



TECNALCO

CHAPTER 12



SAND TRAP LOUVRES

CHAPTER-12

SAND TRAP LOUVRES

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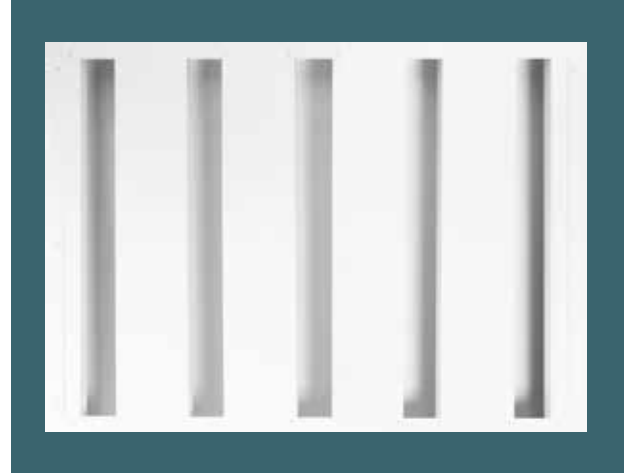
SAND TRAP LOUVRES

The sand trap louvre is designed to separate large size sand particles at low air velocities thus avoiding excessive dust loading of conventional filters. It is not intended as a substitute for conventional supply air filtration plant.

It gives excellent performance for air filtration at moderate pressure drops and low air velocities.

Features:

- TECNALCO sand trap louvres are available in two different types of construction mill finish aluminium sheet and galvanised sheet steel.
- The louvre is made to design to separate sand and dust particles from intake air.
- The louvre is provided with a self emptying base through which the filtered sand is thrown out easily.
- For a much better filtration, TECNALCO sand trap louvre is provided with a detachable aluminium filter of thickness 25 mm / 50 mm.



Standard types and models:

Types	Models	Remarks
STL	'T'	louvre with bird screen
	'TF'	louvre with bird screen and filter
	'TFD'	louvre with bird screen, filter and damper
F-STL	'T'	louvre with bird screen
	'TF'	louvre with bird screen and filter
	'TFD'	louvre with bird screen, filter and damper

NOTE:

- Suffix A or G to the given model indicates aluminium sheet or galvanised sheet steel construction.
- Other sizes available on request.
- $1500 < L$ (or) $W < 3000 \rightarrow$ louvres are made in 2 pieces.

N = Nominal size = $L \times W$

A = Neck size of STL = $(L - 10) \times (W - 10) = x \times y$

B = Overall size of STL = $(x + 110) \times (y + 110)$

Standard sizes:

Any combination of $L \times W$

Single section sizes	
L mm	W mm
150	150
300	300
450	450
600	600
750	750
900	900
1050	1050
1200	1200
1350	1350
1500	1500

SAND TRAP LOUVRES (AMCA)

STL- 'T'

TECNALCO model STL-'T' is an intake air sand trap louver made of aluminium or galvanised sheet steel and is provided with a bird screen.

- Frame : 1.5mm / 2mm thickness extruded profiled Aluminium channels.
- Blade : 1.1mm / 1.5mm thickness extruded Aluminium Blades.
- Screen : Bird Wire Mesh (Standard)
- Filter : 25mm and 50mm thickness Aluminium washable.
- Coating : Sand trap Louver with Powder Coating Finish is optional
- Construcion : Aluminium Construction (Standard)



Table 3
Penetration Class for wind driven sand tests

Class	Effectiveness
A	100% to 90%
B	89.9% to 80%
C	79.9% to 70%
D	Below 70%

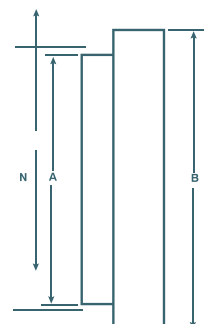
Note: These classifications apply at various free area velocities.

- * Grading of the sand used for wind driven sand performance tests was per ANSI/AMCA Standard 500-L.
- * Wind driven sand performance shall include the penetration class (AMCA 511, Section 10, Table 3)



Tecnalco Industries : certifies that the sand trap louver model STL-T 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.

