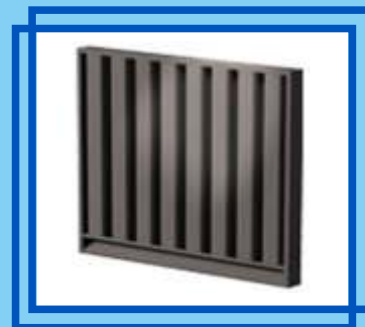


DVAC

DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

Sand Trap Louvers Catalogue



Test Performance Result Complying with BS EN 13181:2001

Types: STL, STL-E, STL-DMRT, STL-DMFD, STL-DMRTF & STL-DMRTFD





DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

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Sand Trap Louvers

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Sand Trap Louvers Types

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Sand Trap Louvers Types - Removable Tray

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1- GENERAL

- A. Sand Trap Louver is used as pre-filter for protection of Air Conditioning Plants. It has a high degree of separation of Sand and large dust particles. The vertical sections trap the sand and drive it to the drainage holes. The Sand Trap Louver is Self-cleaning or removable tray and maintenance-free, but it is not a substitute or conventional supply air filtration plant.
- B. **DVAC** Sand Trap Louvers have been Tested and Certified in accordance to BS EN 13181:2001; performance data were obtained at Thomas Bell-Wright International Consultants Test Facility.

2- THOMAS BELL-WRIGHT INTERCONTINENTAL CONSULTANTS TESTING

Series STL Sand Trap Louvers have been tested in accordance with BS EN 13181:2001. Testing was carried out on 17 March 2016 by Thomas Bell-Wright Laboratories Facilities. Copy of Performance Test Report can be provided upon request.

3- PERFORMANCE DATA

The Sand grading used is between 76µm - 699µm as indicated in BS EN13181:2001.

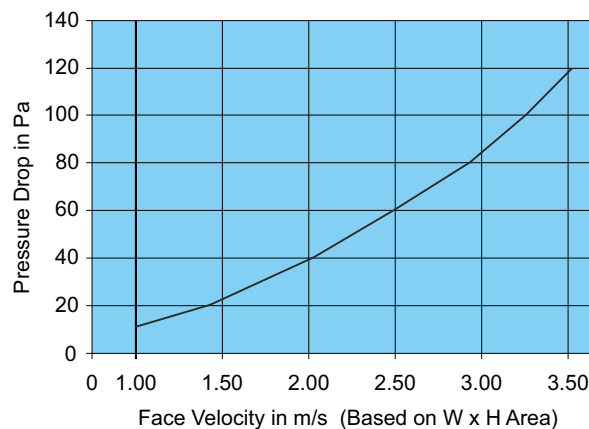
Sand Rejection Performance:

- 80% effective at 0.5m/s Core Velocity.
- 58% effective at 1.0m/s Core Velocity.

Based on this performance data, DVAC recommends 1.0m/s Core Velocity the maximum use, when sizing Sand Trap Louvers, to assure good performance. Sand is blown at the louver at 20-25m/s, measured in the sand injection tube. The Test Louver nominal size 1000x1000mm.

Core Velocity (m/s)	Sand Rejected
0.50	80.0%
1.30	34.6%
2.01	16.8%
2.81	10.9%
3.53	9.5%

4- PRESSURE DROP



For normal operation conditions, Sand Trap Louvers to be Selected for Face Velocity of approximate 1.0m/s.

* Materials Used for Sand Trap Louvers:

- Aluminum Metal: (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- Galvanized Steel: (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- Stainless Steel: (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

* Optional: Powder Coated

SELECTION

For normal operation conditions, Sand Trap Louvers to be Selected for Face Velocity of approximate 1.0m/s.

