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SAND TRAP LOUVER
HIGH EFFICIENCY
model: **ASTL-HE**

CONSTRUCTION:

Frame: 2mm thick extruded aluminium formed sheets.

Blades: 6063 high grade aluminium blade 2 mm thick.

Sand Chute: 1.5 mm thick aluminium sheet

Description:

- Designed to filter sand particles very efficiently.
- Lower pressure drop even at high intake velocities as compared to regular sand trap louver (eg; At 1000fpm free area velocity, pressure drop is only 35Pa for ASTL-HE model whereas pressure drop is more than 100Pa for regular sand trap louver).
- More free area with extremely high sand rejection efficiency makes it an ideal choice for generator rooms, oil fields and several other HVAC intake applications where static pressure and space restrictions are great concern.
- High performance and lower pressure drop of ASTL-HE enables designer to select fans with lower capacity.

- Blades are vertically mounted inside the frame. The filtered sand will be drained through a sand chute fixed at the bottom of the louver.
- AMCA certified for Wind Driven Rain penetration at 13 m/s and 22.4 m/s simulated wind.
- AMCA certified for Water Penetration. Beginning point for water penetration is 1250 fpm.

Standard finishes:
- Natural aluminium anodized finish
- Powder coated colour finish as per RAL colour code.
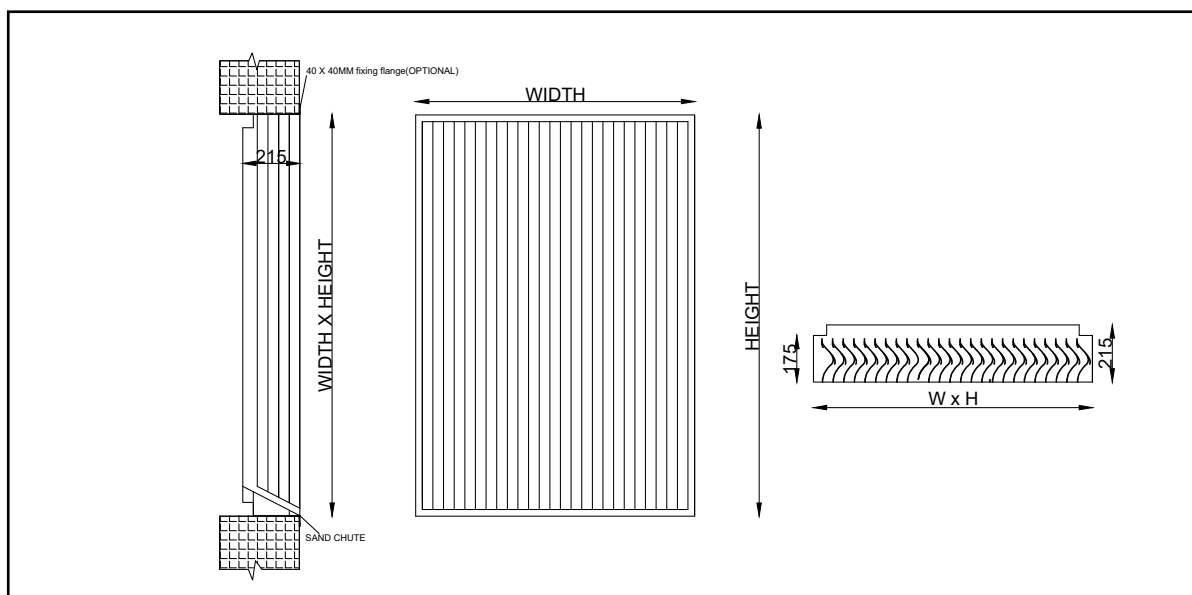- Flexibility of finishing available as option.

40 X 40MM fixing flange(OPTIONAL)

215

WIDTH

WIDTH X HEIGHT

HEIGHT

175

215

W x H

SAND CHUTE

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Table 13.2 - Free Area in sq.ft

Louver Outer Height (inches)