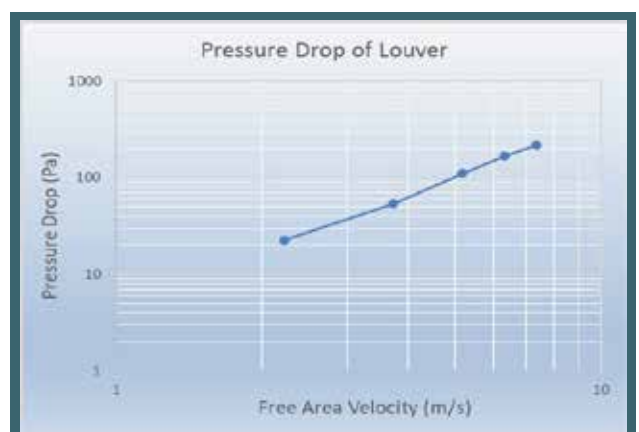
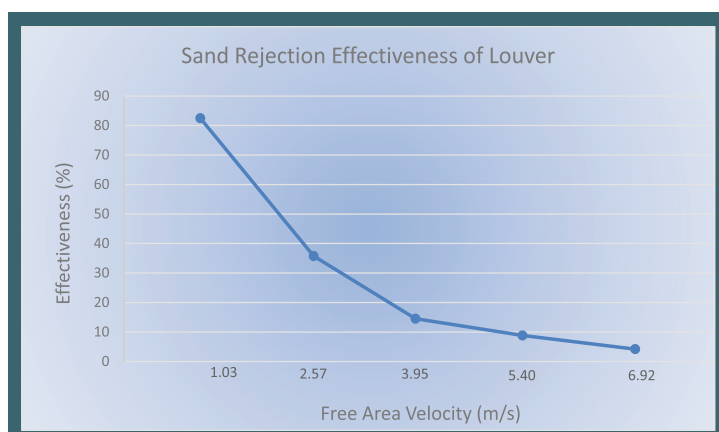
The certified ratings seal applies to wind driven sand and air performance ratings.



Testing Information

Tested for wind driven sand performance in accordance with AMCA Standard 500-L.

Test sample size is 48in x 48in. with tolerance of +0, -0.25in. Wind driven sand performance data are based on intake performance.



SAND TRAP LOUVRES (AMCA)

Sand Rejection test results

Test No	Air Flow Rate m ³ /s	Free Area velocity m/s	Total Mass injected g	Total Mass rejected g	Louver Effectiveness %
1	0.41	1.03	1002	827	82.53
2	1.01	2.57	1003	359	35.79
3	1.55	3.95	2007	291	14.50
4	2.12	5.40	2006	178	8.87
5	2.71	6.92	2003	84	4.19

Air performance data test results

Pressure Drop Pa	Airflow Rate m ³ /s	Free Area Velocity m/s
22.68	0.87	2.22
53.58	1.46	3.73
111.26	2.03	5.18
166.84	2.48	6.31
216.19	2.88	7.35

ENGINEERING PERFORMANCE DATA

Sandtrap Louvers Free Area

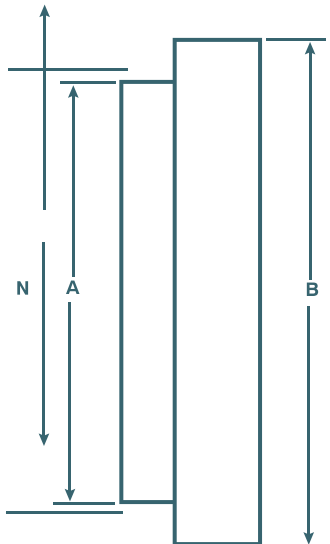
Dimension : L & W are in mm.

Area is in Sqm.

