

### Introduction

The Waterloo Aircell M series presents all the cost and design advantages of the 2000 series with the visual appeal of clean, unbroken lines on the traditional multicone design.

The diffusers are available in a range of 5 sizes to integrate with standard 300mm and 600mm ceilings and the 500mm and 625mm European systems.

### Product Description

- M300** 300 sq diffuser
- M450** 450 sq diffuser
- M500** 500 sq diffuser
- M600** 600 sq diffuser
- M625** 625 sq diffuser
- O** Black polymer opposed blade damper
- P** Black polymer plenum box
- F** Fixing kit
- BM** Blanking kit
- R600** Reducer with 312 $\varnothing$  spigot

### Features

- Contemporary style designed for visual integration with luminaires and other ceiling elements
- Ease of installation with concealed, single point fixing into P series plenum or rigid ducting
- Full range of integrated accessories available including directional or core blanking kits, universal plenums and opposed blade dampers

### Finishes

Diffusers are self-coloured white  
Damper and plenum are self-coloured black

### Weights

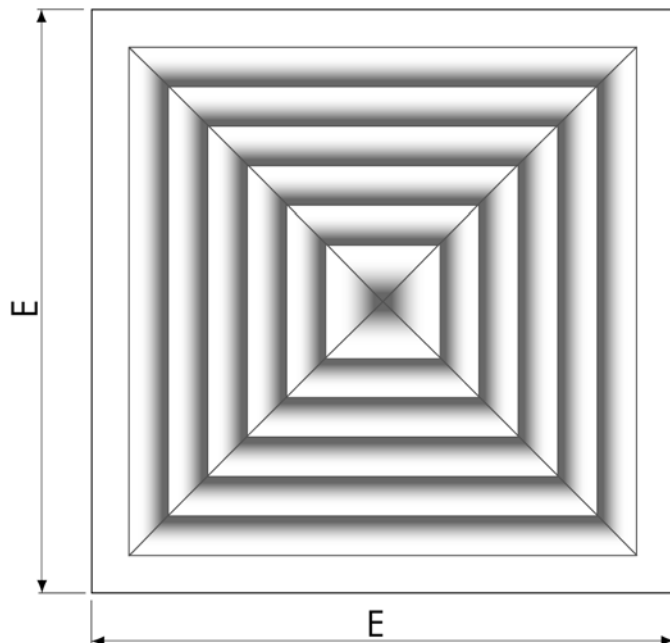
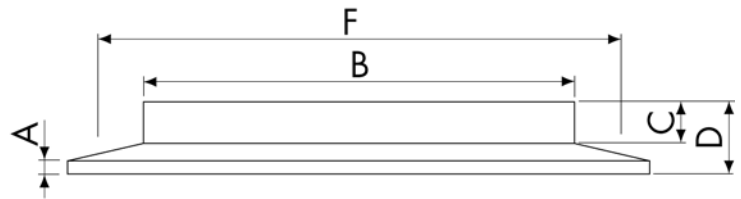
- M300 0.6 kg
- M450 1.4 kg
- M500 1.6 kg
- M600 2.6 kg
- M625 2.8 kg

### Authority

Patents: 2221530, 2223840, 8818337 others pending  
Registered Designs: 1052716, 106216  
Fire Rating: BS476 Pt 7 Class 0. BS476 Pt 5,  
P Rating. BS 2782 Method 508A, Zero Rate of Burn.

Performance tested to BS4773 1991, ISO 5219.

**Maximum supply air temperature must not exceed 50°C.**

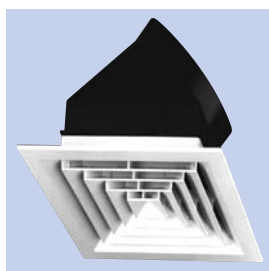


### Order Example

#### Aircell M300/O300/P300/F300/BM300

Type   
 Damper   
 Plenum   
 Fixing Kit   
 Blanking Kit

Aircell M	A	B	C	D	E	F
M300	6	230	36	56	296	235
M450	6	307	36	56	446	375
M500	6	307	36	56	496	375
M600	6	456	36	56	596	525
M625	6	456	36	56	621	525



### Selection Criteria

Ceiling Height 2.7 m  
 Temperature Differential -10K  
 Average room velocity  $v_r$  0.25 m/s  
 NR level = peak level on noise rating curves  
 based on Sound Power Level less  
 8dB room absorption

### Selection Example Aircell M450

Air Flow Rate 180 l/s  
 Throw 2.0 m  
 Static Pressure Loss 15 Pa  
 Noise level NR23

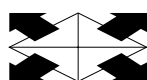
All performance data includes the  
 plenum box

