SERIES II

The Series II range of Pressure & Vacuum Breather Valves minimize vapour losses from storage tanks during operations, whilst preventing internal pressure and vacuum conditions from exceeding the tank design limits. Hence, both product and vessel are protected, as well as the tank environmental conditions.

INSTALLATION

The Pressure & Vacuum Breather Valve should be mounted on tank roof nozzles as close as possible to the tank roof, to ensure that pressure under the pallet is maintained within 3% of the tank pressure.

FLANGE ADAPTORS

A range of steel adaptor flanges is available for non-standard drilling on tank nozzle flange and for use where tank flanges differ dimensionally for valve flanges.

PRINCIPLE OF OPERATION

Figures 1 and 3 - indicate the position of both the pressure and vacuum pallets, when tank and atmospheric pressure are equal. i.e. both pallets are fully seated.

Figures 2 - shows the position of both pallets, as set pressure is reached, with escaping vapour lifting the pressure pallet and holding the vacuum pallet closed.

Figures 4 - shows the position of both pallets, as set vacuum is reached, with atmospheric pressure lifting the hinged vacuum pallet to allow ingress of air into the tank, whilst holding the pressure pallet closed.

VALVE SIZING

Tables 1 and 2 indicate flow rates for Series II Open Vent Pressure & Vacuum Breather Valves (2" to 12") in both cubic feet per hour and cubic meters per hour, of standard air.

FEATURES

COMBINED UNITS

Series II Pressure & Vacuum Breather Valves can be fitted in combination with Series FAII Flame Arresters.

Note - This type of installation reduces valve flow capacities and thus special sizing calculations are applicable. (See Table 3)

CHEMICAL SERVICE

Series II Pressure & Vacuum Breather Valves can be supplied in a range of alternative materials for chemical and/or cryogenic services and can be used with air dryers fitted at the vacuum inlet port, to protect those products which could be adversely affected by normal atmospheric air.

It is suitable for a wide range of services in the petroleum, chemical and related industries for land tankages only.

LOW BLOW-DOWN

Blow-down is the difference between opening and closing pressures.

The floating diaphragm operation ensures that blow-down is minimised to 10% for pressure relief and 10-15% for vacuum relief.

LOW LEAKAGE

Figure 5 - shows capability of the resilient diaphragm to wrap around the edge of the pallet seat. The high ratio of seating force to seating area provides a tight seal.

As the pressure or vacuum rises, the relevant pallet begins to lift, but the diaphragm wrap around at the edge of the seat maintains a good seal.

As the pressure or vacuum continues to rise, the pallet lifts further, but the diaphragm naturally assumes a good seal.

When pressure or vacuum reaches the set conditions, the pallet opens fully.

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OPEN VENT PRESSURE & VACUUM BREATHER VALVES

FIG. 5
- Pressure Pallet
- Vacuum Pallet
- Valve tightly closed
- Pallet starts to rise
- Slightly below setting
- Vacuum

CLOSED VENT PRESSURE & VACUUM BREATHER VALVES

3" Closed Vent Valve

6" Closed Vent Valve

DIMENSIONS

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>No.of Studs</th>
<th>No.of Bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 m.m</td>
<td>2</td>
<td>271</td>
<td>171</td>
<td>308</td>
<td>43</td>
<td>1</td>
</tr>
<tr>
<td>80 m.m</td>
<td>3</td>
<td>327</td>
<td>241</td>
<td>398</td>
<td>44</td>
<td>1</td>
</tr>
<tr>
<td>100 m.m</td>
<td>4</td>
<td>386</td>
<td>267</td>
<td>471</td>
<td>44</td>
<td>2</td>
</tr>
<tr>
<td>150 m.m</td>
<td>6</td>
<td>433</td>
<td>400</td>
<td>622</td>
<td>44</td>
<td>2</td>
</tr>
<tr>
<td>200 m.m</td>
<td>8</td>
<td>540</td>
<td>518</td>
<td>779</td>
<td>48</td>
<td>4</td>
</tr>
<tr>
<td>250 m.m</td>
<td>10</td>
<td>651</td>
<td>648</td>
<td>949</td>
<td>54</td>
<td>6</td>
</tr>
<tr>
<td>300 m.m</td>
<td>12</td>
<td>759</td>
<td>759</td>
<td>1102</td>
<td>57</td>
<td>6</td>
</tr>
</tbody>
</table>

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### TABLE 1 - OPEN VENTED VALVES (flow in thousands of cubic feet per hour, of standard air)

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Over-pressure</th>
<th>2&quot; (50 mm)</th>
<th>3&quot; (80 mm)</th>
<th>4&quot; (100 mm)</th>
<th>6&quot; (150 mm)</th>
<th>8&quot; (200 mm)</th>
<th>10&quot; (250 mm)</th>
<th>12&quot; (300 mm)</th>
</tr>
</thead>
</table>
SPECIFICATIONS

Sizes:
- 50 mm (2"
- 80 mm (3"
- 100 mm (4"
- 150 mm (6"
- 200 mm (8"
- 250 mm (10"
- 300 mm (12"

Pressure Settings
Minimum:
- 38 mm (2" valve size)
- 25 mm (3" to 10" valve sizes)
- 19 mm (12" valve size)
Maximum:
- 1056 mm (2" to 4" valve sizes)
- 704 mm (6" to 12" valve sizes)

Vacuum Settings
Minimum:
- 25 mm (All valve sizes)
Maximum:
- 65 mm (All valve sizes)

End Connections: ASA 150 FF
Outlet:
- 4" (for 3" Valve)
- 8"(for 6" Valve)
- 12" (for 10" Valve)

To process your enquiry, please furnish the following information:
1. Enquiry/order number
2. Liquid and its flash point
3. Tank diameter and height
4. Type of tank and end connections
5. Pumping-in and pumping-out rates
6. Required pressure and vacuum settings

SPECIALS ON REQUEST
• Epoxy Coated
• Customer specific paint requirements
• Special flanging

MATERIALS OF CONSTRUCTION

Body: Aluminium alloy LM-25
Seat: Aluminium alloy LM-25 or stainless steel
Pallet: Aluminium or stainless steel
Screen: Stainless Steel AISI 304
Guides: Stainless Steel AISI 304
Diaphragm: Fluorinated Ethylene Propylene (FEP) / TFE
Hood: Aluminium
Hardware: Mild Steel (Optional) (Zinc Plated / Yellow Passivated)

MODEL DESIGNATION

Body Material
A = Aluminium
S = Stainless Steel
W = Cast Steel

Size
50 = 50 mm (2"
80 = 80 mm (3"
100 = 100 mm (4"
150 = 150 mm (6"
200 = 200 mm (8"
250 = 250 mm (10"
300 = 300 mm (12"

Pressures & Vacuum
Breather Valve
Series II

Options
O = Open Vent
C = Closed Vent

Specifications are subject to change without notice.
All dimensions are in mm unless otherwise specified.

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