LxW→	300	450	600	750	900	1050	1200	1300	1500	1650	1800	1950	2100	2250	2400
300	0.03	0.04	0.05	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.16	0.18	0.19	0.20	0.22
450	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.29	0.31	0.33
600	0.05	0.08	0.11	0.14	0.16	0.19	0.22	0.24	0.27	0.30	0.33	0.35	0.38	0.41	0.43
750	0.07	0.10	0.14	0.17	0.20	0.24	0.27	0.31	0.34	0.37	0.41	0.44	0.48	0.51	0.54
900	0.08	0.12	0.16	0.20	0.24	0.29	0.33	0.37	0.41	0.45	0.49	0.53	0.57	0.61	0.65
1050	0.10	0.14	0.19	0.24	0.29	0.33	0.38	0.43	0.48	0.52	0.57	0.62	0.67	0.71	0.76
1200	0.11	0.16	0.22	0.27	0.33	0.38	0.43	0.49	0.54	0.60	0.65	0.71	0.76	0.82	0.87
1350	0.12	0.18	0.24	0.31	0.37	0.43	0.49	0.55	0.61	0.67	0.73	0.79	0.86	0.92	0.98
1500	0.14	0.20	0.27	0.34	0.41	0.48	0.54	0.61	0.68	0.75	0.82	0.88	0.95	1.02	1.09
1650	0.15	0.22	0.30	0.37	0.45	0.52	0.60	0.67	0.75	0.82	0.90	0.97	1.05	1.12	1.20
1800	0.16	0.24	0.33	0.41	0.49	0.57	0.65	0.73	0.82	0.90	0.98	1.06	1.14	1.22	1.30
1900	0.18	0.26	0.35	0.44	0.53	0.62	0.71	0.76	0.88	0.97	1.06	1.15	1.24	1.32	1.41
2100	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.95	1.05	1.14	1.24	1.33	1.43	1.52
2250	0.20	0.31	0.41	0.51	0.61	0.71	0.82	0.92	1.02	1.12	1.22	1.32	1.43	1.53	1.63
2400	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.09	1.20	1.30	1.41	1.52	1.63	1.74

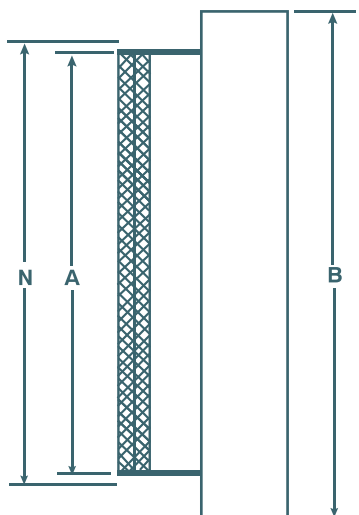
SAND TRAP LOUVRES

Constructional Details:



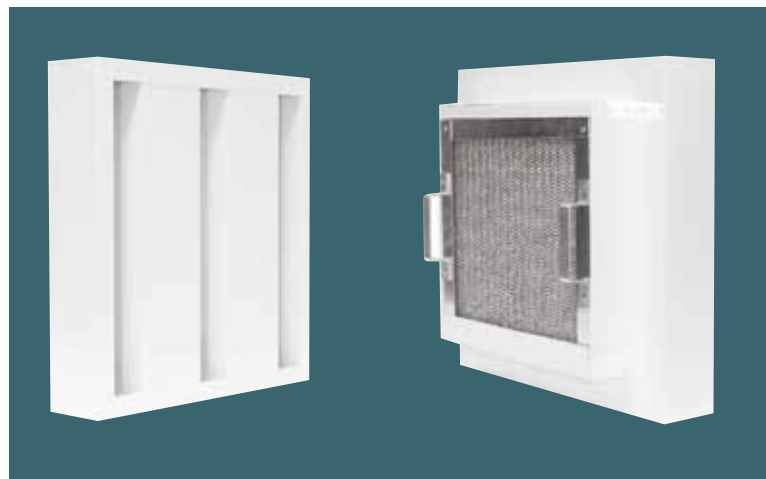
STL- 'T'

TECNALCO model STL-'T' is an intake air sand trap louver made of aluminium or galvanised sheet steel and is provided with a bird screen.



STL- 'TF'

TECNALCO model STL-'TF' is an intake air sand trap louver made of aluminium or galvanised sheet steel. It is provided with a removable type filter and a bird screen. The filter thickness is 25mm / 50 mm.

