

# EXHAUST AND FRESH AIR LOUVERS

## MANUFACTURER OF AIR OUTLETS :

Grills, Diffusers, Control Volume Damper (VCD), Non Return Damper (NRD), Fire Rated Air Ducting and Louvers Systems.

## FABRICATION OF GI DUCTS, PI DUCTS, FLEXIBLE DUCTS & EXHAUST AND FRESH AIR LOUVERS

## SALE OF FIRE DAMPERS, MOTORIZED SMOKE FIRE DAMPER (MSFD)



## EXHAUST AND AIR FRESH LOUVERS

The Aluminum Exhaust and Fresh Air Louvers of **Airpro** are used both internally and externally in buildings for the extraction of re-cycled air, intake of external fresh air or the expulsion of contaminated air. The quality of the material used and the particular inclination of the blades at 60° angle downward offer weather resistant louvers which gives good protection against the direct ingress of rain water, leaves and birds. Can also be used directly installed on walls for the ventilation –of industrial areas. Also suitable for the use with an adjustable overpressure damper for airflow and pressure control.



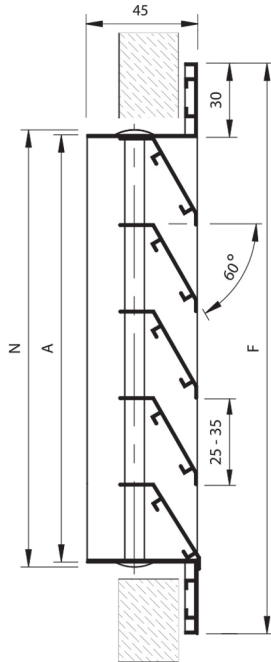
### Features:

- **Construction:** Frame & blades are made of high quality Extruded Aluminum profiles of 6063 Alloy.
- **Frame Flange width:** 30mm
- **Blades:** Louver type arranged horizontal and inclined downward to 60° angle in order to:
  - Prevent the ingress of rain water
  - Prevent the ingress of light.
  - Block vision while straight viewing.
  - Be suitable for external walls and screening application.
- The blades are positioned on 25 mm minimum centers up to 35mm maximum centers resulting in a high area to provide minimum resistance to airflow.
- Available in wide variety of neck sizes with 100 x 100 minimum single section size and 2mtr. Single section height. Louvers height exceeding 2 mtr. to be fabricated and supplied in multiple sections depending on length and height dimensions as well as site conditions.
- The assembly of multiple sections is unlimited where each section operates independently.
- Multiple sections: Supplied as separate sections and assembly by other on site.
- The fresh louvers are suitable for the use in air inlet of fresh air ducts and air handling units. It's also suitable for the use at dirty air exhaust discharge.
- Wire mesh screen of galvanized steel is attached to the interior face of the louver as an option, mesh size 3 x 3mm.
- Exhaust air louvers are available with different type of attachment such as:
  - Opposed blade Damper (Model EAL + D)
  - Aluminum Filter ( Model FAL c/w Filter)
  - Both the Damper and Filter ( Model FAL + D c/w Filter)
- Available with foam type Rubber Gasket for air sealing ( provided as an option)

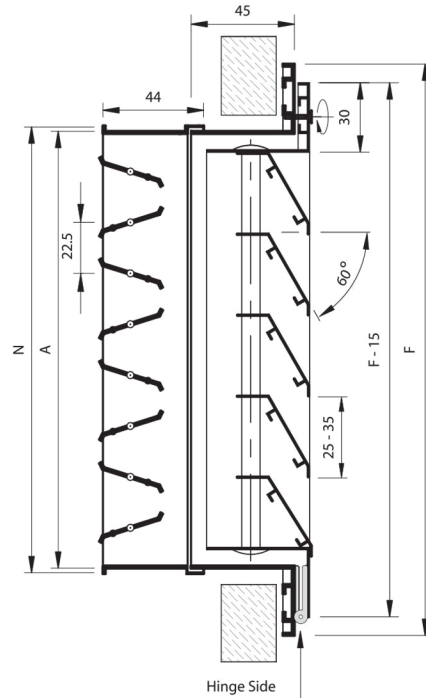
# EXHAUST AND AIR FRESH LOUVER

## Exhaust Air Louvers Construction and Dimensional Details

Model EAL



Model EAL + D (Double Frame)