- Q_v = Air Volume Quantity (m³/sec.)
- V_f = Face Velocity (m/s)
- A_f = Face Area (m²)
- A_k = Free Area (m²)
- V_k = Free Area Velocity (m/s)



If **Air Quantity** is defined, Face Area shall be calculated as follows:

$$*A_f = \frac{Q_v(\text{m}^3/\text{sec})}{V_f(\text{m/s})}$$

example: $Q_v = 2\text{m}^3/\text{s} \implies V_f = 1\text{m/s}$

$$Q_v = A_f \times V_f \implies A_f = \frac{2}{1} = 2\text{m}^2$$

For Sand Trap Louver Size of 2000x1000mm

If **Free Area** is defined, Face Area shall be calculated as follows:

$$*A_f = \frac{A_k}{0.33}$$

example: $A_k = 0.5\text{m}^2$

$$A_f = \frac{0.5}{0.33} = 1.5\text{m}^2$$

For Sand Trap Louver Size of 1500x1000mm



NOTE: DVAC Sand Trap Louver Free Area is 33%

* Materials Used for Sand Trap Louvers:

- Aluminum Metal: (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- Galvanized Steel: (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- Stainless Steel: (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

* Optional: Powder Coated



DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

Sand Trap Louvers

Free Area Calculation

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FREE AREA CALCULATION

For normal operation conditions, Sand Trap Louvers to be Selected for Face Velocity of approximate 1.0m/s.

Free Area Calculation (Sqm)															
Height	Width														
	mm	400	600	700	900	1000	1200	1300	1500	1600	1900	2100	2200	2300	2500
400	0.05	0.08	0.09	0.12	0.13	0.16	0.17	0.20	0.21	0.25	0.28	0.29	0.30	0.33	0.34
600	0.08	0.12	0.14	0.18	0.20	0.24	0.26	0.30	0.32	0.38	0.42	0.44	0.46	0.50	0.51
700	0.09	0.14	0.16	0.21	0.23	0.28	0.30	0.35	0.37	0.44	0.49	0.51	0.53	0.58	0.60
900	0.12	0.18	0.21	0.27	0.30	0.36	0.39	0.45	0.48	0.56	0.62	0.65	0.68	0.74	0.77
1000	0.13	0.20	0.23	0.30	0.33	0.40	0.43	0.50	0.53	0.63	0.69	0.73	0.76	0.83	0.86
1200	0.16	0.24	0.28	0.36	0.40	0.48	0.51	0.59	0.63	0.75	0.83	0.87	0.91	0.99	1.03
1300	0.17	0.26	0.30	0.39	0.43	0.51	0.56	0.64	0.69	0.82	0.90	0.94	0.99	1.07	1.12
1500	0.20	0.30	0.35	0.45	0.50	0.59	0.64	0.74	0.79	0.94	1.04	1.09	1.14	1.24	1.29
1600	0.21	0.32	0.37	0.48	0.53	0.63	0.69	0.79	0.84	1.00	1.11	1.16	1.21	1.32	1.37
1700	0.22	0.34	0.39	0.50	0.56	0.67	0.73	0.84	0.90	1.07	1.18	1.23	1.29	1.40	1.46
1900	0.25	0.38	0.44	0.56	0.63	0.75	0.82	0.94	1.00	1.19	1.32	1.38	1.44	1.57	1.63
2100	0.28	0.42	0.49	0.62	0.69	0.83	0.90	1.04	1.11	1.32	1.46	1.52	1.59	1.73	1.80
2200	0.29	0.44	0.51	0.65	0.73	0.87	0.94	1.09	1.16	1.38	1.52	1.60	1.67	1.82	1.89
2300	0.30	0.46	0.53	0.68	0.76	0.91	0.99	1.14	1.21	1.44	1.59	1.67	1.75	1.90	1.97
2500	0.33	0.50	0.58	0.74	0.83	0.99	1.07	1.24	1.32	1.57	1.73	1.82	1.90	2.06	2.15
2600	0.00	0.51	0.60	0.77	0.86	1.03	1.12	1.29	1.37	1.63	1.80	1.89	1.97	2.15	2.23

