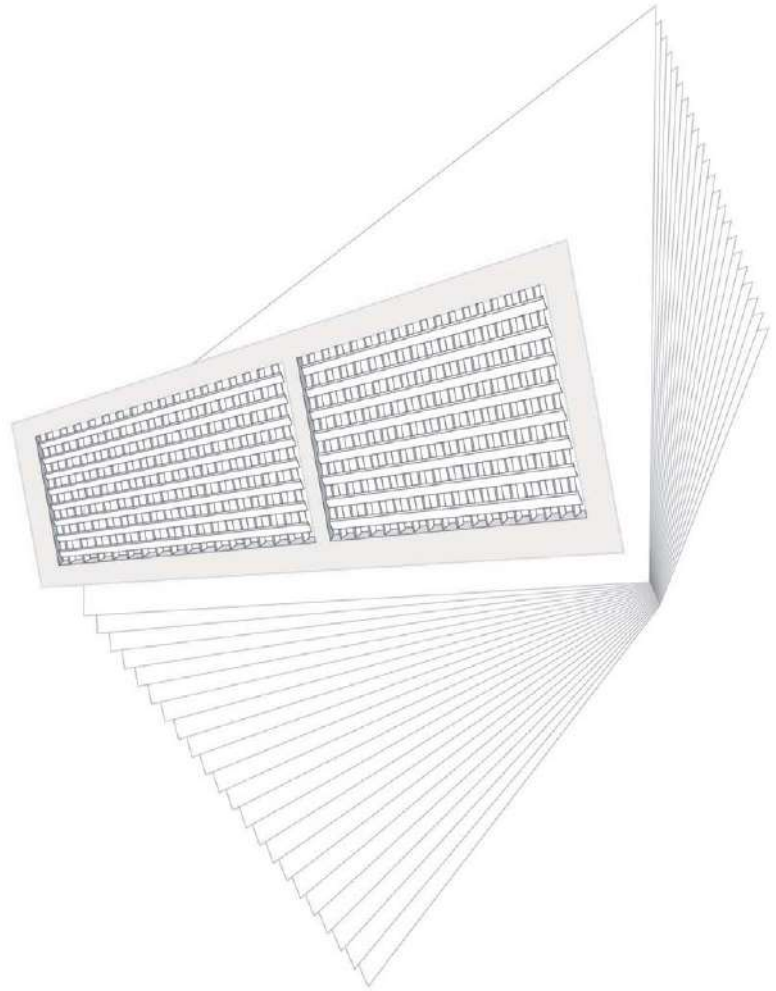


WE SHAPE AIR



BETA
industrial
PRODUCTS CATALOGUE

PRODUCT BULLETIN

1

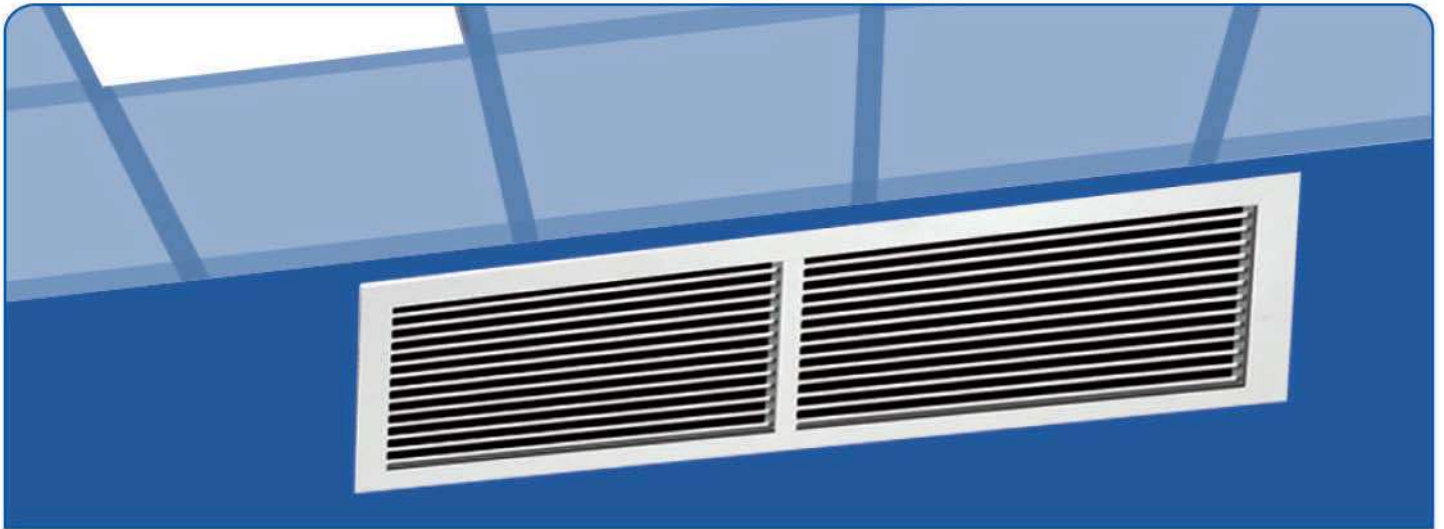




BETA
i n d u s t r i a l

index

>>	SINGLE DEFLECTION AIR GRILLES AND REGISTERS	01 - 02
>>	DOUBLE DEFLECTION AIR GRILLES AND REGISTERS	03 - 04
>>	PERFORATED AIR GRILLES AND REGISTERS	05
>>	FIXED BLADE RETURN AIR GRILLES AND REGISTERS	06
>>	EGG CRATE AIR GRILLES AND REGISTERS	07 - 08
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>>	DOOR TRANSFER GRILLES	12
>>	DECORATIVE / ARCHITECTURAL GRILLES & REGISTERS	13 - 15
>>	PERFORMANCE DATA	16 - 47



>> The single deflection air grille is composed of a set of deflecting blades mounted on a rectangular shaped frames.

>> The blades are mounted either horizontally or vertically.

>> The single deflection air grilles are wall mounted air terminal devices manufactured from extruded aluminium bars. Carefully designed to meet the demand for high quality and reliability.

>> Insulating gasket is fixed on request around the back of the frame to prevent infiltration between the frame and the wall.

>> Available with easily removable GI/ extruded aluminium opposed blade damper attached to the frame by means of (S) clips to ensure tight attachment & maximum flexibility. The damper is made of extruded aluminum & opening of the damper is easily adjusted by means of control lever that is driven by a screw driver from the front face of the register.

FINISH

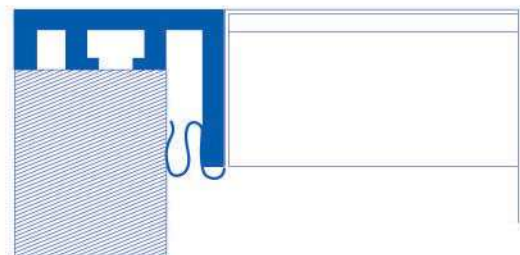
>> Natural anodized aluminium finish

>> Powder coated to RAL codes

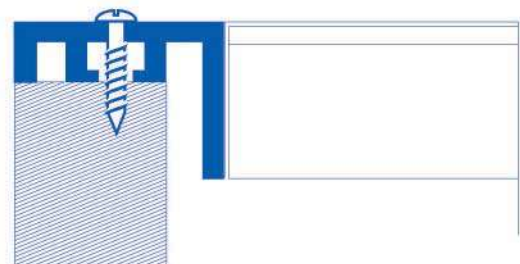
FIXING

Types of Fixing:

1. Concealed type fixing (wall only)



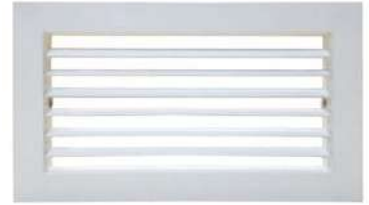
2. Visible screw fixing



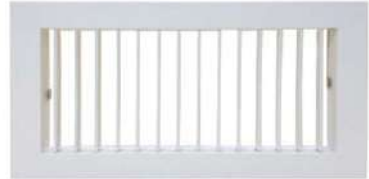


WITHOUT DAMPER

TYPE: RAG



RAG A X B - H (Standard)



RAG A X B - V

WITH DAMPER

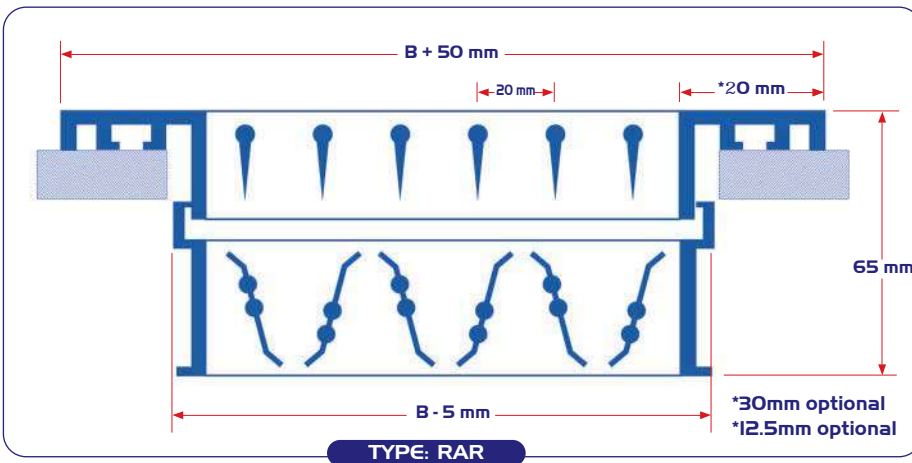
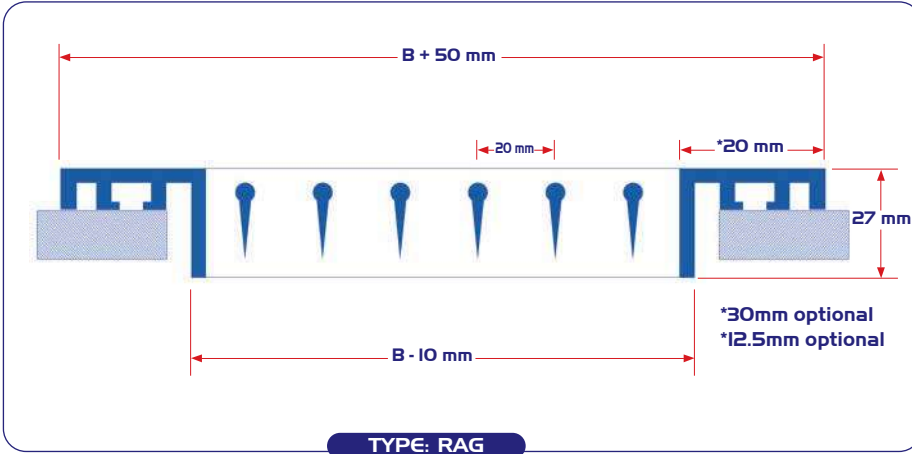
TYPE: RAR



RAR A X B - H (Standard)



RAR A X B - V



Ordering Key:

R	A	R	B	FLANGE	SIZE	H
RAR: SINGLE DEFLECTION REGISTER (WITH OBD) RAG: SINGLE DEFLECTION GRILLE (WITHOUT OBD) RAR/RAG: COMBINED						
-: WITHOUT OBD B: WITH BLACK OBD M: WITH MILL FINISH OBD						
-: 30MM FLANGE 20: 20MM FLANGE 12.5: 12.5MM FLANGE						
SIZE: WIDTH X HEIGHT						
H: HORIZONTAL BLADES (STANDARD) V: VERTICAL BLADES						





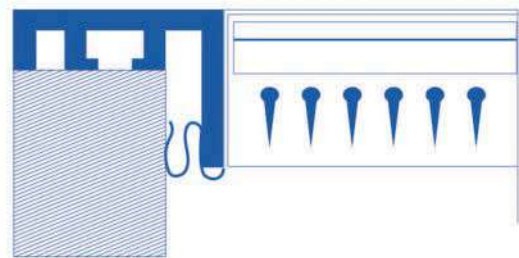
FINISH

- >> Natural anodized aluminium finish
- >> Powder coated to RAL codes

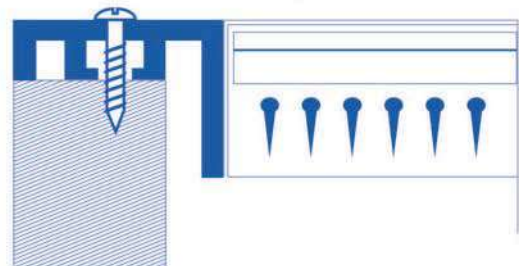
FIXING

Types of Fixing:

1. Concealed type fixing (wall only)



2. Visible screw fixing



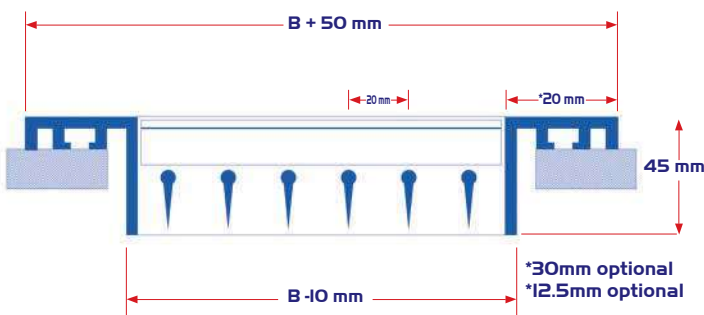
>> The double deflection air grille is composed of two sets of deflecting blades mounted in two adjacent planes. The two sets of deflecting blades are mounted in such a way that one set is vertically mounted and the other set is horizontally mounted.

>> The double deflection air grilles are wall mounted air terminal devices, manufactured from extruded aluminium bars and carefully designed to meet the demand for high quality and reliability.

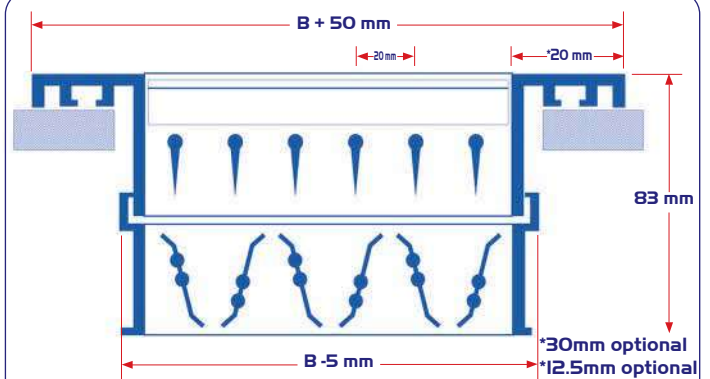
>> The double deflection air grilles are used for cooling, heating or air ventilation.

>> Available with easily removable GI/ Extruded aluminium opposed blades damper, attached to the frame by means of (S) clips to ensure tight attachment and maximum flexibility. The damper is made of extruded aluminium and opening of the damper is easily adjusted by means of controllever that is driven by a screw driver from the front face of the register.

>> Insulating gasket is fixed on request around the back of the frame to prevent infiltration between the frame and the wall.



TYPE: SAG



TYPE: SAR





WITHOUT DAMPER

WITH DAMPER

SAG



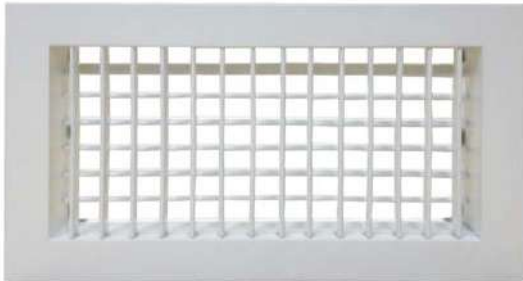
SAG A X B - H (Standard)

SAR



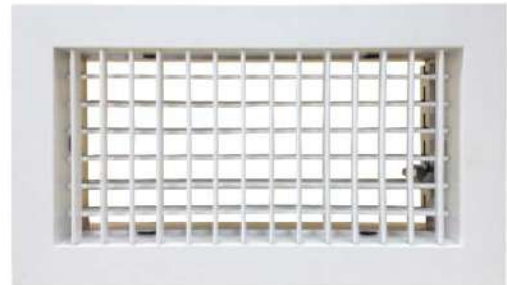
SAR A X B - H (Standard)

SAG



SAG A X B - V

SAR

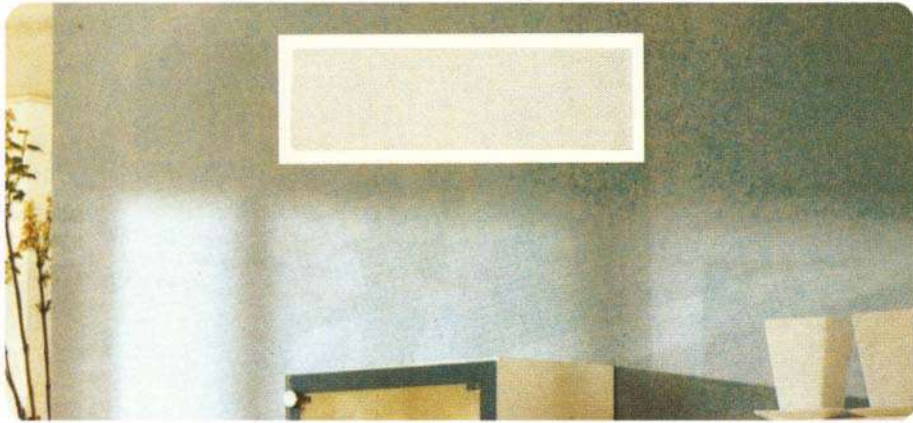


SAR A X B - V

Ordering Key:

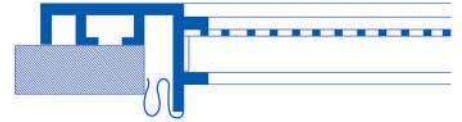
S	A	R	B	FLANGE	SIZE	H
SAR: DOUBLE DEFLECTION REGISTER (WITH OBD) SAG: DOUBLE DEFLECTION GRILLE (WITHOUT OBD) SAR/SAG: COMBINED						
-: WITHOUT OBD B: WITH BLACK OBD M: WITH MILL FINISH OBD						
-: 30MM FLANGE 20: 20MM FLANGE 12.5: 12.5MM FLANGE						
SIZE: WIDTH X HEIGHT						
H: HORIZONTAL BLADES (STANDARD) V: VERTICAL BLADES						



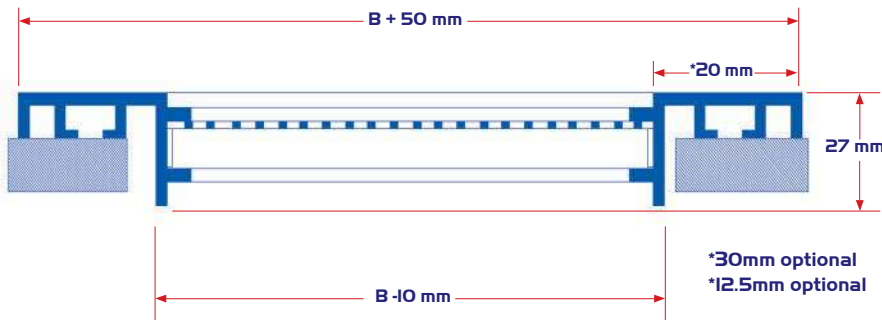
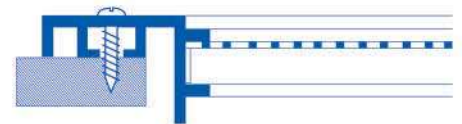


FIXING

1) CONCEALED TYPE FIXING
(WALL ONLY)

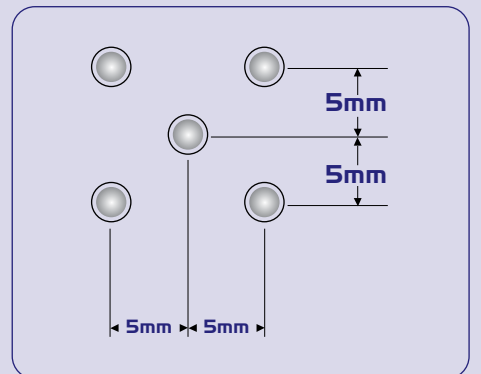


2) VISIBLE SCREW FIXING



TYPE: PAG

- >> The perforated air grille is a wall/ceiling mounted air terminal device that is composed of perforated sheet fixed of a frame.
- >> The perforated sheet is made of galvanized steel 0.7 mm thickness.
- >> The frame is made of extruded aluminium bars.
- >> Perforated face has 3mm diameter holes in a staggered pattern as per shown drawing >>>
- >> The perforated air grilles are used in cooling, heating and air ventilation. They are usually used as return grilles.
- >> Insulating gasket is fixed on request around the back of the frame to prevent infiltration between the frame and the wall.



