



www.wtbs.co.uk

Contents Page



Perforated Supply and Extract Grilles	Page 3
Circular Louvre Faced Diffusers (Small Format)	Page 5
Supply and Extract Air Valves	Page 7
Circular Louvre Faced Diffusers (Large Format)	Page 9
Double Deflection Grilles	Page 10
Egg Crate Grilles	Page 11
External Weather Louvres	Page 13
Contacts Page	Page 17

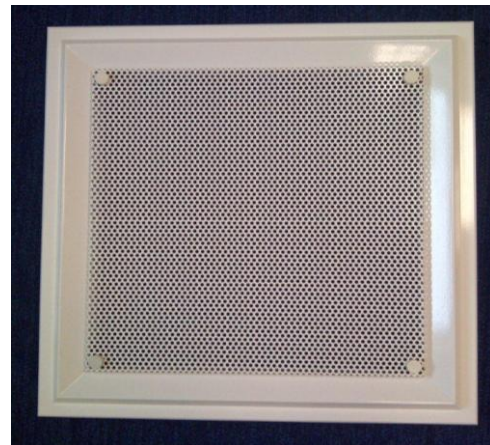
Perforated Supply and Extract Grilles

These grilles are designed to give an even distribution of air in either a 1,2,3 or 4 way pattern by simply adjusting the directional air vanes, hidden behind the thumb screw fixed perforated face.

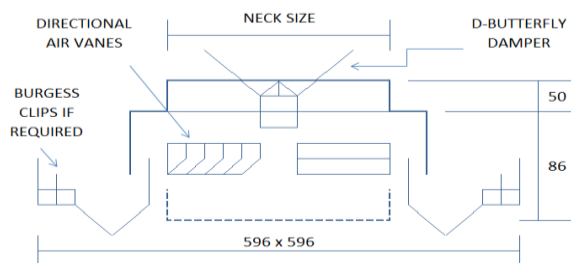
The supply and extract versions have the same external appearance and a high quality finish which blend neatly into the 600x600 suspended ceilings.

Cleaning the diffusers is made easy by the thumb screw fixed perforated face and demountable directional air vanes, while the frame design protects the surrounding ceiling from unsightly smudging.

These grilles are suitable for most projects such as Offices, Restaurants, Kitchens etc.

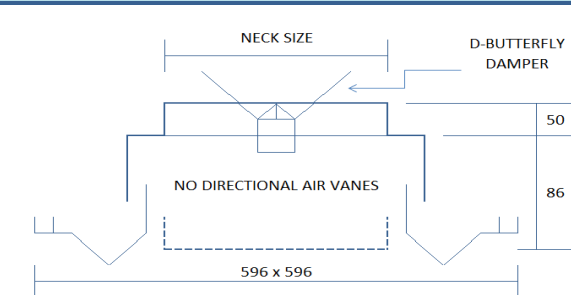


PERFORATED SUPPLY GRILLE (P.S.G.)



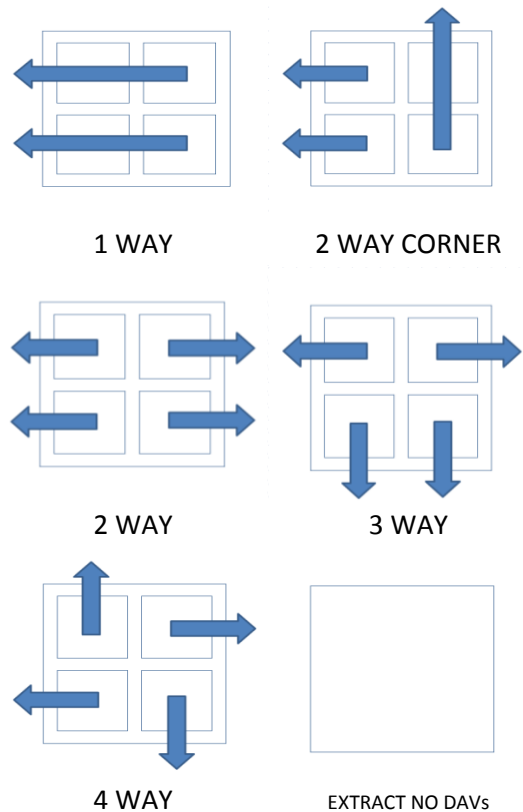
AVAILABLE NECK SIZES: 150 ϕ - 350 ϕ

PERFORATED EXTRACT GRILLE (P.E.G.)