Free Area Calculation (Sqft)															
Height	Width														
	inches	16	24	28	36	1000	48	52	60	64	76	84	88	92	100
16	0.59	0.88	1.03	1.32	1.47	1.76	1.91	2.20	2.35	2.79	3.08	3.23	3.37	3.67	3.81
24	0.88	1.32	1.54	1.98	2.20	2.64	2.86	3.30	3.52	4.18	4.62	4.84	5.06	5.50	5.72
28	1.03	1.54	1.80	2.31	2.57	3.08	3.34	3.85	4.11	4.88	5.39	5.65	5.90	6.42	6.67
36	1.32	1.98	2.31	2.97	3.30	3.96	4.29	4.95	5.28	6.27	6.93	7.26	7.59	8.25	8.58
40	1.47	2.20	2.57	3.30	3.67	4.40	4.77	5.50	5.87	6.97	7.70	8.07	8.43	9.17	9.53
48	1.76	2.64	3.08	3.96	4.40	5.28	5.72	6.60	7.04	8.36	9.24	9.68	10.12	11.00	11.44
52	1.91	2.86	3.34	4.29	4.77	5.72	6.20	7.15	7.63	9.06	10.01	10.49	10.96	11.92	12.39
60	2.20	3.30	3.85	4.95	5.50	6.60	7.15	8.25	8.80	10.45	11.55	12.10	12.65	13.75	14.30
64	2.35	3.52	4.11	5.28	5.87	7.04	7.63	8.80	9.39	11.15	12.32	12.91	13.49	14.67	15.25
68	2.49	3.74	4.36	5.61	6.23	7.48	8.10	9.35	9.97	11.84	13.09	13.71	14.34	15.58	16.21
76	2.79	4.18	4.88	6.27	6.97	8.36	9.06	10.45	11.15	13.24	14.63	15.33	16.02	17.42	18.11
84	3.08	4.62	5.39	6.93	7.70	9.24	10.01	11.55	12.32	14.63	16.17	16.94	17.71	19.25	20.02
88	3.23	4.84	5.65	7.26	8.07	9.68	10.49	12.10	12.91	15.33	16.94	17.75	18.55	20.17	20.97
92	3.37	5.06	5.90	7.59	8.43	10.12	10.96	12.65	13.49	16.02	17.71	18.55	19.40	21.08	21.93
100	3.67	5.50	6.42	8.25	9.17	11.00	11.92	13.75	14.67	17.42	19.25	20.17	21.08	22.92	23.83
104	0.14	5.72	6.67	8.58	9.53	11.44	12.39	14.30	15.25	18.11	20.02	20.93	21.93	23.83	24.79

NOTE: DVAC Sand Trap Louver Free Area is 33%

*** Materials Used for Sand Trap Louvers:**

- Aluminum Metal : (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- Galvanized Steel: (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

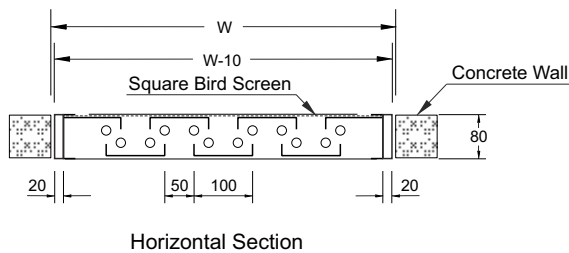
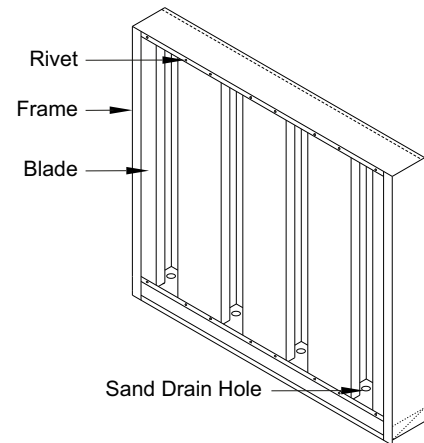
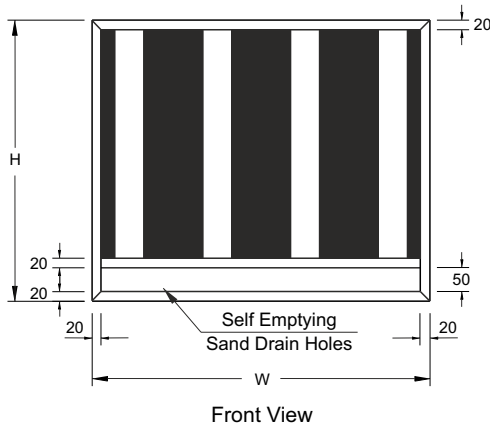
* Optional: Powder Coated