3mm diameter holes in a staggered pattern

FINISH

>> POWDER COATED TO RAL CODES

Ordering Key:

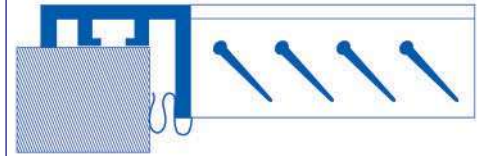
P	A	R	B	FLANGE	SIZE
PAR: PERFORATED AIR REGISTER (WITH OBD) PAG: PERFORATED AIR GRILLE (WITHOUT OBD) PAR/PAG: COMBINED					
-: WITHOUT OBD B: WITH BLACK OBD M: WITH MILL FINISH OBD					
-: 30MM FLANGE 20: 20MM FLANGE 12.5: 12.5MM FLANGE					
SIZE: WIDTH X HEIGHT					



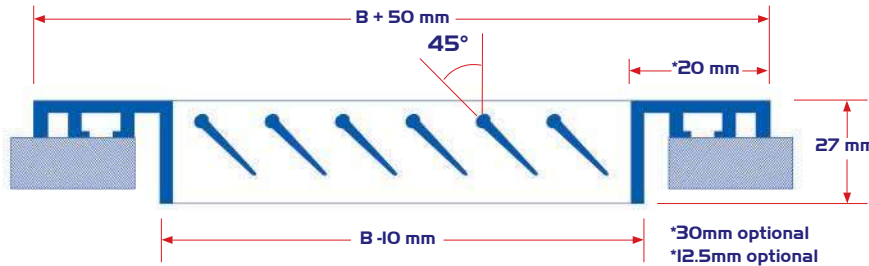
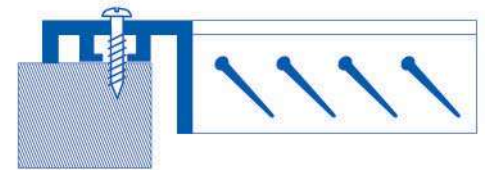


FIXING

1) CONCEALED TYPE FIXING (WALL ONLY)



2) VISIBLE SCREW FIXING



TYPE: RAG - 45

>> The fixed blade return air grille is a wall mounted return air terminal device. It is composed of a set of horizontal blades fixed at an angle of 45°.

>> The fixed blade return air grilles are manufactured from high grade aluminium extruded bars.

>> Insulating gasket is fixed on request around the back of the frame to prevent infiltration between the frame and the wall.

>> The fixed blade return air grilles are used in cooling, heating and air ventilation.

>> Available with easily removable GI/ Extruded aluminium opposed blades damper, attached to the frame by means of (S) clips to ensure tight attachment and maximum flexibility. The damper is made of extruded aluminum bars and opening of the damper is easily adjusted by means of control lever that is driven by a screw driver from the front face of the register.

FINISH

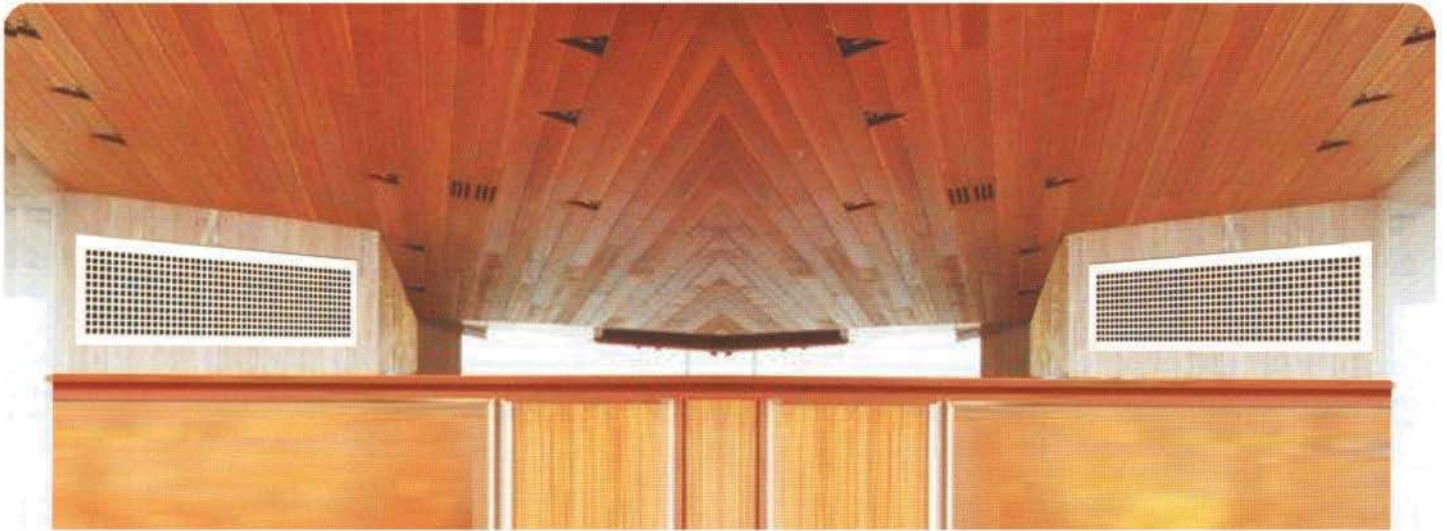
>> NATURAL ANODIZED ALUMINIUM FINISH

>> POWDER COATED TO RAL CODES

Ordering Key:

R	A	R	B	FLANGE	45	SIZE
RAR45: SINGLE DEFLECTION REGISTER (WITH OBD) RAG45: SINGLE DEFLECTION GRILLE (WITHOUT OBD) RAR45/RAG45: COMBINED						
-: WITHOUT OBD B: WITH BLACK OBD M: WITH MILL FINISH OBD						
-: 30MM FLANGE 20: 20MM FLANGE 12.5: 12.5MM FLANGE						
45: BLADES ARE FIXED AT 45°						
SIZE: WIDTH X HEIGHT						





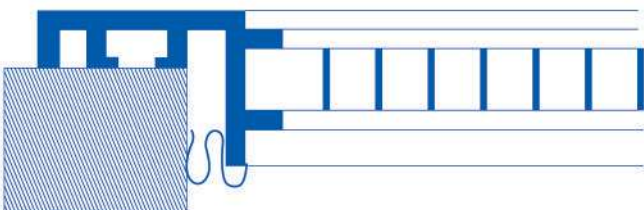
- >> The egg crate grilles are either ceiling mounted or wall mounted air terminal devices used as exhaust air grilles for domestic and industrial applications.
- >> The relatively large effective area of the egg crate grille permits better performance in the return stages. The effective area is 90 percent of the nominal area. This generates low pressure drop and low noise level.
- >> The core of the egg crate grille is made of aluminum strips assembled to form equally distributed and sized square cells.
- >> The frame of the egg crate grille is made of extruded aluminum bars.
- >> Insulating gasket is fixed on request around the back of the frame to prevent infiltration between the frame and the wall.

FINISH

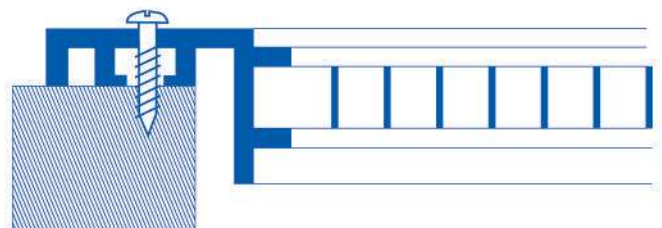
- >> NATURAL ANODIZED ALUMINIUM FINISH
- >> POWDER COATED TO RAL CODES

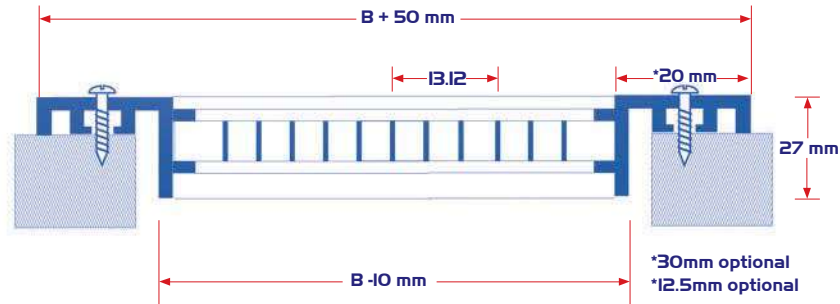
FIXING

1) CONCEALED TYPE FIXING (WALL ONLY)

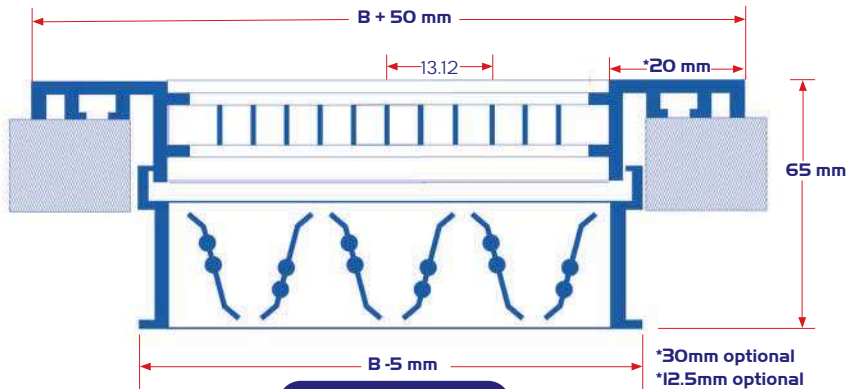


2) VISIBLE SCREW FIXING

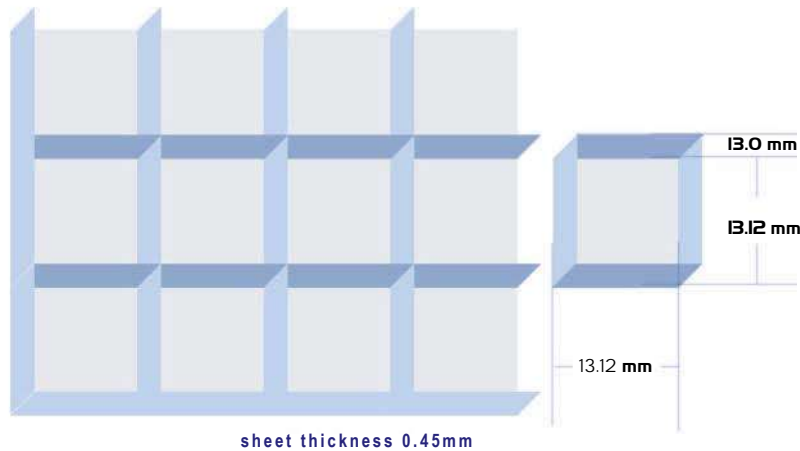




TYPE: ECG



TYPE: ECR



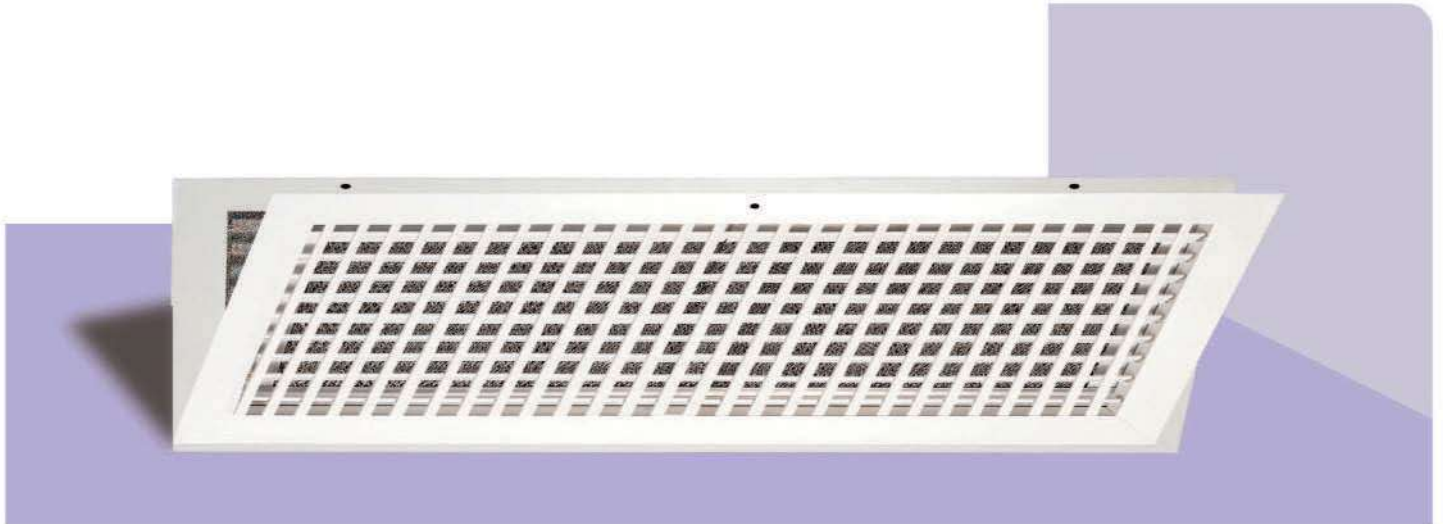
sheet thickness 0.45mm

EGG CRATE GRID

Ordering Key:

E	C	R	B	FLANGE	SIZE
ECR: EGG CRATE REGISTER (WITH OBD) ECG: EGG CRATE GRILLE (WITHOUT OBD) ECR/ECG: COMBINED					
-: WITHOUT OBD B: WITH BLACK OBD M: WITH MILL FINISH OBD					
-: 30MM FLANGE 20: 20MM FLANGE 12.5: 12.5MM FLANGE					
SIZE: WIDTH X HEIGHT					





>> The fresh air grille is composed of a return grille that is either an egg crate grille or fixed blade grille which is fixed to a frame that contains a filter by means of steel hinges.

>> The frame and the return grille are made of extruded aluminum bars.

>> The filter is made of washable aluminum media. It is fixed at the back of the grille and is easily removable. The aluminum filter is 25mm thick.

>> The fresh air grille can be opened like an ordinary door to give flexibility to access the filter for either cleaning or changing.

>> Insulating gasket is fixed around the back of the frame to prevent infiltration between the frame and the wall.

>> The fresh air grilles are used in cooling and ventilation applications. The existence of a filter provides the entrance of clean air that does not contain dust or unwanted objects.

FINISH

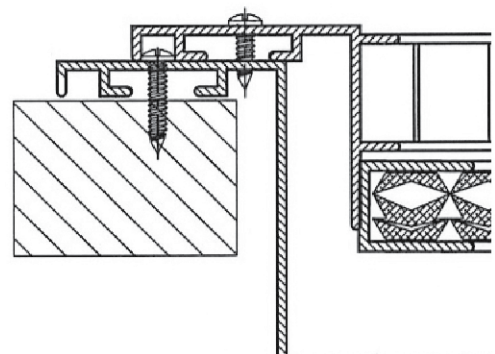
>> Natural anodized aluminium finish

>> Powder coated to RAL codes

FIXING

Types of Fixing:

Visible screw fixing

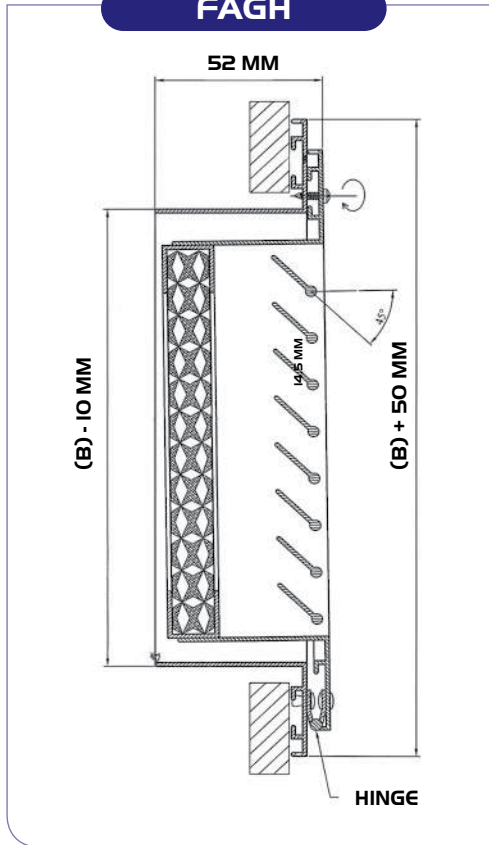




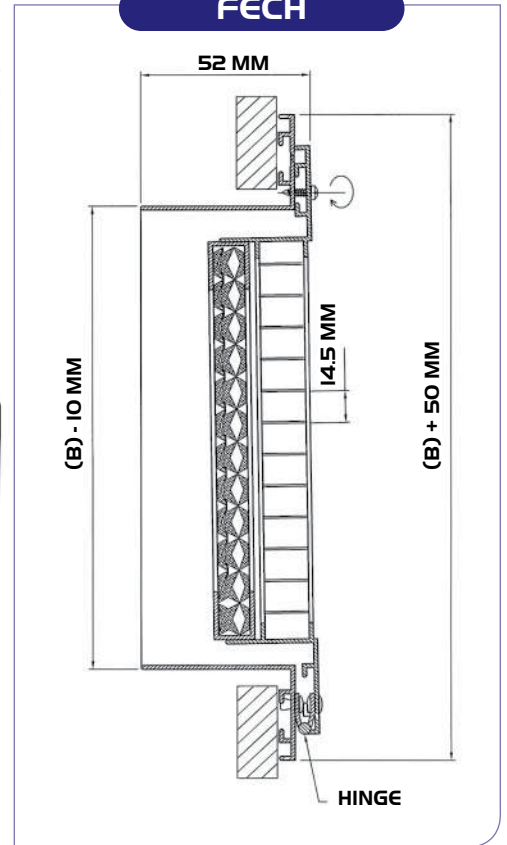
1) Filter Grille with Fixed Blade Core :
The core of this type of filter grille is composed of a set of blades that are fixed at 45° angle.

