**PVC Quick Drain Valve**

Complies to JIS standard for polyvinyl chloride piping (JIS K 6742)

**Applicable fluids:** Deionized water, Chemicals

**Application Example**

**Cleaning Equipment**

- **Fluid contact materials**
  - Body: PVC
  - Poppet: PTFE
  - O-ring: FKM (Standard), EPDM (Optional)

- **Orifice size**
  - ø25, ø40, ø65, ø80

- **Flow-rate characteristics**
  - Cv factor: 10 to 198

- **Easy piping with union connection**

- **Applicable PVC piping**
  - external diameter
    - ø32 to ø89
PVC Quick Drain Valve

Series LVW

How to Order

LVW 60 - 25A -

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Body class</th>
<th>Orifice size</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>6</td>
<td>ø25</td>
</tr>
<tr>
<td>80</td>
<td>8</td>
<td>ø40</td>
</tr>
<tr>
<td>90</td>
<td>9</td>
<td>ø65</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Applicable PVC piping external diameter</th>
<th>Body class</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>25A - ø32</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>32A - ø38</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>40A - ø48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50A - ø60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>65A - ø75</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>80A - ø89</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>FKM</td>
</tr>
<tr>
<td>N</td>
<td>EPDM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Rc1/8</td>
</tr>
<tr>
<td>N</td>
<td>NPT1/8</td>
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</table>

Standard Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>LVW60</th>
<th>LVW80</th>
<th>LVW90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal diameter</td>
<td>25A</td>
<td>32A</td>
<td>40A</td>
</tr>
<tr>
<td></td>
<td>50A</td>
<td>65A</td>
<td>80A</td>
</tr>
<tr>
<td>Applicable pipe size external diameter</td>
<td>ø32</td>
<td>ø38</td>
<td>ø48</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>0 to 2.9psi (0 to 0.02 MPa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orifice size</td>
<td>ø25</td>
<td>ø40</td>
<td>ø65</td>
</tr>
<tr>
<td>Pilot pressure</td>
<td>43.5 to 72.5 psi (0.3 to 0.5 MPa)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow-rate characteristics</td>
<td>Cv factor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>22</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>83</td>
<td>153</td>
<td>198</td>
</tr>
<tr>
<td>Fluid temperature</td>
<td>32 to 140°F (0 to 60°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve leakage</td>
<td>0 cm³/min (with water pressure)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PVC Quick Drain Valve  
**Series LVW**

### Construction

- **IN**
- **OUT**

### Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>PVC</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>Housing</td>
<td>PVC</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>Poppet</td>
<td>PTFE</td>
<td>—</td>
</tr>
<tr>
<td>4</td>
<td>Union end</td>
<td>PVC</td>
<td>—</td>
</tr>
<tr>
<td>5</td>
<td>Union nut</td>
<td>PVC</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>O-ring</td>
<td>FKM</td>
<td>EPDM</td>
</tr>
<tr>
<td>7</td>
<td>O-ring</td>
<td>FKM</td>
<td>EPDM</td>
</tr>
<tr>
<td>8</td>
<td>O-ring</td>
<td>FKM</td>
<td>EPDM</td>
</tr>
<tr>
<td>9</td>
<td>O-ring</td>
<td>FKM</td>
<td>EPDM</td>
</tr>
<tr>
<td>10</td>
<td>O-ring</td>
<td>FKM</td>
<td>EPDM</td>
</tr>
</tbody>
</table>

