AV45
Air Vent for Steam Systems

Description
The AV45 is a forged alloy steel, medium pressure, temperature sensitive, maintainable air vent. The operating element comprises a stack of bimetal discs which control the flow of air and other incondensable gases at a preset temperature below steam saturation.

Standards
This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the CE mark when so required.

Certification
The product is available with certification to EN 10204 3.1. Note: All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipe connections
½", ⅜" and 1"
Screwed BSP or NPT,

⅝", ⅜", 1" and ⅝"
Butt weld to suit Schedule 80 pipe and
Socket weld to BS 3799 Class 3000.

DN15, DN20, DN25 and DN40
Standard flange to:
EN 1092 PN64,
ASME 300 and
JIS/KS 30K.

Pressure/temperature limits (ISO 6552)
See page 2.

Materials

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Material</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover</td>
<td>Alloy steel</td>
<td>DIN 17243 13Cr Mo44 (W/S 1.7335)</td>
</tr>
<tr>
<td>2</td>
<td>Locking nut</td>
<td>Stainless steel</td>
<td>BS 970 303 S21</td>
</tr>
<tr>
<td>3</td>
<td>Thermostatic element</td>
<td>Corrosive resistant bimetal and stainless steel</td>
<td>⅝&quot; - Rau Type RR 316L</td>
</tr>
<tr>
<td>4</td>
<td>Strainer screen</td>
<td>Stainless steel</td>
<td>ASTM A240 316L</td>
</tr>
<tr>
<td>5</td>
<td>Valve seat</td>
<td>Stainless steel</td>
<td>BS 970 431 S29</td>
</tr>
<tr>
<td>6</td>
<td>Valve seat gasket</td>
<td>Stainless steel</td>
<td>BS 1449 304 S12</td>
</tr>
<tr>
<td>7</td>
<td>Valve</td>
<td>Stainless steel</td>
<td>BS 970 431 S29</td>
</tr>
<tr>
<td>8</td>
<td>Spring</td>
<td>Stainless steel</td>
<td>BS 2056 302 S26</td>
</tr>
<tr>
<td>9</td>
<td>Body</td>
<td>Alloy steel</td>
<td>DIN 17245 CS 22 Mo4</td>
</tr>
<tr>
<td>10</td>
<td>Cover gasket</td>
<td>Spirally wound stainless steel graphite filled gasket</td>
<td>BS 193 Gr. B7</td>
</tr>
<tr>
<td>11</td>
<td>Cover stud</td>
<td>Alloy steel</td>
<td>BS 4882 Gr. 2H</td>
</tr>
<tr>
<td>12</td>
<td>Cover washer</td>
<td>Carbon steel</td>
<td>BS 4320 Table 1 Form A</td>
</tr>
<tr>
<td>13</td>
<td>Seat insert</td>
<td>Stainless steel</td>
<td>BS 970 321 S20</td>
</tr>
<tr>
<td>14</td>
<td>Name-plate</td>
<td>Stainless steel</td>
<td>BS 1449 304 S16</td>
</tr>
</tbody>
</table>

Valve arrangement for the ⅝" sizes

First for Steam Solutions

EXPERTISE SOLUTIONS SUSTAINABILITY
### KV values

For conversion:  
\[ C_v \text{ (UK)} = K_v \times 0.963 \]  
\[ C_v \text{ (US)} = K_v \times 1.156 \]

<table>
<thead>
<tr>
<th>Size</th>
<th>DN15 - ½&quot;</th>
<th>DN20 - ¾&quot;</th>
<th>DN25 - 1&quot;</th>
<th>DN40 - 1½&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>KV value</td>
<td>0.25</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>

### Pressure/temperature limits (ISO 6552)

**A - B**  
**Screwed**  
**Body design condition**  
**PN64**  
**PMA** Maximum allowable pressure  
63 bar g @ 200°C  
**TMA** Maximum allowable temperature  
450°C @ 43.5 bar g  
**Minimum allowable temperature**  
-10°C  
**PMO** Maximum operating pressure for saturated steam service  
45 bar g @ 259°C  
**TMO** Maximum operating temperature  
450°C @ 43.5 bar g  
**Minimum operating temperature**  
0°C  
**Designed for a maximum cold hydraulic test pressure of:**  
95 bar g  

**A - C**  
**Flanged:**  
**ASME 300**  
**Body design condition**  
**PN64**  
**PMA** Maximum allowable pressure  
51 bar g @ 120°C  
**TMA** Maximum allowable temperature  
450°C @ 34 bar g  
**Minimum allowable temperature**  
-10°C  
**PMO** Maximum operating pressure for saturated steam service  
45 bar g @ 259°C  
**TMO** Maximum operating temperature  
450°C @ 34 bar g  
**Minimum operating temperature**  
0°C  
**Designed for a maximum cold hydraulic test pressure of:**  
72 bar g  