2) Filter Grille with egg Crate Core:
This type has an advantage of providing a free area of about 90 percent. The egg crate core is made as 0.45 mm thick aluminium strips.
The size of the cells is 14.5 mm x 14.5 mm.

FAGH



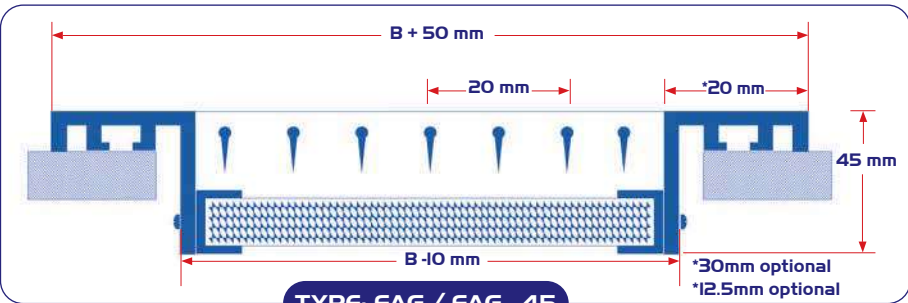
FECH



Ordering Key:

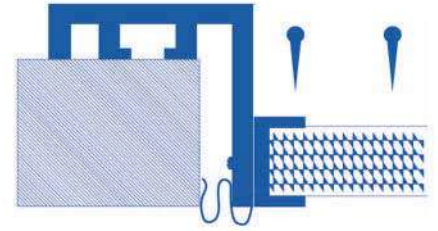
F	A	G	H	45	SIZE
FAGH45: HINGED 45° SINGLE DEFLECTION GRILLE WITH ALUMINIUM FILTER					
FAGH: HINGED SINGLE DEFLECTION GRILLE WITH ALUMINIUM FILTER					
FECH: FRESH EGG CRATE HINGED WITH ALUMINIUM FILTER					
45: BLADES ARE FIXED AT 45°					
SIZE: WIDTH X HEIGHT					



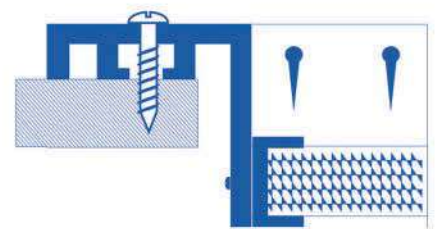


FIXING

01 >> CONCEALED TYPE FIXING (WALL ONLY)



02 >> VISIBLE SCREW FIXING



- >> The fresh air grille is a simple form of filter grille. It is composed of a single deflection grille with an aluminium filter fixed at the back.
- >> The fresh air grilles are used to supply fresh clean air to the air handling units.
- >> The filter is made from washable aluminium media and is fixed on the back of the grille.
- >> Insulating gasket is fixed on request around the back of the frame to prevent infiltration between the frame and the wall.
- >> The front horizontal blades can be adjustable or fixed at 45°

FINISHING

- >> Natural anodized aluminium finish.>>
- Powder coated to RAL codes

Ordering Key:

F	A	G	45	FLANGE	SIZE
FAG45: FRESH AIR GRILLE WITH ALUMINIUM FILTER - BLADES ARE FIXED AT 45°					
FAG: FRESH AIR GRILLE WITH ALUMINIUM FILTER - ADJUSTABLE BLADES					
-: 30MM FLANGE					
20: 20MM FLANGE					
12.5: 12.5MM FLANGE					
SIZE: WIDTH X HEIGHT					





- >> Flush mounted, non vision door or partition grille.
- >> Used to allow for air movement between two conditioned spaces while preventing vision.
- >> Constructed of V shape inverted blades assembled horizontally one above the other, with fixed spacing to a frame called the fixed frame.
- >> Fixed frame is installed at one side of the partition, while a sliding frame is fixed on the other side.
- >> Sliding frame enables the use of the door grille to suit different thickness of the partition.

- >> Minimum partition thickness : 25 mm
- >> Maximum partition thickness : 55 mm

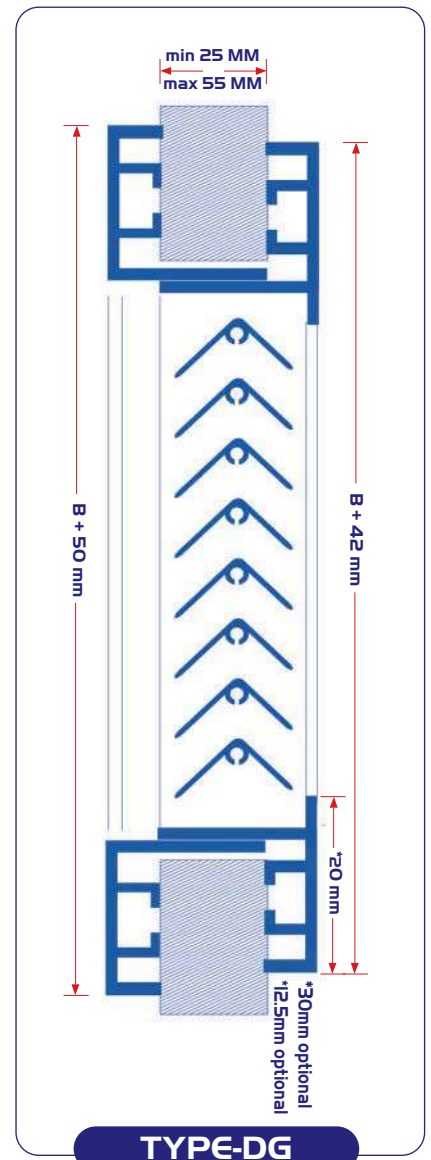
FIXING

- >> Visible screw fixing



FINISHING

- >> NATURAL ANODIZED ALUMINIUM FINISH.
- >> POWDER COATED TO RAL CODES



Ordering Key:

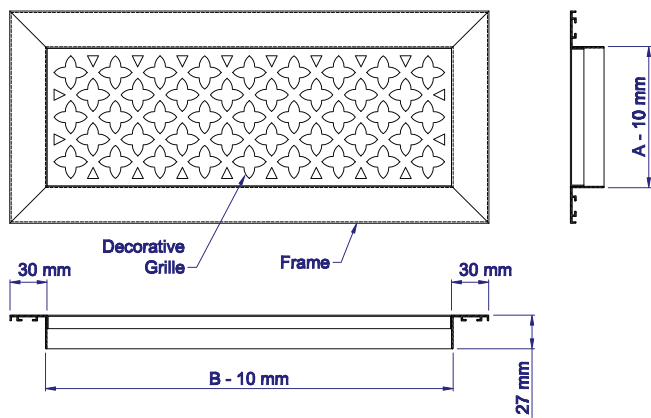
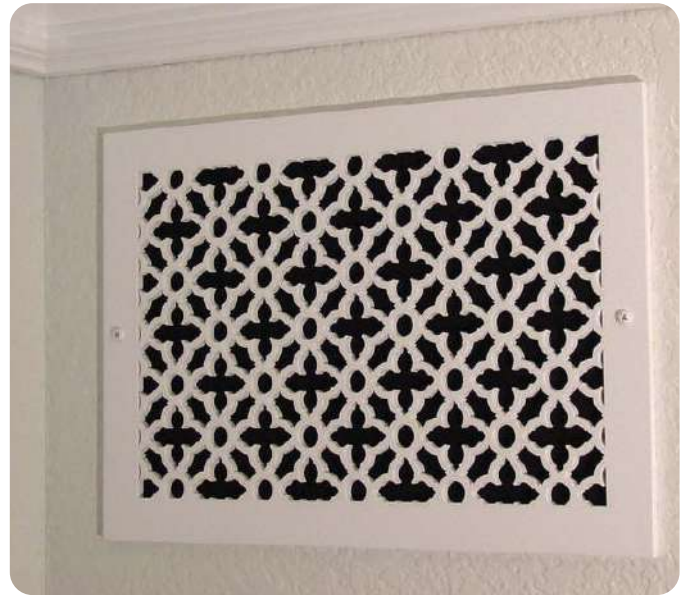
D	G	FLANGE	SIZE
DG: DOOR TRANSFER GRILLE			
30: 30MM FLANGE			
20: 20MM FLANGE			
12.5: 12.5MM FLANGE			
SIZE: WIDTH X HEIGHT			



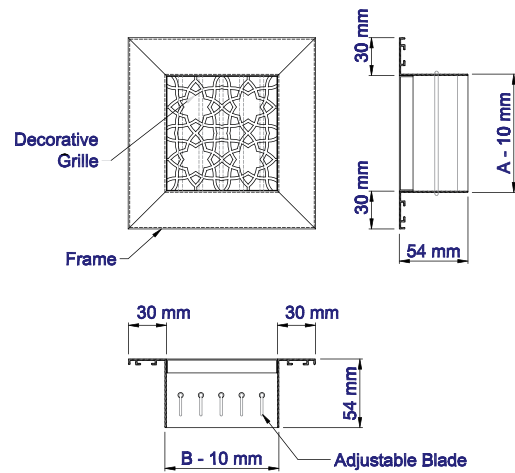


Description:

- Decorative grilles (architectural grilles) are available in several materials, gauges, colors and patterns/designs.
- Can be with rear set of blades for air deflection.
- Can be equipped with GI/ Extruded aluminium black opposed blade damper OBD for air flow fine tuning.



DECORATIVE GRILLE WITHOUT DEFLECTION BLADES



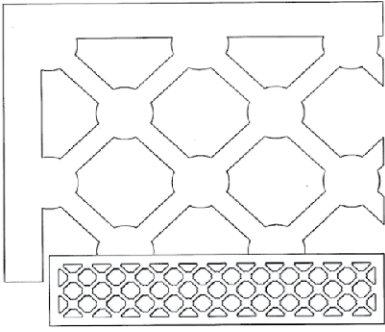
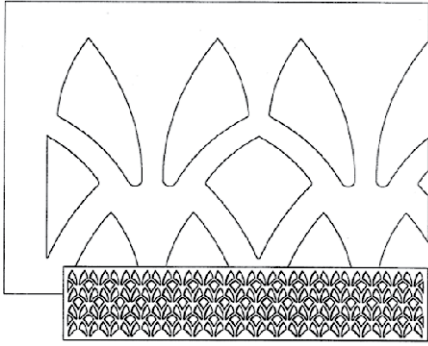
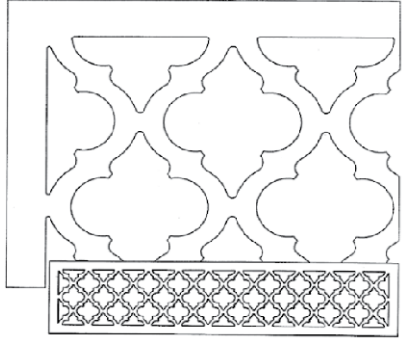
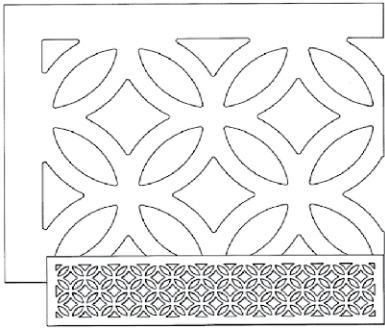
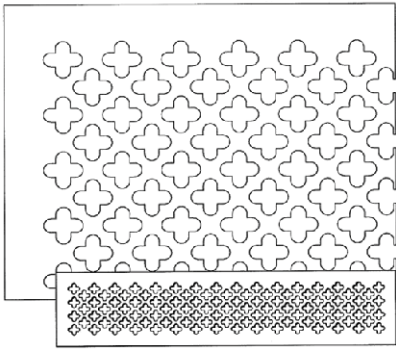
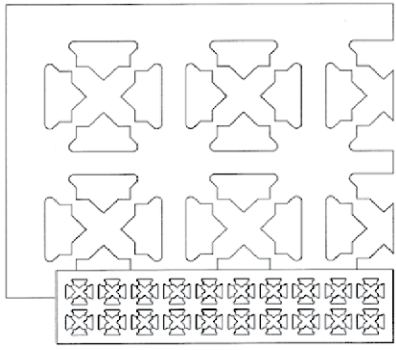
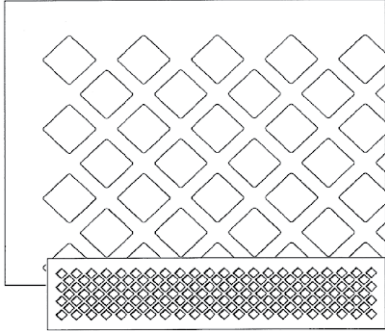
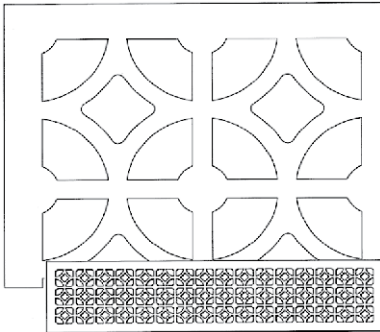
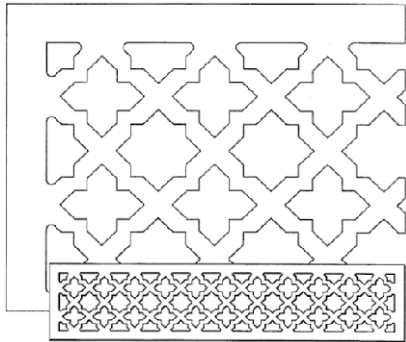
DECORATIVE GRILLE WITH SINGLE DEFLECTION BLADES SET

Ordering Key:

DEC	PI	A	I	G	S	SIZE
DECORATIVE						
Pn: PATTERN/DESIGN NO. (1 - 18)						
PO: PATTERN/DESIGN BY CUSTOMER						
A: AL DECORATIVE SHEET						
G: GI DECORATIVE SHEET						
THICKNESS OF DECORATIVE SHEET: 1, 2 OR 3MM						
G: GRILLE (WITHOUT OBD)						
R: REGISTER (WITH OBD)						
-: WITHOUT DEFLECTION BLADES						
S: WITH SINGLE DEFLECTION						
SIZE: WIDTH X HEIGHT						

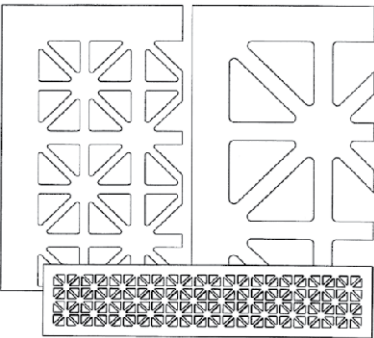
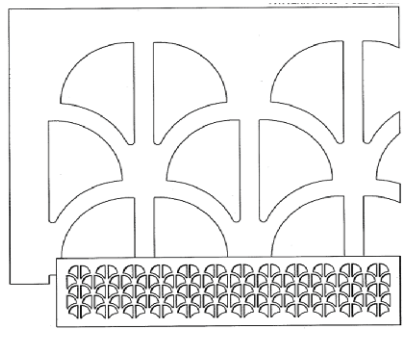
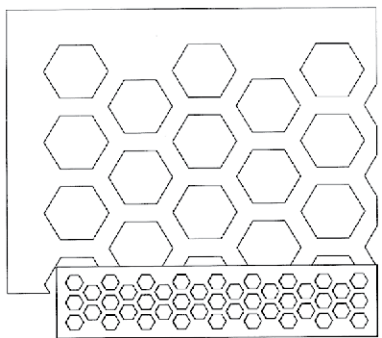
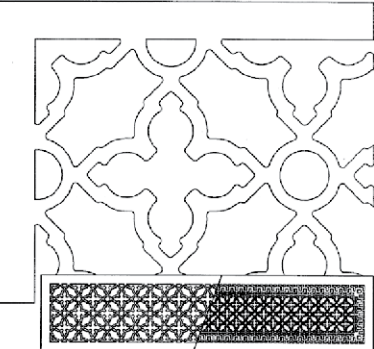
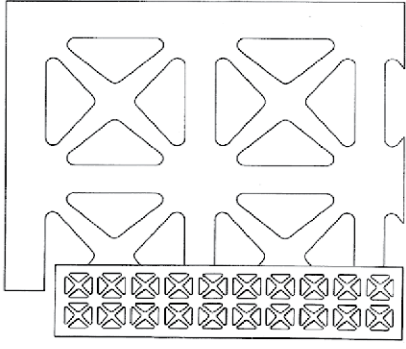
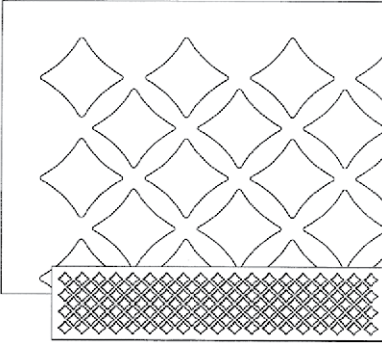
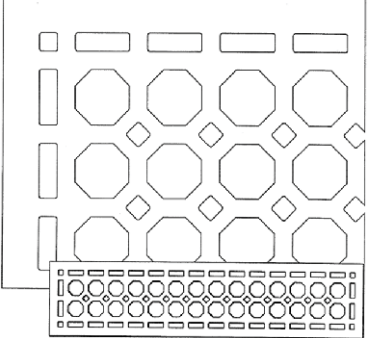
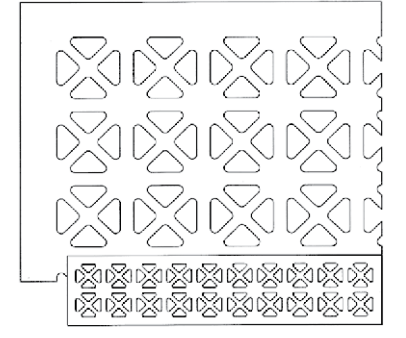
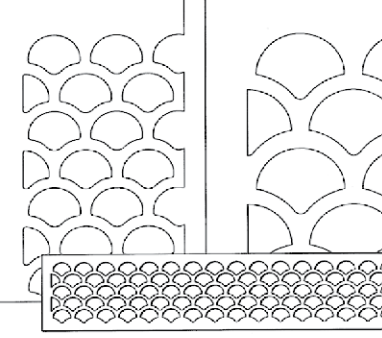




 <p>PATTERN 1 58% OPEN</p>	 <p>PATTERN 2 57% OPEN</p>	 <p>PATTERN 3 72% OPEN</p>
 <p>PATTERN 4 40% OPEN PATTERN 4A 65% OPEN</p>	 <p>PATTERN 5 51% OPEN PATTERN 5A 50% OPEN</p>	 <p>PATTERN 6 45% OPEN PATTERN 6A 45% OPEN</p>
 <p>PATTERN 7 53% OPEN PATTERN 7A 56% OPEN PATTERN 7B 64% OPEN</p>	 <p>PATTERN 8 42% OPEN PATTERN 8A 55% OPEN</p>	 <p>PATTERN 9 58% OPEN PATTERN 9A 58% OPEN</p>





 <p>PATTERN 10 40% OPEN</p> <p>PATTERN 10A 49% OPEN</p> <p>PATTERN 10B 50% OPEN</p>	 <p>PATTERN 11 58% OPEN</p> <p>PATTERN 11A 72% OPEN</p>	 <p>PATTERN 12 56% OPEN</p>
 <p>PATTERN 13 64% OPEN</p>	 <p>PATTERN 14 41% OPEN</p>	 <p>PATTERN 15 54% OPEN</p>
 <p>PATTERN 16 55% OPEN</p> <p>PATTERN 16A 53% OPEN</p>	 <p>PATTERN 17 28% OPEN</p> <p>PATTERN 17A 37% OPEN</p> <p>PATTERN 17B 50% OPEN</p>	 <p>PATTERN 18 59% OPEN</p> <p>PATTERN 18 A 56% OPEN</p>





PRODUCTS TESTING >>

The following tables include the results of tests conducted on three double deflection air registers. The test results include noise criteria (NC), static pressure versus Airflow, throw and Ak. Extrapolation was used to obtain the performance for other sizes and other parameters within the range of products mentioned above.