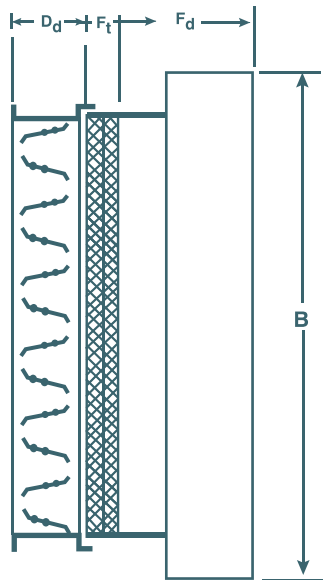


SAND TRAP LOUVRES

STL- 'TFD'

TECNALCO model STL-'TFD' is an intake air sand trap louvre made of aluminium or galvanized sheet. steel ss sheet with a removable type filter, bird screen and a volume control damper.

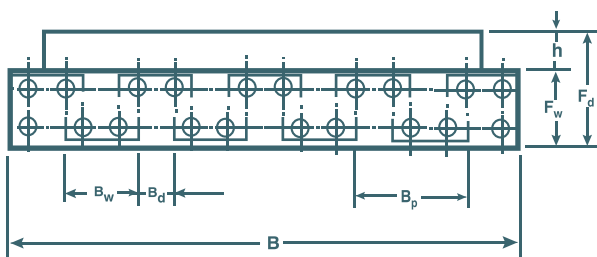
The filter thickness is 25 mm / 50 mm. The volume control damper can be operated from full close to full open position through a lever, projected outside.



Typical efficiencies:

- Depending on face velocity and sand particle size, sand rejection efficiencies of upto 90% can be achieved.

Note: - Opposit blade damper are provided only for sizes 600x600 and below, for the above done and sizes provided volume controll damper.



Typical sand rejection at 0.5 m/s face velocity:

Particle size Microns	Efficiency %
150 - 700	90
75 - 150	60

B_w = Blade width = 100 mm

B_d = Blade distance = 50 mm

B_p = Blade pitch = 150 mm

h = Neck depth = 59 mm

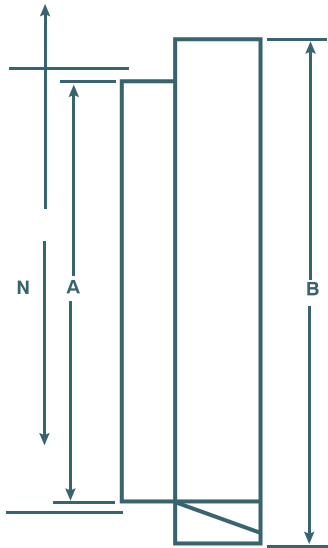
F_w = Frame width = 76 mm

F_d = Frame depth = 135mm

* GI and SS finish available

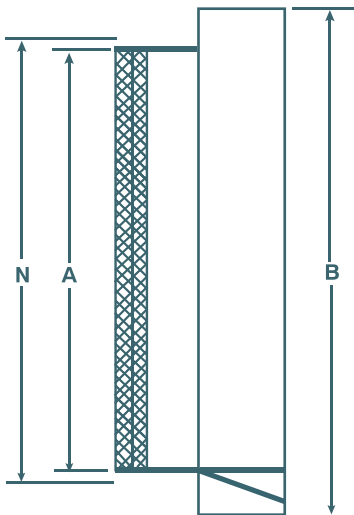
SAND TRAP LOUVRES-FLUSH TYPE

Constructional Details:



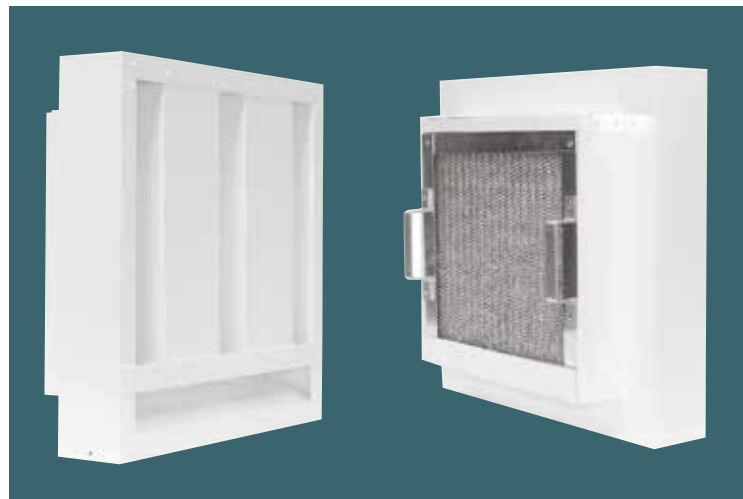
F-STL- 'T'

TECNALCO model F-STL-'T' is an intake air sand trap louver with bottom flush type design made of aluminium or galvanised sheet steel and is provided with a bird screen.



F-STL- 'TF'

TECNALCO model F-STL-'TF' is an intake air sand trap louver with bottom flush type design made of aluminium or galvanised sheet steel. It is provided with a removable type filter and a bird screen. The filter thickness is 25mm / 50 mm.

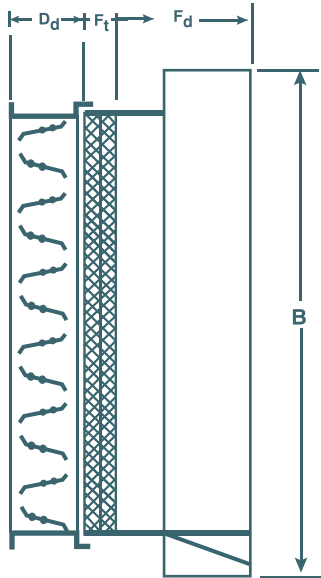


SAND TRAP LOUVRES-FLUSH TYPE

F-STL- 'TFD'

TECNALCO model F-STL-'TFD' is an intake air sand trap louvre with bottom flush type design made of aluminium or galvanized sheet steel with a removable type filter, bird screen and a volume control damper.

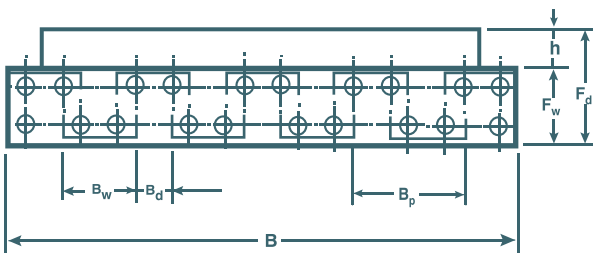
The filter thickness is 25 mm / 50 mm. The volume control damper can be operated from full close to full open position through a lever, projected outside.



Typical efficiencies:

- Depending on face velocity and sand particle size, sand rejection efficiencies of upto 90% can be achieved.

Note: - Opposit blade damper are provided only for sizes 600x600 and below, for the above done and sizes provided volume controll damper.