		12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
Louver Outer Width (inches)	16	0.29	0.56	0.83	1.10	1.37	1.63	1.90	2.17	2.44	2.71	2.98	3.25	3.52	3.78	4.05	4.32	4.59	4.86	5.13
	24	0.44	0.84	1.24	1.65	2.05	2.45	2.85	3.26	3.66	4.06	4.47	4.87	5.27	5.68	6.08	6.48	6.89	7.29	7.69
	30	0.56	1.08	1.60	2.12	2.63	3.15	3.67	4.19	4.71	5.23	5.74	6.26	6.78	7.30	7.82	8.33	8.85	9.37	9.89
	36	0.69	1.32	1.95	2.59	3.22	3.85	4.49	5.12	5.75	6.39	7.02	7.65	8.29	8.92	9.55	10.19	10.82	11.45	12.09
	42	0.79	1.52	2.25	2.98	3.71	4.44	5.17	5.90	6.62	7.35	8.08	8.81	9.54	10.27	11.00	11.73	12.46	13.19	13.92
	48	0.89	1.72	2.54	3.37	4.20	5.02	5.85	6.67	7.50	8.32	9.15	9.97	10.80	11.62	12.45	13.27	14.10	14.92	15.75
	54	1.02	1.96	2.90	3.84	4.78	5.72	6.66	7.60	8.54	9.48	10.42	11.36	12.30	13.24	14.19	15.13	16.07	17.01	17.95
	60	1.12	2.16	3.20	4.23	5.27	6.30	7.34	8.38	9.41	10.45	11.49	12.52	13.56	14.60	15.63	16.67	17.71	18.74	19.78
	66	1.25	2.40	3.55	4.70	5.85	7.01	8.16	9.31	10.46	11.61	12.76	13.91	15.07	16.22	17.37	18.52	19.67	20.82	21.98
	72	1.39	2.68	3.96	5.25	6.54	7.82	9.11	10.39	11.68	12.97	14.25	15.54	16.82	18.11	19.40	20.68	21.97	23.25	24.54
	78	1.50	2.88	4.26	5.64	7.02	8.41	9.79	11.17	12.55	13.93	15.32	16.70	18.08	19.46	20.84	22.23	23.61	24.99	26.37
	84	1.62	3.12	4.62	6.11	7.61	9.11	10.60	12.10	13.60	15.10	16.59	18.09	19.59	21.08	22.58	24.08	25.57	27.07	28.57
	90	1.73	3.32	4.91	6.50	8.10	9.69	11.28	12.88	14.47	16.06	17.66	19.25	20.84	22.43	24.03	25.62	27.21	28.81	30.40
	96	1.85	3.56	5.27	6.98	8.68	10.39	12.10	13.81	15.52	17.22	18.93	20.64	22.35	24.06	25.76	27.47	29.18	30.89	32.60

Effective pressure areas for non standard sizes can be interpolated from the above data.

Selection example

Given airflow : 4600 cfm

Free area velocity : 800 fpm (assumed)