TEST METHOD >>

The registers were tested in accordance with the Air Diffusion Council test code for grilles, registers and diffusers No. ADC 1062:GRD-84. The registers were tested in the ETL Testing LABORATORIES, Inc.



The 470m² reverberation room was used to conduct the test. Quiet test air was provided by a variable volume air supply. Air volume was measured by the use of calibrated orifice metering station while the static pressure was measured employing a dwyer model 166-12,1/8" diameter standard pitot tube and read on a dwyer manometer model 424-5.

Acoustical data was obtained employing a Bruel and Kjaer digital frequency analyzer type 2131 and analyzed by a computer. The reference sound source used for this test as a calibrated ILG Fan Serial No. 17-05-066A. The octave band sound power levels were plotted on a graph of Noise Criteria Curves which is in the ADC test code.

NOTES :

Area with horizontal dashed lines for notes.





NOTES :

A series of horizontal dashed red lines for writing notes.





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

L/S	SIZE	300 x 150		300 x 200		450 x 150		500 x 150		600 x 150		750 X 150		600 X 200		
								300 x 250		450 x 250		500 x 200		450 X 250		
	DEFLECTION	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	
	Ac	0.041		0.055		0.062		0.069		0.083		0.093		0.105		
	Ak	0.023	0.019	0.030	0.025	0.033	0.028	0.036	0.030	0.049	0.041	0.057	0.048	0.067	0.056	
94	Vc	2.32		1.71		1.53		1.36		1.13		1.01		0.90		
	Pv	3.32		0.421	0.774	0.312	0.570	0.150	0.271	0.082	0.147	0.057	0.102	0.039	0.070	
	Pt	4.32		0.614	0.969	0.445	0.699	0.229	0.346	0.132	0.193	0.096	0.138	0.068	0.096	
	Th.	3.4-4.0-6.1	1.8-2.7-4.3	3.1-3.7-5.8	1.5-2.4-4.0	2.8-3.4-5.5	1.2-2.1-3.7	2.5-3.1-5.2	0.9-1.8-3.4	2.3-2.9-5.0	0.8-1.7-3.2	2.2-2.8-4.9	0.7-1.5-3.1	2.1-2.6-4.7	0.6-1.4-2.9	2.0-2.6-4.6
	NC	16	22	<15	<15	<15	>15	<15	<15	<15	<15	<15	<15	<15	<15	<15
118	Vc	2.9		2.1		1.9		1.7		1.4		1.3		1.1		
	Pv	1.300	2.360	0.660	1.220	0.493	0.897	0.240	0.438	0.132	0.242	0.093	0.171	0.064	0.118	
	Pt	1.800	2.870	0.910	1.470	0.702	1.102	0.350	0.542	0.196	0.301	0.140	0.213	0.097	0.148	
	Th.	3.7-4.9-6.7	2.1-3.6-4.9	3.7-4.6-6.7	2.1-3.0-4.9	3.7-4.3-6.4	2.1-3.4-4.9	3.6-4.2-6.4	2.0-3.1-4.6	3.4-4.0-6.3	1.9-3.0-4.4	3.2-3.9-6.3	1.8-2.9-4.3	3.0-3.7-6.2	1.6-2.8-4.2	2.9-3.7-6.2
	NC	23	29	<15	19	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
142	Vc	3.5		2.6		2.3		2.1		1.7		1.5		1.4		
	Pv	1.880	3.400	0.970	1.750	0.710	1.300	0.345	0.637	0.189	0.353	0.133	0.249	0.092	0.173	
	Pt	2.640	4.170	1.470	2.260	0.970	1.550	0.461	0.744	0.249	0.405	0.174	0.283	0.119	0.194	
	Th.	4.3-5.2-7.3	2.7-4.0-5.2	4.3-4.9-7.3	2.4-3.7-5.5	4.0-4.9-7.0	2.4-3.7-5.2	3.8-4.7-6.8	2.2-3.5-5.0	3.6-4.5-6.6	2.0-3.3-4.8	3.5-4.4-6.5	2.0-3.2-4.7	3.4-4.3-6.4	1.9-3.1-4.6	3.4-4.3-6.3
	NC	29	35	19	25	<15	20	<15	<15	<15	<15	<15	<15	<15	<15	<15
165	Vc	4.1		3.0		2.7		2.4		2.0		1.8		1.6		
	Pv	2.570	4.620	1.320	2.390	0.970	1.750	0.760	1.400	0.258	0.469	0.182	0.331	0.125	0.228	
	Pt	3.580	5.640	1.830	2.900	1.470	2.260	1.020	1.650	0.439	0.654	0.319	0.470	0.227	0.332	
	Th.	4.6-5.8-7.9	3.0-4.3-5.8	4.6-5.8-7.9	2.7-4.0-5.8	4.3-5.5-7.6	2.7-4.0-5.5	4.3-5.5-7.6	2.7-4.0-5.2	4.2-5.4-7.5	2.5-3.8-5.2	4.1-5.3-7.4	2.5-3.8-5.1	4.1-5.3-7.4	2.4-3.7-4.9	4.0-5.2-7.3
	NC	34	40	24	30	19	25	16	22	<15	19	<15	16	<15	<15	<15
189	Vc	4.7		3.4		3.1		2.7		2.3		2.0		1.8		
	Pv	3.330	6.050	1.730	3.120	1.270	2.290	0.990	1.800	0.343	0.613	0.242	0.432	0.168	0.298	
	Pt	4.600	7.320	2.490	3.890	1.78	2.790	1.500	2.310	0.491	0.754	0.349	0.533	0.243	0.369	
	Th.	4.9-6.1-8.5	3.7-4.6-6.1	4.9-6.1-8.5	3.4-4.3-6.1	4.6-5.8-8.2	3.4-4.3-5.8	4.6-5.8-7.9	3.1-4.3-5.8	4.5-5.7-7.9	3.0-4.1-5.7	4.4-5.6-7.8	2.9-4.1-5.6	4.4-5.6-7.6	2.8-4.0-5.6	4.3-5.5-7.6
	NC	38	45	28	34	23	29	20	26	<15	16	<15	<15	<15	<15	<15
212	Vc	5.2		3.8		3.4		3.1		2.5		2.3		2.0		
	Pv	4.220	7.670	2.180	3.960	1.600	2.900	1.270	2.290	0.580	1.070	0.114	0.216	0.068	0.130	
	Pt	5.740	9.190	2.950	4.720	2.360	3.660	1.780	2.790	0.840	1.320	0.185	0.280	0.113	0.170	
	Th.	5.2-6.4-8.8	4.0-5.2-6.7	5.2-6.4-8.8	3.7-4.9-6.4	4.9-6.1-8.5	3.7-4.9-6.4	4.9-6.1-8.5	3.4-4.6-6.1	4.6-5.8-8.5	3.1-4.6-6.1	4.6-5.8-8.4	3.1-4.5-6.0	4.5-5.7-8.3	2.9-4.4-5.9	4.5-5.7-8.3
	NC	42	48	31	38	27	33	24	30	<15	18	<15	<15	<15	<15	<15
236	Vc			4.3		3.8		3.4		2.8		2.5		2.3		
	Pv			2.690	4.880	1.980	3.580	1.550	2.820	0.740	1.320	0.199	0.368	0.112	0.208	
	Pt			3.710	5.890	2.740	4.340	2.310	3.580	1.240	1.830	0.401	0.566	0.244	0.337	
	Th.			5.5-6.7-9.4	4.0-5.2-6.7	5.5-6.7-9.4	4.0-5.2-6.4	5.2-6.4-9.1	4.0-4.3-6.1	4.9-6.4-9.1	3.7-4.9-6.4	4.8-6.3-9.0	3.7-4.5-6.2	4.6-6.2-8.9	3.6-4.4-6.1	4.5-6.1-8.8
	NC			35	41	30	37	27	33	16	22	<15	<15	<15	<15	<15
260	Vc			4.7		4.2		3.8		3.1		2.8		2.5		
	Pv			3.250	5.890	2.390	4.340	1.880	3.430	0.890	1.600	0.610	1.120	0.034	0.056	
	Pt			4.520	7.160	3.400	5.360	2.640	4.190	1.400	2.110	1.120	1.630	0.083	0.116	
	Th.			5.8-7.0-10.1	4.3-5.5-7.3	5.8-7.0-9.8	4.3-5.5-7.0	5.5-6.7-9.8	4.3-5.2-6.7	5.2-6.7-9.5	4.0-5.2-6.7	5.2-6.4-9.5	4.0-5.2-6.7	5.0-6.3-9.3	3.9-5.1-6.5	4.9-6.3-9.2
	NC			38	44	33	40	30	36	19	25	<15	19	<15	<15	<15





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

*SI UNITS

		900 x 150				1050 x 150				900 x 200				1050 x 200				900 x 250				1050 x 300				1050 x 300			
500 x 250		450 x 300				500 x 300				600 x 300				750 x 250				750 x 300				900 x 300				1050 x 300			
0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°				
0.118		0.126		0.141		0.146		0.170		0.178		0.198		0.214		0.228		0.302											
0.077	0.064	0.085	0.071	0.097	0.081	0.103	0.086	0.121	0.100	0.126	0.105	0.144	0.120	0.156	0.130	0.190	0.158	0.228	0.189										
1.0																													
0.044	0.081																												
0.068	0.102																												
29-3.6-6.1	15-27-4.0																												
<15	<15																												
1.2																													
0.063	0.119																												
0.081	0.133																												
33-4.2-6.3	18-30-4.5																												
<15	<15																												
1.4																													
0.086	0.157																												
0.161	0.234																												
40-5.2-7.3	24-37-4.8																												
<15	<15																												
1.6																													
0.116	0.205																												
0.169	0.255																												
43-5.5-7.5	27-40-5.5																												
<15	<15																												
1.8		1.7																											
0.041	0.077	0.030	0.057																										
0.069	0.103	0.051	0.076																										
44-5.6-8.3	28-43-5.8	44-5.6-8.3	28-42-5.7																										
<15	<15	<15	<15																										
2.0		1.9		1.7																									
0.063	0.117	0.044	0.083	0.025	0.047																								
0.149	0.200	0.110	0.146	0.068	0.088																								
44-6.1-8.8	35-43-6.0	43-6.0-8.7	35-42-6.0	42-5.9-8.6	34-4.1-5.9																								
<15	<15	<15	<15	<15	<15																								
2.2		2.1		1.8		1.8		1.5																					
0.014	0.024	0.008	0.014	0.004	0.006	0.003	0.005	0.001	0.002																				
0.040	0.054	0.026	0.034	0.013	0.016	0.011	0.013	0.004	0.005																				
49-6.2-9.2	38-5.0-6.4	48-6.2-9.1	38-5.0-6.3	4.6-6.0-9.0	3.7-4.9-6.2	4.6-6.0-9.0	3.7-4.9-6.2	4.4-5.9-8.8	3.6-4.8-6.0																				
<15	<15	<15	<15	<15	<15	<15	<15	<15	<15																				





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

L/S	SIZE	300 x 150		300 x 200		450 x 150		500 x 150		600 x 150		750 X 150		600 X 200			
								300 x 250				450 X 250					
		DEFLECTION		0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
	Ac	0.041		0.055		0.062		0.069		0.083		0.093		0.105		0.112	
	Ak	0.023	0.019	0.030	0.025	0.033	0.028	0.036	0.030	0.049	0.041	0.057	0.048	0.067	0.056	0.073	0.061
283	Vc	5.1		4.6		4.1		3.4		3.0		2.7		2.5			
	Pv			3.860	7.040	3.100	5.160	2.240	4.060	1.040	1.910	0.740	1.320	0.510	0.910	0.026	0.038
	Pt			5.380	8.560	4.370	6.430	3.250	5.080	1.800	2.670	1.240	1.830	1.020	1.420	0.041	0.056
	Th.			61-73-104	46-58-76	61-73-101	46-55-73	58-70-101	46-55-70	58-70-98	43-55-70	55-67-98	43-55-70	55-67-94	43-53-70	54-66-94	42-53-68
	NC			41	4.7	36	42	33	39	22	28	16	22	<15	16	<15	<15
330	Vc			5.4		4.8		4.0		3.5		3.2		2.9			
	Pv					3.860	7.040	3.050	5.540	1.420	2.590	0.990	1.800	0.690	1.240	0.590	1.020
	Pt					5.380	8.560	4.320	6.810	2.440	3.610	1.750	2.570	0.190	1.750	1.070	1.520
	Th.					64-76-104	49-61-76	64-73-101	49-58-73	61-73-101	46-58-73	58-70-101	46-58-73	58-70-97	46-55-73	55-67-97	46-55-70
	NC					41	47	38	44	26	33	20	27	<15	21	<15	17
378	Vc					5.5		4.5		4.1		3.6		3.4			
	Pv							3.990	7.240	1.880	3.380	1.290	2.360	0.910	1.630	0.740	1.320
	Pt							5.510	8.760	3.150	4.650	2.310	3.380	1.680	2.390	1.240	1.830
	Th.							64-76-107	52-61-79	64-76-107	52-61-76	61-73-104	49-61-76	61-73-100	49-58-76	58-73-100	49-58-73
	NC							42	48	31	37	25	31	19	25	15	22
425	Vc							5.1		4.6		4.1		3.8			
	Pv									2.360	4.290	1.650	3.000	1.140	2.080	0.940	1.680
	Pt									3.890	5.820	2.920	4.270	2.160	3.100	1.700	2.440
	Th.									70-82-116	55-67-82	70-82-113	52-64-79	67-79-113	52-61-79	64-76-110	52-61-76
	NC									34	41	28	35	22	29	19	25
472	Vc							5.7		5.1		4.5		4.2			
	Pv									2.920	5.280	2.030	3.680	1.400	2.570	1.140	2.080
	Pt									4.700	7.060	3.560	5.210	2.670	3.840	2.160	3.100
	Th.									76-92-125	58-70-85	76-92-122	58-67-82	73-88-119	55-64-82	70-85-116	55-64-79
	NC									38	44	32	38	26	32	23	29
566	Vc							6.8		6.1		5.4		5.0			
	Pv									4.190	7.620	2.920	5.310	2.030	3.680	1.650	3.000
	Pt									6.730	10.160	4.950	7.340	3.560	5.210	3.180	4.520
	Th.									82-113-140	64-76-92	82-101-137	64-73-89	82-98-134	58-70-85	79-94-128	58-70-82
	NC									43	50	36	44	32	38	28	35
661	Vc									7.1		6.3		5.9			
	Pv											3.610	7.240	2.770	5.000	2.260	4.100
	Pt											6.400	10.030	4.800	7.040	4.290	6.120
	Th.											98-119-158	70-79-94	94-113-146	64-76-91	91-110-149	64-76-91
	NC											41	49	36	43	33	40
755	Vc											7.2		6.7			
	Pv												3.610	6.550	2.950	5.330	
	Pt												6.400	9.350	5.470	7.870	
	Th.												98-119-158	67-82-98	98-119-155	67-82-94	
	NC												41	47	37	44	





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

*SI UNITS

Table with 20 columns and 30 rows of performance data for various grille and register models. Columns represent different grille sizes and registers, and rows represent different flow rates and pressure drops.





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

*SI UNITS

L/S	SIZE	300 x 150		300 x 200		450 x 150		500 x 150		600 x 150		750 x 150		600 x 200		500 x 250			
								300 x 250				450 x 250				500 x 250			
	DEFLECTION	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°		
	Ac	0.041		0.055		0.062		0.069		0.083		0.093		0.105		0.112		0.118	
	Ak	0.023	0.019	0.030	0.025	0.033	0.028	0.036	0.030	0.049	0.041	0.057	0.048	0.067	0.056	0.073	0.061	0.077	0.064
850	Vc	7.6																7.2	
	Pv															3.710	6.760	3.300	5.970
	Pt															6.760	9.800	6.350	9.020
	Th.															10.4-12.8-16.5	7.3-8.5-10.1	10.1-12.8-16.2	7.3-8.2-9.4
	NC															41	48	39	46
944	Vc	8.0																	
	Pv																	4.060	7.370
	Pt																	7.870	11.180
	Th.																	10.7-13.4-17.1	7.9-8.8-10.1
	NC																	43	49
1133	Vc																		
	Pv																		
	Pt																		
	Th.																		
	NC																		
1322	Vc																		
	Pv																		
	Pt																		
	Th.																		
	NC																		
1511	Vc																		
	Pv																		
	Pt																		
	Th.																		
	NC																		
1699	Vc																		
	Pv																		
	Pt																		
	Th.																		
	NC																		

SYMBOLS:

Deflection: The Angle of deflection of the face blades

L/Sec : Air volume in Litres Per second

A_c : Core Area in square meter

A_k : Effective face area in square meter square per 1000mm length

V_c : Core Velocity in meter per second

Pt : Total Pressure in mm water gauge

Th : Throw in meters

CONDITIONS

* Supply

* With Ceiling effect

* Noise Criteria values are based on (10 dB) room attenuation

* Damper is fully open





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

* SI UNITS

Table with columns for grille sizes (900 x 150, 750 x 200, 1050 x 150, 900 x 200, 1050 x 200, 900 x 250, 1050 x 200, 450 x 300, 500 x 300, 600 x 300, 750 x 300, 900 x 300, 1050 x 300) and rows for various throw and drop values.