- Wire Mesh (Optional)
- For opposed blade damper details and construction to chapter 1 & 2
- Double Frame Louvers are provided with door hinge from one and screw from other side allowing the second frame ( inner one) to act as an access door to the opposed blade damper



N: Nominal/ Listed Size = Length ( L ) x Height ( H )

A: Actual Size = ( L - 10 ) x ( H - 10 )

F: Face Size = ( L + 50 ) x ( H + 50 )

Exhaust Air Louvers furnished approximately 10mm less than the Nominal/ Listed size

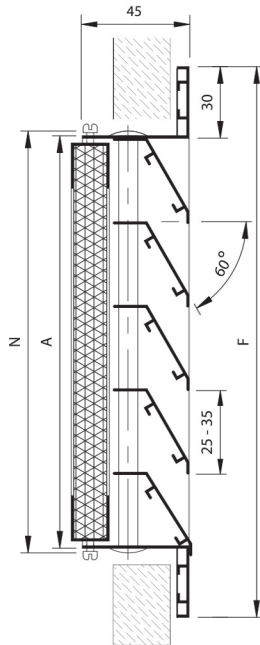
All Dimensions are in mm and subject to  $\pm 1$ mm tolerance



# EXHAUST AND AIR FRESH LOUVER

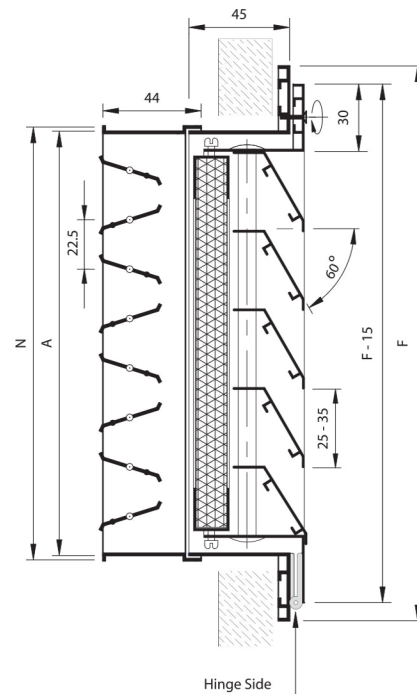
## Air Fresh Louvers Construction and Dimensional Details

Model EAL FAL c/w Filter



- Wire Mesh (optional)
- Filter: Aluminum washable filter media of ½" standard thickness (1" & 2" thicknesses also available on request as an option)

Model FAL + D c/w Filter (Double Frame)



- Wire Mesh (Optional)
- For opposed blade damper details and construction refer chapter (1) or (2).
- Filter: Aluminum washable filter media of ½" standard thickness (1" & 2" thicknesses also available on request as an option)
- Double Frame louvers are provided with door hinge from one side and screw from other side allowing the second frame (inner one) to act as an access door to the filter and /or opposed blade damper.



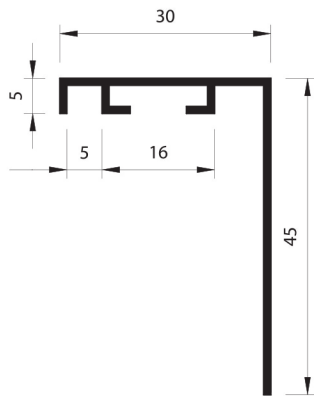
N: Nominal/ Listed Size = Length ( L ) x Height ( H )  
 A: Actual Size = ( L-10 ) x ( H-10 )  
 F: Face Size = ( L +50 ) x ( H+50 )

Exhaust Air Louvers furnished approximately 10mm less than the Nominal/ Listed size  
 All Dimensions are in mm and subject to ±1mm tolerance

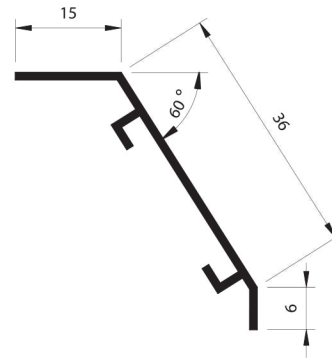


## EXHAUST AND AIR FRESH LOUVER

### Cross Sectional Drawings for Profiles in Exhaust and Fresh Air Louvers



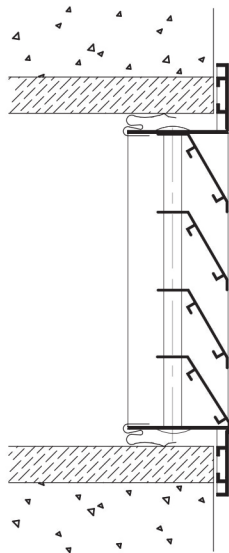
Frame Profile Section  
Exhaust and Fresh Air Louver