Calculation:
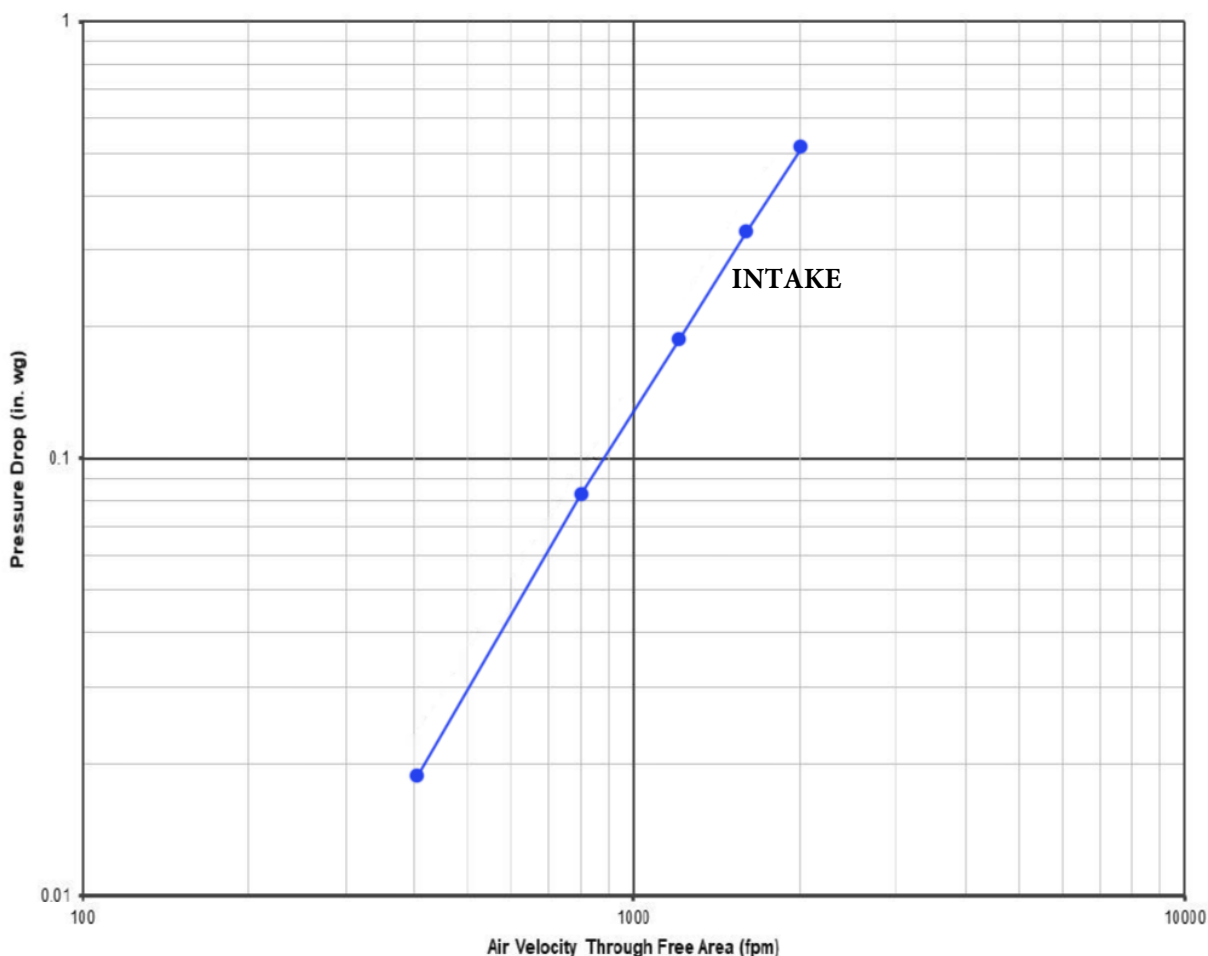
Free area = airflow/ louver free area velocity

$\quad$ =4600/800

$\quad$ =5.75 ft^2

From the free area chart, selected size of the louver is 48"x 48"

From the graph, louver pressure or pressure drop = 0.083 in.wg

Pressure Drop V/S Free Area Velocity

Free Area Velocity (fpm)	Intake (in.wg)
400	0.019
800	0.083
1200	0.186
1600	0.329
2000	0.505

Airmaster Equipments Emirates L.L.C certifies that the High Efficiency Sand Trap Louver Model "ASTL-HE"shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings seal applies to Air Performance, Water Penetration and Wind Driven Rain ratings only.

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Wind Driven Rain Penetration Test

Airmaster ASTL-HE model louver was tested for wind driven rain penetration test based on 1m x 1m size at rain fall rates of 3 in/hr and 8 in/hr with simulated wind speed of 13 m/s and 22.4 m/s respectively. The table below shows the water penetration classification for both cases.

Rainfall rate - 75 mm/hr (3 in/hr)						
Simulated Wind - 13 m/s (29 mph)						
Core Velocity (fpm)	Core Velocity (m/s)	Water Penetration Effectiveness E (%)	Water Penetration Classification	Airflow (cfm)	Free Area Velocity (fpm)	Pressure Drop (in)
690	3.50	100	A	7435	1735	0.36

Rainfall rate - 200 mm/hr (8 in/hr)						
Simulated Wind - 22.4 m/s (50 mph)						
Core Velocity (fpm)	Core Velocity (m/s)	Water Penetration Effectiveness E (%)	Water Penetration Classification	Airflow (cfm)	Free Area Velocity (fpm)	Pressure Drop (in)
482	2.45	99.7	A	5194	1212	0.19
690	3.50	96.3	B	7435	1735	0.36

Water Penetration Chart

Test Method: Water penetration test as per ANSI / AMCA Standard 500-L-12 (Water Penetration), figure 5.6-6.3

