

## Airline Linear Grilles

## ALN / ALM / ALF / ALG / ALJ

#### Introduction

Waterloo Airline Linear grilles have been designed to satisfy air diffusion and engineering requirements as well as architectural specifications. Airline grilles may be used in modular or continuous (ALN, ALM) situations for ceiling, sidewall, cill or bulkhead applications. The range is available with a wide variety of special options and fabrications to suit most project requirements. Grilles may be supplied with or without frames and borders - cores are represented with a suffix "(C)".

#### **Product Description**

0° 6mm thick blade, 12.5mm pitch ALN 15° 6mm thick blade, 12.5mm pitch ALM 45° 4.5mm thick blade, 12.5mm pitch **ALF** ALG 0° 3mm thick blade, 12.5mm pitch 15° 3mm thick blade, 12.5mm pitch ALJ ALG10 0° 3mm thick blade, 10mm pitch 15° 3mm thick blade, 10mm pitch ALJ10

ALG(2) As above with a rear set of adjustable blades ALJ(2) As above with a rear set of adjustable blades ALN(2) As above with a rear set of adjustable blades ALM(2) As above with a rear set of adjustable blades 2 way cores are available on angled blade 2ALF

designs (Suffix M, F or J)

AFG 3mm border frame (any blade can be specified)

OBSS Allen Key operated opposed blade damper ED

Equalising deflector

DT-2M Adjustable duct turn (Installed in duct) ALF-RB Reverse Border (Any blade can be specified)

PPG9010 (RAL 9010 Gloss - 80% Gloss White) PPM9010 (RAL 9010 Matt - 20% Gloss White) PPM9006 (RAL 9006 Matt - 30% Gloss Silver) Other colours or anodised finish available on request

14 kg/m² face area 10 kg/m² face area 9.5 kg/m² face area 9.0 kg/m² face area ALG Others OBSS/ED DT2M(G)

Minimum size - 150 x 50mm

Maximum sizes for ALG / ALJ / ALF - 2000 x 1500mm Maximum sizes for ALN / ALM - any x 1500mm Maximum single section of cores - 2000 x 1500mm Refer to head office for borders up to 4 meters in one piece Continuous grilles are supplied in sections for butt jointing on site.

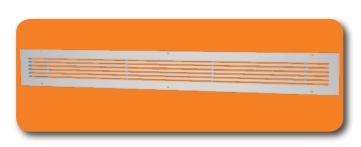
#### Fixing Options

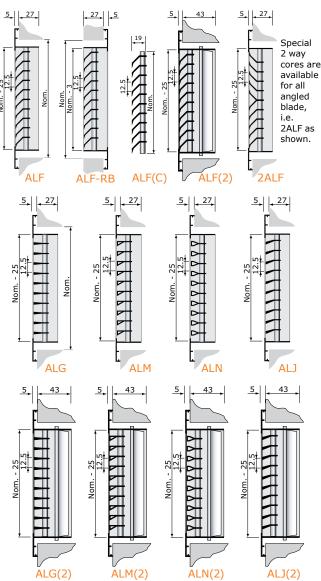
SF CF CRB VS **AFVS PFVS RCHS AFCF AFHS RCCF** 

BSSBD **BSSBP** 

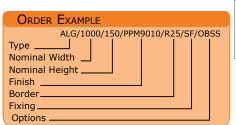
The following fixings are not compatible with the ALF blade RCHS AFHS BSSBD

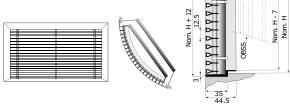
BSSBP - Not suitable for grilles with a rear blade or ALF blade BSSBD - recommended for AFG frame if wall mounted (plasterboard)





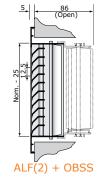








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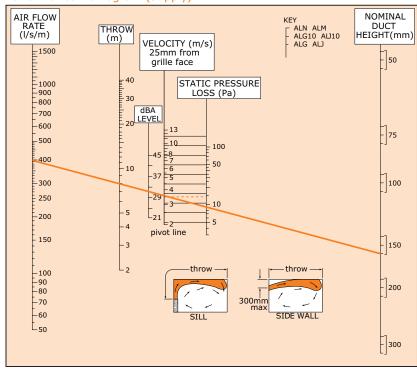


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Performance Nomogram (Supply)



#### **Correction Factors**

Grille Length Correction Factors								
Length (m)	0.25	0.5	1.25	2	2.5	3		
L <sub>w</sub>	- 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				