AVAILABLE NECK SIZES: 460X460 & 200 ϕ - 450 ϕ

DIRECTIONAL AIR VANES PATTERNS

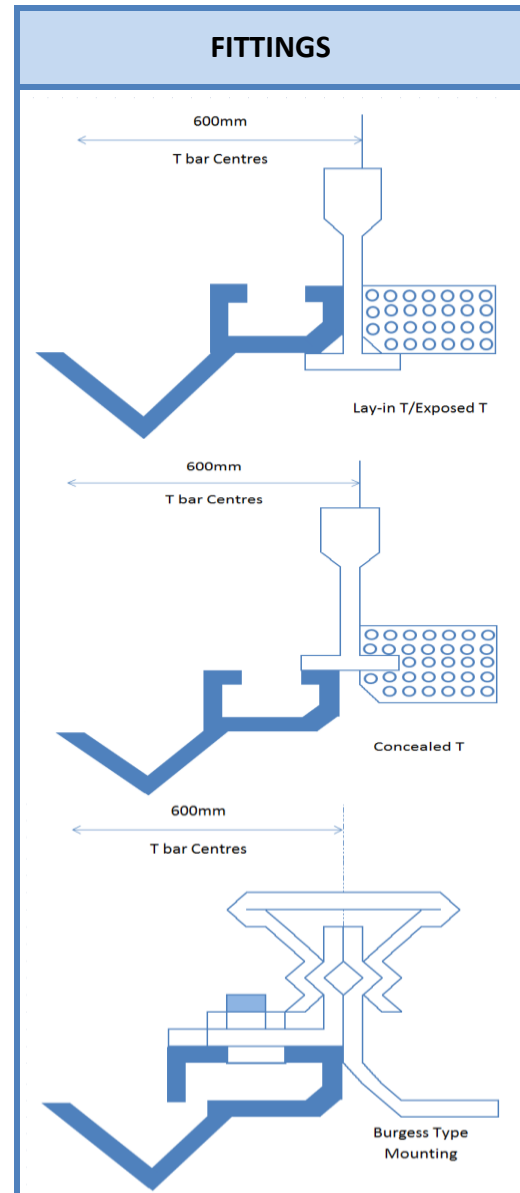


SKP - Supply Diffuser - 300ø Neck.					
Radius of Diffusion - M (FT)					
Neck	M/S	2	3	4	5
Velocity	F.P.M.	400	600	800	1000
4 Way	MIN-	0.31-1.07	0.69-1.98	1.22-2.45	1.68-3.5
	MAX	1.0'-3.5'	2.25'-6.5'	4.0'-8.0'	5.5'-11.5'
3 Way	MIN-MAX	0.31-0.76	0.45-1.5	0.69-1.98	1.22-2.4
	SHORT	1.0'-2.5'	1.5'-5.0'	2.25'-6.5'	4.0'-8.0'
3 Way	MIN-MAX	0.36-1.22	0.99-3.05	1.53-3.5	2.2-3.96
	LONG	1.2'-4.0'	3.25'-10.0'	5.0'-11.5'	7.0'-13.0'
2 Way	MIN-	0.36-1.83	0.61-2.45	1.22-3.5	1.68-4.57
	MAX	1.2'-6.0'	2.0'-8.0'	4.0'-11.5'	5.5'-15.0'
1 Way	MIN-	0.38-2.45	1.83-3.5	3.2-5.49	4.6-7.9
	MAX	1.25'-8.0'	6.0'-11.5'	10.5'-18.0'	15.0'-26.0'
Pressure Loss	PA	4.25	7.47	16.2	25
	"W.G."	0.017"	0.03"	0.065"	0.1"
Noise Level	dB	15	27	35	43

Min & Max radius of diffusion, is measured at 0.75m/s & 0.30m/s terminal velocities when mounted at a 3m ceiling height.

EKP - Exhaust Diffuser - 460 x 460 Neck.						
Neck velocity & Pressure Loss						
Neck	M/S	2	4	6	8	10
Velocity	F.P.M.	400	800	1200	1600	2000
Pressure Loss	PA	2	5	10	16	25
	"W.G."	0.008"	0.02"	0.04"	0.064"	0.1"
Noise Level	dB	-	-	20	32	43

EKP - Exhaust Diffuser - 300ø Neck.						
Neck Velocity & Pressure Loss						
Neck	M/S	2	4	6	8	10
Velocity	F.P.M.	400	800	1200	1600	2000
Pressure Loss	PA	3	10	15	20	30
	"W.G."	0.01"	0.04"	0.06"	0.08"	0.12"
Noise Level	dB	-	-	25	35	43



ADDITIONAL INFORMATION

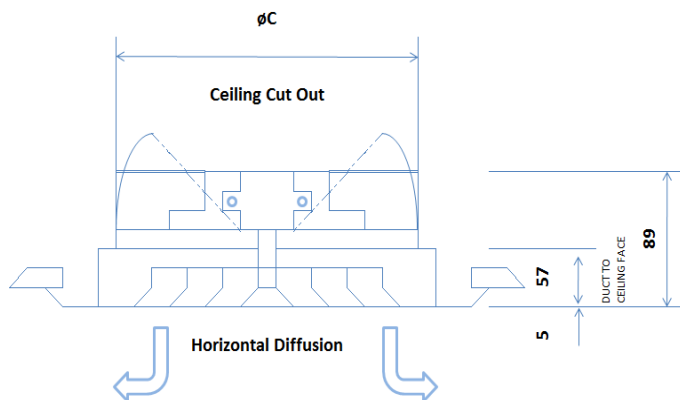
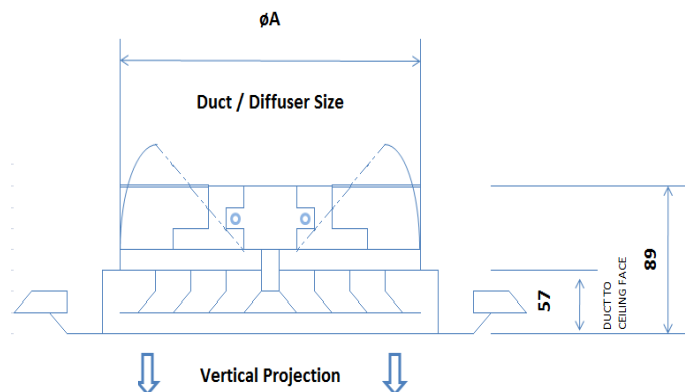
All Grilles are finished to Gloss white as standard (for easy cleaning) but any BS colour can be supplied on request. Non standard sizes are available. Details upon request.

Circular Louvre Faced Diffusers (Small Format)



CLFD (SF)s are designed for both supply and exhaust applications requiring compact circular diffusers. Unlike conventional diffusers the CLFD (SF)s have a small overall to neck size ratio. The diffusers are adjustable to produce horizontal or vertical air patterns.

CLFD (SF)s are constructed from steel spinnings retained on aluminium spider braces.



FEATURES

- Compact frame design
- Robust Steel Construction
- Adjustable for vertical or horizontal air patterns

Diffuser and Duct Size ϕA	Overall Diameter ϕB	Ceiling Opening ϕC
150	228	203
200	305	280
300	381	356
450	533	508

Supply Horizontal Projection

Radius of Diffusion.

