8
	26	20	75	27	0.8	4	8.5
	38	30	150	42	1.2	6	-
125	17	10	12	<20	0.7	3.9	7
	20	11	23	<20	0.9	4	7.2
	34	20	50	20	1.2	4.3	8.5
	50	30	150	37	2.4	5.2	-
160	23	10	8	<20	1.1	3.8	-
	30	13	20	<20	1.4	5.8	-
	46	20	52	24	2.5	8.2	-
	70	30	100	32	3	-	-
200	30	10	5	<20	1.3	3.4	-
	50	17	18	<20	1.8	4.1	-
	70	20	33	21	2.9	6.8	-
	100	30	80	25	3.5	-	-
250	38	10	7	<20	2.5	4.2	-
	76	18	14	<20	3	5.8	-
	106	20	30	21	4	-	-
	150	30	70	23	5.8	-	-
315	48	10	<5	<20	3.6	4.4	-
	98	20	10	<20	4.8	5.6	-
	150	30	28	20	6	-	-
400	64	10	<5	<20	4	5	-
	129	12	8	<20	6.4	7.4	-
	150	24	15	<20	8.2	-	-
	195	30	30	<20	9.8	-	-

Table content for terminal velocity of 0.25 m/s

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

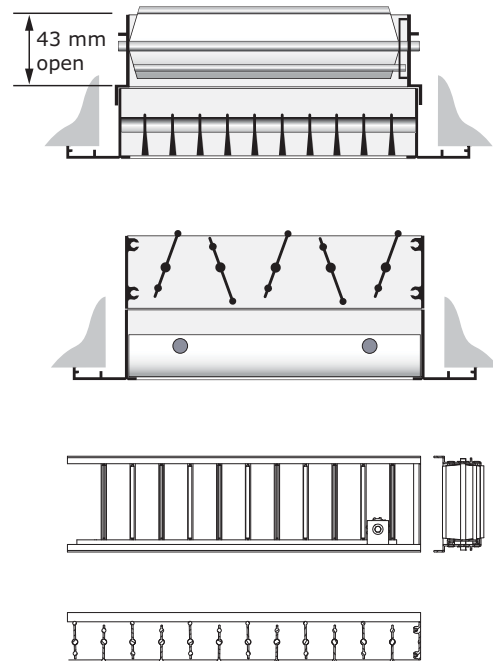
Sizes

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

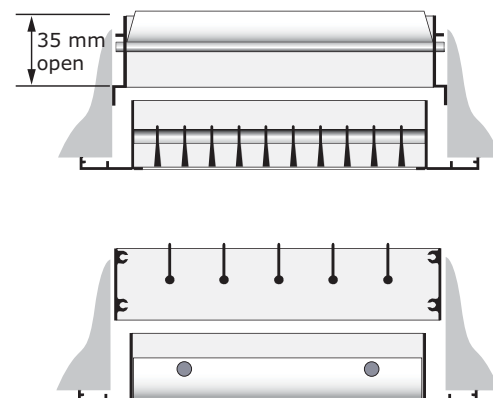
Extruded aluminium blades

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

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

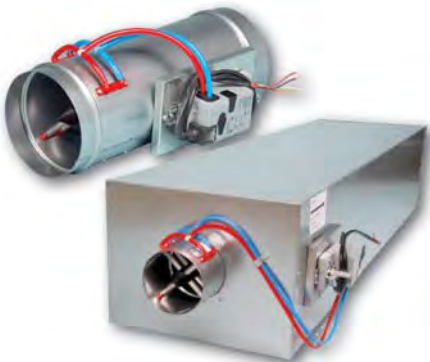
Designed to be installed in various ceiling systems, we have a complete range to suit both performance and aesthetic requirements. Most diffusers are made from aluminium and can be ordered with or without plenum boxes for easy duct work. Diffusers can be ordered in customer specified colours (PPM/G); 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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FM 27823



EMS 590755

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