NOTES

- * The large throw values are based on the minimum terminal velocity of 0.25m/sec.
* The middle throw values are based on the middle terminal velocity of 0.50 m/sec.
* The small throw values are based on the maximum terminal velocity of 0.75m/sec.

CORRECTION FOR FLOW WITHOUT CEILING EFFECT:

- 1. Noise Criteria No correction required
2. Static pressure No correction required
3. Area Factor No correction required
4. Throw and drop some work has been done to show that the throw will be reduced by approximately 15-20% and the drop increased by 5-15%.





REGISTERS & GRILLES
PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*SI UNITS

L/S	SIZE	300 x 150		450 x 150		500 x 150		600 x 150		750 x 150		900 x 150		1050 x 150		1060 x 200				
		300 x 200	300 x 250	450 x 200	450 x 250	500 x 200	500 x 250	600 x 200	600 x 250	750 x 200	750 x 250	900 x 200	900 x 250	1050 x 200	1050 x 250	1060 x 300	1060 x 300			
94	Ac	0.041	0.055	0.062	0.069	0.083	0.093	0.105	0.112	0.118	0.126	0.141	0.146	0.170	0.178	0.198	0.214	0.228	0.302	
	Vc	2.315	1.660	1.485	1.323	1.096														
	Pv	0.331	0.166	0.133	0.106	0.073														
	Ps	0.760	0.575	0.533	0.469	0.405														
	NC	<15	<15	<15	<15	<15														
118	Vc	2.906	2.142	1.856	1.654	1.370	1.228													
	Pv	0.521	0.283	0.208	0.165	0.113	0.091													
	Ps	1.020	0.760	0.649	0.582	0.488	0.440													
	NC	<15	<15	<15	<15	<15	<15													
142	Vc	3.498	2.577	2.227	1.985	1.644	1.473	1.311	1.224											
	Pv	0.755	0.410	0.299	0.238	0.163	0.131	0.104	0.090											
	Ps	1.520	1.020	0.805	0.691	0.538	0.465	0.398	0.363											
	NC	15	<15	<15	<15	<15	<15	<15	<15											
165	Vc	4.064	2.995	2.598	2.316	1.918	1.719	1.530	1.427	1.361	1.269									
	Pv	1.019	0.553	0.408	0.324	0.222	0.178	0.141	0.123	0.112	0.097									
	Ps	2.030	1.270	1.107	0.927	0.694	0.586	0.490	0.440	0.409	0.367									
	NC	24	16	<15	<15	<15	<15	<15	<15	<15	<15									
189	Vc	4.655	3.430	3.068	2.647	2.192	1.964	1.748	1.631	1.555	1.450	1.293	1.256							
	Pv	1.337	0.726	0.581	0.423	0.290	0.233	0.185	0.161	0.146	0.127	0.101	0.095							
	Ps	2.540	1.780	1.020	1.197	0.824	0.663	0.527	0.459	0.418	0.364	0.290	0.274							
	NC	27	19	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15							
212	Vc	5.222	3.848	3.442	3.068	2.466	2.210	1.967	1.835	1.749	1.632	1.455	1.413	1.210						
	Pv	1.682	0.913	0.731	0.581	0.367	0.295	0.234	0.203	0.185	0.161	0.128	0.121	0.088						
	Ps	3.300	2.290	1.270	1.020	0.564	0.440	0.339	0.290	0.260	0.222	0.172	0.161	0.113						
	NC	29	22	16	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15						
236	Vc	5.813	4.283	3.831	3.415	2.830	2.456	2.186	2.039	1.944	1.813	1.616	1.570	1.344	1.287	1.157				
	Pv	2.084	1.132	0.905	0.720	0.494	0.364	0.288	0.251	0.228	0.198	0.158	0.149	0.109	0.100	0.081				
	Ps	4.060	2.790	1.520	1.270	1.020	0.722	0.567	0.491	0.445	0.385	0.304	0.286	0.207	0.190	0.152				
	NC	31	25	20	15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15				





REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*SI UNITS

L/S	SIZE	450 x 150	500 x 150	600 x 150	750 x 150	600 x 200	900 x 150	1050 x 150	900 x 200	1050 x 200	900 x 250	1050 x 250	900 x 300	1050 x 300				
		300 x 200	300 x 250	450 x 200	450 x 250	500 x 200	500 x 250	450 x 300	600 x 250	600 x 300	750 x 250	750 x 300	900 x 250	900 x 300	1050 x 300			
260	Ac	0.041	0.055	0.062	0.069	0.083	0.093	0.105	0.112	0.118	0.126	0.141	0.146	0.178	0.198	0.214	0.228	0.302
	Vc	6.404	4.719	4.221	3.763	3.118	2.701	2.404	2.243	2.138	1.994	1.778	1.727	1.416	1.273			
	Pv	2.530	1.374	1.099	0.873	0.600	0.441	0.349	0.304	0.304	0.276	0.240	0.191	0.180	0.121	0.098		
	Ps	4.830	3.300	2.030	1.780	1.270	0.879	0.702	0.615	0.615	0.561	0.490	0.393	0.372	0.254	0.207		
	NC	34	29	24	20	17	15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
283	Vc	6.970	5.136	4.594	4.096	3.393	3.040	2.623	2.447	2.333	2.175	1.940	1.884	1.545	1.388	1.281		
	Pv	2.997	1.627	1.302	1.035	0.710	0.570	0.415	0.362	0.329	0.286	0.227	0.214	0.144	0.116	0.099		
	Ps	5.840	3.810	2.290	2.030	1.520	1.020	0.832	0.721	0.653	0.565	0.445	0.419	0.304	0.223	0.189		
	NC	38	33	28	25	22	16	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	8.128	5.989	5.357	4.776	3.957	3.545	3.155	2.855	2.721	2.538	2.263	2.198	1.802	1.620	1.495	1.261	
330	Pv	4.075	2.213	1.770	1.407	0.966	0.775	0.614	0.492	0.447	0.389	0.309	0.292	0.196	0.158	0.135	0.096	
	Ps	7.870	5.330	3.050	2.790	2.030	1.520	1.020	1.041	0.940	0.811	0.635	0.597	0.392	0.312	0.263	0.183	
	NC	41	37	33	31	29	21	15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	9.310	6.860	6.136	5.470	4.532	4.060	3.614	3.372	3.214	2.901	2.586	2.512	2.059	1.851	1.708	1.441	1.213
	Pv	5.347	2.903	2.323	1.846	1.267	1.017	0.806	0.701	0.637	0.508	0.404	0.381	0.256	0.207	0.176	0.125	0.089
378	Ps	10.410	7.110	4.060	3.560	2.790	2.030	1.520	1.270	1.020	1.066	0.833	0.782	0.510	0.406	0.341	0.237	0.163
	NC	45	40	37	35	32	25	20	15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	7.713	6.899	6.151	5.096	4.565	4.063	3.614	3.372	3.214	2.901	2.586	2.512	2.059	1.851	1.708	1.441	1.213
	Pv	3.670	2.936	2.334	1.602	1.286	1.018	0.806	0.887	0.806	0.643	0.511	0.482	0.324	0.262	0.223	0.159	0.112
	Ps	8.890	5.330	4.830	3.560	2.540	1.780	1.520	1.520	1.520	1.159	0.893	0.836	0.533	0.418	0.349	0.237	0.160
425	NC	45	40	38	36	36	31	24	20	16	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	7.662	6.831	6.151	5.096	4.565	4.063	3.614	3.372	3.214	2.901	2.586	2.512	2.059	1.851	1.708	1.441	1.213
	Pv	3.622	2.878	2.334	1.602	1.286	1.018	0.806	0.887	0.806	0.643	0.511	0.482	0.324	0.262	0.223	0.159	0.112
	Ps	6.600	5.840	4.320	3.050	2.290	1.780	1.520	1.520	1.520	1.159	0.893	0.836	0.533	0.418	0.349	0.237	0.160
	NC	44	43	40	38	36	31	24	20	16	<15	<15	<15	<15	<15	<15	<15	<15
472	Vc	7.662	6.831	6.151	5.096	4.565	4.063	3.614	3.372	3.214	2.901	2.586	2.512	2.059	1.851	1.708	1.441	1.213
	Pv	3.622	2.878	2.334	1.602	1.286	1.018	0.806	0.887	0.806	0.643	0.511	0.482	0.324	0.262	0.223	0.159	0.112
	Ps	6.600	5.840	4.320	3.050	2.290	1.780	1.520	1.520	1.520	1.159	0.893	0.836	0.533	0.418	0.349	0.237	0.160
	NC	44	43	40	38	36	31	24	20	16	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	8.191	6.787	6.079	5.411	4.813	4.489	4.003	3.887	3.225	3.089	2.776	2.563	2.161	1.819			
566	Pv	4.139	2.841	2.280	1.806	1.573	1.429	1.243	0.988	0.932	0.628	0.576	0.466	0.397	0.282	0.200		
	Ps	8.380	6.350	4.320	3.300	2.790	2.540	2.030	1.520	1.270	0.955	0.856	0.653	0.533	0.346	0.224		
	NC	48	45	45	39	35	30	27	21	18	15	<15	<15	<15	<15	<15	<15	<15





REGISTERS & GRILLES
PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*SI UNITS

L/S	SIZE	300 x 150		450 x 150		500 x 150		600 x 150		750 x 150		900 x 150		1050 x 150		900 x 200		1050 x 200			
		300 x 200	300 x 250	450 x 200	450 x 250	500 x 200	500 x 250	600 x 200	600 x 250	750 x 200	750 x 250	900 x 200	900 x 250	1050 x 200	1050 x 250	900 x 250	1050 x 300	1050 x 300			
661	Ac	0.041	0.055	0.062	0.069	0.083	0.093	0.105	0.112	0.118	0.126	0.141	0.146	0.170	0.178	0.198	0.214	0.228	0.302		
	Vc						7.100	6.319	5.897	5.621	5.242	4.675	4.540	3.886	3.722	3.239	2.990	2.521	2.122		
	Pv						3.110	2.463	2.145	1.949	1.695	1.348	1.271	0.932	0.854	0.634	0.540	0.384	0.272		
	Ps						6.100	4.320	3.810	3.560	2.790	2.290	2.030	1.520	1.270	0.863	0.716	0.481	0.322		
	NC						44	39	34	31	27	23	18	15	<15	<15	<15	<15	<15	<15	
755	Vc							7.218	6.735	6.420	5.987	5.339	5.185	4.439	4.251	3.821	3.526	2.882	2.425		
	Pv							3.214	2.798	2.543	2.211	1.759	1.659	1.215	1.115	0.901	0.767	0.502	0.365		
	Ps							5.840	4.830	4.570	3.560	2.790	2.540	1.780	1.780	1.270	1.020	0.652	0.432		
	NC							42	38	35	31	27	23	18	<15	<15	<15	<15	<15		
	Vc							8.126	7.583	7.228	6.741	6.011	5.838	4.997	4.786	4.302	3.970	3.730	2.729		
850	Pv							4.074	3.547	3.223	2.803	2.229	2.102	1.540	1.413	1.141	0.972	0.858	0.450		
	Ps							7.370	6.100	5.590	4.570	3.560	3.050	2.290	2.030	1.780	1.520	1.020	0.783		
	NC							47	43	40	36	32	29	22	17	15	<15	<15	<15		
	Vc								8.421	8.027	7.486	6.676	6.484	5.550	5.315	4.777	4.490	4.142	3.130		
	Pv								4.374	3.975	3.457	2.749	2.593	1.900	1.743	1.408	1.199	1.058	0.604		
944	Ps							7.620	7.110	5.590	4.570	3.810	3.810	2.790	2.540	2.030	1.780	1.270	0.760		
	NC							48	44	40	37	34	27	27	22	18	15	<15	<15		
	Vc								8.985	8.013	7.782	6.661	6.661	5.550	5.315	4.777	4.490	4.142	3.130		
	Pv								4.980	3.961	3.735	2.737	2.593	1.900	1.743	1.408	1.199	1.058	0.604		
	Ps								8.130	6.600	5.590	4.060	3.810	2.790	2.540	2.030	1.780	1.270	0.760		
1133	NC							45	42	37	31	28	24	18	<15	<15	<15	<15	<15		
	Vc								9.349	9.080	7.772	7.444	6.690	6.175	5.801	4.383					
	Pv								5.392	5.086	3.726	3.418	2.761	2.352	2.076	1.185					
	Ps								8.890	7.620	5.590	4.060	3.560	2.290	1.520						
	NC								46	41	35	33	29	23	17	15					
1322	Vc								8.877	8.502	7.642	7.053	6.626	5.007							
	Pv								4.861	4.459	3.602	3.068	2.708	1.546							
	Ps								7.370	6.600	5.330	4.570	3.050	2.030							
	NC								39	37	33	29	23	17	15						
	Vc								8.877	8.502	7.642	7.053	6.626	5.007							
1510	Pv								4.861	4.459	3.602	3.068	2.708	1.546							
	Ps								7.370	6.600	5.330	4.570	3.050	2.030							
	NC								39	37	33	29	23	17	15						
	Vc								8.877	8.502	7.642	7.053	6.626	5.007							
	Pv								4.861	4.459	3.602	3.068	2.708	1.546							





REGISTERS & GRILLES PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*SI UNITS

L/S	SIZE	300 x 150	450 x 150	500 x 150	600 x 150	750 x 150	900 x 150	1050 x 150		1050 x 200									
		300 x 200	300 x 250	450 x 200	500 x 200	450 x 250	600 x 200	600 x 250	750 x 200	750 x 250			900 x 200						
1699	Ac	0.041	0.055	0.062	0.069	0.083	0.083	0.105	0.112	0.118	0.126	0.141	0.146	0.170	0.178	0.198	0.214	0.228	0.302
	Vc															8.598	7.936	7.455	5.633
	Pv															4.560	3.885	3.428	1.958
	Ps															6.860	5.590	3.810	2.790
1888	NC															38	34	26	20
	Vc															8.818	8.284	7.455	6.260
	Pv															4.797	4.234	2.417	2.417
	Ps															7.110	4.830	3.300	3.300
2077	NC															39	32	24	24
	Vc															9.114	6.887	6.887	6.887
	Pv															5.124	2.926	2.926	2.926
	Ps															5.840	4.060	4.060	4.060
2266	NC															36	28	28	28
	Vc																		7.513
	Pv																		3.482
	Ps																		4.830
	NC																		33

SYMBOLS:

L/Sec : Air volume in Litres Per second

A_c : Core Area in square meter

V_c : Core Velocity in meter per second

Pv : Velocity Pressure in millimeter water gauge

Ps : Negative static pressure in millimeters water gauge

NC : Noise criteria

CONDITIONS

* Return

* Damper is fully open

* Noise Criteria is based on (10 dB) room attenuation.





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

CFM	SIZE	12 x 6		12 x 8		18 x 6		20 x 6		24 x 6		30 x 6		24 x 8		20 x 10				
		DEFLECTION		0°		45°		0°		45°		0°		45°		0°		45°		
		Ac	Ak	Vc	Pv	Pt	Th.	NC	Vc	Pv	Pt	Th.	NC	Vc	Pv	Pt	Th.	NC		
200		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
250		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
300		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
350		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
400		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
450		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
500		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
550		0.451	0.2430	0.2020	0.3200	0.2660	0.3600	0.2990	0.3920	0.3250	0.5290	0.4390	0.6180	0.5130	0.7240	0.6010	0.7880	0.6540	0.8300	0.6890
		0.612	0.327	0.305	0.0123	0.0224	0.0059	0.0107	0.0032	0.0058	0.0023	0.0040	0.0015	0.0027	0.0012	0.0022				
		0.0430	0.0710	0.0242	0.0382	0.0175	0.0275	0.0090	0.0136	0.0052	0.0076	0.0038	0.0054	0.0027	0.0038	0.0022	0.0030			
		11-13-20	6-9-14	10-12-19	5-8-13	9-11-18	4-7-12	8-10-17	3-6-11	8-10-17	3-5-11	7-9-16	2-5-10	7-9-15	2-5-10	7-8-15	2-4-9			
		16	22	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

CFM	SIZE	12 x 6		12 x 8		18 x 6		20 x 6		24 x 6		30 x 6		24 x 8		20 x 10			
		12 x 10		12 x 12		18 x 10		24 x 8		20 x 10		18 x 10		24 x 8		20 x 10			
		0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°		
	Ac	0.4511		0.6122		0.6844		0.7678		0.927		1.0344		1.1622		1.3067			
	Ak	0.243	0.202	0.320	0.266	0.360	0.299	0.392	0.325	0.529	0.439	0.618	0.5130	0.724	0.601	0.788	0.654	0.830	0.689
600	Vc	980		877		781		647		580		516		482		459			
	Pv			0.1520	0.2770	0.1220	0.2030	0.0880	0.1600	0.0410	0.0750	0.0290	0.0520	0.0200	0.0360	0.0010	0.0015	0.0007	0.0011
	Pt			0.2120	0.3370	0.1720	0.2530	0.1280	0.2000	0.0710	0.1050	0.0490	0.0720	0.0400	0.0560	0.0016	0.0022	0.0012	0.0016
	Th.			20-24-34	15-19-25	20-24-33	15-18-24	19-23-33	15-18-23	19-23-32	14-18-23	18-22-32	14-18-23	18-22-31	14-19-23	18-22-31	14-17-22	18-22-31	14-17-22
	NC			41	47	36	42	33	39	22	28	16	22	<15	16	<15	<15	<15	<15
700	Vc			1023		912		755		677		602		562		536			
	Pv					0.1520	0.2770	0.1200	0.2180	0.0560	0.1020	0.0390	0.0710	0.0270	0.049	0.0220	0.0400	0.0200	0.0360
	Pt					0.2120	0.3370	0.1700	0.2680	0.0960	0.1420	0.0690	0.1012	0.0470	0.069	0.0400	0.0600	0.0400	0.0560
	Th.					21-25-34	16-20-25	21-24-33	16-19-24	20-24-33	15-19-24	19-23-33	15-19-24	19-23-32	15-18-24	18-22-32	15-18-23	18-21-31	15-18-23
	NC					41	47	38	44	26	33	20	27	<15	21	<15	17	<15	15
800	Vc			1042		863		773		688		642		612					
	Pv					0.1570	0.2850	0.0740	0.1330	0.0510	0.0930	0.0360	0.0640	0.0290	0.0520	0.0260	0.0460		
	Pt					0.2170	0.3450	0.1240	0.1830	0.0910	0.1331	0.0660	0.0940	0.0490	0.0720	0.0460	0.0466		
	Th.					22-25-35	17-20-26	21-25-35	17-20-25	20-24-34	16-20-25	20-24-33	16-19-25	19-24-33	16-19-24	19-23-32	16-19-24		
	NC					42	48	31	37	25	31	19	25	15	22	<15	20		
900	Vc			971		870		774		723		689							
	Pv					0.0930	0.1690	0.0650	0.1180	0.0450	0.0820	0.0370	0.0660	0.0320	0.0590				
	Pt					0.1530	0.2290	0.1150	0.1681	0.0850	0.1220	0.0670	0.0960	0.0620	0.0890				
	Th.					23-27-38	18-22-27	23-27-37	17-21-26	22-26-37	17-20-26	21-25-36	17-20-25	21-24-36	17-20-25				
	NC					34	41	28	35	22	29	19	25	17	23				
1000	Vc			1079		967		860		803		765							
	Pv					0.1150	0.2080	0.0800	0.1450	0.0550	0.1010	0.0450	0.0820	0.0400	0.0730				
	Pt					0.1850	0.2780	0.1400	0.2051	0.1050	0.1510	0.0850	0.1220	0.0800	0.1130				
	Th.					25-30-41	19-23-28	25-30-40	19-22-27	24-29-29	18-21-27	23-28-38	18-21-26	23-27-38	17-21-26				
	NC					38	44	32	38	26	32	23	29	21	27				
1200	Vc			1294		1160		1033		963		918							
	Pv					0.1680	0.3000	0.1150	0.2090	0.0800	0.1450	0.0650	0.1180	0.0580	0.1040				
	Pt					0.2650	0.4000	0.1950	0.2890	0.1400	0.2050	0.1250	0.1780	0.1080	0.1540				
	Th.					27-37-46	21-25-30	27-33-45	21-24-29	27-32-48	19-23-28	26-31-42	19-23-27	26-30-41	18-23-27				
	NC					43	50	36	44	36	38	28	35	26	33				
1400	Vc			1353		1205		1124		1071									
	Pv					0.1420	0.2850	0.1090	0.1970	0.0890	0.1610	0.0780	0.1420						
	Pt					0.2520	0.3949	0.1890	0.2770	0.1690	0.2410	0.1480	0.2120						
	Th.					32-39-52	23-26-31	31-37-48	21-25-30	30-36-49	21-25-30	30-35-46	20-25-29						
	NC					41	49	36	43	33	40	31	38						
1600	Vc			1377		1285		1224											
	Pv					0.1420	0.2580	0.1160	0.2100	0.1020	0.1860								
	Pt					0.2520	0.3680	0.2160	0.3100	0.2020	0.2860								
	Th.					32-39-52	22-27-32	32-36-51	22-27-31	31-38-50	22-26-30								
	NC					41	47	37	44	35	42								