> Beginning of Water Penetration per AMCA Publication 511 Section 8.3.2 based on AMCA measured free area: > or = 1250 fpm
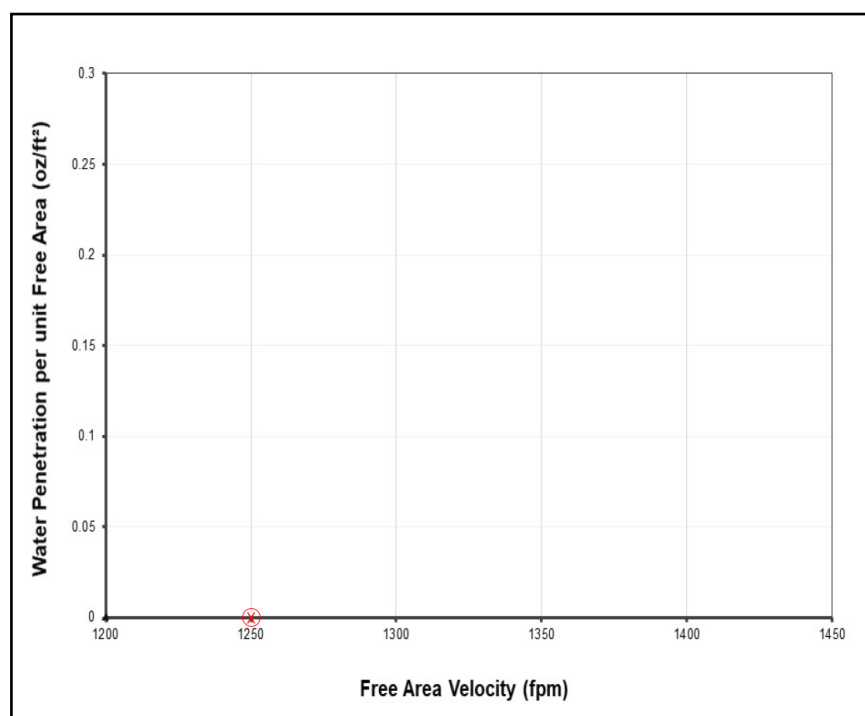
Percentage of free area calculation
Louver size = 48"x 48"
Free area = 5.83 sq ft
W= 47.875 - 1.875 = 46
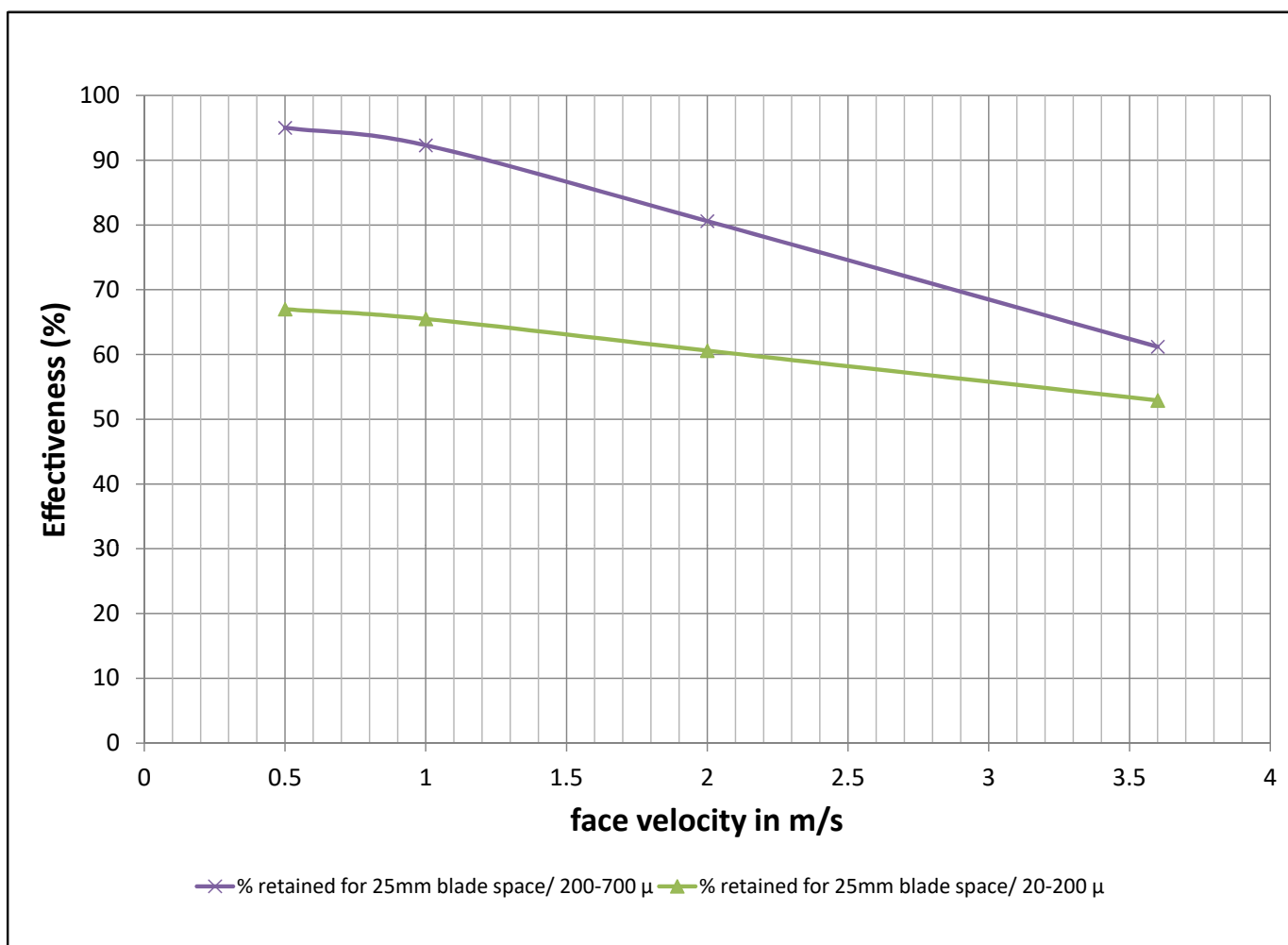H = 47.875- 2 = 45.875
Core area = W x H = 46 x 45.875
$$=14.65 \text{ sq ft}$$
% free area = (Free area / Core area) x 100
$$= (5.83 / 14.65) \times 100$$
$$= \mathbf{39.8\%}$$