### Dimensions

- **IN**
- **OUT**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Part no.</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
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</thead>
<tbody>
<tr>
<td>LVW60-25A</td>
<td>22</td>
<td>81.5</td>
<td>14.5</td>
<td>172</td>
<td>32</td>
<td>60</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>LVW80-32A</td>
<td>26</td>
<td>94</td>
<td>20.5</td>
<td>205</td>
<td>40</td>
<td>72</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>LVW80-40A</td>
<td>31</td>
<td>101</td>
<td>20.5</td>
<td>220</td>
<td>48</td>
<td>83</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>LVW90-50A</td>
<td>39</td>
<td>136.5</td>
<td>26</td>
<td>275</td>
<td>52</td>
<td>100</td>
<td>120</td>
<td></td>
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<tr>
<td>LVW90-65A</td>
<td>44</td>
<td>138.5</td>
<td>26</td>
<td>279</td>
<td>76</td>
<td>135</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>LVW90-80A</td>
<td>51</td>
<td>143.5</td>
<td>33</td>
<td>304</td>
<td>90</td>
<td>158</td>
<td>140</td>
<td></td>
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</table>
# PVC Quick Drain Valve

## Material and Fluid Compatibility Check List

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Compatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium hydroxide</td>
<td>Temperature 104°F (40°C) or less</td>
</tr>
<tr>
<td>Isobutyl alcohol</td>
<td>Temperature 104°F (40°C) or less</td>
</tr>
<tr>
<td>Isopropyl alcohol</td>
<td>Temperature 104°F (40°C) or less</td>
</tr>
<tr>
<td>Hydrochloric acid</td>
<td>Concentration 30% or less</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>Concentration 5% or less, Temperature 122°F (50°C or less)</td>
</tr>
<tr>
<td>Nitric acid (except fuming nitric acid)</td>
<td>Concentration 10% or less, Temperature 104°F (40°C) or less</td>
</tr>
<tr>
<td>Deionized water</td>
<td></td>
</tr>
<tr>
<td>Sodium hydroxide (Caustic soda)</td>
<td>Concentration 50% or less</td>
</tr>
<tr>
<td>Nitrogen gas</td>
<td></td>
</tr>
<tr>
<td>Ultrapure water</td>
<td></td>
</tr>
<tr>
<td>Sulfuric acid (except fuming sulfuric acid)</td>
<td>Concentration 30% or less</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>Concentration 50% or less</td>
</tr>
</tbody>
</table>

Material option "N" Note 2)

Concentration 5% or less, Temperature 122°F (50°C or less)

Concentration 10% or less, Temperature 104°F (40°C) or less

Concentration 30% or less

Temperature 104°F (40°C) or less

Temperature 104°F (40°C) or less

Concentration 30% or less

The material and fluid compatibility check list provides reference values as a guide only.

Note 1) Since static electricity may be generated, implement suitable countermeasures.

Note 2) Fluid may pass through. Fluid that has passed through may have an impact on components made of different materials.

- Compatibility is indicated for fluid temperatures of 140°F (60°C) or less.
- The material and fluid compatibility check list provides reference values as a guide only, therefore we do not guarantee the application to our product.
- The data above is based on the information presented by the material manufacturers.
- SMC is not responsible for its accuracy and any damage happened because of this data.
1. If air leakage increases or equipment does not operate properly, stop operation. After mounting, perform suitable function and leak tests to confirm that the mounting is correct.

2. Fluids
Operate after confirming the compatibility of the product’s component materials with fluids, using the check list on page 3. Please contact SMC regarding fluids other than those in the check list. Operate within the indicated fluid temperature range.

3. Maintenance space
Ensure the necessary space for maintenance and inspections.

4. Fluid pressure range
Keep the supplied fluid pressure within the operating pressure range specified in this catalog.

5. Ambient environment
Operate within the ambient operating temperature range. After confirming the compatibility of the product’s component materials with the ambient environment, operate so that fluid does not adhere to the product’s exterior surfaces.

6. Liquid seals
When circulating fluid
Provide a relief valve in the system so that fluid does not get into the liquid seal circuit.

7. Countermeasures for static electricity
Since static electricity may be generated depending on the fluid being used, implement suitable countermeasures.

Warning
1. Check the specifications.
Give careful consideration to operating conditions such as the application, fluid and environment, and use within the operating ranges specified in this catalog.

2. Fluids
Operate after confirming the compatibility of the product’s component materials with fluids, using the check list on page 3. Please contact SMC regarding fluids other than those in the check list. Operate within the indicated fluid temperature range.

