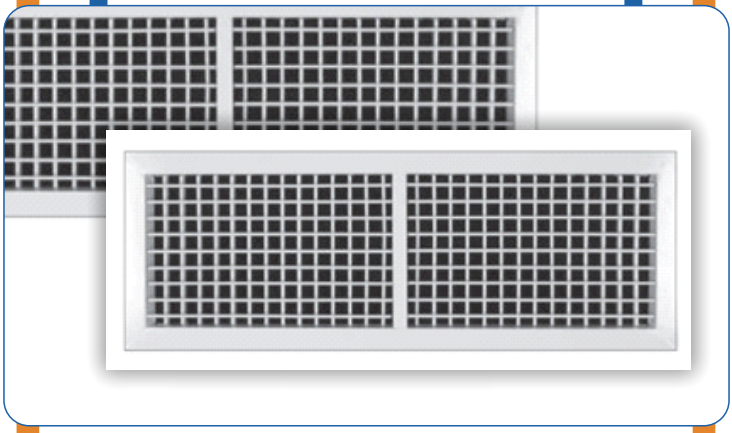
AIR CONTROL INDUSTRY

GRILLES AND REGISTERS



QUALITY ASSURANCE

An ISO 9001:2015 certified company
Product tested and approved by ETL testing laboratories USA

+971 6 5238 186
+971 55 176 5322
sales@aircontrol.ae
www.aircontrol.ae

MADE IN UAE

GRILLES AND REGISTERS

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This type of grille directs the air with help of deflectors to both horizontal and vertical directions. It can be used in commercial and industrial premises and can be used for supply or return air. It is intended for mounting into wall, ceiling, or into window sill and are distinguished by their high construction quality, low pressure drops and contained sound levels.

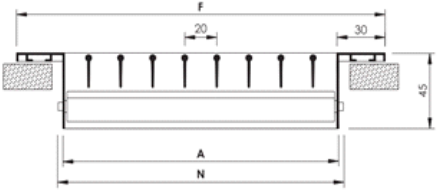
GENERAL DESIGN

- Air Control grille is manufactured from high quality extruded aluminium profile made of 6063 alloy.
- 30 mm frame profile standard, check for other profile sizes.
- Extruded aluminium blades with aerofoil cross section for minimum turbulence.
- The horizontal and vertical vanes are provided with nylon bushes for rattle free operation.
- Counter sunk screw holes accommodate metal screws, heads flush with surface of border.
- Registers have opposed blade dampers for minimum disturbance of air stream.
- Powder coated to standard RAL codes – 9010 (off white) & 9016 (white), ask for other colours.
- Sponge foam gasket provided on request.

AVAILABLE MODELS FOR GRILLES & REGISTERS

1. AC - SAG DDH (STANDARD)

- Without Damper, used for return air.
- Adjustable double set of blades – front horizontal and rear vertical blades (standard).
- Also available in front vertical and rear horizontal blades.
  Model-AC-SAG DDV.
- Also available in single deflection blade, horizontal or vertical blades
  Model-AC-SAG SDH & AC-SAG-SDV.



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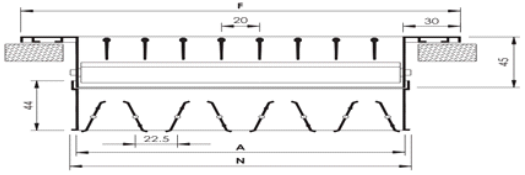
2. AC – SAR DDH (STANDARD)

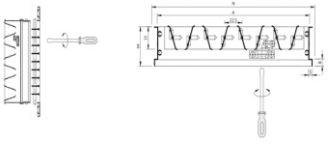
- ► With opposed blade damper (OBD).
- ► Adjustable double set of blades – front horizontal and rear vertical blades (standard).
- ► Also available in front vertical and rear horizontal blades. Model-AC-SAR DDV.
- ► Also available in single deflection blade, horizontal or vertical blades Model-AC-SAR SDH & AC-SAR-SDV.