Note: Sizes are overall

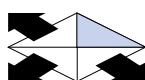
### Performance Table

M	Supply				Supply				Supply				Extract		Extract		Extract				
	M300				M450 M500				M600 M625				M300		M450 M500		M600 M625				
l/s	↖	↗	↘	↙	↖	↗	↘	↙	↖	↗	↘	↙	↖	↗	↘	↙	↖	↗	↘	↙	
34	T	1.0	1.2	1.6				1.5													
	P <sub>s</sub>	9	15	33				9													
	L <sub>w</sub>	-	-	-				-													
45	T	1.2	1.5					2.0													
	P <sub>s</sub>	15	23					15													
	L <sub>w</sub>	-	-					23													
56	T	1.5	1.7				1.3	2.2													
	P <sub>s</sub>	23	34				7	23													
	L <sub>w</sub>	-	20				-	28													
68	T	1.6					1.5	2.5													
	P <sub>s</sub>	33					9	33													
	L <sub>w</sub>	-					-	33													
79	T	2.0				1.3	1.7	3.0				2.0									
	P <sub>s</sub>	43				8	12	43				9									
	L <sub>w</sub>	21				-	-	36				25									
135	T					1.5	2.0	2.5													
	P <sub>s</sub>					9	15	33													
	L <sub>w</sub>					-	23	33													
180	T					2.0	2.3					2.2	4.6								
	P <sub>s</sub>					15	25					12	44								
	L <sub>w</sub>					23	29					27	45								
225	T					2.2	2.7					1.8	2.8								
	P <sub>s</sub>					23	35					7	17								
	L <sub>w</sub>					28	35					22	35								
270	T					2.5						2.2	3.7								
	P <sub>s</sub>					33						12	26								
	L <sub>w</sub>					33						28	38								
315	T					3.0						2.0	2.5	4.1							
	P <sub>s</sub>					43						9	15	35							
	L <sub>w</sub>					36						25	32	41							
405	T											2.5	3.6								
	P <sub>s</sub>											15	25								
	L <sub>w</sub>											32	39								
506	T											3.5	4.3								
	P <sub>s</sub>											23	38								
	L <sub>w</sub>											37	42								
608	T											4.0									
	P <sub>s</sub>											33									
	L <sub>w</sub>											40									
709	T											4.5									
	P <sub>s</sub>											43									
	L <sub>w</sub>											44									

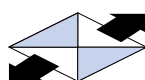
### Blanking arrangements



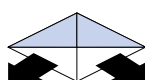
4 way



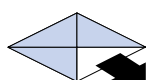
3 way



2 way



2 way



1 way

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 2005

### Performance

The unique integrated design of the plenum, damper and diffuser assembly has been specifically developed to promote smooth flow lines, ensuring an exceptional aerodynamic and acoustic performance.

Aircell products can be used in any air distribution systems where temperatures do not exceed 50° C.

The components have been tested to BS4773 Parts 1 & 2 to provide comprehensive, easy to use selection data for all installation options.

### Opposed Blade Damper Type 'O'

The 'O' series opposed blade damper is designed to integrate with the plenum and diffuser range to provide a simple means of flow regulation from the diffuser face.

The unit is designed to snap fit into the universal plenum, or alternatively can be easily screw or rivet fixed into steel ducting using the inbuilt mounting lugs.

Manufactured in black engineering grade polymer, the damper is inherently smooth and positive in operation.

### Weights

O300 0.5 kg

O450 1.0 kg

O600 2.2 kg

### Plenum Type 'P'

The 'P' series plenum is aerodynamically profiled to provide ideal flow conditions with either top or side entry duct arrangements.

Manufactured in black engineering grade polymer, the design incorporates features such as internal guide vanes to reduce air turbulence, and snap-in locks to retain the opposed blade damper and diffuser mounting bar.

The plenum can be fixed to the ceiling grid or suspended by drop rods from the slab. Either fixing method is carried out using patented mounting brackets which simply slide into the plenum retaining slots.

### Weights

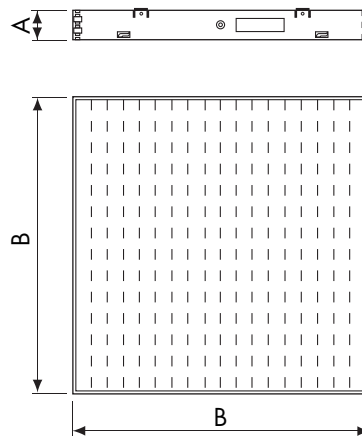
P300 0.7 kg

P450 1.0 kg

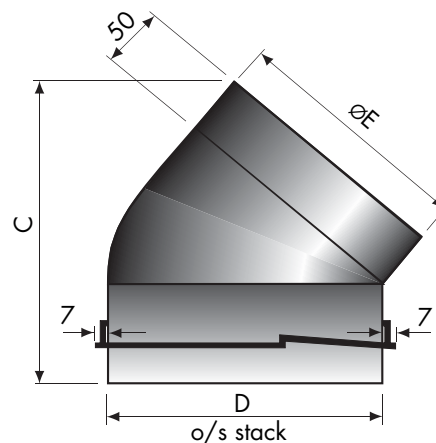
P600 1.7 kg

### Neck Reducer R600

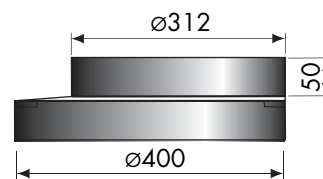
The R600 snap-fit neck reducer is available as an option to convert the P600 plenum spigot from 397ø to 312ø.