Louver Blade Profile Section  
Exhaust and Fresh Air Louver

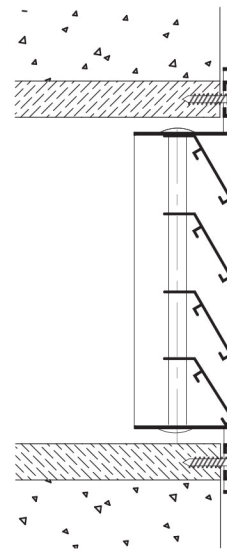
- All dimensions are in mm and subject to  $\pm 0.2$  mm tolerance

### Available Mixing Mounting



#### A. Concealed Fixing ( Spring Clip Mounting)

The louver is fixed by means of spring clips to the wall or partition where no screws are visible



#### B. Face Screw Fixing

The louver is fixed to the wooden frame by means of visible screws

## EXHAUST AND AIR FRESH LOUVER

### Engineering and Performance Data Effective Area for Exhaust and Fresh Air Lover in m<sup>2</sup>

Table EL- 01

L H	100	150	200	250	300	350	400	450	500	550	600
100	0.004										
150	0.006	0.009									
200	0.008	0.012	0.016								
250	0.010	0.015	0.021	0.026							
300	0.012	0.018	0.025	0.031	0.037						
350	0.016	0.024	0.032	0.039	0.047	0.055					
400	0.018	0.027	0.036	0.045	0.054	0.063	0.072				
450	0.020	0.030	0.041	0.051	0.061	0.071	0.081	0.091			
500	0.025	0.038	0.050	0.063	0.075	0.088	0.100	0.113	0.125		
550	0.028	0.041	0.055	0.069	0.083	0.096	0.110	0.124	0.138	0.151	
600	0.033	0.05	0.066	0.083	0.099	0.116	0.132	0.149	0.165	0.182	0.198
650	0.036	0.054	0.072	0.089	0.107	0.125	0.143	0.161	0.179	0.197	0.215
700	0.041	0.061	0.081	0.102	0.122	0.142	0.162	0.183	0.203	0.223	0.244
750	0.044	0.065	0.087	0.109	0.131	0.152	0.174	0.196	0.218	0.239	0.261
800	0.048	0.072	0.096	0.120	0.144	0.168	0.192	0.216	0.24	0.264	0.288
850	0.051	0.077	0.102	0.128	0.153	0.179	0.204	0.23	0.255	0.281	0.306
900	0.057	0.085	0.113	0.142	0.17	0.198	0.227	0.255	0.284	0.312	0.340
950	0.060	0.090	0.120	0.150	0.180	0.209	0.239	0.269	0.299	0.329	0.359
1000	0.065	0.098	0.130	0.163	0.195	0.289	0.26	0.293	0.325	0.358	0.390
1050	0.068	0.102	0.137	0.171	0.205	0.239	0.273	0.307	0.341	0.375	0.410
1100	0.068	0.107	0.143	0.179	0.215	0.250	0.286	0.322	0.358	0.393	0.429
1150	0.075	0.112	0.150	0.187	0.224	0.262	0.299	0.336	0.374	0.411	0.449
1200	0.078	0.117	0.156	0.195	0.234	0.273	0.312	0.35	0.390	0.429	0.468

Table EL- 02

L H	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
650	0.232											
700	0.264	0.284										
750	0.283	0.305	0.326									
800	0.312	0.336	0.360	0.384								
850	0.332	0.357	0.383	0.408	0.434							
900	0.369	0.397	0.425	0.454	0.482	0.510						
950	0.389	0.419	0.449	0.479	0.509	0.539	0.57					
1000	0.423	0.455	0.488	0.52	0.553	0.585	0.62	0.650				
1050	0.444	0.478	0.512	0.546	0.580	0.614	0.65	0.683	0.72			
1100	0.465	0.501	0.536	0.572	0.608	0.644	0.68	0.715	0.75	0.787		
1150	0.486	0.523	0.561	0.635	0.635	0.673	0.710	0.748	0.79	0.822	0.860	
1200	0.507	0.546	0.585	0.624	0.663	0.702	0.74	0.78	0.82	0.858	0.897	0.936