**A - D**  
**Flanged:**  
**JIS/KS 30K**  
**Body design condition**  
**JIS/KS 30K**  
**PMA** Maximum allowable pressure  
48 bar g @ 0°C  
**TMA** Maximum allowable temperature  
450°C @ 22 bar g  
**Minimum allowable temperature**  
-10°C  
**PMO** Maximum operating pressure for saturated steam service  
45 bar g @ 100°C  
**TMO** Maximum operating temperature  
450°C @ 22 bar g  
**Minimum operating temperature**  
0°C  
**Designed for a maximum cold hydraulic test pressure of:**  
77 bar g  

The product must not be used in this region or beyond the parameter of the PMA or TMA of the relative end connection.

The product should not be used in this region as damage to the internals may occur.
Dimensions/weights (approximate) in mm and kg

**Screwed, butt weld and socket weld**

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>H</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼&quot;</td>
<td>130</td>
<td>102</td>
<td>138</td>
<td>24</td>
<td>108</td>
<td>5.4</td>
</tr>
<tr>
<td>⅜&quot;</td>
<td>130</td>
<td>102</td>
<td>138</td>
<td>24</td>
<td>108</td>
<td>5.4</td>
</tr>
<tr>
<td>⅞&quot;</td>
<td>149</td>
<td>102</td>
<td>146</td>
<td>30</td>
<td>114</td>
<td>6.0</td>
</tr>
</tbody>
</table>

* Butt weld and socket weld only.

**Flanged**

<table>
<thead>
<tr>
<th>Size</th>
<th>A1</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>H</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN15</td>
<td>210</td>
<td>102</td>
<td>138</td>
<td>24</td>
<td>108</td>
<td>7.2</td>
</tr>
<tr>
<td>DN20</td>
<td>230</td>
<td>102</td>
<td>138</td>
<td>24</td>
<td>108</td>
<td>8.6</td>
</tr>
<tr>
<td>DN25</td>
<td>230</td>
<td>102</td>
<td>138</td>
<td>24</td>
<td>108</td>
<td>9.5</td>
</tr>
<tr>
<td>DN40</td>
<td>260</td>
<td>102</td>
<td>146</td>
<td>30</td>
<td>114</td>
<td>13.6</td>
</tr>
</tbody>
</table>

**Safety information, installation and maintenance**

For full details see the Installation and Maintenance Instructions (IM-P123-13) supplied with the product.

**Installation note:**

The AV45 is designed for installation with the element in a horizontal plane with the cover at the top. Positioned at the highest point of the main, or plant where air collects. For maximum air removal, the discharge should be as free as possible or piped to a safe location. When welding the trap into the line there is no need to remove the element providing the welding is done by the electric arc method. For ease and maintenance consideration should be given to fitting isolation valves upstream and downstream of the air vent. The air vent should not be insulated.

**Disposal**

The product is recyclable. No ecological hazard is anticipated with disposal of this product providing care is taken.

**How to order**

Example: 1 off Spirax Sarco ¼" AV45 air vent having screwed BSP connections.

**Spare parts**

The spare parts available are shown in solid outline. Parts drawn in broken line are not supplied as spares.

**Available spares**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element set</td>
<td>Complete with valve, valve seat and valve seat gasket</td>
<td>2, 3, 6</td>
</tr>
<tr>
<td>Strainer screen</td>
<td>(3 off)</td>
<td>4</td>
</tr>
<tr>
<td>Set of gaskets</td>
<td>(packet of 3 of each)</td>
<td>6, 10</td>
</tr>
</tbody>
</table>

**Important note**

The earlier design of the AV45 incorporated 4 off long cover studs and 8 off washers and nuts for assembling the body and cover. The current design of the AV45 incorporates a threaded cover and 4 off shorter studs and 4 off washers and nuts.

**How to order spares**

Always order spares by using the description given in the column headed ‘Available spares’ and state the size and type of steam trap.

Example: 1 - Element set for a DN25 Spirax Sarco AV45 air vent.

**Recommended tightening torques**

<table>
<thead>
<tr>
<th>Item</th>
<th>or mm</th>
<th>N m</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>27 A/F</td>
<td>120 - 132</td>
</tr>
<tr>
<td>11</td>
<td>19 A/F</td>
<td>110 - 120</td>
</tr>
</tbody>
</table>