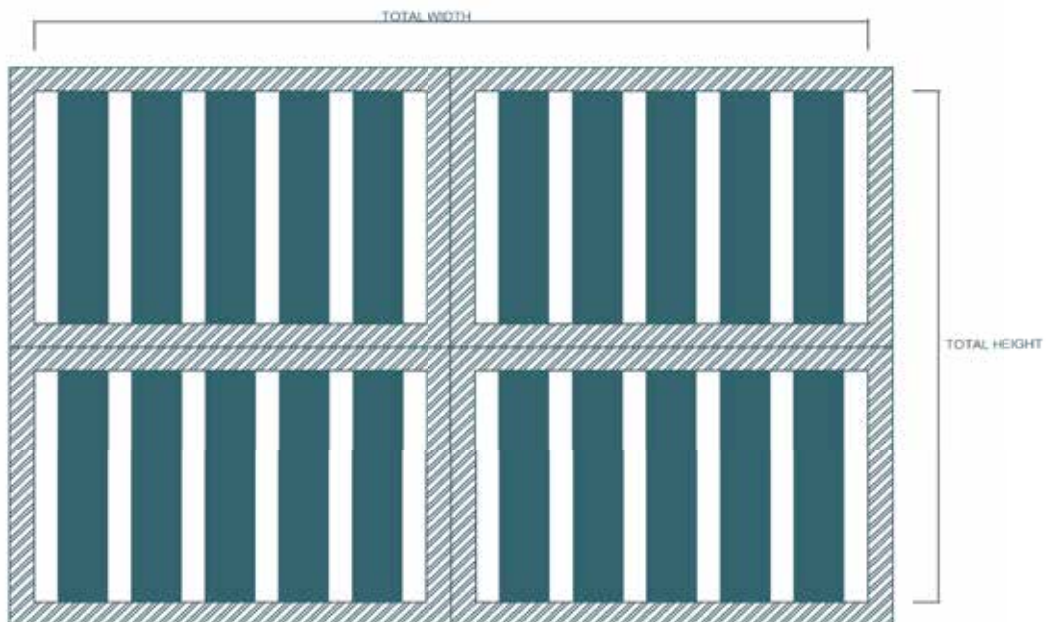
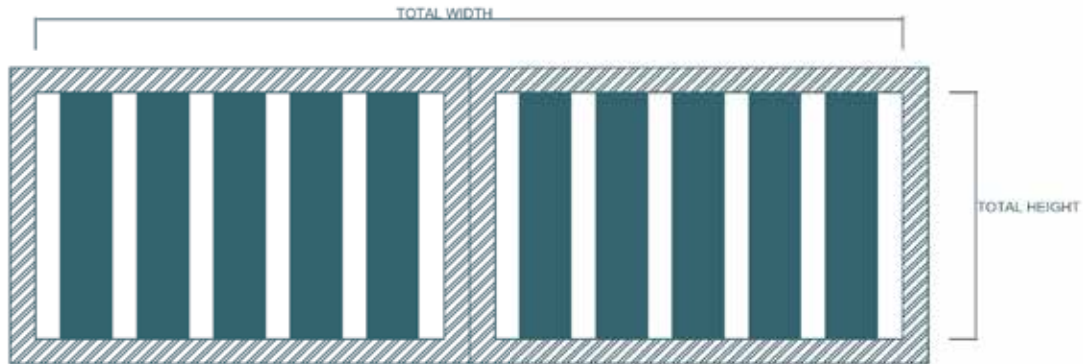
Typical sand rejection at 0.5 m/s face velocity:

Particle size Microns	Efficiency %
150 - 700	90
75 - 150	60

- B_w = Blade width = 100 mm
- B_d = Blade distance = 50 mm
- B_p = Blade pitch = 150 mm
- h = Neck depth = 59mm
- F_w = Frame width = 76 mm
- F_d = Frame depth = 135 mm

BIG SIZE SAN TRAP LOUVRES SPLITTING DETAILS

When the STL-T and F-STL-T model is to be split in to number of pieces. The total width and total height is considered as per the below drawings.



ENGINEERING AND PERFORMANCE DATA

Construction:

- Aesthetically pleasing finish
- Galvanised sheet steel → 'G'
- Aluminium sheet → 'A'
- Heavy duty construction designed to separate air-borne sand and dust mixture from main air stream.

Construction details:

1. Galvanised sheet steel construction → STL-'T'-G & F-STL'T'-G

- Blades with 1.1 mm thickness.
- Casing with 1.5 mm thickness.
- Available in mill finish or powder coated colour finish

Note:

Other Blades & Frame thickness available on request

Finish:

Available in different finishes:

- Mill finish aluminium
- Galvanised steel finish
- Powder coated colour finish

2. Aluminium sheet construction → STL-'T'-A & F-STL-T-A

- Blades with 1.1 mm thickness, optional 1.5mm thickness
- Casing with 1.5 mm thickness optional 2mm thickness
- Available in mill finish or powder coated colour finish.

Engineering and Performance Data

Sand Trap Louvres

The tabulated performance data includes Air volume q_v , Effective pressure area A_k , Total pressure drop and Discharge velocity.

Air volume q_v : Air volumes are given in m^3/sec .