L & H Dimensions are in mm

Damper at full open position (if any)

## EXHAUST AND AIR FRESH LOUVER

### Engineering and Performance Data Tabular Section for Exhaust and Fresh Air Lover in m<sup>2</sup>

Table EL- 03

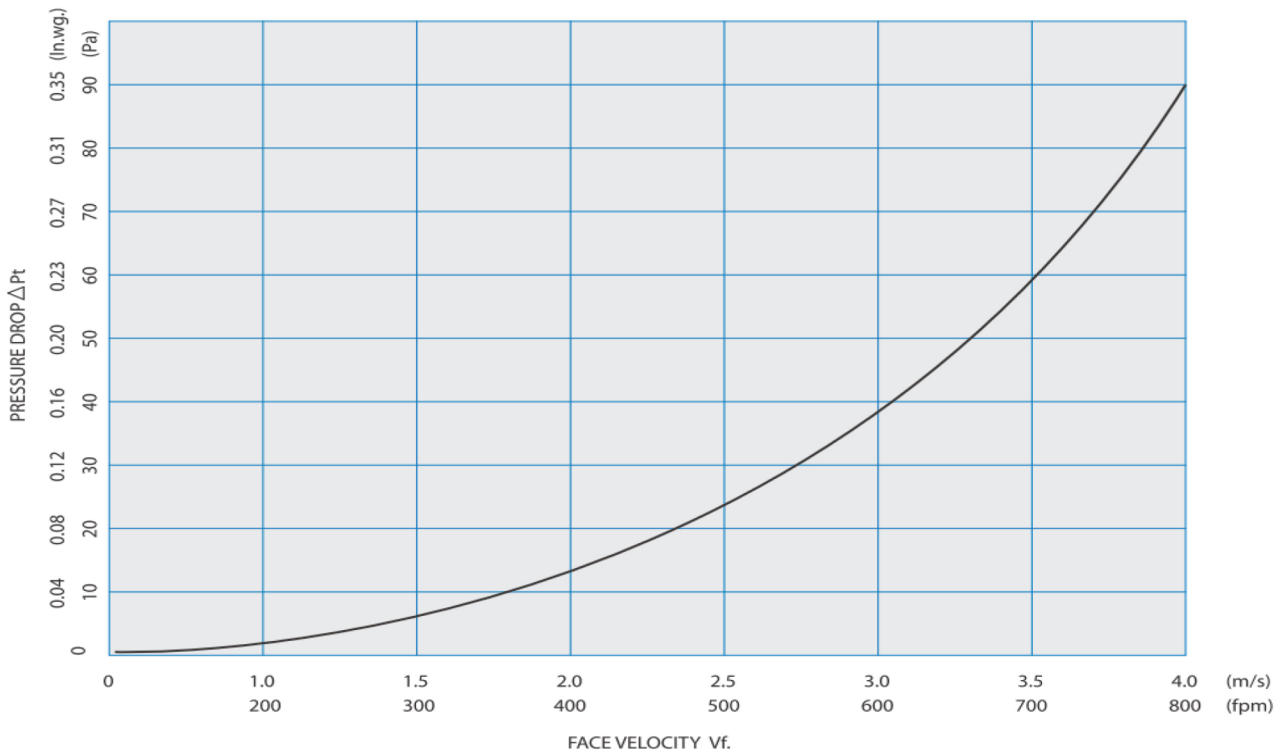
Vf. m/s	(FPM)	1.0(200)	1.5(300)	2.0(400)	2.5(500)	3.0(600)	3.5(700)	4.0(800)
ΔPt Pa	(Inwg)	3.0(0.01)	8.5(0.03)	14(0.05)	24(0.09)	39(0.15)	59(0.23)	90(0.35)
Flow L /S)	Rate cfm	A eff.(m <sup>2</sup> )						
(12)	25	0.012	0.008	0.006	0.005	0.004	0.003	0.002
(24)	50	0.023	0.015	0.012	0.009	0.008	0.007	0.006
(47)	100	0.046	0.031	0.023	0.019	0.015	0.013	0.012
(71)	150	0.070	0.046	0.035	0.028	0.023	0.020	0.017
(94)	200	0.093	0.062	0.046	0.037	0.031	0.027	0.023
(118)	250	0.116	0.077	0.058	0.046	0.039	0.033	0.029
(142)	300	0.139	0.093	0.070	0.056	0.046	0.040	0.035
(165)	350	0.163	0.108	0.081	0.065	0.054	0.046	0.041
(189)	400	0.186	0.124	0.093	0.074	0.062	0.053	0.046
(212)	450	0.209	0.139	0.105	0.084	0.07	0.06	0.052
(236)	500	0.232	0.155	0.116	0.093	0.077	0.066	0.058
(260)	550	0.255	0.17	0.128	0.102	0.085	0.073	0.064
(283)	600	0.279	0.186	0.139	0.111	0.093	0.080	0.070
(307)	650	0.302	0.201	0.151	0.121	0.101	0.086	0.075
(330)	700	0.325	0.217	0.163	0.13	0.108	0.093	0.081
(354)	750	0.348	0.232	0.174	0.139	0.116	0.100	0.087
(378)	800	0.372	0.248	0.186	0.149	0.124	0.106	0.093
(401)	850	0.395	0.263	0.197	0.158	0.132	0.113	0.099
(425)	900	0.418	0.279	0.209	0.167	0.139	0.119	0.105
(448)	950	0.441	0.294	0.321	0.177	0.147	0.126	0.110
(472)	1000	0.465	0.310	0.232	0.186	0.155	0.133	0.116
(496)	1050	0.488	0.325	0.244	0.195	0.163	0.139	0.122
(519)	1100	0.511	0.341	0.255	0.204	0.170	0.146	0.128
(543)	1150	0.534	0.356	0.267	0.214	0.178	0.153	0.134
(566)	1200	0.557	0.372	0.279	0.223	0.186	0.159	0.139
(590)	1250	0.581	0.387	0.290	0.232	0.194	0.166	0.145
(613)	1300	0.604	0.403	0.302	0.242	0.201	0.173	0.151
(637)	1350	0.627	0.418	0.314	0.251	0.209	0.179	0.157
(661)	1400	0.650	0.434	0.325	0.260	0.217	0.186	0.163
(684)	1450	0.674	0.449	0.337	0.269	0.225	0.192	0.168
(708)	1500	0.697	0.465	0.348	0.279	0.232	0.199	0.174
(731)	1550	0.720	0.480	0.360	0.288	0.24	0.206	0.180
(755)	1600	0.743	0.495	0.372	0.297	0.248	0.212	0.186
(779)	1650	0.766	0.511	0.383	0.307	0.255	0.219	0.192
(802)	1700	0.790	0.526	0.395	0.316	0.263	0.226	0.197
(826)	1750	0.813	0.542	0.406	0.325	0.271	0.232	0.203
(849)	1800	0.836	0.557	0.418	0.334	0.279	0.239	0.209
(873)	1850	0.859	0.573	0.430	0.344	0.286	0.246	0.215
(897)	1900	0.883	0.588	0.441	0.353	0.294	0.252	0.221
(920)	1950	0.906	0.604	0.453	0.362	0.302	0.259	0.226
(944)	2000	0.929	0.619	0.465	0.372	0.310	0.265	0.232