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model: **ASTL-HE**

Effectiveness (%) vs. face velocity (m/s)

Legend: ─✕─ % retained for 25mm blade space/ 200-700 µ   ─▲─ % retained for 25mm blade space/ 20-200 µ

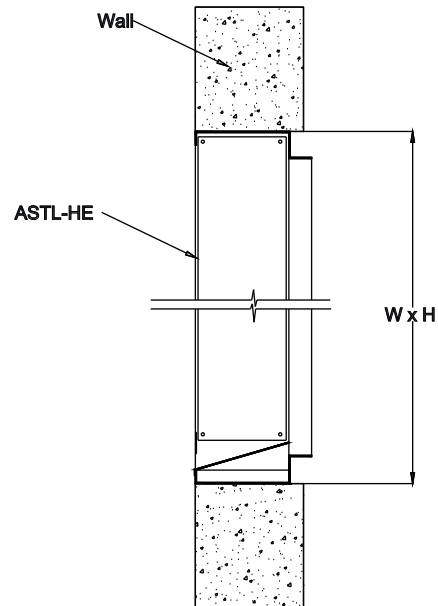Note : Sand effectiveness has not been tested in AMCA

Standard sizes:

- Available in square and rectangular sizes.
- All combination of width x height.
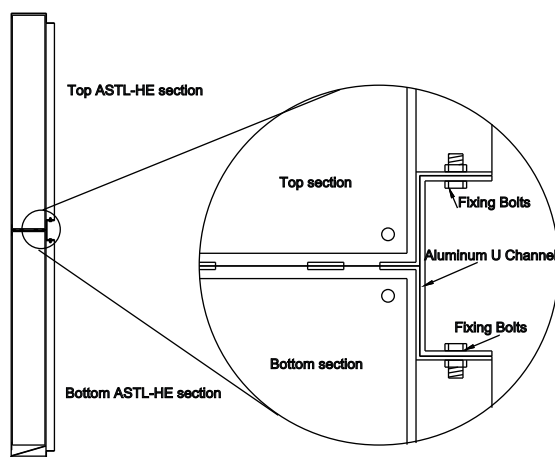- Non standard sizes are available.

Width in mm	400	450	600	750	900	1050	1200	1350	1500
Height in mm	400	450	600	750	900	1050	1200	1350	1500

FIXING DETAILS

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Fixing details:

Wall

ASTL-HE

W x H

MULTI-SECTION ARRANGEMENT

Top ASTL-HE section

Top section

Fixing Bolts

Aluminum U Channel

Fixing Bolts

Bottom section

Bottom ASTL-HE section

Side View

ASTL-HE section 1

Fixing Bolts

Aluminum U Channel

Fixing Bolts

ASTL-HE section 1

Top View