Min - Space covered by one diffuser which results in a mean room air movement of 0.25m/s

Max - Space covered by one diffuser which results in a mean room air movement of 0.10m/s

Performance Tables

MC		Air Volume				
150 Dia	m3/h	65	126	191	252	317
	l/s	18	35	53	70	88
	Min-Max (m)	0.5-1.0	0.8-1.5	1.0-2.1	1.5-3.0	2.0-4.0
	Lw	-	-	18	26	34
	Ps	2	9	21	37	58
200 Dia	m3/h	112	227	338	454	565
	l/s	31	63	94	126	157
	Min-Max (m)	0.5-1.0	0.9-1.8	1.5-3.0	2.0-4.0	2.5-5.0
	Lw	-	-	21	31	40
	Ps	2	9	21	37	58
300 Dia	m3/h	256	508	763	1016	1271
	l/s	71	141	212	282	353
	Min-Max (m)	0.7-1.5	1.4-2.8	2.1-4.2	2.8-5.6	5.0-10
	Lw	-	18	29	39	46
	Ps	2	9	21	37	58
450 Dia	m3/h	572	1145	1717	2290	2862
	l/s	159	318	477	636	795
	Min-Max (m)	1.3-2.5	2.5-5.0	3.8-7.6	5.0-10	6.0-12
	Lw	-	21	35	45	53
	Ps	4	18	41	72	112

Exhaust

MC		Air Volume				
150 Dia	m3/h	65	126	191	252	317
	l/s	18	35	53	70	88
	Lw	-	-	18	26	35
	Ps	3	11	23	38	56
200 Dia	m3/h	112	227	338	454	565
	l/s	31	63	94	126	157
	Lw	-	-	23	33	41
	Ps	4	15	31	51	76
300 Dia	m3/h	256	508	763	1016	1271
	l/s	71	141	212	282	353
	Lw	-	17	32	42	50
	Ps	6	23	49	80	120
450 Dia	m3/h	572	1145	1717	2290	2862
	l/s	159	318	477	636	795
	Lw	-	27	42	52	-
	Ps	10	35	74	120	180

Supply Vertical Projection

Projection - downward throw to a terminal velocity

v = 0.5m/s

MC		Air Volume				
150 Dia	m3/h	65	126	191	252	317
	l/s	18	35	53	70	88
	Projection (m)	0.9	1.5	2.5	3.5	4.6
	Lw	-	17	28	36	43
	Ps	4	14	33	56	91
200 Dia	m3/h	112	227	338	454	565
	l/s	31	63	94	126	157
	Projection (m)	1.3	2.1	3	4.3	5.2
	Lw	-	19	31	39	46
	Ps	4	17	38	65	105
300 Dia	m3/h	256	508	763	1016	1271
	l/s	71	141	212	282	353
	Projection (m)	2	3.1	4.6	6.3	7.8
	Lw	-	22	34	43	49
	Ps	5	20	48	80	125
450 Dia	m3/h	572	1145	1717	2290	2862
	l/s	159	318	477	636	795
	Projection (m)	3.2	5	7.6	10.1	14.2
	Lw	-	27	40	48	55
	Ps	8	32	75	128	200

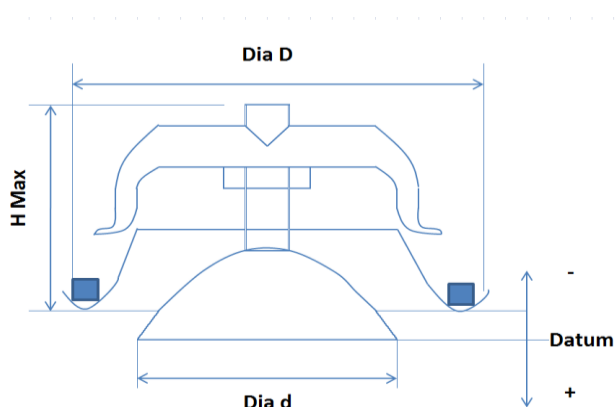
Supply and Extract Air Valves



This range of small format supply and extract air terminals are ideally suited for low air volume applications such as domestic residences or hotel rooms.

The range comprises a supply valve, two styles of extract valves and an extract fire damper. All models have an aerodynamically profiled, adjustable and lockable centre cone which is designed to provide an easy method of flow regulation, with minimal influence on the noise level.

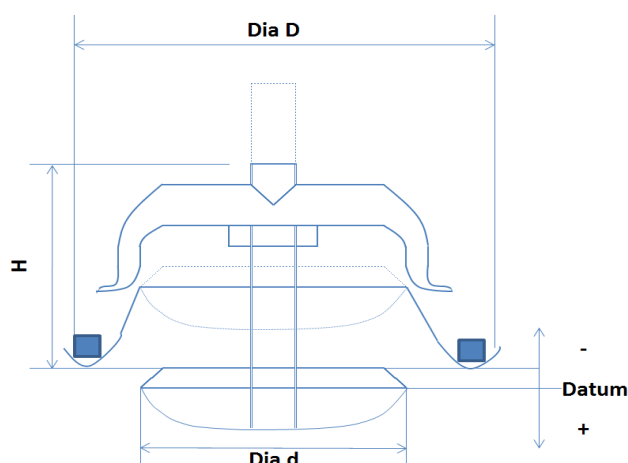
KE Supply Air Valve



Size	D	d	H
KE80	115	77	41
KE100	137	94	47
KE125	161	110	49
KE150	202	135	60
KE160	212	145	60
KE180	249	194	75



KK Extract Air Valve



Size	D	d	H
KK80	115	61	70
KK100	137	75	70
KK125	161	100	85
KK150	202	120	85
KK160	212	130	85
KK200	248	157	100

Finishes

Glossy white epoxy stone enamelled paint is offered as a standard finish to provide maximum corrosion resistance in damp environments. A full range of colours are however available in either the BS or RAL ranges.

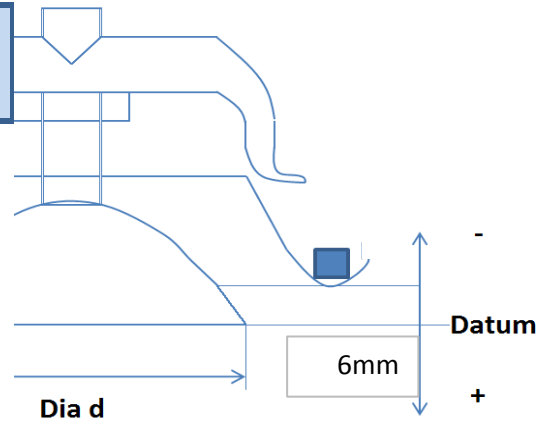
Fixing

The valves are supplied with an easy fit bayonet collar which can either be rivetted to the duct or screw fixed to the mounting surface.