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

36 x 6		30 x 8		42 x 6		36 x 8		30 x 10		42 x 8		36 x 10		42 x 10		42 x 12	
18 x 12		20 x 12				24 x 12						30 x 12		36 x 12		42 x 12	
0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
1.401		1.572		1.618		1.890		1.973		2.196		2.379		2.821		3.351	
0.915	0.759	1.040	0.870	1.110	0.920	1.300	1.080	1.360	1.130	1.550	1.290	1.680	1.400	2.050	1.700	2.450	2.030
428		382		371		317											
0.0004	0.0006	0.0002	0.0003	0.0002	0.0002	0.00005	0.0001										
0.0007	0.0010	0.0004	0.0004	0.0003	0.0004	0.0001	0.0001										
17-21-31	14-17-22	17-21-30	13-17-22	17-21-30	13-17-22	17-20-29	13-17-21										
<15	<15	<15	<15	<15	<15	<15	<15										
500		445		433		370		355		319							
0.0041	0.0075	0.0024	0.0043	0.0021	0.0037	0.0010	0.0018	0.0008	0.0014	0.0005	0.0009						
0.0103	0.0132	0.0065	0.0081	0.0058	0.0071	0.0031	0.0037	0.0026	0.0031	0.0017	0.0019						
18-21-31	15-18-23	17-21-31	15-18-23	17-21-31	15-17-23	17-20-30	14-17-22	16-20-30	14-17-22	16-19-30	14-17-22						
<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15						
571		509		494		423		405		364		336		284			
0.0210	0.0380	0.0042	0.0073	0.0036	0.0063	0.0017	0.0029	0.0013	0.0023	0.0008	0.0014	0.0005	0.0009	0.0004	0.0007		
0.0410	0.0580	0.0101	0.0131	0.0089	0.0115	0.0046	0.0057	0.0039	0.0047	0.0025	0.0029	0.0018	0.0020	0.0014	0.0015		
18-22-31	15-19-23	18-22-31	15-19-23	18-22-31	15-19-23	17-22-30	15-18-22	17-21-29	15-18-22	17-21-29	14-18-22	16-21-28	14-18-22	16-20-28	14-18-21		
<15	16	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15		
642		573		556		476		456		410		378		319			
0.0260	0.0470	0.0190	0.0340	0.0160	0.0300	0.0024	0.0045	0.0019	0.0036	0.0011	0.0021	0.0008	0.0014	0.0006	0.0010		
0.0460	0.0670	0.0390	0.0540	0.0360	0.0500	0.0066	0.0084	0.0055	0.0069	0.0034	0.0042	0.0024	0.0029	0.0019	0.0022		
20-24-35	16-20-25	20-23-35	16-20-24	19-23-35	15-19-24	18-22-34	15-19-23	18-21-34	15-19-23	18-21-33	15-18-23	17-20-33	14-18-22	17-20-33	14-18-22		
<15	20	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15		
714		636		618		529		507		455		420		355		298	
0.0320	0.0590	0.0240	0.0420	0.0200	0.0370	0.0140	0.0260	0.0019	0.0029	0.0010	0.0016	0.0007	0.0010	0.0005	0.0007	0.0001	0.0001
0.0620	0.0790	0.0440	0.0620	0.0400	0.0570	0.0340	0.0460	0.0050	0.0064	0.0030	0.0038	0.0021	0.0025	0.0015	0.0018	0.0004	0.0004
22-27-37	17-21-26	22-26-37	17-21-26	21-26-36	17-20-25	20-25-35	16-19-24	20-24-35	16-19-24	19-24-34	16-19-24	19-23-33	15-19-23	18-23-33	15-18-23	17-21-31	14-17-22
17	23	<15	18	<15	16	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
856		764		742		635		608		547		504		425		358	
0.0470	0.0840	0.0340	0.0600	0.0290	0.0530	0.0200	0.0370	0.0180	0.0330	0.0140	0.0250	0.0007	0.0012	0.0005	0.0008	0.0001	0.0002
0.0870	0.1240	0.0740	0.1000	0.0590	0.0830	0.0400	0.0570	0.0380	0.0530	0.0340	0.0450	0.0024	0.0032	0.0018	0.0023	0.0004	0.0005
25-30-40	18-22-27	25-29-40	18-22-27	24-29-39	18-21-26	24-28-38	17-20-25	23-28-38	17-20-24	23-27-37	17-20-24	23-26-36	16-19-23	22-25-35	16-19-23	21-23-33	15-18-21
23	29	18	24	15	22	<15	15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
999		891		865		741		709		638		589		496		418	
0.0630	0.1150	0.0460	0.0820	0.0400	0.0720	0.0280	0.0510	0.0250	0.0450	0.0190	0.0340	0.0160	0.0280	0.0011	0.0017	0.0002	0.0003
0.1230	0.1750	0.0960	0.1320	0.0900	0.1220	0.0580	0.0810	0.0550	0.0750	0.0390	0.0540	0.0360	0.0480	0.0037	0.0043	0.0009	0.0010
29-34-44	20-24-28	29-33-44	19-23-28	28-33-43	19-23-27	27-32-43	19-22-26	27-32-42	18-22-26	26-31-41	17-21-25	23-31-41	17-20-25	25-30-39	17-20-24	23-28-37	15-19-22
28	34	23	29	20	26	<15	20	<15	19	<15	<15	<15	<15	<15	<15	<15	<15
1142		1018		989		847		811		729		673		567		477	
0.0830	0.1500	0.0600	0.1070	0.0520	0.0940	0.0360	0.0660	0.0320	0.0590	0.0240	0.0440	0.0200	0.0370	0.0013	0.0019	0.0002	0.0003
0.1630	0.2300	0.1200	0.1670	0.1120	0.1540	0.0760	0.1060	0.0720	0.0900	0.0540	0.0740	0.0500	0.0670	0.0027	0.0034	0.0006	0.0007
31-38-50	22-26-30	31-38-50	21-25-29	30-37-49	21-25-29	29-36-48	20-24-28	29-36-47	20-24-28	28-35-47	19-23-27	28-35-46	19-23-27	27-35-46	19-22-26	26-33-44	18-21-25
32	38	27	33	24	31	18	25	17	23	<15	18	<15	15	<15	<15	<15	<15





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

CFM	SIZE	12 x 6		12 x 8		18 x 6		20 x 6		24 x 6		30 x 6		24 x 8		20 x 10				
	DEFLECTION	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°			
	Ac	0.451		0.612		0.684		0.768		0.927		1.034		1.162		1.246		1.307		
	AK	0.243	0.202	0.320	0.266	0.360	0.299	0.392	0.325	0.529	0.439	0.618	0.5130	0.724	0.601	0.788	0.654	0.830	0.689	
1800	Vc	1445																1378		
	Pv															0.1460	0.2660	0.1300	0.2350	
	Pt															0.2660	0.3860	0.2500	0.3550	
	Th.															34-42-54	24-28-33	33-42-56	24-27-31	
	NC															41	48	39	46	
2000	Vc																	1531		
	Pv																		0.1600	0.2900
	Pt																		0.3100	0.4400
	Th.																		35-44-56	26-29-33
	NC																		43	49
2400	Vc																			
	Pv																			
	Pt																			
	Th.																			
	NC																			
2800	Vc																			
	Pv																			
	Pt																			
	Th.																			
	NC																			
3200	Vc																			
	Pv																			
	Pt																			
	Th.																			
	NC																			
3600	Vc																			
	Pv																			
	Pt																			
	Th.																			
	NC																			

SYMBOLS:

Deflection: The Angle of deflection of the face blades

CFM : Air volume in Cubic Foot Per Minute

A_c : Core Area in square foot

A_k : Effective face area in square foot

V_c : Core Velocity in foot per minute

P_v : Velocity Pressure in inch water gauge

P_t : Total Pressure in inch water gauge

Th : Throw in feet

NC : Noise Criteria

CONDITIONS

* Supply

* With Ceiling effect

* Noise Criteria values are based on (10 dB)

*room attenuation

* Damper is fully open





REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

SAR, SAG, RAR, RAG

IMPERIAL UNITS

Table with 18 columns and 40 rows of performance data for various grille and register models. Columns include model numbers and performance metrics like flow rate and pressure drop.

NOTES

- * The large throw values are based on the minimum terminal velocity of 50 fpm
* The middle throw values are based on the middle terminal velocity of 100 fpm
* The small throw values are based on the maximum terminal velocity of 150 fpm

CORRECTION FOR FLOW WITHOUT CEILING EFFECT:

- 1. Noise Criteria No correction required
2. Static pressure No correction required
3. Area Factor No correction required
4. Throw and drop some work has been done to show that the throw will be reduced by approximately 15-20% and the drop increased by 5-15%.





REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

CFM	SIZE	DEFLECTION	12 X 6	12 X 8	18 X 6	20 X 6	24 X 6	20 X 8	30 X 6	24 X 8	20 X 10	36 X 6	30 X 8	42 X 6	36 X 8	30 X 10	42 X 8	36 X 10	42 X 10	30 X 12	36 X 12	42 X 12	3.351
			0.451	0.612	0.684	0.768	0.927	1.034	1.162	1.246	1.307	1.401	1.572	1.618	1.890	1.973	2.196	2.379	2.821	2.821	3.351		
200	Ac																						
	Vc	443	327	292	260	216																	
	Pv	0.012	0.007	0.005	0.004	0.003																	
	Ps	0.030	0.023	0.021	0.019	0.016																	
250	NC	<15	<15	<15	<15	<15																	
	Vc	554	408	365	326	270	242																
	Pv	0.019	0.010	0.008	0.007	0.005	0.004																
	Ps	0.040	0.030	0.026	0.023	0.020	0.018																
300	NC	<15	<15	<15	<15	<15	<15																
	Vc	665	490	438	391	324	290	258	241														
	Pv	0.028	0.015	0.012	0.010	0.007	0.005	0.004	0.004														
	Ps	0.0600	0.0400	0.0322	0.0276	0.0215	0.0186	0.0159	0.0145														
350	NC	15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	776	572	511	456	378	338	301	281	268	250												
	Pv	0.038	0.020	0.016	0.013	0.009	0.007	0.006	0.005	0.004	0.004												
	Ps	0.0800	0.0500	0.0443	0.0371	0.0278	0.0234	0.0196	0.0176	0.0164	0.0147												
400	NC	24	16	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	887	653	584	521	431	387	344	321	306	285	255	247										
	Pv	0.049	0.027	0.021	0.017	0.012	0.009	0.007	0.006	0.006	0.006	0.005	0.004	0.004									
	Ps	0.100	0.070	0.040	0.048	0.033	0.027	0.021	0.018	0.017	0.015	0.015	0.012	0.11									
450	NC	27	19	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	998	735	658	586	485	435	387	361	344	321	286	278	238									
	Pv	0.062	0.034	0.027	0.021	0.015	0.012	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.005	0.004							
	Ps	0.130	0.090	0.050	0.040	0.023	0.018	0.014	0.012	0.010	0.009	0.009	0.007	0.006	0.006	0.005							
500	NC	29	22	16	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	Vc	1108	817	731	651	539	483	430	401	383	357	318	309	265	253	228							
	Pv	0.077	0.042	0.033	0.026	0.018	0.015	0.012	0.010	0.009	0.008	0.008	0.006	0.004	0.004	0.004	0.003						
	Ps	0.160	0.110	0.060	0.050	0.040	0.029	0.023	0.020	0.018	0.015	0.015	0.012	0.008	0.011	0.008	0.006	0.006	0.006	0.006	0.006	0.006	0.006





REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

CFM	SIZE	12 X 6	18 X 6	20 X 6	24 X 6	30 X 6	36 X 6	42 X 6	36 X 8	30 X 10	42 X 8	36 X 10	30 X 12	42 X 10	36 X 12	42 X 12		
		12 X 8	18 X 8	20 X 8	24 X 8	30 X 8	36 X 8	42 X 8									30 X 10	36 X 10
550	Ac	0.451	0.612	0.768	0.927	1.034	1.246	1.307	1.401	1.572	1.618	1.890	1.973	2.196	2.379	2.821	3.351	
	Vc	1219	898	716	593	473	442	421	393	350	340	291	279	251				
	Pv	0.093	0.050	0.032	0.022	0.018	0.012	0.011	0.011	0.010	0.008	0.007	0.005	0.004				
	Ps	0.190	0.130	0.080	0.050	0.035	0.025	0.022	0.022	0.020	0.016	0.015	0.010	0.008				
	NC	34	29	24	17	15	<15	<15	<15	<15	<15	<15	<15	<15				
600	Vc	1330	980	781	647	516	482	459	428	382	371	317	304	273	252			
	Pv	0.110	0.060	0.038	0.026	0.021	0.014	0.013	0.011	0.009	0.009	0.006	0.006	0.005	0.004			
	Ps	0.230	0.150	0.080	0.060	0.040	0.029	0.026	0.023	0.018	0.017	0.012	0.011	0.009	0.008			
	NC	38	33	25	22	16	<15	<15	<15	<15	<15	<15	<15	<15	<15			
	Vc	1552	1143	912	755	602	562	536	500	445	433	370	355	319	294	248		
700	Pv	0.150	0.082	0.052	0.036	0.029	0.020	0.018	0.016	0.012	0.012	0.009	0.008	0.006	0.005	0.004		
	Ps	0.310	0.210	0.110	0.080	0.060	0.042	0.038	0.032	0.025	0.024	0.017	0.016	0.012	0.011	0.007		
	NC	41	37	31	29	21	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15		
	Vc	1773	1307	1042	863	773	642	612	571	509	494	423	405	364	336	284	239	
	Pv	0.196	0.106	0.068	0.046	0.037	0.026	0.023	0.020	0.016	0.015	0.011	0.010	0.008	0.007	0.005	0.004	
800	Ps	0.410	0.208	0.140	0.110	0.080	0.050	0.040	0.043	0.033	0.031	0.022	0.020	0.016	0.014	0.009	0.007	
	NC	45	40	35	32	25	15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	
	Vc	1470	1315	1172	971	870	723	689	642	573	556	476	456	410	378	319	269	
	Pv	0.135	0.108	0.086	0.059	0.047	0.033	0.030	0.030	0.026	0.020	0.019	0.014	0.010	0.009	0.006	0.004	
	Ps	0.350	0.210	0.190	0.140	0.100	0.060	0.060	0.060	0.046	0.036	0.033	0.024	0.021	0.014	0.009	0.006	
1000	NC	45	40	38	36	31	20	16	<15	<15	<15	<15	<15	<15	<15	<15	<15	
	Vc	1461	1302	1042	863	773	642	612	571	509	494	423	405	364	336	284	239	
	Pv	0.133	0.106	0.073	0.058	0.046	0.040	0.037	0.032	0.025	0.024	0.017	0.016	0.013	0.011	0.008	0.006	
	Ps	0.260	0.230	0.170	0.120	0.090	0.070	0.070	0.070	0.050	0.040	0.037	0.026	0.023	0.018	0.015	0.010	0.007
	NC	44	43	40	36	30	26	22	16	<15	<15	<15	<15	<15	<15	<15	<15	
1200	Vc	1563	1294	1160	1033	918	764	742	635	608	547	504	425	358				
	Pv	0.152	0.104	0.084	0.066	0.053	0.036	0.034	0.046	0.036	0.034	0.025	0.023	0.019	0.016	0.011	0.008	
	Ps	0.330	0.250	0.170	0.130	0.100	0.060	0.060	0.080	0.060	0.050	0.038	0.034	0.026	0.021	0.014	0.009	
	NC	48	45	39	35	30	27	21	15	18	15	<15	<15	<15	<15	<15	<15	





REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

CFM	SIZE	12 X 6	18 X 6	20 X 6	24 X 6	30 X 6	24 X 8	20 X 10	36 X 6	30 X 8	42 X 6	36 X 8	30 X 10	42 X 8	36 X 10	42 X 10	30 X 12	36 X 12	42 X 12
		0.451	0.612	0.684	0.768	0.927	1.034	1.162	1.246	1.307	1.401	1.572	1.618	1.890	1.973	2.196	2.379	2.821	3.351
1400	Ac																		
	Vc																		
	Pv																		
	Ps																		
1600	NC																		
	Vc																		
	Pv																		
	Ps																		
1800	NC																		
	Vc																		
	Pv																		
	Ps																		
2000	NC																		
	Vc																		
	Pv																		
	Ps																		
2400	NC																		
	Vc																		
	Pv																		
	Ps																		
2800	NC																		
	Vc																		
	Pv																		
	Ps																		
3200	NC																		
	Vc																		
	Pv																		
	Ps																		





REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

SAR, SAG, RAR, RAG

*IMPERIAL UNITS

CFM	SIZE		12 X 6	12 X 8	18 X 6	20 X 6	24 X 6	24 X 8	30 X 6	30 X 8	36 X 6	36 X 8	42 X 6	42 X 8	42 X 10	36 X 10	30 X 10	30 X 12	36 X 12	42 X 12	
	Ac	Vc	0.451	0.612	0.684	0.768	0.927	1.034	1.162	1.246	1.307	1.401	1.572	1.618	1.890	1.973	2.196	2.379	2.821	3.351	
3600	Vc																				
	Pv																				
	Ps																				
	NC																				
4000	Vc																				
	Pv																				
	Ps																				
	NC																				
4400	Vc																				
	Pv																				
	Ps																				
	NC																				
4800	Vc																				
	Pv																				
	Ps																				
	NC																				

SYMBOLS:

CFM : Air volume in Cubic Foot Per Minute

Ac : Core Area in square foot

Vc : Core Velocity in foot per minute

Pv : Velocity Pressure in inch water gauge

Ps : Negative Static Pressure in inch water gauge

NC : Noise Criteria

CONDITIONS

* Return

* Damper is fully open.