#### Performance Nomogram (Exhaust)

Ι.			
	AIR FLOW RATE		
	(l/s/m)		
	1500		
	l E	VELOCITY (m/s)	
	1000	25mm from	
	E 900	grille face	
	E 800		
	700	dBA STATIC PRESSURE	NOMINAL
	F 600	LEVEL LOSS (Pa)	
	500	ALG ALG 10 ALF ALF ALN ALG10 ALG	DUCT
	l	ALJ ALJ 10 ALM ALJ10 ALJ	HEIGHT (mm)
	500 100 100 100 100 100 100 100 100 100	ALN ALM = 10 -200 -200	- 50
	E 200	E8   F200   F100	
		- 537	
	250	45 45 53 53 50 50 50	
	200	27	75
	E	3/- 50	/3
	- 150	29 37 - 10 10 10	
	l F	21 5 5	100
	l F	21 21 29 10 55	
	- 100 - 90	21	
	80	PIVOLINIE     1   1 L1	
	70	L <sub>0</sub> 5	- 150
	- 60	Pivot line	
	50	-1	200
	l +		- 200
	- 40		
	F <sub>20</sub>		
	- 30		L <sub>300</sub>
	- 25		
	1 20		

#### 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.

#### Selection Example (Supply) 150mm wide grille supplying 400 l/s/m

ALG 10

32 dBA  $P_s = 16 Pa$ 

ALG

 $P_s = 15 Pa$ 31 dBA

ALG 10/OBSS

 $P_s = 24 Pa$ 35 dBA

ALG/OBSS

 $P_{s} = 22.5 \text{ Pa}$ 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 AL2 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  $\frac{1}{3}$ .

(mm)

#### **Terminal Velocity Correction Factors** V<sub>t</sub> (m/s) 0.6 0.5 0.4 0.3 Throw multiplier x 0.8 | x 1.0 x 1.66 x 1.3

#### Selection Example (Exhaust) 100mm wide grille supplying 200 l/s/m

43 dBA

ALF

 $P_s = 46 Pa$ 40 dBA

ALN

 $P_s = 15 Pa$ 31 dBA

ALF/OBSS  $P_{s} = 69 \text{ Pa}$ ALN/OBSS

 $P_s = 23 Pa$ 34 dBA

> 150 200 300 20 - 15 L<sub>10</sub>

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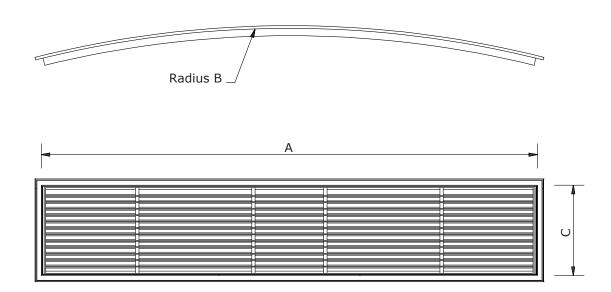
## **Curved Grilles**

#### Introduction

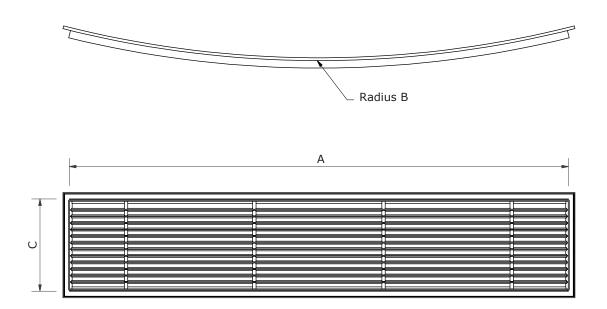
Waterloo Airline Linear grilles are available in 5 curved formats for types: ALG, ALM and ALN. The curved grilles can be manufactured bespoke to any required radius over 1.75mtrs, in any of the following configurations:

- Convex linear curveConcave linear curve
- Fanned curve
- Convex barrel curve
- Concave barrel curve

### Convex linear curve



#### Concave linear curve



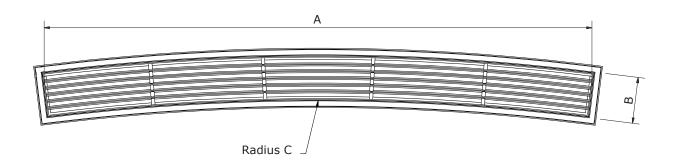
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Grilles

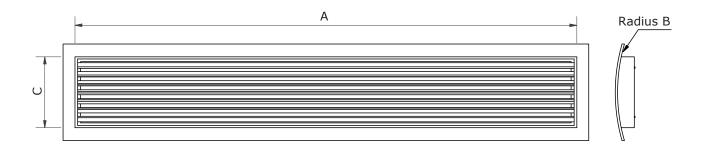


# Airline Linear Grilles Curved Grilles

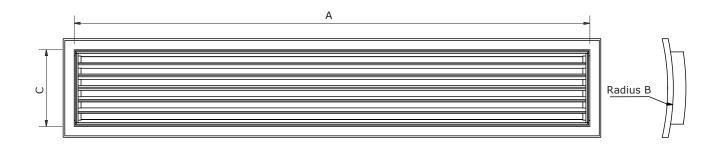
Fanned curve



## Convex barrel curve



## Concave barrel curve



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