Supply & Extract Air Valves - Performance Data

Basis of Data

The following data is all based on an optimum centre cone position 6mm below the level of the outer frame. Where applicable, correction factors may be applied for other cone settings.



Throws - Jet throws are given in meters to a terminal velocity of 0.2m/s.

Noise Levels - Noise data is expressed in terms of NR level with a room absorption factor of 8db

		AIR FLOW RATE (l/s)												Cone Position Pressure Factor	
Size	Parameter	10	15	20	25	30	40	50	60	70	80	90	-6	6	
KE80	Throw (m)	1.0	1.5	1.9	2.2	-	-	-	-	-	-	-			
	Pressure Loss (Pa)	25	55	95	140	-	-	-	-	-	-	-	9.0	0.4	
	NR Level	15	23	30	35	-	-	-	-	-	-	-			
KE100	Throw (m)	0.7	1.1	1.6	1.9	2.2	2.7	-	-	-	-	-			
	Pressure Loss (Pa)	12	25	40	58	90	150	-	-	-	-	-	3.3	0.4	
	NR Level	-	-	20	25	35	42	-	-	-	-	-			
KE125	Throw (m)	-	1.1	1.5	1.9	2.1	2.6	3.1	3.4	3.6	-	-			
	Pressure Loss (Pa)	-	-	12	20	30	55	85	120	170	-	-	3.3	0.5	
	NR Level	-				-	20	25	30	35	-	-			
KE150 and KE160	Throw (m)	-	-	0.6	0.9	1.2	1.6	1.9	2.2	2.5	2.7	-			
	Pressure Loss (Pa)	-	-	10	15	22	40	70	90	130	180	-	2.2	0.4	
	NR Level	-	-			-	17	25	32	35	42	-			
KE200	Throw (m)	-	-	0.6	0.8	1.0	1.2	1.6	1.8	1.9	2.1	2.3			
	Pressure Loss (Pa)	-	-	12	17	25	38	60	85	105	140	200	2.9	0.4	
	NR Level	-	-			-	15	23	30	33	37	43			

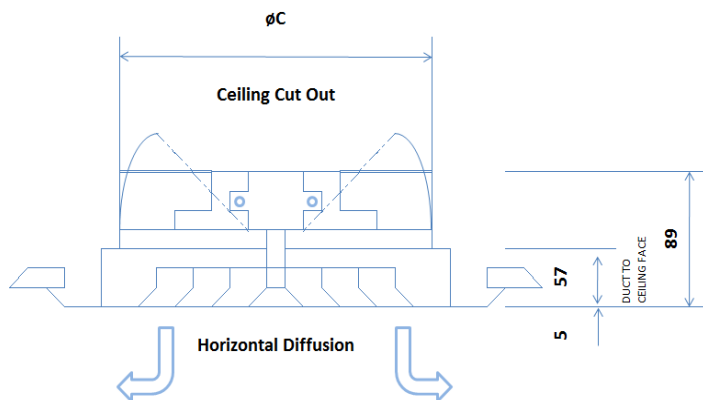
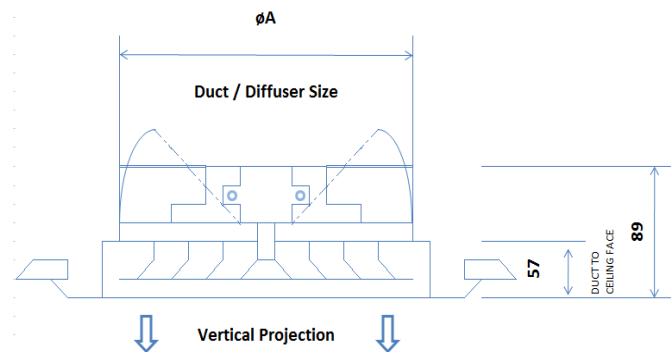
		AIR FLOW RATE (l/s)											Cone Position Pressure Factor	
Size	Parameter	10	15	20	25	30	40	50	60	70	80	90	-	+
KE80	Pressure Loss (Pa)	22	50	82	140	-	-	-	-	-	-	-	1.9	0.6
	NR Level		15	23	30	-	-	-	-	-	-	-		
KE100	Pressure Loss (Pa)	15	32	60	90	120	200	-	-	-	-	-	1.4	0.8
	NR Level	-	-	15	21	24	30	-	-	-	-	-		
KE125	Pressure Loss (Pa)	-	18	31	48	70	120	180	-	-	-	-	1.5	-
	NR Level	-	-	-	-	15	21	30	-	-	-	-		
KE150 KE160	Pressure Loss (Pa)	-	-	17	34	42	70	110	170	-	-	-	1.4	-
	NR Level	-	-	-	-	-	17	24	30	-	-	-		
KE200	Pressure Loss (Pa)	-	-	-	-	-	-	50	75	100	140	170	1.5	0.65
	NR Level	-	-	-	-	-	-	-	22	27	30	35		

Circular Louvre Faced Diffusers (Large Format)



CLFD (LF)s are designed for both supply and exhaust applications requiring compact circular diffusers. The diffusers are adjustable to produce horizontal or vertical air patterns.

CLFD (LF)s are constructed from steel spinnings retained on aluminium spider braces.



FEATURES

Fully adjustable multi-cone circular ceiling diffuser
Polyester powder white to RAL 9010
Screw fixing via diffuser neck. Core can easily be removed.