* Noise Criteria is based on (10-dB) room attenuation.





PERFORATED REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

PAG,PAR

*SI UNITS

L/S	SIZE	300 x 100	500 x 150	600 x 150	750 x 150											
		150 x 150	200 x 150	250 x 150	200 x 200	300 x 250	450 x 200	450 x 250	600 x 200	750 x 200	900 x 200	750 x 250	450 x 450	750 x 300	525 x 525	600 x 600
	Ac	0.020	0.027	0.035	0.037	0.071	0.086	0.108	0.116	0.146	0.176	0.183	0.200	0.222	0.274	0.359
94	Vc	4.67	3.47	2.72	2.53	1.32	1.10	0.87	0.81							
	Pv	1.419	0.768	0.464	0.400	0.104	0.070	0.044	0.038							
	Ps	10.480	5.804	3.572	3.095	0.847	0.581	0.370	0.319							
	NC	37	28	22	21	11	9	7	7							
118	Vc		4.34	3.40	3.17	1.65	1.37	1.09	1.02	0.81						
	Pv		1.220	0.737	0.635	0.165	0.112	0.070	0.060	0.037						
	Ps		9.062	5.578	4.833	1.322	0.907	0.578	0.499	0.316						
	NC		34	27	25	14	11	9	9	7						
142	Vc		5.21	4.08	3.80	1.98	1.64	1.31	1.22	0.97	0.81					
	Pv		1.781	1.076	0.927	0.241	0.163	0.102	0.088	0.055	0.037					
	Ps		13.042	8.027	6.955	1.902	1.306	0.831	0.718	0.455	0.315					
	NC		41	32	30	16	14	11	10	8	7					
165	Vc		6.07	4.76	4.43	2.32	1.92	1.53	1.42	1.13	0.94					
	Pv		2.451	1.481	1.276	0.332	0.225	0.140	0.121	0.075	0.051					
	Ps		17.743	10.921	9.462	2.588	1.776	1.131	0.976	0.619	0.428					
	NC		47	38	35	19	16	13	12	10	8					
189	Vc			5.44	5.07	2.65	2.19	1.75	1.62	1.29	1.08	1.03				
	Pv			1.953	1.683	0.438	0.296	0.185	0.159	0.099	0.068	0.062				
	Ps			14.257	12.354	3.379	2.319	1.476	1.274	0.808	0.559	0.513				
	NC			43	40	21	18	14	13	11	9	9				
212	Vc			6.12	5.70	2.98	2.47	1.97	1.83	1.45	1.21	1.16				
	Pv			2.494	2.149	0.559	0.378	0.237	0.203	0.127	0.086	0.079				
	Ps			18.038	15.629	4.275	2.934	1.868	1.612	1.023	0.707	0.649				
	NC			48	45	24	20	16	15	12	10	10				
236	Vc				6.33	3.31	2.74	2.19	2.03	1.62	1.34	1.29				
	Pv				2.673	0.696	0.470	0.294	0.253	0.157	0.107	0.098				
	Ps				19.289	5.276	3.621	2.305	1.990	1.262	0.873	0.801				
	NC				49	27	22	18	17	13	11	11				
260	Vc				6.97	3.64	3.01	2.40	2.23	1.78	1.48	1.42	1.30			
	Pv				3.258	0.848	0.573	0.359	0.308	0.192	0.131	0.120	0.100			
	Ps				23.332	6.382	4.380	2.789	2.407	1.527	1.056	0.969	0.816			
	NC				54	29	24	20	18	15	12	12	11			
283	Vc				7.60	3.97	3.29	2.62	2.44	1.94	1.61	1.54	1.42	1.28		
	Pv				3.902	1.015	0.687	0.430	0.369	0.230	0.157	0.143	0.120	0.097		
	Ps				27.760	7.593	5.211	3.318	2.864	1.816	1.257	1.153	0.970	0.790		
	NC				59	32	26	21	20	16	13	13	12	11		
330	Vc					4.63	3.84	3.06	2.84	2.26	1.88	1.80	1.65	1.49		
	Pv					1.398	0.945	0.591	0.508	0.316	0.216	0.197	0.165	0.133		
	Ps					10.329	7.089	4.514	3.896	2.471	1.709	1.568	1.320	1.075		
	NC					37	31	25	23	18	15	15	14	12		
378	Vc					5.29	4.38	3.50	3.25	2.59	2.15	2.06	1.89	1.70	1.38	
	Pv					1.843	1.247	0.780	0.670	0.417	0.285	0.260	0.218	0.176	0.113	
	Ps					13.485	9.255	5.893	5.086	3.226	2.232	2.048	1.724	1.403	0.919	
	NC					42	35	28	26	21	18	17	16	14	11	





PERFORATED REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

PAG, PAR

*SI UNITS

L/S	SIZE	300 x 100		500 x 150		600 x 150		750 x 150		900 x 200		750 x 200		600 x 200		450 x 200		
		150 x 150	200 x 150	250 x 150	300 x 250	300 x 250	450 x 250	450 x 250	600 x 200	750 x 200	900 x 200	600 x 250	750 x 250	450 x 450	750 x 300	525 x 525	600 x 600	
		Ac	0.020	0.027	0.035	0.037	0.071	0.086	0.108	0.116	0.146	0.176	0.183	0.200	0.222	0.274	0.359	
425	Vc					5.95	4.93	3.93	3.65	2.91	2.42	2.32	2.13	1.92	1.55			
	Pv					2.354	1.592	0.996	0.855	0.533	0.363	0.332	0.278	0.224	0.145			
	Ps					17.061	11.709	7.455	6.435	4.082	2.824	2.590	2.181	1.775	1.163			
	NC					47	39	31	29	23	20	19	17	16	13			
472	Vc						5.48	4.37	4.06	3.23	2.69	2.57	2.36	2.13	1.72	1.31		
	Pv						1.981	1.239	1.064	0.663	0.452	0.413	0.346	0.279	0.180	0.102		
	Ps						14.451	9.201	7.942	5.037	3.485	3.197	2.691	2.191	1.435	0.834		
	NC						43	35	32	26	22	21	19	17	14	11		
566	Vc						6.58	5.25	4.87	3.88	3.23	3.09	2.83	2.56	2.07	1.58		
	Pv						2.891	1.809	1.552	0.968	0.660	0.603	0.505	0.408	0.263	0.149		
	Ps						20.798	13.242	11.430	7.250	5.015	4.601	3.873	3.153	2.066	1.200		
	NC						51	41	38	31	26	25	23	21	17	13		
661	Vc							6.12	5.68	4.53	3.76	3.60	3.31	2.98	2.41	1.84		
	Pv							2.490	2.137	1.332	0.908	0.831	0.695	0.561	0.362	0.206		
	Ps							18.015	15.549	9.863	6.823	6.259	5.269	4.290	2.810	1.633		
	NC							48	45	36	30	29	27	24	20	15		
755	Vc							6.99	6.50	5.17	4.30	4.12	3.78	3.41	2.76	2.10		
	Pv							3.285	2.819	1.757	1.198	1.096	0.916	0.740	0.477	0.271		
	Ps							23.519	20.301	12.877	8.907	8.172	6.879	5.600	3.669	2.132		
	NC							54	51	41	34	33	30	27	22	17		
849	Vc								7.31	5.82	4.84	4.63	4.25	3.83	3.10	2.36		
	Pv								3.599	2.243	1.530	1.399	1.170	0.945	0.609	0.346		
	Ps								25.683	16.291	11.269	10.339	8.703	7.085	4.642	2.697		
	NC								57	46	38	37	34	31	25	19		
944	Vc									6.47	5.38	5.15	4.72	4.26	3.45	2.63		
	Pv									2.791	1.903	1.741	1.455	1.176	0.758	0.431		
	Ps									20.105	13.908	12.760	10.741	8.745	5.729	3.329		
	NC									50	42	41	37	34	28	21		
1133	Vc										6.45	6.18	5.67	5.11	4.14	3.15		
	Pv										2.778	2.540	2.124	1.716	1.106	0.629		
	Ps										20.016	18.363	15.458	12.585	8.245	4.790		
	NC										50	48	44	40	33	25		

SYMBOLS:

- L/S : Air volume in Litre per second
- A_c : Core Area in square meter
- V_c : Core Velocity in meter per second
- P_v : Velocity Pressure in mm water gauge
- P_s : Negative Static Pressure in mm water gauge
- NC : Noise Criteria

CONDITIONS

- * Return
- * Damper is fully open.
- * Noise Criteria is based on (10-dB) room attenuation.





PERFORATED REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

PAG, PAR

*IMPERIAL UNITS

CFM	SIZE	12 x 4				20 x 6	24 x 6	30 x 6								
		6 x 6	8 x 6	10 x 6			18 x 8		24 x 8	30 x 8	36 x 8					
					8 x 8	12 x 10		18 x 10		24 x 10		30 x 10				
	Ac	0.218	0.293	0.373	0.401	0.768	0.927	1.162	1.251	1.571	1.890	1.973	2.151	2.384	2.947	3.868
200	Vc	918	683	536	499	260	216	172	160							
	Pv	0.056	0.030	0.018	0.016	0.004	0.003	0.002	0.001							
	Ps	0.413	0.228	0.141	0.122	0.033	0.023	0.015	0.013							
	NC	37	28	22	21	11	9	7	7							
250	Vc		854	670	623	326	270	215	200	159						
	Pv		0.048	0.029	0.025	0.007	0.004	0.003	0.002	0.001						
	Ps		0.357	0.220	0.190	0.052	0.036	0.023	0.020	0.012						
	NC		34	27	25	14	11	9	9	7						
300	Vc		1025	804	748	391	324	258	240	191	159					
	Pv		0.070	0.042	0.036	0.009	0.006	0.004	0.003	0.002	0.001					
	Ps		0.513	0.316	0.274	0.075	0.051	0.033	0.028	0.018	0.012					
	NC		41	32	30	16	14	11	10	8	7					
350	Vc		1195	938	873	456	378	301	280	223	185					
	Pv		0.097	0.058	0.050	0.013	0.009	0.006	0.005	0.003	0.002					
	Ps		0.699	0.430	0.373	0.102	0.070	0.045	0.038	0.024	0.017					
	NC		47	38	35	19	16	13	12	10	8					
400	Vc			1071	997	521	431	344	320	255	212	203				
	Pv			0.077	0.066	0.017	0.012	0.007	0.006	0.004	0.003	0.002				
	Ps			0.561	0.486	0.133	0.091	0.058	0.050	0.032	0.022	0.020				
	NC			43	40	21	18	14	13	11	9	9				
450	Vc			1205	1122	586	485	387	360	286	238	228				
	Pv			0.098	0.085	0.022	0.015	0.009	0.008	0.005	0.003	0.003				
	Ps			0.710	0.615	0.168	0.116	0.074	0.063	0.040	0.028	0.026				
	NC			48	45	24	20	16	15	12	10	10				
500	Vc				1247	651	539	430	400	318	265	253				
	Pv				0.105	0.027	0.019	0.012	0.010	0.006	0.004	0.004				
	Ps				0.759	0.208	0.143	0.091	0.078	0.050	0.034	0.032				
	NC				49	27	22	18	17	13	11	11				
550	Vc				1371	716	593	473	440	350	291	279	256			
	Pv				0.128	0.033	0.023	0.014	0.012	0.008	0.005	0.005	0.004			
	Ps				0.919	0.251	0.172	0.110	0.095	0.060	0.042	0.038	0.032			
	NC				54	29	24	20	18	15	12	12	11			
600	Vc				1496	781	647	516	480	382	317	304	279	252		
	Pv				0.154	0.040	0.027	0.017	0.015	0.009	0.006	0.006	0.005	0.004		
	Ps				1.093	0.299	0.205	0.131	0.113	0.072	0.049	0.045	0.038	0.031		
	NC				59	32	26	21	20	16	13	13	12	11		
700	Vc					912	755	602	560	445	370	355	325	294		
	Pv					0.055	0.037	0.023	0.020	0.012	0.008	0.008	0.006	0.005		
	Ps					0.407	0.279	0.178	0.153	0.097	0.067	0.062	0.052	0.042		
	NC					37	31	25	23	18	15	15	14	12		
800	Vc					1042	863	688	639	509	423	405	372	336	271	
	Pv					0.073	0.049	0.031	0.026	0.016	0.011	0.010	0.009	0.007	0.004	
	Ps					0.531	0.364	0.232	0.200	0.127	0.088	0.081	0.068	0.055	0.036	
	NC					42	35	28	26	21	18	17	16	14	11	





PERFORATED REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

PAR,PAG

***IMPERIAL UNITS**

CFM	SIZE	12 x 4				20 x 6	24 x 6	30 x 6								
		6 x 6	8 x 6	10 x 6			18 x 8		24 x 8	30 x 8	36 x 8					
					8 x 8	12 x 10		18 x 10		24 x 10		30 x 10				
	Ac	0.218	0.293	0.373	0.401	0.768	0.927	1.162	1.251	1.571	1.890	1.973	2.151	2.384	2.947	3.868
900	Vc					1172	971	774	719	573	476	456	418	377	305	
	Pv					0.093	0.063	0.039	0.034	0.021	0.014	0.013	0.011	0.009	0.006	
	Ps					0.672	0.461	0.294	0.253	0.161	0.111	0.102	0.086	0.070	0.046	
	NC					47	39	31	29	23	20	19	17	16	13	
1000	Vc						1079	860	799	636	529	507	465	419	339	259
	Pv						0.078	0.049	0.042	0.026	0.018	0.016	0.014	0.011	0.007	0.004
	Ps						0.569	0.362	0.313	0.198	0.137	0.126	0.106	0.086	0.057	0.033
	NC						43	35	32	26	22	21	19	17	14	11
1200	Vc						1294	1033	959	764	635	608	558	503	407	310
	Pv						0.114	0.071	0.061	0.038	0.026	0.024	0.020	0.016	0.010	0.006
	Ps						0.819	0.521	0.450	0.285	0.197	0.181	0.152	0.124	0.081	0.047
	NC						51	41	38	31	26	25	23	21	17	13
1400	Vc							1205	1119	891	741	709	651	587	475	362
	Pv							0.098	0.084	0.052	0.036	0.033	0.027	0.022	0.014	0.008
	Ps							0.709	0.612	0.388	0.269	0.246	0.207	0.169	0.111	0.064
	NC							48	45	36	30	29	27	24	20	15
1600	Vc							1377	1279	1018	847	811	744	671	543	414
	Pv							0.129	0.111	0.069	0.047	0.043	0.036	0.029	0.019	0.011
	Ps							0.926	0.799	0.507	0.351	0.322	0.271	0.220	0.144	0.084
	NC							54	51	41	34	33	30	27	22	17
1800	Vc								1439	1145	952	912	837	755	611	465
	Pv								0.142	0.088	0.060	0.055	0.046	0.037	0.024	0.014
	Ps								1.011	0.641	0.444	0.407	0.343	0.279	0.183	0.106
	NC								57	46	38	37	34	31	25	19
2000	Vc									1273	1058	1014	930	839	679	517
	Pv									0.110	0.075	0.069	0.057	0.046	0.030	0.017
	Ps									0.792	0.548	0.502	0.423	0.344	0.226	0.131
	NC									50	42	41	37	34	28	21
2400	Vc										1270	1216	1116	1007	814	621
	Pv										0.109	0.100	0.084	0.068	0.044	0.025
	Ps										0.788	0.723	0.609	0.495	0.325	0.189
	NC										50	48	44	40	33	25

SYMBOLS:

- CFM** : Air volume in Cubic Feet Per Minute
- A_c** : Core Area in square foot
- V_c** : Core Velocity in foot per minute
- P_v** : Velocity Pressure in inches water gauge
- P_s** : Negative Static Pressure in inches water gauge
- NC** : Noise Criteria

CONDITIONS

- * Return
- * Damper is fully open.
- * Noise Criteria is based on (10-dB) room attenuation.





