Test Performance Result Complying with BS EN 13181:2001

Types: STL, STL-E, STL-DMRT, STL-DMFD, STL-DMRTF & STL-DMRTFD
Sand Trap Louvers

<table>
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<th>Section</th>
<th>Page</th>
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Sand Trap Louvers Types

<table>
<thead>
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<td>Types: STL and STL-E</td>
<td>7</td>
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<tr>
<td>Type: STL-DMFD</td>
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Sand Trap Louvers Types - Removable Tray

<table>
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<tr>
<td>Types: STL-DMRTF and STL-DMRTFD</td>
<td>9</td>
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<td>Test Photographs</td>
<td>10</td>
</tr>
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</table>
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.

<table>
<thead>
<tr>
<th>Core Velocity (m/s)</th>
<th>Sand Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>80.0%</td>
</tr>
<tr>
<td>1.30</td>
<td>34.6%</td>
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<tr>
<td>2.01</td>
<td>16.8%</td>
</tr>
<tr>
<td>2.81</td>
<td>10.9%</td>
</tr>
<tr>
<td>3.53</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

4- PRESSURE DROP

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

* Materials Used for Sand Trap Louvers:
  - 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
For normal operation condition, the Sand Trap Louver should be selected for a free minimum area velocity of 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 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

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:**

\( Q_v = 2 \text{m}^3/\text{s} \)
\( V_F = 1 \text{m/s} \)
\[ A_F = \frac{2}{1} = 2 \text{m}^2 \]

For Sand Trap Louver Size of 2000x1000mm

**NOTE:** DVAC Sand Trap Louver Free Area is 33%

* Materials Used for Sand Trap Louvers:
  - 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 Louvers

**Free Area Calculation**

For normal operation condition, the Sand Trap Louver should be selected for a free minimum area velocity of 1.0m/s.

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<tr>
<th>Height (mm)</th>
<th>400</th>
<th>600</th>
<th>700</th>
<th>900</th>
<th>1000</th>
<th>1200</th>
<th>1300</th>
<th>1500</th>
<th>1600</th>
<th>1900</th>
<th>2100</th>
<th>2200</th>
<th>2300</th>
<th>2500</th>
<th>2600</th>
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<td>900</td>
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<td>0.39</td>
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<td>0.48</td>
<td>0.56</td>
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<td>0.65</td>
<td>0.68</td>
<td>0.77</td>
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<tr>
<td>1000</td>
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<td>1200</td>
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<td>0.36</td>
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<td>0.91</td>
<td>0.99</td>
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<td>1.09</td>
<td>1.14</td>
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<td>1.00</td>
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<td>1.44</td>
<td>1.57</td>
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<td>1.29</td>
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<td>18.11</td>
<td>20.02</td>
<td>20.93</td>
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</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Width or Height (mm)</th>
<th>Galvanized THK (mm)</th>
<th>Stainless Steel 304 or 316 THK (mm)</th>
<th>Aluminum THK (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 600</td>
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<td>0.6</td>
<td>2.0</td>
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<td>601 to 900</td>
<td>1.0</td>
<td>0.8</td>
<td>2.0</td>
</tr>
<tr>
<td>901 to 1200</td>
<td>1.0</td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>1201 to 2200</td>
<td>1.2</td>
<td>1.2</td>
<td>2.0</td>
</tr>
</tbody>
</table>

**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 Louvers**

Types: STL & STL-E

**SAND TRAP LOUVER (Type: STL)**

![Diagram of STL Sand Trap Louver]

**Ordering: STL**

- Width: [ ]
- Height: [ ]
- Powder Coated Color: [ ]
- Qty: [ ]

**Materials:**
- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

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

![Diagram of STL-E Sand Trap Louver]

**Ordering: STL-E**

- Width: [ ]
- Height: [ ]
- Powder Coated Color: [ ]
- Qty: [ ]

**Materials:**
- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

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

**Materials:**
- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

**Ordering:**
- STL DMFD
- Width: ________
- Height: ________
- Powder Coated Color: _______
- Qty: _____

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

**Materials:**
- Aluminum
- Galvanized
- Stainless Steel 304
- Stainless Steel 316

**Ordering:**
- STL DMRT
- Width: ________
- Height: ________
- Powder Coated Color: _______
- Qty: _____

* Materials Used for Sand Trap Louvers:
  - 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 Louvers

Types: STL-DMRTF & STL-DMRTFD

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

Ordering: STL-DMRTF

- Width: ________
- Height: ________
- Powder Coated Color: _______
- Qty : _____

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

Ordering: STL-DMRTFD

- Width: ________
- Height: ________
- Powder Coated Color: _______
- Qty : _____

* Materials Used for Sand Trap Louvers:

  - 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
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:
  - 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
Remarks: ____________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
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