Diffuser and Duct Size ϕA	Overall Diameter ϕB	Ceiling Opening ϕC
150	305	340
200	407	457
300	610	680
450	914	1041

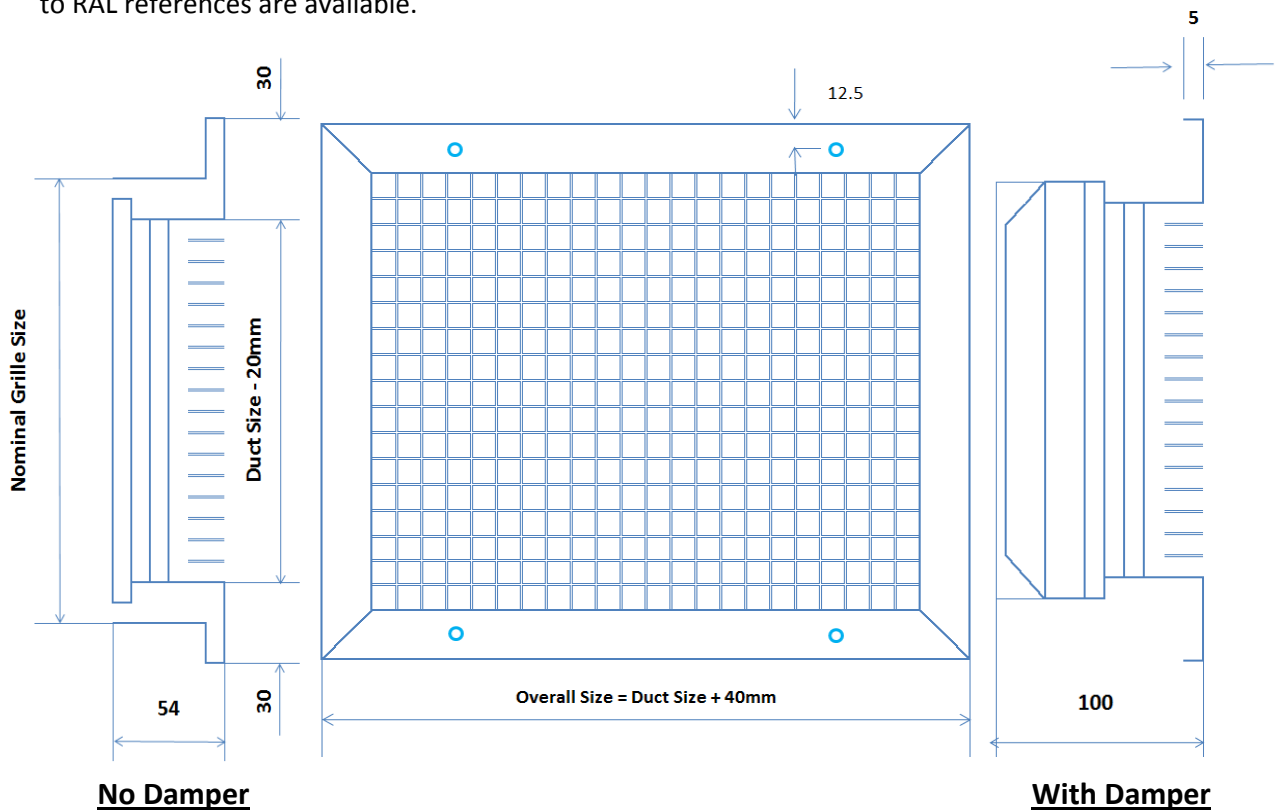
Double Deflection Grilles (DDGs)



Fully adjustable Double Deflection Grille

These grilles are made out of robust Extruded Aluminium

These Grilles are Satin Silver Anodised and then Polyester Powder White to RAL 9010. Other colours to RAL references are available.



Fixings

Screw Fixing via Countersunk Flange Holes

Accessories

Opposed Blade Control Damper
Pan Adaptor, Side or Top Inlet

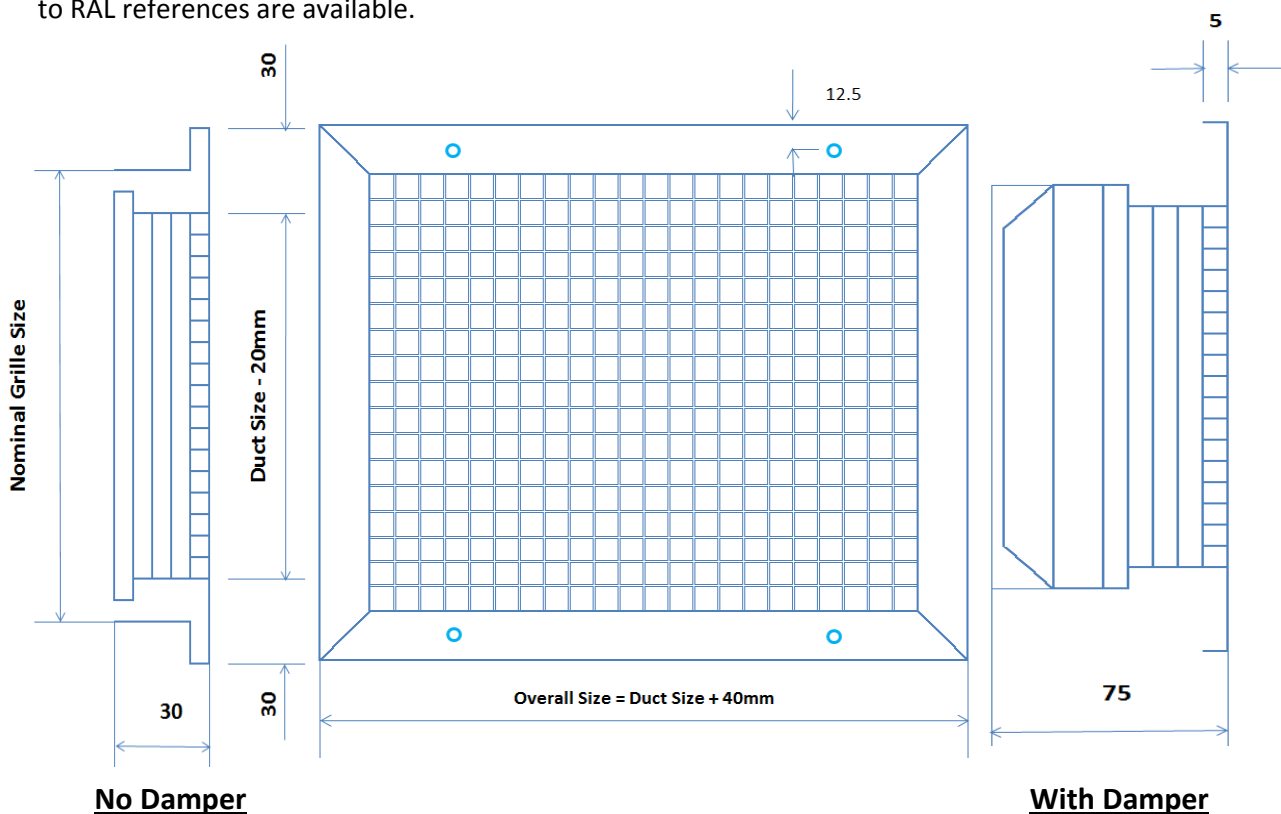
Egg Crate Grilles (ECGs)



Egg Crate Grille

These grilles are made out of robust Extruded Aluminium

These Grilles are Satin Silver Anodised and then Polyester Powder White to RAL 9010. Other colours to RAL references are available.



