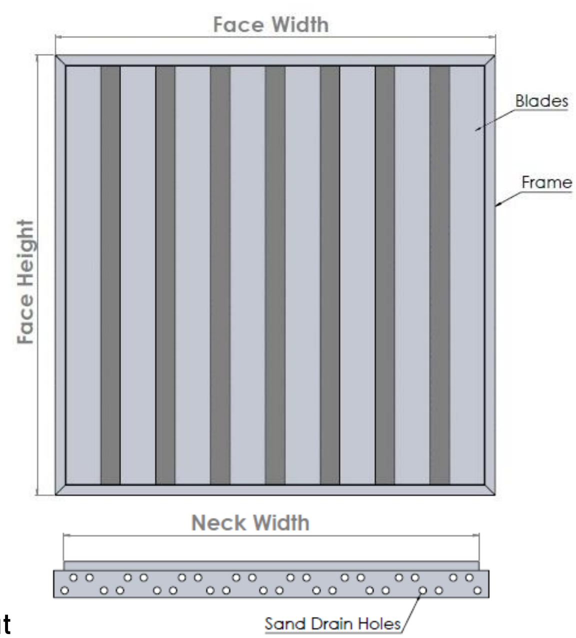
SAND TRAP LOUVER

Description

Sand Trap Louver STL (Previously DWS) is an outdoor intake louver used as a pre-filter to protect air conditioning equipment, ventilation fans, generator rooms…etc. It provides a degree of separation for sand and large dust particles, even in environments with high dust concentrations. The vertically arranged sections and sand drainage holes ensure that the sand trap louver is self-cleaning and maintenance-free. It is designed to separate large particles at low air velocities, thereby preventing excessive dust loading on conventional plant filters.

The standard finish is polyester powder coating RAL 9016. Optional finishes include natural anodized aluminum, mill finish or powder coating in any other RAL color. Other finishes are available upon request.

Construction



- Standard frame and blades are made of extruded aluminum alloy. Other material options include galvanized steel and stainless steel (304/316).
- Optional accessories:
  - GI bird screen with 1/2” x 1/2” wire mesh
  - Aluminum insect screen with 1/8” x 1/8” mesh
  - 1- or 2-inch washable aluminum filter.
- Maximum single-section size is 2000x1220mm and minimum size is 200x200mm

Note:

- Exact size of louver is usually fabricated about 10mm less than the nominal size (wall or duct size).

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Performance

❖ Free Area Table (m^2)