1- MATERIALS

- A. **Standard:**
- 1- Frame and Blade shall be made of 14 Gauge Mill Finish Aluminum, complying with ASTM B209, Alloy 3003, Temper H14.
 - 2- Bird Screen shall be made of 12x12x1mm Galvanized Steel.
- B. **Optional:**
- 1- **Galvanized Steel** complying with ASTM A653 and having G90 Coating Designation.
 - 2- **Stainless Steel** complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
 - 3- **Powder Coated.**

2- CONSTRUCTION

Materials Thickness			
Width or Height (mm)	Galvanized THK (mm)	Stainless Steel 304 or 316 THK (mm)	Aluminum THK (mm)
Up to 600	0.8	0.6	2.0
601 to 900	1.0	0.8	2.0
901 to 1200	1.0	1.0	2.0
1201 to 2200	1.2	1.2	2.0



Size Limitations

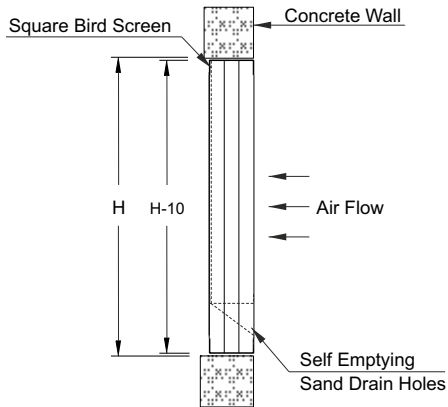
- **Minimum Size:** 6"x 6" (150x150mm)
- **Maximum Size:** 88"x 88" (2200x2200mm)
- Multiple sections: Unlimited

* Materials Used for Sand Trap Louvers:

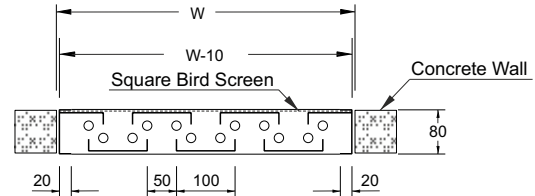
- **Aluminum Metal:** (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- **Galvanized Steel:** (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- **Stainless Steel:** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

* Optional: Powder Coated

SAND TRAP LOUVER (Type: STL)



Vertical Section



Horizontal Section

Ordering: STL

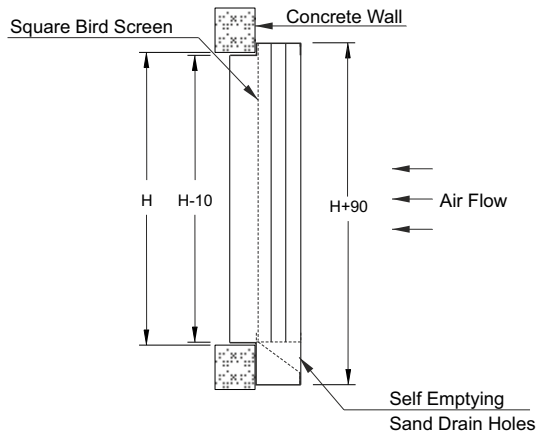
Width: _____
Height: _____

Powder Coated Color: _____
Qty : _____

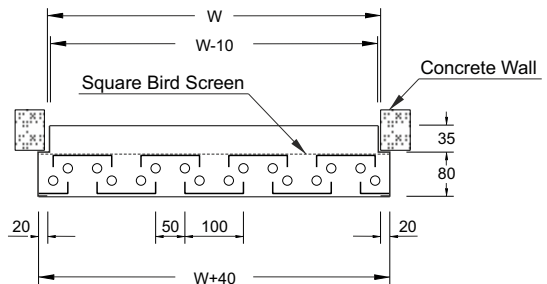
Materials:

- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

SAND TRAP LOUVER - EXTERNAL (Type: STL-E)



Vertical Section



Horizontal Section

Ordering: STL-E

Width: _____
Height: _____

Powder Coated Color: _____
Qty : _____

Materials:

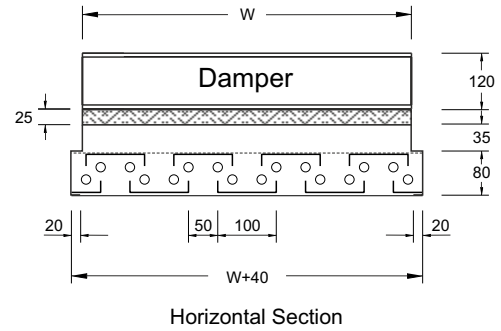
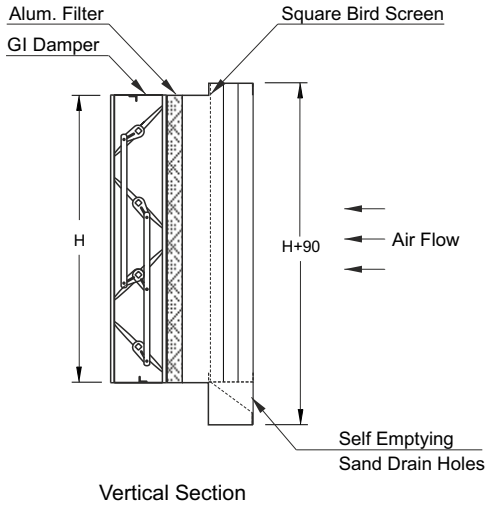
- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

* Materials Used for Sand Trap Louvers:

- Aluminum Metal: (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- Galvanized Steel: (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- Stainless Steel: (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

* Optional: Powder Coated

SAND TRAP LOUVER - DUCT MOUNTED WITH FILTER AND DAMPER (Type: STL-DMFD)



Ordering: STL-DMFD

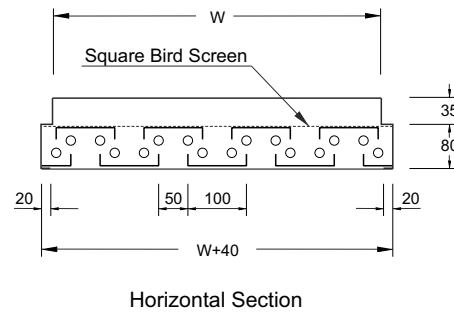
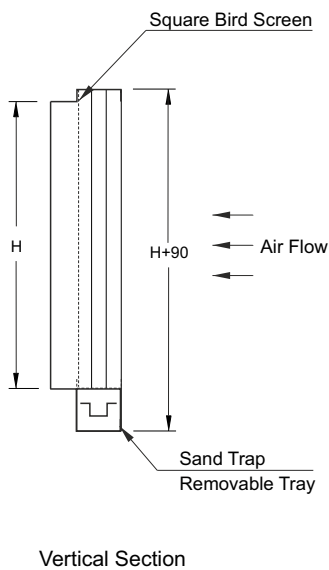
Width: _____
Height: _____

Powder Coated Color: _____
Qty : _____

Materials:

- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

SAND TRAP LOUVER - DUCT MOUNTED WITH REMOVABLE TRAY (Type: STL-DMRT)



Ordering: STL-DMRT

Width: _____
Height: _____

Powder Coated Color: _____
Qty : _____

Materials:

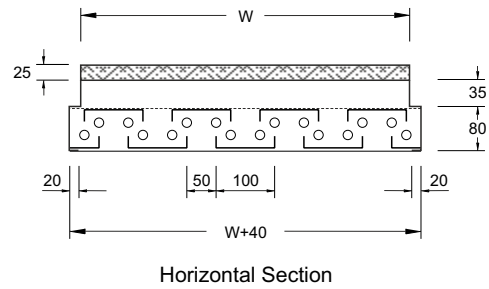
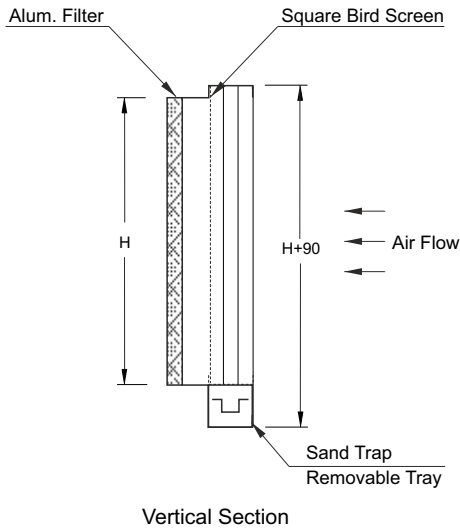
- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

* Materials Used for Sand Trap Louvers:

- Aluminum Metal: (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- Galvanized Steel: (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- Stainless Steel: (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

* Optional: Powder Coated

SAND TRAP LOUVER - DUCT MOUNTED WITH REMOVABLE TRAY AND FILTER (Type: STL-DMRTF)



Ordering: STL-DMRTF

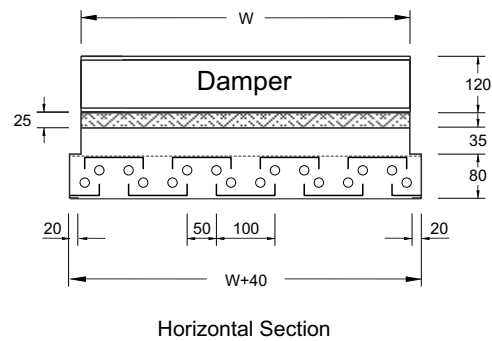
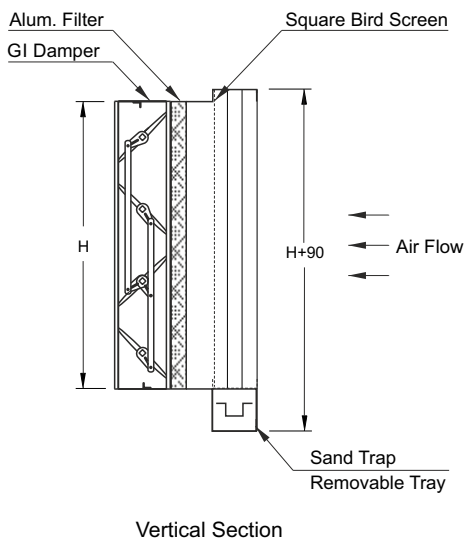
Width: _____
Height: _____

Powder Coated Color: _____
Qty : _____

Materials:

- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

SAND TRAP LOUVER - DUCT MOUNTED WITH REMOVABLE TRAY, FILTER & DAMPER (Type: STL-DMRTFD)



Ordering: STL-DMRTFD

Width: _____
Height: _____

Powder Coated Color: _____
Qty : _____

Materials:

- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

* Materials Used for Sand Trap Louvers:

- Aluminum Metal : (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- Galvanized Steel : (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

* Optional: Powder Coated



THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS

10. Test Photographs



Pressure Drop Test Set-up (Front End with mounted sample)



Rear end of test chamber with fan

* Materials Used for Sand Trap Louvers:

- Aluminum Metal: (Standard) Complying with ASTM B209, Alloy 3003, Temper H14.
- Galvanized Steel: (Optional) L.F.Q. Complying with ASTM A653 & Having G90 Coating Designation.
- Stainless Steel: (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

* Optional: Powder Coated



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DVAC Sand Trap Louver Catalogue Rev.05
Revised Date: July 2024