Fixings

Screw Fixing via Countersunk Flange Holes

Accessories

Opposed Blade Control Damper
Pan Adaptor, Side or Top Inlet

Face Velocity M/s			1.5	2.0	2.5	3.0	3.5	4.0	5.0
Static Pressure N/M2			4	6	9	13	18	22	35
Meter AM2	Nominal Size	Rating							
0.017	200x100 150x150	Volume M3/S NC	0.026 -	0.035 -	0.04 -	0.05 -	0.06 21	0.07 25	0.09 31
0.024	200x150 350x100	Volume M3/S NC	0.038 -	0.05 -	0.06 -	0.07 16	0.09 23	0.01 26	0.12 32
0.033	250x150 200x200	Volume M3/S NC	0.05 -	0.066 -	0.08 -	0.1 17	0.12 25	0.13 27	0.17 34
0.042	350x150 250x200	Volume M3/S NC	0.064 -	0.085 -	0.11 -	0.13 18	0.15 26	0.17 28	0.21 35
0.051	400x150 300x200 250x250	Volume M3/S NC	0.078 -	0.104 -	0.13 -	0.16 19	0.18 26	0.21 28	0.26 37
0.065	300x250 500x150 350x200	Volume M3/S NC	0.01 -	0.132 -	0.17 -	0.2 20	0.23 27	0.26 30	0.33 38
0.079	350x250 300x300 450x200	Volume M3/S NC	0.12 -	0.161 -	0.2 15	0.24 21	0.28 28	0.32 31	0.4 40
0.093	400x250 350x300 500x200	Volume M3/S NC	0.141 -	0.189 -	0.24 16	0.28 22	0.33 28	0.38 31	0.47 41
0.111	500x250 350x350 400x300	Volume M3/S NC	0.17 -	0.227 -	0.28 16	0.34 23	0.4 29	0.45 33	0.57 42
0.125	400x350 450x300 550x250	Volume M3/S NC	0.191 -	0.255 -	0.32 17	0.38 23	0.45 30	0.51 33	0.64 44
0.145	450x350 400x400 550x300	Volume M3/S NC	0.222 -	0.295 -	0.37 18	0.44 24	0.51 30	0.59 34	0.74 44
0.164	500x350 450x400 600x300	Volume M3/S NC	0.25 -	0.333 -	0.42 19	0.5 24	0.59 31	0.67 35	0.84 44
0.186	500x400 450x450 700x300	Volume M3/S NC	0.283 -	0.378 -	0.47 19	0.57 25	0.66 32	0.76 35	0.94 45
0.231	550x450 500x500 650x400	Volume M3/S NC	0.354 -	0.472 -	0.59 20	0.71 26	0.83 33	0.94 36	1.18 46
0.231	550x450 500x500 650x400	Volume M3/S NC	0.354 -	0.472 -	0.59 20	0.71 26	0.83 33	0.94 36	1.18 46
0.251	600x450 700x400 900x300	Volume M3/S NC	0.382 -	0.51 -	0.64 20	0.77 26	0.89 33	1.02 36	1.27 46
0.300	750x450 800x400 600x550	Volume M3/S NC	0.453 -	0.604 -	0.76 22	0.91 27	1.06 34	1.21 38	1.51 48
0.335	800x450 600x600 900x400	Volume M3/S NC	0.51 -	0.682 -	0.85 22	1.02 27	1.19 35	1.36 38	1.7 50
0.39	900x450 1200x35 700x600	Volume M3/S NC	0.595 -	0.795 -	0.99 23	1.19 29	1.39 35	1.59 39	1.98 52
0.51	1200x45 900x600 750x750	Volume M3/S NC	0.776 -	1.034 -	1.29 24	1.55 29	1.81 36	2.07 40	2.5 -
0.57	1200x50 1000x60	Volume M3/S NC	0.868 -	1.158 15	1.45 24	1.74 30	2.03 37	2.32 41	2.88 -
0.686	1200x60 900x800	Volume M3/S NC	1.045 -	1.392 16	1.75 25	2.09 32	2.44 40	2.78 43	3.5 -

The above performance includes opposed blade dampers in the fully open position.

For Grilles without Dampers multiply the pressure drop by 0.88 and deduct 4 NC

External Weather Louvres



Product Range

Small Format Louvres type WTWL38
Large Format Louvres type WTWL50,50-
100,75,100
Penthouse Louvres
Louvre Doors



Features

Comprehensive range of louver sections,
38mm, 50mm, 75mm, 100mm
Robust extruded aluminium sections
Flanged or recessed louvres available
Continuous louver appearance
Dummy, blanked and active louver
incorporated into one louver section
Integral bird mesh fitted as standard
All shapes and sizes available
Suitable for direct coupling with dampers
into one assembly

Full range of alternative materials available,
galvanised steel, stainless steel and PVC

Applications

Louvres primarily used in ventilation and air
conditioning systems to prevent water
ingress at air intakes and discharges
Natural ventilation openings such as
plantrooms, boiler rooms, lift shafts and
smoke exhaust
Architectural features
Screening
Louvre doors
Penthouse louvres