'OPPOSED BLADE DAMPER' AC – OBD

- ► Frame and Blades are of high quality Extruded Aluminium Profiles construction.
- ► Blades are designed to rotate opposite to each other.
- ► The specially designed blades have an overlapping lip which assures a tight closure.
- ► Generally, the opposed blade damper is attached to the linear bar grille and fixed to it by means of " S "clips.
- ► Blades are separated from its frame by nylon bushes. This method of assembly provides maximum rattle - free performance and eliminates corrosion.
- ► Usually Damper standard surface finish is Aluminium in Mill Finish. Matt black powder coating colour is also available on request (as an option).
- ► The range from full open to full closed position of Damper blades can be eaccessible from the face of the register as shown in the figure.
- ► All dimensions are in mm and subject to 11 mm tolerance.

Screw Type Operation (Standard)



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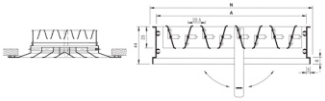
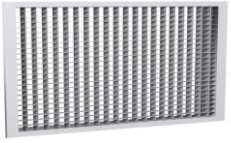
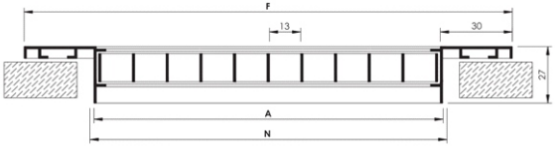
Lever Type Operation (Optional)

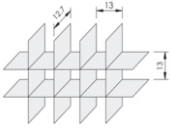


EGG CRATE GRILLE & REGISTERS

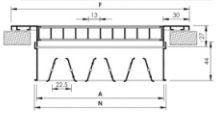
- The egg crate grilles are either ceiling mounted or wall mounted air terminal devices used as exhaust air grilles for domestic and industrial applications.
- The particular design has core of 13x13 mm opening which permits the use of a large free surface area (90% free area) without turbulence.
- It can be mounted either horizontally or vertically.
- Aluminium fixed filter of ½ inch thickness is optional.
- Also available with opposed blade damper (OBD).
- Model – AC-ECG (without damper and filter)
- Model – AC-ECR-F (with damper, with or without filter).



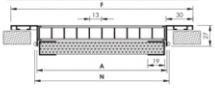




ECG Core



Model – AC-ECR (with OBD)



Model – AC-ECG-F (with filter)

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FIXING DETAILS

1.Concealed clip type fixing for walls only.

2. Visible screw fixing

ENGINEERING & PERFORMANCE DATA

The most important thing in any air conditioning system is that the selection of a Suitable Register or a Grille to ensure satisfactory performance. For this the following charts were given to help you in predicting performance. In making selections, sound Engineering judgement is essential as the permissible drops and noise levels can change greatly with the usage of space, location of obstacles and available clear mounting heights. So, before selection give close attention to the following considerations.

In general, the occupant should not be subjected to velocities above 50 FPM for an extended period of time as the air velocities below 15 FPM leave a feeling of stagnation and velocities above 65 FPM create drafts so these charts are based on a terminal velocity of 50 FPM in determining throw. It is assured that longer throws will be required larger drops are probably satisfactory. In more exacting applications outlets should be sized with shorter throws, smaller drops and lower noise levels.

Upto 800 FPM velometer velocity, the noise caused by the grill itself is negligible. The engineer should consider acoustical insulation, vibration etc, because the vibration through ductwork or fan noise may be transmitted to the zone of occupancy.

Considerable caution must be exercised in selecting and positioning the grille to determine that the air will not drop into the occupied zone. However, it should be also kept in mind that the other extreme of overthrow can cause objectionable down drafts of air along any wall or surface

Generally, prescribed rule is to select a grille that will have a throw of approximately 3/4 of the distance to the opposite wall with its termination at approximately six feet above the floor level as shown in the Fig. 1, below.