Damper at full open position (if any)



## EXHAUST AND AIR FRESH LOUVER

### Engineering and Performance Data Airflow Resistance Diagram (all models) Pressure Drop (Pt) Versus Face Velocity (Vf)



### Selection Procedure

#### Case 01:

##### Illustrative Example:

Given Data: Required Model: EAL

Air flow Rate : 650 cfm (307 L/S)

Assume Vf. not exceeding 1.5 m/s (300 FPM)

Vf = 1.5 m/s to read the related data as below:

Pressure drop = 8.0 Pa (0.03 inwg)

A eff = 0.201 m<sup>2</sup>

By applying the A eff. value to table no. EL-01, simply you can select the size of 700 x 500mm which having the nearest area value to the required one.

#### Case 02:

##### Illustrative Example:

Given Data: Required Model: FAL c/w filter

Air flow Rate: 3500ncfm (1652 L/S)

Assume Vf. not exceeding 1.5 m/s (300 FPM)

Since the CFM given is out of the range of Table No.EL-03 divide the (3500) by ( 2) to give 1750 CFM and read the related data at this value as below:

Pressure drop = 8.0 Pa (0.03 inwg)

A eff = 0.542 m<sup>2</sup>

By applying the A eff. value to table EL-02, simply you can select the size of 950 x 900 mm which is having the nearest area value to the required one.

Now, to obtain the required 3500 CFM, double the ara while maintaining the same height as below:

(L x 2) x (H) = (950 x 2) x (900)mm

Final size = 1900 x 900mm.

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