Performance Data

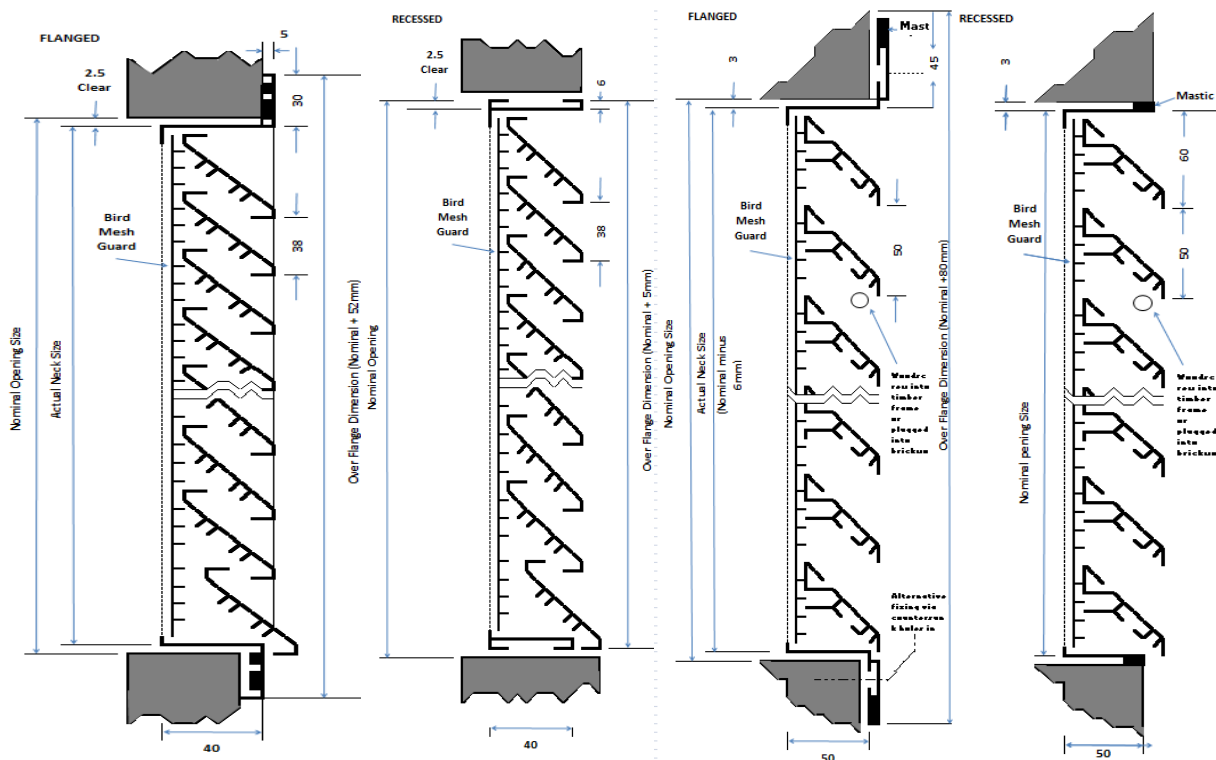
Pressure Loss - Pa				
Velocity (m/s)	WTWL38	WTWL50 WTWL 50/100	WTWL75	WTWL100
1.0	8	15	8	9
1.5	16	26	16	20
2.0	29	40	29	36
2.5	45	58	45	55
3.0	65	85	65	80
3.5	88	103	88	108
4.0	114	114	114	141
4.5	145	145	145	179
5.0	179	179	179	220

$$\text{Louvre Area (Nett)} = \frac{\text{Air Volume (m}^3/\text{s)}}{\text{Air Velocity (m/s)}}$$

$$\text{Louvre Area (Nett)} = \text{Nominal Opening Width} \times (\text{Nominal Opening Height} - 60)$$