Discharge velocity V_k : The effective discharge velocities given are related to the corresponding air volumes q_v , and face area A_f .

Total pressure drop : The pressure drops given in the graph are related to the corresponding face velocities $V_f \text{ m/sec}$.

Outlet size :

Effective Pressure Area A_k : Outlet sizes are given in a separate table, within a tolerance of $\pm 10\%$, are related to the corresponding effective pressure areas A_k in m^2

Face Velocity :

$V_f \text{ m/s}$	0.5	1.0	1.5	2	2.5
ΔP_t	0.6	2	4.5	7.8	12

● $V_f =$ in m/sec .

● $\Delta P_t =$ in mm of water

ENGINEERING AND PERFORMANCE DATA

Selection tables for TECNALCO models STL-'T'/'TF'/'TFD' & F-STL-'T'/'TF'/'TFD'

Dimension : L & W are in mm.
Area is in Sqm.

L x W →	300	450	600	750	900	1050	1200	1300	1500	1650	1800	1950	2100	2250	2400
↓ 300	0.03	0.04	0.05	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.16	0.18	0.19	0.20	0.22
450	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.29	0.31	0.33
600	0.05	0.08	0.11	0.14	0.16	0.19	0.22	0.24	0.27	0.30	0.33	0.35	0.38	0.41	0.43
750	0.07	0.10	0.14	0.17	0.20	0.24	0.27	0.31	0.34	0.37	0.41	0.44	0.48	0.51	0.54
900	0.08	0.12	0.16	0.20	0.24	0.29	0.33	0.37	0.41	0.45	0.49	0.53	0.57	0.61	0.65
1050	0.10	0.14	0.19	0.24	0.29	0.33	0.38	0.43	0.48	0.52	0.57	0.62	0.67	0.71	0.76
1200	0.11	0.16	0.22	0.27	0.33	0.38	0.43	0.49	0.54	0.60	0.65	0.71	0.76	0.82	0.87
1350	0.12	0.18	0.24	0.31	0.37	0.43	0.49	0.55	0.61	0.67	0.73	0.79	0.86	0.92	0.98
1500	0.14	0.20	0.27	0.34	0.41	0.48	0.54	0.61	0.68	0.75	0.82	0.88	0.95	1.02	1.09
1650	0.15	0.22	0.30	0.37	0.45	0.52	0.60	0.67	0.75	0.82	0.90	0.97	1.05	1.12	1.20
1800	0.16	0.24	0.33	0.41	0.49	0.57	0.65	0.73	0.82	0.90	0.98	1.06	1.14	1.22	1.30
1900	0.18	0.26	0.35	0.44	0.53	0.62	0.71	0.76	0.88	0.97	1.06	1.15	1.24	1.32	1.41
2100	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.95	1.05	1.14	1.24	1.33	1.43	1.52
2250	0.20	0.31	0.41	0.51	0.61	0.71	0.82	0.92	1.02	1.12	1.22	1.32	1.43	1.53	1.63
2400	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.09	1.20	1.30	1.41	1.52	1.63	1.74

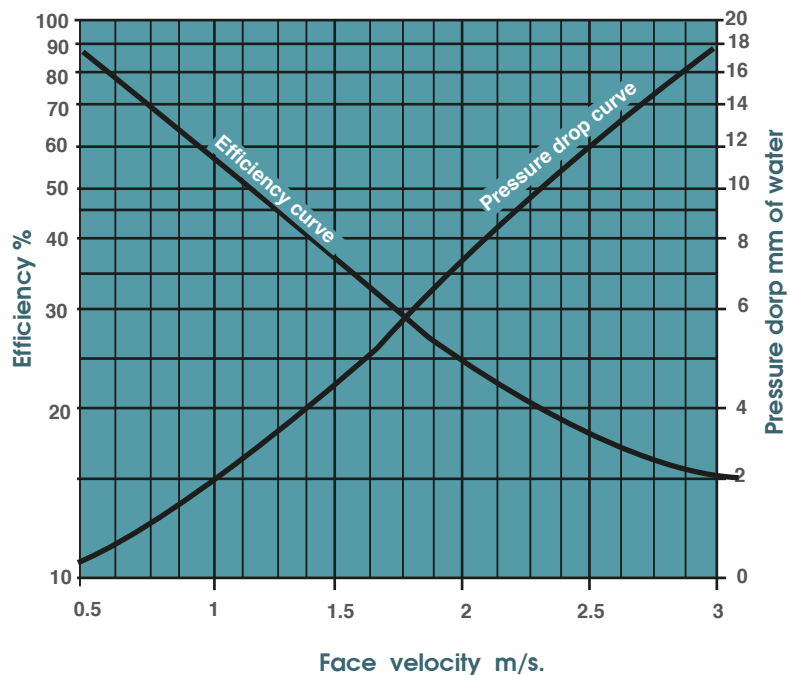
Pressure drop, % Efficiency vs. Face velocity mt/sec.