**Type 'O' damper**



**Type 'P' plenum**



**R600 neck reducer**

Model	A	B	C	D	E
O300	41	215	-	-	-
O450	41	290	-	-	-
O600	41	440	-	-	-
P300	-	-	245	224	197
P450	-	-	277	299	247
P600	-	-	366	449	397

### Installation

Particular attention has been paid to the installation method to minimise site fixing time. The plenum is easily installed using the slide-in brackets as support legs from above the ceiling 'T', or with drop rods from the slab. The damper and diffuser support bar can then be clipped in place, with the diffuser finally being secured by the single centre fixing screw.

### Specification

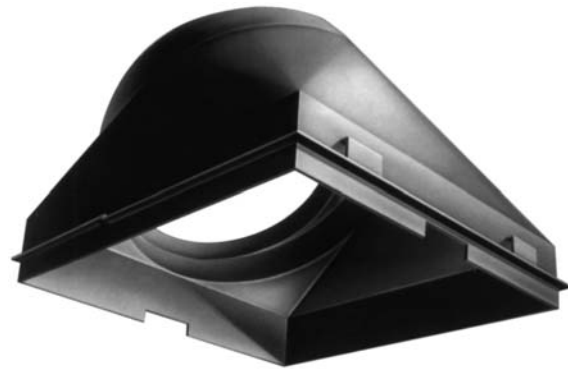
Ceiling diffusers shall be Aircell 2000 series manufactured from injection moulded engineering polymer, in self-coloured white as standard. Overall diffuser size shall be nominally 300 or 600mm to suit standard ceiling grids.

A captive centre line polymer fixing bolt and metal fixing bracket kit shall be provided.

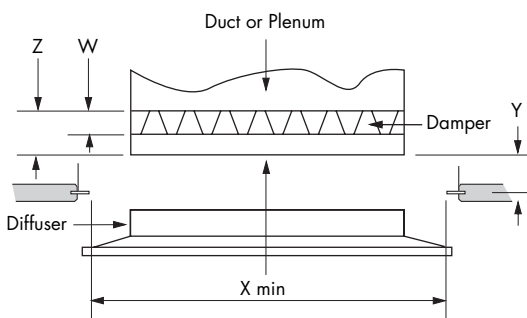
Directional blanking is obtained with snap-in plates to provide 1, 2 or 3 way air patterns or reduced area blanking.

Opposed blade dampers (type 'O') is manufactured from injection moulded engineering polymer in self-coloured black as standard, operable through the diffuser face.

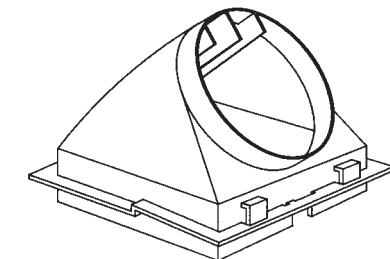
Plenum box (type 'P') is manufactured from injection moulded engineering polymer of a universal design and in self-coloured black, incorporating guide vanes and bracket location slots.



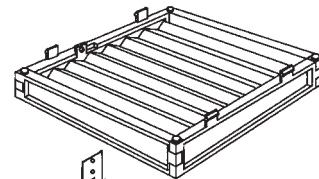
Note:  
Specially designed clips mean that you can use a type 'O' damper with a diffuser without a universal Plenum.



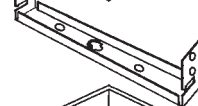
- W = Damper depth
- X = Ceiling opening (+5 -0)
- Y = Face of T bar to underside of Duct or Plenum (+0 -10)
- Z = Underside of duct to underside of damper



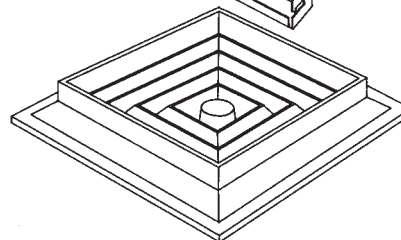
Universal plenum type P



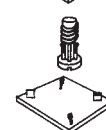
Face operated opposed blade damper type O



Diffuser fixing bracket type F - for fixing to plenum or duct



Aircell diffuser



Captive fixing bolt

Removable core

Model	W	X	Y	Z
2300	45	269	41	88
2600	45	546	41	88