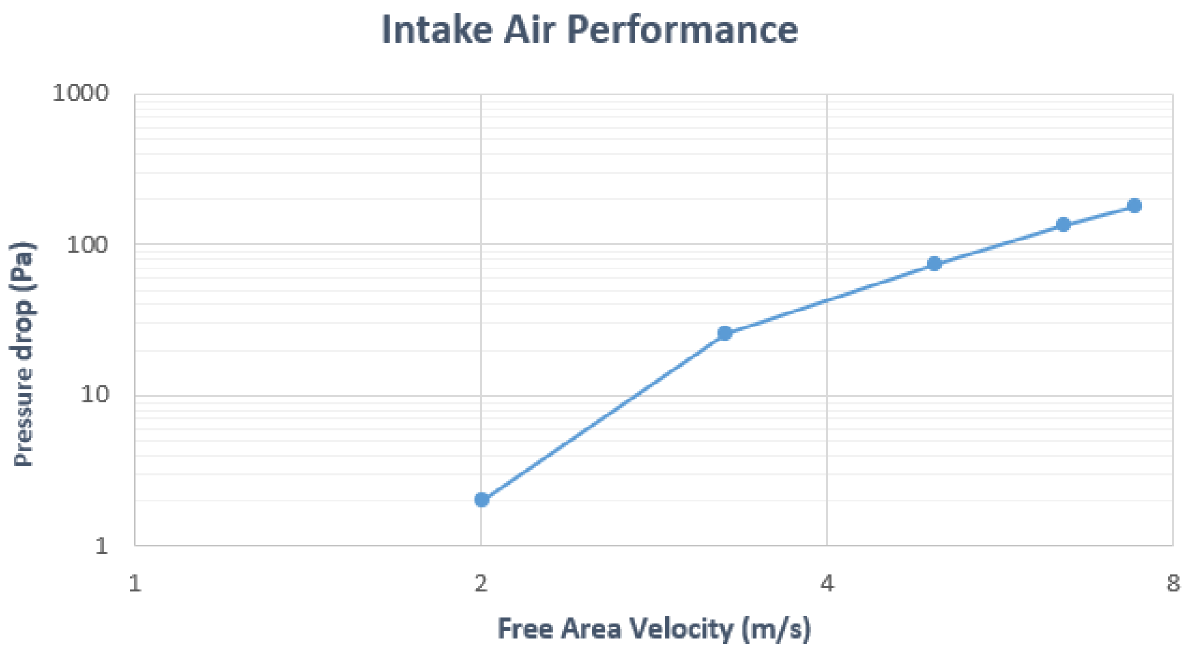
Face Width - mm

Face Height - mm	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250
300	0.012	0.024	0.036	0.048	0.060	0.072	0.084	0.096	0.108	0.120	0.132	0.144	0.156	0.168
450	0.020	0.039	0.059	0.078	0.098	0.117	0.137	0.156	0.176	0.195	0.215	0.234	0.254	0.273
600	0.027	0.054	0.081	0.108	0.135	0.162	0.189	0.216	0.243	0.270	0.297	0.324	0.351	0.378
750	0.035	0.069	0.104	0.138	0.173	0.207	0.242	0.276	0.311	0.345	0.380	0.414	0.449	0.483
900	0.042	0.084	0.126	0.168	0.210	0.252	0.294	0.336	0.378	0.420	0.462	0.504	0.546	0.588
1050	0.050	0.099	0.149	0.198	0.248	0.297	0.347	0.396	0.446	0.495	0.545	0.594	0.644	0.693
1200	0.057	0.114	0.171	0.228	0.285	0.342	0.399	0.456	0.513	0.570	0.627	0.684	0.741	0.798
1350	0.065	0.129	0.194	0.258	0.323	0.387	0.452	0.516	0.581	0.645	0.710	0.774	0.839	0.903
1500	0.072	0.144	0.216	0.288	0.360	0.432	0.504	0.576	0.648	0.720	0.792	0.864	0.936	1.008
1650	0.080	0.159	0.239	0.318	0.398	0.477	0.557	0.636	0.716	0.795	0.875	0.954	1.034	1.113
1800	0.087	0.174	0.261	0.348	0.435	0.522	0.609	0.696	0.783	0.870	0.957	1.044	1.131	1.218
1950	0.095	0.189	0.284	0.378	0.473	0.567	0.662	0.756	0.851	0.945	1.040	1.134	1.229	1.323
2100	0.102	0.204	0.306	0.408	0.510	0.612	0.714	0.816	0.918	1.020	1.122	1.224	1.326	1.428
2250	0.110	0.219	0.329	0.438	0.548	0.657	0.767	0.876	0.986	1.095	1.205	1.314	1.424	1.533

❖ Test Information:

Tested in accordance with ANSI/AMCA 500-L, Figure 5.5 for intake pressure drop and Figure 5.12 for wind-driven sand, Test sample face size is 1220 mm x 1220 mm (48 in. x 48 in.).

❖ Pressure-drop chart:



Dania Air Control System Factory certifies that the sand trap louver model STL shown hereon 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 Program seal applies to Wind Driven Sand and Air Performance ratings.

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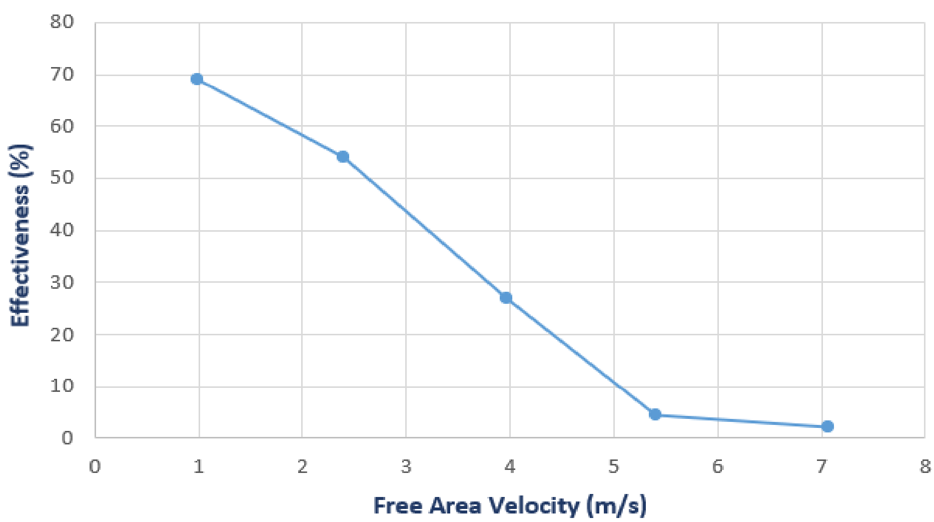
❖ Wind Driven Sand Rejection at a sand injection velocity of 20-25m/s:

Grading of the sand used for wind driven sand performance tests was per ANSI/AMCA Standard 500-L

Sand Rejection Effectiveness of Louver



Wind Velocity: 20-25 m/s

Free area velocity (m/s)	Sand Rejection Effectiveness (%)	Penetration Class
0.99	68.92	D
2.4	54.07	D
3.97	26.79	D
5.4	4.46	D
7.07	2.22	D

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Selection Example

Application Scenario:
A ventilation system requires a volume flow rate (Q) of 2,430 L/s (*equivalent to 8,750 m³/h*) under standard operating conditions. The maximum allowable pressure drop across the sand trap louver is specified as 30 Pa.

Calculation Summary:

Based on the Intake Air Performance Chart:

- Free Area Velocity (V): 3.4 m/s
- Formula Used:

$$Q = V \times A$$

Where:

- Q = Volume flow rate
- V = Free area velocity
- A = Louver free area

- Louver Free Area (A): 0.71 m²

Based on the Free Area Table, the Suggested Louver Dimensions Can Be:

- Width: 1800 mm
- Height: 1350 mm

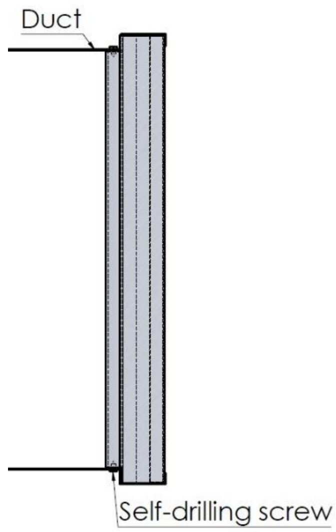
Note:

- **Any size can be selected if it fulfills or exceeds the calculated free area.**

Installation

❖ **Prominent mounting:** STL-P

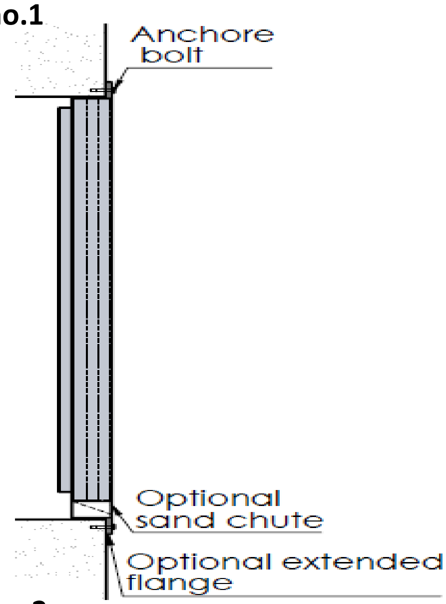
For wall or duct (Default option)