Example:

$$V_f \times A_f = V \text{ or } q_v$$

Select $V_f = 1.0$ met/sec

at this V_f efficiency of STL > 50%



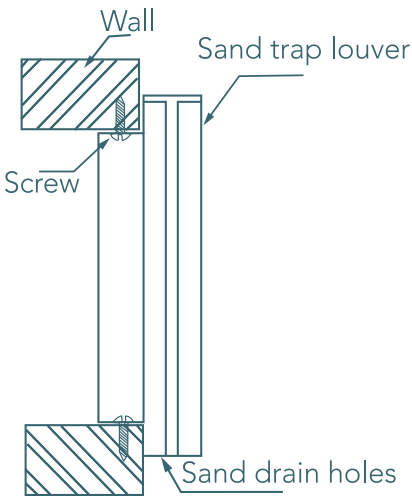
Pressure drop, % Efficiency vs. Face velocity mt/sec.

SAND TRAP LOUVRES FIXING DETAILS

Fixing Details:

Wall mount fixing : STL-T

- Recommended for sidewall applications.



Available finishes:

- Mill finish aluminium
- Galvanised sheet steel finish
- Powder coated colour finish. (Mention RAL colour number)

Ordering Data:

Specify

1. TECNALCO type and model
2. Nominal size - L x W
3. Quantity
4. Type of fixing
5. Surface finish
6. Remarks

Example:					
1.	2.	3.	4.	5.	6.
STL'TF'	900 x 900	5 nos.	Wall mounting	Mill finish aluminium	Filter→ 25 mm thick

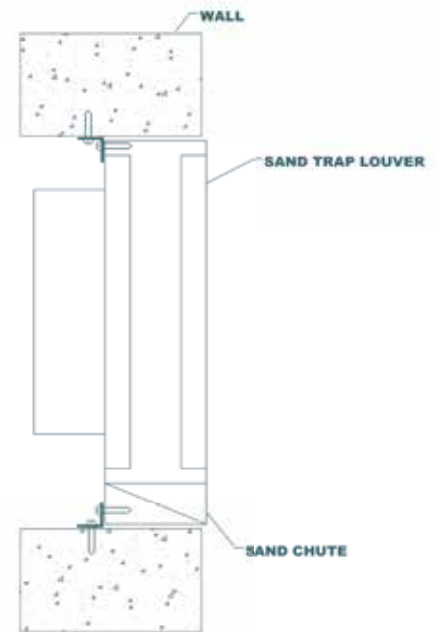
FLUSH TYPE FIXING F-STL-'T'/'TF'/'TFD'

Available finishes:

- Mill finish aluminium
- Powder coated colour finish. (Mention RAL colour number)
- Galvanised sheet steel finish

Ordering Data: Specify

1. TECNALCO type and model
2. Nominal size - L x W
3. Quantity
4. Type of fixing
5. Surface finish
6. Remarks



Example:

1.	2.	3	4.	5.	6.
STL'TF'	900 x 900	5 nos.	Flush Type fixing	Mill finish aluminium	Filter→ 25 mm thick



TECNALCO

Quality Air Distribution Since 1981

ALUMINIUM TECHNICAL ENGINEERING FACTORY

Manufacturer of high quality Air distribution devices and Duct accessories

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