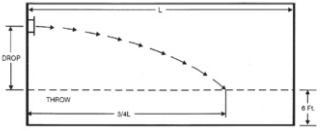


Fig. 1

Blade Deflections

The blade deflections upon which the performance data is based are obtained by the individual adjustment in our supply grilles and registers. Altering the blade settings, noise and total pressure. See Fig.2.

Guidance for Reading Tables

Variable deflection settings to satisfy all air distribution requirements are obtained by individual adjustment of aerofoil blades in our supply grilles and registers.

To obtain long throw and narrow air patterns use 0 and 22½ deflection.

For shorter throw and wide air patterns use up to 45 deflection, or more.
Performance data shown in the selection charts on the following pages is based on double deflection grilles with vertical aerofoil blades at 22½ , 0, and 45 as illustrated below.

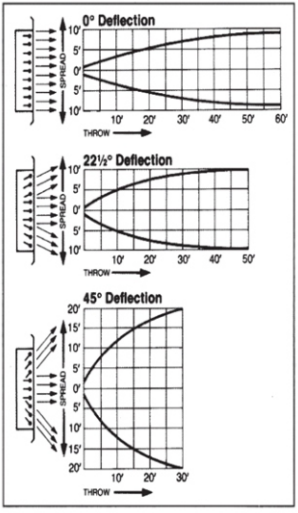
Throw Requirement:

The basis performance data will show two throws values. The maximum throw is the distance of air travel to a point having air velocity of 50 FPM and the minimum throw is the distance of air travel to a point having air velocity of 100 FPM.
Generally, the throw distance requirement is determined from the supply air terminal to the opposite wall or to the intersection of its air stream with air being delivered from anothe supply air terminal.

Drop:
Drop is a vertical distance between the lowest horizontal plane having 50 FPM of air downstream and the centre of the core.

Velocity:
The average face velocity on the grille's surface as measured with an ANLOR Velometer with tip no. 2220A minimum of four readings should be taken at random over the face of the grille and averaged. See Fig. 3.

Total Pressure:
Total pressure is measured in inches of water gauge (w.g.). If static pressure drop is required calculate the CORE AREA = (Nominal Length - 1/4) x (Nominal Width - 1/4) and divide the CFM by this area to determine the CORE VELOCITY. Using this velocity, enter table 1 to find the velocity pressure subtracting velocity pressure from total pressure gives static pressure drop across the grille.



CORE VELOCITY (FPM)	VELOCITY PRESSURE (inches w.g.)
250	0.004
300	0.006
350	0.008
400	0.010
450	0.013
500	0.016
550	0.019
600	0.022
650	0.026
700	0.031
750	0.035
800	0.040

TABLE 1 - Velocity Pressure Conversion Chart.

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EFFECTIVE AREA (M^2) FOR MODELS - AC - SAG & SAR DD