Recommended air velocity is 2.5m/s

Construction Data



Min - 150 x 150mm

Min - 200 x 200mm

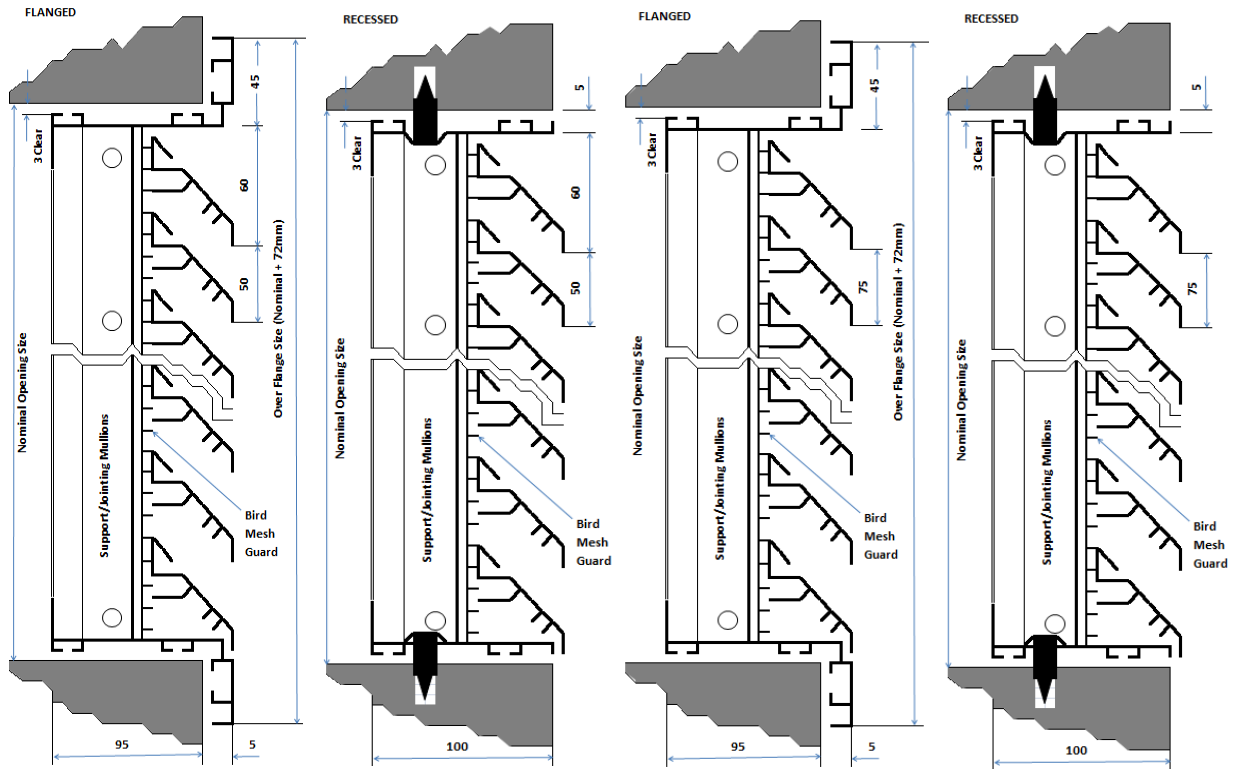
Max - 700 x 700mm

Max - 1200 x 1200mm

WTWL 38

WTWL 50

Construction Data

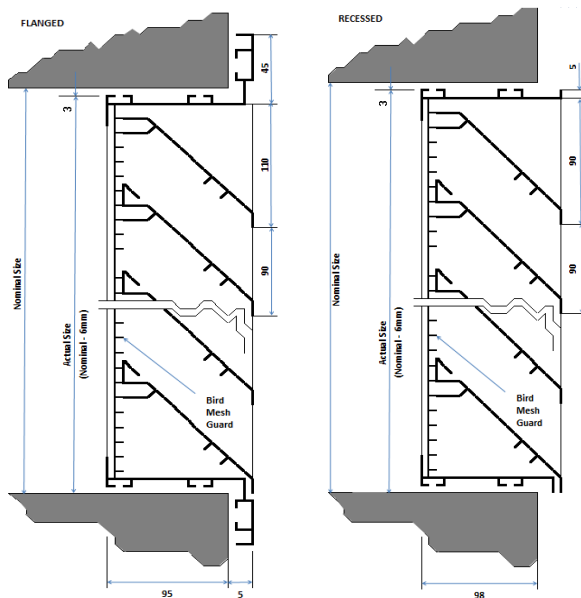


Min - 200 x 200mm
Max 2000 x 2000mm (single unit)

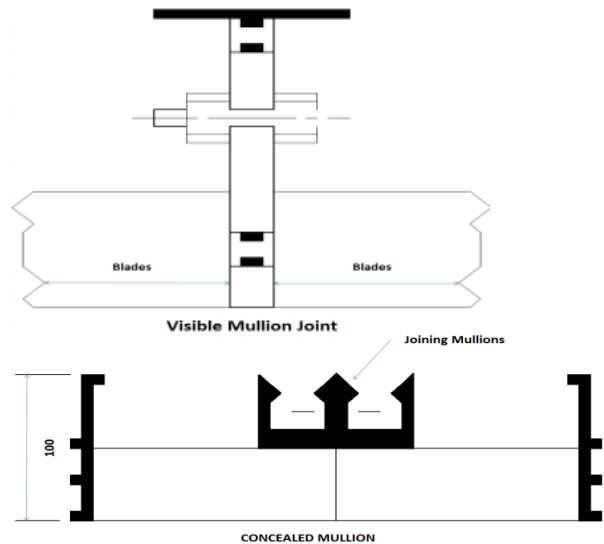
Min - 500 x 500mm
Max 2000 x 2000mm (single unit)

WTWL 50 - 100

WTWL 75



Min - 500 x 500mm
Max - 3000(w) x 2000(h)mm (single unit)



Louvre types WTWL50-100, 75 and 100 are suitable for banking together into multiple assemblies

There is no limit to the size of these assemblies

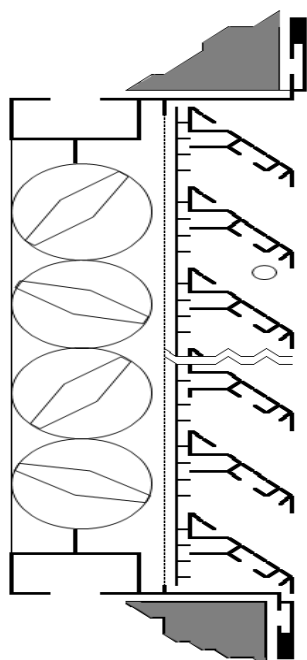
WTWL 1000

Multiple Louvre Assemblies

Specification

Description :-	External Weather Louvres																		
Construction :-																			
Materials :-	Blades and casing are constructed from aluminium extrusion to BS1474 having a thickness of 1.6mm																		
Appearance :-	The blades are inclined at 45° and mounted at the following centres & frame sizes																		
	<table><tr><td>Blade Type</td><td>38</td><td>50</td><td>50-100</td><td>75</td><td>100</td></tr><tr><td>Blade Centres</td><td>38</td><td>50</td><td>50</td><td>75</td><td>90</td></tr><tr><td>Frame Depth</td><td>40</td><td>50</td><td>100</td><td>100</td><td>*100</td></tr></table>	Blade Type	38	50	50-100	75	100	Blade Centres	38	50	50	75	90	Frame Depth	40	50	100	100	*100
Blade Type	38	50	50-100	75	100														
Blade Centres	38	50	50	75	90														
Frame Depth	40	50	100	100	*100														
	*When mullion jointing required frame depth 140mm																		
Frames :-	The frames can either be flanged or recessed																		
Fixings :-	Supplied with flanges undrilled for fixing through the neck of the louvre alternative fixings available on request																		
Options :-	Rot proof insect screen - head/sill section - blanking plates - louvred doors - penthouse louvres - louvre damper assemblies																		
Finishes :-	Mill finish as standard - polyester powder coating to any RAL or BS4800 colour range																		

Construction Data



Direct coupling of low leakage damper and weather louvre to form weather/air infiltration proof combination

Louvre/ Damper Assemblies

Ordering (example)

1000W X 1000H	Size (nominal opening)
WTWL 50 - 100	Blade Type
F	Frame Type: Recessed or Flanged
IS	Insect Screen
PH	Product Type: Penthouse or Louvre Door
RAL9010	Finish

Specials

Stainless steel, galvanised mild steel and PVC louvres available
 Lean back louvres for pitched roofs
 Louvres suitable for severe weather conditions
 All shapes and sizes available including circular, triangular, rhombus etc.

Contact Page



Company Address

279 - 281 Leeds Road
Nelson
Lancashire
BB9 8EJ

Telephone
08448 933 111

Fax
08448 933 112

Website
www.wtbs.co.uk

Email
Steve
sales@wtbs.co.uk

Robert
robert@wtbs.co.uk