EGG CRATE REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

ECR, ECG

*SI UNITS

L/S	SIZE	300 x 100	300 x 150	300 x 200	300 x 250	300 x 300	500 x 150	500 x 200	500 x 250	500 x 300	600 x 150	600 x 200	600 x 250	600 x 300	750 x 150	750 x 200	750 x 250	750 x 300	900 x 200	900 x 250	900 x 300	900 x 350	900 x 400	900 x 450	900 x 500	900 x 550	900 x 600			
		150 x 150	200 x 150	250 x 150	300 x 200	300 x 250	300 x 300	450 x 200	450 x 250	450 x 300	600 x 200	600 x 250	600 x 300	750 x 200	750 x 250	750 x 300	750 x 350	750 x 400	750 x 450	900 x 200	900 x 250	900 x 300	900 x 350	900 x 400	900 x 450	900 x 500	900 x 550	900 x 600		
Ac		0.020	0.027	0.035	0.037	0.071	0.086	0.108	0.116	0.146	0.176	0.183	0.200	0.222	0.274	0.359														
94	Vc	4.7	3.5	2.7	2.5	1.3	1.1	0.9	0.8																					
	Pv	1.423	0.783	0.491	0.426	0.118	0.082	0.052	0.045																					
	Ps	2.871	1.568	0.955	0.824	0.219	0.149	0.094	0.081																					
	NC	29	21	16	15	<15	<15	<15	<15																					
118	Vc		4.3	3.4	3.2	1.7	1.4	1.1	1.0	0.8																				
	Pv		1.232	0.763	0.662	0.184	0.127	0.081	0.070	0.045																				
	Ps		2.474	1.506	1.300	0.345	0.235	0.148	0.127	0.080																				
	NC		27	21	19	<15	<15	<15	<15	<15																				
142	Vc		5.2	4.1	3.8	2.0	1.6	1.3	1.2	1.0	0.8																			
	Pv		1.766	1.093	0.949	0.264	0.182	0.116	0.101	0.064	0.045																			
	Ps		3.591	2.185	1.887	0.501	0.341	0.215	0.185	0.116	0.080																			
	NC		33	25	23	<15	<15	<15	<15	<15	<15																			
165	Vc		6.1	4.8	4.4	2.3	1.9	1.5	1.4	1.1	0.9																			
	Pv		2.393	1.482	1.286	0.357	0.246	0.158	0.136	0.087	0.060																			
	Ps		39	2.994	2.586	0.686	0.467	0.294	0.253	0.159	0.109																			
	NC			30	28	<15	<15	<15	<15	<15	<15																			
189	Vc			5.4	5.1	2.6	2.2	1.7	1.6	1.3	1.1	1.0																		
	Pv			1.928	1.674	0.465	0.321	0.205	0.177	0.113	0.079	0.072																		
	Ps			3.933	3.397	0.902	0.613	0.387	0.333	0.209	0.143	0.131																		
	NC			35	32	16	<15	<15	<15	<15	<15	<15																		
212	Vc			6.1	5.7	3.0	2.5	2.0	1.8	1.5	1.2	1.2																		
	Pv			2.432	2.111	0.587	0.404	0.259	0.224	0.143	0.099	0.091																		
	Ps			5.003	4.321	1.147	0.780	0.492	0.423	0.265	0.182	0.167																		
	NC			39	36	18	15	<15	<15	<15	<15	<15																		
236	Vc				6.3	3.3	2.7	2.2	2.0	1.6	1.3	1.3																		
	Pv				2.599	0.722	0.498	0.319	0.276	0.176	0.122	0.112																		
	Ps				5.359	1.422	0.968	0.610	0.525	0.329	0.226	0.207																		
	NC				41	20	17	<15	<15	<15	<15	<15																		
260	Vc				7.0	3.6	3.0	2.4	2.2	1.8	1.5	1.4	1.3																	
	Pv				3.137	0.871	0.601	0.385	0.333	0.212	0.147	0.135	0.114																	
	Ps				6.510	1.728	1.176	0.741	0.637	0.400	0.274	0.251	0.211																	
	NC				45	22	18	<15	<15	<15	<15	<15	<15																	
283	Vc				7.6	4.0	3.3	2.6	2.4	1.9	1.6	1.5	1.4	1.3																
	Pv				3.724	1.035	0.713	0.457	0.395	0.252	0.175	0.161	0.136	0.111																
	Ps				7.777	2.064	1.405	0.885	0.761	0.478	0.328	0.300	0.252	0.204																
	NC				49	25	20	16	15	<15	<15	<15	<15	7																
330	Vc					4.6	3.8	3.1	2.8	2.3	1.9	1.8	1.7	1.5																
	Pv					1.402	0.967	0.619	0.535	0.341	0.237	0.218	0.184	0.150																
	Ps					2.828	1.924	1.213	1.043	0.655	0.449	0.411	0.345	0.279																
	NC					29	24	19	17	<15	<15	<15	<15	<15																
378	Vc					5.3	4.4	3.5	3.2	2.6	2.2	2.1	1.9	1.7	1.4															
	Pv					1.825	1.258	0.805	0.696	0.444	0.309	0.283	0.239	0.195	0.129															
	Ps					3.716	2.528	1.593	1.370	0.860	0.590	0.540	0.453	0.367	0.238															
	NC					34	27	21	20	16	<15	<15	<15	<15	<15															





EGG CRATE REGISTERS & GRILLES

PERFORMANCE DATA - SUPPLY

ECR, ECG

*SI UNITS

L/S	SIZE	300 x 100		500 x 150		600 x 150		750 x 150		900 x 200		1200 x 250		1500 x 300		1800 x 300	
		150 x 150	200 x 150	250 x 150	300 x 200	300 x 250	450 x 200	450 x 250	600 x 200	750 x 200	600 x 250	750 x 250	450 x 450	750 x 300	525 x 525	600 x 600	
		Ac	0.020	0.027	0.035	0.037	0.071	0.086	0.108	0.116	0.146	0.176	0.183	0.200	0.222	0.274	0.359
		Vc					6.0	4.9	3.9	3.7	2.9	2.4	2.3	2.1	1.9	1.6	
425	Pv					2.302	1.587	1.016	0.879	0.560	0.389	0.358	0.302	0.246	0.162		
	Ps					4.726	3.216	2.026	1.743	1.094	0.750	0.687	0.576	0.467	0.303		
	NC					38	31	24	23	18	<15	<15	<15	<15	<15		
	Vc						5.5	4.4	4.1	3.2	2.7	2.6	2.4	2.1	1.7	1.3	
472	Pv						1.954	1.251	1.082	0.690	0.479	0.440	0.371	0.303	0.200	0.117	
	Ps						3.988	2.513	2.162	1.357	0.931	0.852	0.714	0.579	0.376	0.215	
	NC						35	27	25	20	16	15	<15	<15	<15	<15	
	Vc						6.6	5.2	4.9	3.9	3.2	3.1	2.8	2.6	2.1	1.6	
566	Pv						2.800	1.792	1.550	0.988	0.687	0.631	0.532	0.434	0.286	0.167	
	Ps						5.788	3.647	3.137	1.969	1.351	1.237	1.037	0.840	0.545	0.313	
	NC						42	33	31	24	20	19	17	15	<15	<15	
	Vc						6.1	5.7	4.5	3.8	3.6	3.3	3.0	2.4	1.8		
661	Pv						2.429	2.101	1.340	0.931	0.855	0.721	0.589	0.388	0.227		
	Ps						4.997	4.298	2.698	1.850	1.694	1.421	1.151	0.747	0.428		
	NC						39	36	28	23	22	20	18	<15	<15		
	Vc						7.0	6.5	5.2	4.3	4.1	3.8	3.4	2.8	2.1		
755	Pv						3.162	2.734	1.744	1.211	1.113	0.939	0.766	0.504	0.295		
	Ps						6.564	5.646	3.544	2.431	2.226	1.866	1.512	0.981	0.563		
	NC						45	42	33	27	26	23	21	17	<15		
	Vc						7.3	5.8	4.8	4.6	4.3	3.8	3.1	2.4			
849	Pv						3.449	2.200	1.528	1.404	1.184	0.966	0.636	0.372			
	Ps						7.182	4.508	3.092	2.831	2.374	1.923	1.248	0.716			
	NC						47	37	30	29	26	24	19	<15			
	Vc						6.5	5.4	5.1	4.7	4.3	3.4	2.6				
944	Pv						2.708	1.881	1.728	1.458	1.190	0.783	0.458				
	Ps						5.591	3.835	3.511	2.944	2.385	1.547	0.888				
	NC						42	34	33	30	27	21	16				
	Vc						6.5	6.2	5.7	5.1	4.1	3.2					
1133	Pv						2.696	2.476	2.088	1.704	1.122	0.656					
	Ps						5.565	5.096	4.272	3.462	2.246	1.289					
	NC						41	40	36	32	26	19					
	Vc						6.5	6.2	5.7	5.1	4.1	3.2					

SYMBOLS:

- L/S : Air volume in Litre per second
- A_c : Core Area in square meter
- V_c : Core Velocity in meter per second
- P_v : Velocity Pressure in mm water gauge
- P_s : Negative Static Pressure in mm water gauge
- NC : Noise Criteria

CONDITIONS

- * Return
- * Damper is fully open.
- * Noise Criteria is based on (10-dB) room attenuation.





EGG CRATE REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

ECR, ECG

*IMPERIAL UNITS

CFM	SIZE	12 x 4				20 x 6	24 x 6	30 x 6									
		6 x 6	8 x 6	10 x 6			18 x 8		24 x 8	30 x 8	36 x 8						
					8 x 8	12 x 10		18 x 10		24 x 10		30 x 10					
							12 x 12		16 x 12	20 x 12	24 x 12		18 x 18	30 x 12	21 x 21	24 x 24	
	Ac	0.218	0.293	0.373	0.401	0.768	0.927	1.162	1.251	1.571	1.890	1.973	2.151	2.384	2.947	3.868	
200	Vc	918	683	536	499	260	216	172	160								
	Pv	0.056	0.031	0.019	0.017	0.005	0.003	0.002	0.002								
	Ps	0.113	0.062	0.038	0.032	0.009	0.006	0.004	0.003								
	NC	29	21	16	15	<15	<15	<15	<15								
250	Vc		854	670	623	326	270	215	200	159							
	Pv		0.049	0.030	0.026	0.007	0.005	0.003	0.003	0.002							
	Ps		0.097	0.059	0.051	0.014	0.009	0.006	0.005	0.003							
	NC		27	21	19	<15	<15	<15	<15	<15							
300	Vc		1025	804	748	391	324	258	240	191	159						
	Pv		0.070	0.043	0.037	0.010	0.007	0.005	0.004	0.003	0.002						
	Ps		0.141	0.086	0.074	0.020	0.013	0.008	0.007	0.005	0.003						
	NC		33	25	23	<15	<15	<15	<15	<15	<15						
350	Vc		1195	938	873	456	378	301	280	223	185						
	Pv		0.094	0.058	0.051	0.014	0.010	0.006	0.005	0.003	0.002						
	Ps		0.194	0.118	0.102	0.027	0.018	0.012	0.010	0.006	0.004						
	NC		39	30	28	<15	<15	<15	<15	<15	<15						
400	Vc			1071	997	521	431	344	320	255	212	203					
	Pv			0.076	0.066	0.018	0.013	0.008	0.007	0.004	0.003	0.003					
	Ps			0.155	0.134	0.035	0.024	0.015	0.013	0.008	0.006	0.005					
	NC			35	32	16	<15	<15	<15	<15	<15	<15					
450	Vc			1205	1122	586	485	387	360	286	238	228					
	Pv			0.096	0.083	0.023	0.016	0.010	0.009	0.006	0.004	0.004					
	Ps			0.197	0.170	0.045	0.031	0.019	0.017	0.010	0.007	0.007					
	NC			39	36	18	15	<15	<15	<15	<15	<15					
500	Vc				1247	651	539	430	400	318	265	253					
	Pv				0.102	0.028	0.020	0.013	0.011	0.007	0.005	0.004					
	Ps				0.211	0.056	0.038	0.024	0.021	0.013	0.009	0.008					
	NC				41	20	17	<15	<15	<15	<15	<15					
550	Vc				1371	716	593	473	440	350	291	279	256				
	Pv				0.123	0.034	0.024	0.015	0.013	0.008	0.006	0.005	0.004				
	Ps				0.256	0.068	0.046	0.029	0.025	0.016	0.011	0.010	0.008				
	NC				45	22	18	<15	<15	<15	<15	<15	<15				
600	Vc				1496	781	647	516	480	382	317	304	279	252			
	Pv				0.147	0.041	0.028	0.018	0.016	0.010	0.007	0.006	0.005	0.004			
	Ps				0.306	0.081	0.055	0.035	0.030	0.019	0.013	0.012	0.010	0.008			
	NC				49	25	20	16	15	<15	<15	<15	<15	7			
700	Vc					912	755	602	560	445	370	355	325	294			
	Pv					0.055	0.038	0.024	0.021	0.013	0.009	0.009	0.007	0.006			
	Ps					0.111	0.076	0.048	0.041	0.026	0.018	0.016	0.014	0.011			
	NC					29	24	19	17	<15	<15	<15	<15	<15			
800	Vc					1042	863	688	639	509	423	405	372	336	271		
	Pv					0.072	0.050	0.032	0.027	0.017	0.012	0.011	0.009	0.008	0.005		
	Ps					0.146	0.100	0.063	0.054	0.034	0.023	0.021	0.018	0.014	0.009		
	NC					34	27	21	20	16	<15	<15	<15	<15	<15		





EGG CRATE REGISTERS & GRILLES

PERFORMANCE DATA - RETURN

ECR, ECG

*IMPERIAL UNITS

CFM	SIZE	12 x 4		20 x 6		24 x 6		30 x 6		30 x 8		36 x 8		30 x 10		18 x 18		30 x 12		21 x 21		24 x 24	
		6 x 6	8 x 6	10 x 6	8 x 8	12 x 10	18 x 8	18 x 10	16 x 12	20 x 12	24 x 12	18 x 18	30 x 12	21 x 21	24 x 24								
	Ac	0.218	0.293	0.373	0.401	0.768	0.927	1.162	1.251	1.571	1.890	1.973	2.151	2.384	2.947	3.868							
900	Vc					1172	971	774	719	573	476	456	418	377	305								
	Pv					0.091	0.062	0.040	0.035	0.022	0.015	0.014	0.012	0.010	0.006								
	Ps					0.186	0.127	0.080	0.069	0.043	0.030	0.027	0.023	0.018	0.012								
	NC					38	31	24	23	18	<15	<15	<15	<15	<15								
1000	Vc						1079	860	799	636	529	507	465	419	339	259							
	Pv						0.077	0.049	0.043	0.027	0.019	0.017	0.015	0.012	0.008	0.005							
	Ps						0.157	0.099	0.085	0.053	0.037	0.034	0.028	0.023	0.015	0.008							
	NC						35	27	25	20	16	15	<15	<15	<15	<15							
1200	Vc						1294	1033	959	764	635	608	558	503	407	310							
	Pv						0.110	0.071	0.061	0.039	0.027	0.025	0.021	0.017	0.011	0.007							
	Ps						0.228	0.144	0.124	0.078	0.053	0.049	0.041	0.033	0.021	0.012							
	NC						42	33	31	24	20	19	17	15	<15	<15							
1400	Vc							1205	1119	891	741	709	651	587	475	362							
	Pv							0.096	0.083	0.053	0.037	0.034	0.028	0.023	0.015	0.009							
	Ps							0.197	0.169	0.106	0.073	0.067	0.056	0.045	0.029	0.017							
	NC							39	36	28	23	22	20	18	<15	<15							
1600	Vc							1377	1279	1018	847	811	744	671	543	414							
	Pv							0.124	0.108	0.069	0.048	0.044	0.037	0.030	0.020	0.012							
	Ps							0.258	0.222	0.140	0.096	0.088	0.073	0.060	0.039	0.022							
	NC							45	42	33	27	26	23	21	17	<15							
1800	Vc								1439	1145	952	912	837	755	611	465							
	Pv								0.136	0.087	0.060	0.055	0.047	0.038	0.025	0.015							
	Ps								0.283	0.177	0.122	0.111	0.093	0.076	0.049	0.028							
	NC								47	37	30	29	26	24	19	<15							
2000	Vc									1273	1058	1014	930	839	679	517							
	Pv									0.107	0.074	0.068	0.057	0.047	0.031	0.018							
	Ps									0.220	0.151	0.138	0.116	0.094	0.061	0.035							
	NC									42	34	33	30	27	21	16							
2400	Vc										1270	1216	1116	1007	814	621							
	Pv										0.106	0.097	0.082	0.067	0.044	0.026							
	Ps										0.219	0.201	0.168	0.136	0.088	0.051							
	NC										41	40	36	32	26	19							

SYMBOLS:

- CFM : Air volume in cubic Feet per minute
- A_c : Core Area in foot square
- V_c : Core Velocity in foot per minute
- P_v : Velocity Pressure in inches water gauge
- P_s : Negative Static Pressure in inches water gauge
- NC : Noise Criteria

CONDITIONS

- * Return
- * Damper is fully open.
- * Noise Criteria is based on (10-dB) room attenuation.





DOOR GRILLES PERFORMANCE DATA

DG

*SI UNITS

A _c M ²	NOMINAL SIZE MM	VC M/S	0.508	0.762	1.016	1.27	1.524	1.778	2.032
		PVMMWG	0.015	0.035	0.0625	0.0975	0.14	0.19	0.250
		PSMMWG	0.275	0.65	1.15	1.825	2.6	3.525	4.65
0.02	250x100	L/S	10	15	20	25	30	35	40
		NC	-	-	-	-	-	16	19
0.05	400x150	L/S	26	40	53	66	79	92	106
		NC	-	-	17	24	28	31	35
0.07	500x150,400x200	L/S	35	52	70	87	105	122	140
		NC	-	-	19	25	30	33	36
0.09	700x150,500x200,400x250	L/S	47	70	93	117	140	164	187
		NC	-	15	23	29	32	36	40
0.14	750x200,600x250,500x300,400x350	L/S	69	104	139	173	208	243	277
		NC	-	19	26	31	37	41	44
0.19	800x250,650x300,550x350,500x400	L/S	94	142	189	236	283	330	378
		NC	-	24	31	37	42	46	49
0.23	800x300,700x350,600x400,550x450	L/S	118	177	236	295	354	413	472
		NC	16	27	34	40	44	48	52
0.29	850x350,750x400,650x450,600x500	L/S	145	218	291	363	436	509	581
		NC	19	30	37	43	47	51	55
0.35	850x400,750x450,700x500,600x550	L/S	178	267	356	445	534	623	712
		NC	22	32	40	46	50	54	58
0.40	850x450,800x500,700x550,650x600	L/S	204	306	409	511	613	715	817
		NC	24	34	42	47	52	56	60
0.44	850x500,800x550,700x600,650x650	L/S	224	336	447	559	671	783	895
		NC	24	35	42	48	52	57	62
0.50	850x550,800x600,750x650,700x700	L/S	252	379	505	631	757	884	1010
		NC	26	36	44	50	55	58	63

SYMBOLS:

L/S	: Air volume in litre per second
A _c	: Core Area in meter square
V _c	: Core Velocity in meter per second
NC	: Noise Criteria
P _v	: Velocity Pressure in mm water gauge
P _s	: Static Pressure in mm water gauge





DOOR GRILLES

PERFORMANCE DATA

DG

*IMPERIAL UNITS

A _c FT ²	NOMINAL SIZE INCH	VC FPM	100	150	200	250	300	350	400
		PVIWG	0.0006	0.0014	0.0025	0.0039	0.0056	0.0076	0.010
		PSIWG	0.011	0.026	0.046	0.073	0.104	0.141	0.186
0.21	10 x 4	CFM	21	32	42	53	63	74	84
		NC	-	-	-	-	-	16	19
0.56	16 x 6	CFM	56	84	112	140	168	196	224
		NC	-	-	17	24	28	31	35
0.74	20x6, 6x8	CFM	74	111	148	185	222	259	296
		NC	-	-	19	25	30	33	36
0.99	28x6, 20x8, 16x10	CFM	99	149	198	248	297	347	396
		NC	-	15	23	29	32	36	40
1.47	30x8, 20x12, 24x10, 16x14	CFM	147	221	294	368	441	515	588
		NC	-	19	26	31	37	41	44
2.00	32x10, 26x12, 22x14, 20x16	CFM	200	300	400	500	600	700	800
		NC	-	24	31	37	42	46	49
2.50	32x12, 28x14, 24x16, 22x18	CFM	250	375	500	625	750	875	1000
		NC	16	27	34	40	44	48	52
3.08	34x14, 30x16, 26x18, 24x20	CFM	308	462	616	770	924	1078	1232
		NC	19	30	37	43	47	51	55
3.77	34x16, 30x18, 28x20, 24x22	CFM	377	566	754	943	1131	1320	1508
		NC	22	32	40	46	50	54	58
4.33	34x18, 32x20, 28x22, 26x24	CFM	433	650	866	1083	1299	1516	1732
		NC	24	34	42	47	52	56	60
4.74	34x20, 32x22, 28x24, 26x26	CFM	474	711	948	1185	1422	1659	1896
		NC	24	35	42	48	52	57	62
5.35	34x22, 32x24, 30x26, 28x28	CFM	535	803	1070	1338	1605	1873	2140
		NC	26	36	44	50	55	58	63

SYMBOLS:

- CFM** : Air volume in cubic foot per minute
A_c : Core Area in feet square
V_c : Core Velocity in feet per minute
NC : Noise Criteria
P_v : Velocity Pressure in inches water gauge
P_s : Static Pressure in inches water gauge





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