❖ **Flush mounting:** STL-F

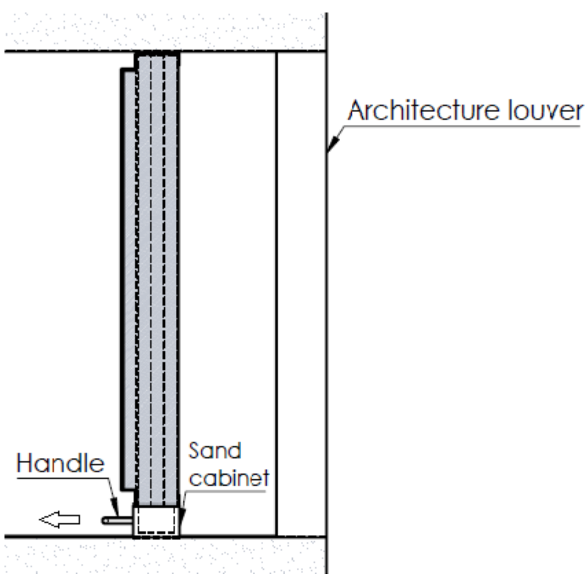
For wall only

Method no.1



❖ **Recessed mounting:** STL-R

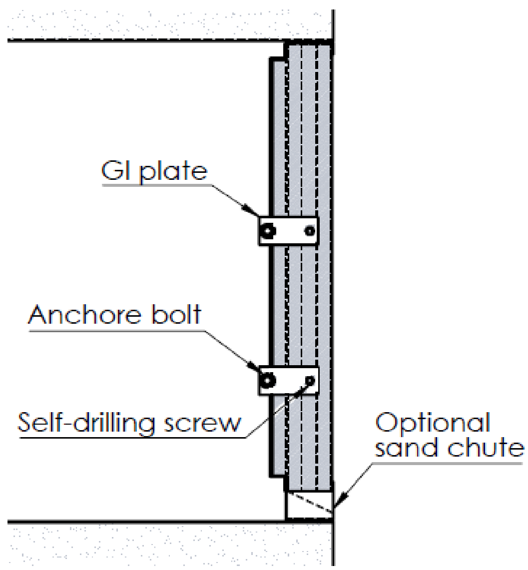
For wall only



Optional accessories:

- Bottom Sand cabinet
- Bottom Sand chute

Method no.2



Optional accessories:

- Bottom Sand cabinet
- Bottom Sand chute
- Extended face flange
- Mounting GI plates

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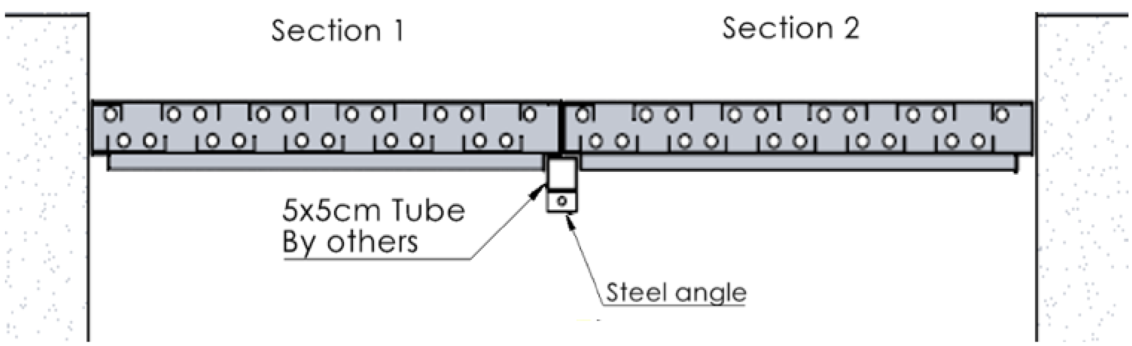
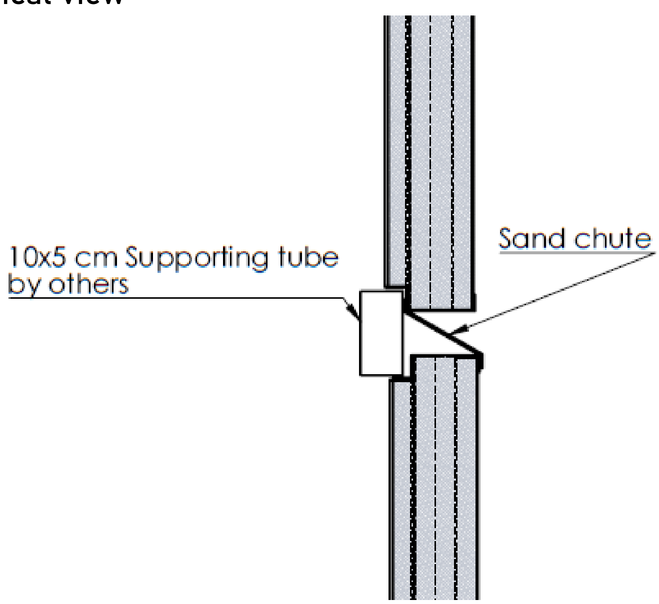
❖ Multi Section Details:

Multi-horizontal view



Multi-vertical view



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Dania Air reserves the right to make data changes without notice.