L \ H	100	150	200	250	300	350	400	450	500	550	600
100	0.005										
150	0.008	0.013									
200	0.011	0.017	0.022								
250	0.014	0.022	0.029	0.037							
300	0.016	0.026	0.034	0.043	0.052						
350	0.019	0.030	0.039	0.050	0.060	0.069					
400	0.022	0.035	0.046	0.058	0.069	0.080	0.093				
450	0.025	0.039	0.051	0.065	0.077	0.090	0.104	0.116			
500	0.028	0.043	0.057	0.073	0.087	0.101	0.116	0.130	0.146		
550	0.029	0.046	0.060	0.077	0.092	0.106	0.123	0.137	0.154	0.169	
600	0.032	0.051	0.067	0.085	0.101	0.117	0.135	0.151	0.170	0.186	0.204
650	0.035	0.055	0.072	0.092	0.109	0.127	0.146	0.164	0.184	0.201	0.221
700	0.038	0.059	0.078	0.100	0.119	0.137	0.159	0.178	0.199	0.218	0.240
750	0.040	0.063	0.084	0.107	0.127	0.147	0.170	0.190	0.213	0.233	0.256
800	0.043	0.068	0.090	0.115	0.136	0.158	0.183	0.204	0.229	0.251	0.275
850	0.046	0.072	0.095	0.121	0.144	0.167	0.194	0.217	0.243	0.266	0.292
900	0.049	0.077	0.101	0.129	0.154	0.178	0.206	0.231	0.259	0.283	0.311
950	0.052	0.081	0.107	0.136	0.162	0.188	0.217	0.243	0.272	0.298	0.328
1000	0.055	0.086	0.113	0.144	0.171	0.199	0.230	0.257	0.288	0.315	0.347
1050	0.056	0.088	0.116	0.148	0.176	0.204	0.236	0.264	0.296	0.324	0.356
1100	0.059	0.093	0.122	0.156	0.185	0.215	0.249	0.278	0.312	0.341	0.375
1150	0.062	0.097	0.128	0.163	0.194	0.224	0.260	0.290	0.326	0.356	0.392
1200	0.065	0.102	0.134	0.171	0.203	0.235	0.272	0.305	0.341	0.374	0.411
1250	0.067	0.106	0.139	0.178	0.211	0.245	0.283	0.317	0.355	0.389	0.427
1300	0.070	0.110	0.145	0.186	0.221	0.256	0.296	0.331	0.371	0.406	0.446
1350	0.073	0.114	0.151	0.192	0.229	0.265	0.307	0.343	0.385	0.421	0.463
1400	0.076	0.119	0.157	0.200	0.238	0.276	0.319	0.357	0.401	0.439	0.482
1450	0.078	0.123	0.162	0.207	0.246	0.286	0.330	0.370	0.414	0.454	0.498
1500	0.081	0.128	0.169	0.215	0.256	0.297	0.343	0.384	0.430	0.471	0.517

- L & H dimensions are in mm.
- Damper at full open position.
- Values above are based on 0° Blades Deflection.

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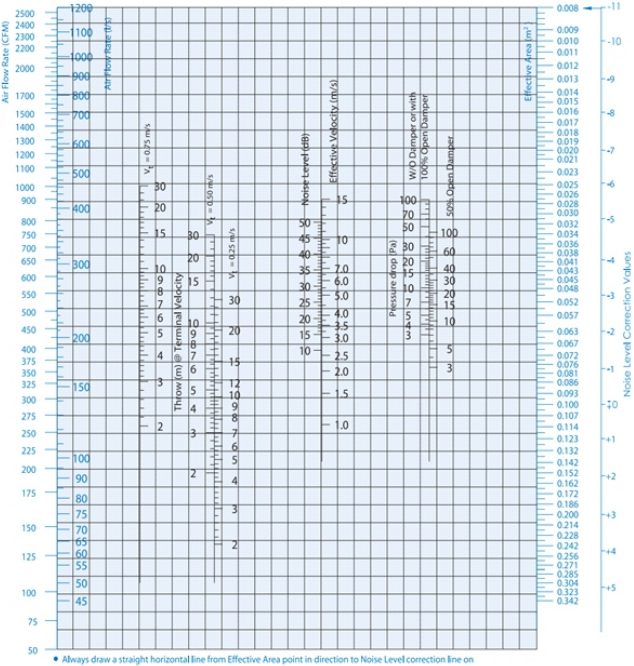
SELECTION DIAGRAM FOR MODELS - AC - SAG & SAR DD



- Always draw a straight horizontal line from Effective Area point in direction to Noise Level correction line on right side to obtain it's correction value.

Correction Multipliers / Values :

Blades Deflection	22 ½ °	45 °
Velocity	x 1.20	x 1.40
Pressure Drop	x 1.30	x 1.60
Throw	x 0.80	x 0.60
Noise Level	+ 2.0	+ 3.0

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