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7. Countermeasures for static electricity
Since static electricity may be generated depending on the fluid being used, implement suitable countermeasures.

Warning
1. If air leakage increases or equipment does not operate properly, stop operation. After mounting, perform suitable function and leak tests to confirm that the mounting is correct.

2. Operation manual
Mount and operate the product after reading the manual carefully and understanding its contents. Also, keep the manual where it can be referred to as necessary.

Caution
1. Preparation before piping
Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe. Install piping so that it does not apply pulling, pressing, bending or other forces on the valve body.

2. Use the tightening torques shown below for the pilot port.

Table 1  Tightening Torque of Pilot Port
<table>
<thead>
<tr>
<th>Nominal dia. mm (inch)</th>
<th>25 (1)</th>
<th>32 (1/4)</th>
<th>40 (1 1/2)</th>
<th>50 (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tightening torque N·m</td>
<td>4.0</td>
<td>6.0</td>
<td>8.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

3. Use of metal fittings
In the case of threaded pilot port, do not pipe the metal fittings which can cause damage to the thread part.

4. Tighten the union nuts on both sides equally by hand. A watertight seal can be obtained by hand tightening. Never use a pipe wrench etc., as it may break the product. Table 1 shows the tightening torque for reference.

5. When applying adhesive to the union end or union bushing, the seals can be damaged by the adhesive running into the seals. Always remove the union end and union nut from the body when applying adhesive.

6. In places where vibration could be applied to the union, take countermeasures to prevent vibration.

7. Do not tighten the union while there is pressure left in the piping.

Warning
1. Use clean air.
Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt, or corrosive gases, etc., as this may cause damage or malfunction.
## Operating Environment

### Warning
1. Do not use in locations having an explosive atmosphere.
2. Do not operate in locations where vibration or impact occurs.
3. In locations near heat sources, block off radiation heat.

### Caution
1. PVC fitting (union)
   - The PVC fitting (union) must be mounted and joined by an engineer with sufficient knowledge.
   - Be sure to confirm that there is no leakage from the fitting after mounting and joining. If it is mounted and joined by a person who does not have sufficient knowledge and skills, it may lead to failure such as leakage.

   2. When selecting adhesive for the PVC fitting (union), confirm that its heat resistance and endurance are compatible with the operating temperature of the fluids used. Otherwise, this may cause leakage and damage.

   3. Do not apply excessive force to the PVC piping. This may cause damage.

   4. When the PVC piping type is used, the higher the fluid temperature, the lower the proof pressure will be. Therefore, adjust the water hammer pressure carefully so that it does not exceed the proof pressure.

## Maintenance

### Warning
1. Maintenance should be performed in accordance with the procedures in the operation manual.
   - Incorrect handling can cause damage or malfunction of machinery and equipment, etc.

   2. Before removing equipment or compressed air supply/exhaust devices, shut off the air and power supplies, and exhaust compressed air from the system. Further, when restarting equipment after remounting or replacement, first confirm safety and then check the equipment for normal operation.

   3. Perform work after removing residual chemicals and carefully replacing them with deionized water or air, etc.

   4. Do not disassemble the product. Products which have been disassembled cannot be guaranteed.
   - If disassembly is necessary, please contact SMC.

   5. In order to obtain optimum performance from valves, perform periodic inspections to confirm that there is no leakage from valves or fittings, etc.

### Caution
1. Removal of drainage
   - Flush drainage from filters regularly.
Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\(^1\), and other safety regulations.

**Caution:** Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

**Warning:** Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

**Danger:** Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

### Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
   
   Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
   
   The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.
   
   1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
   2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
   3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
   
   1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
   3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
   4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

### Caution

1. The product is provided for use in manufacturing industries.
   
   The product herein described is basically provided for peaceful use in manufacturing industries. If considering the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

   If anything is unclear, contact your nearest sales branch.

### Limited warranty and Disclaimer

**Compliance Requirements**

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

**Limited warranty and Disclaimer**

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.\(^2\)
   
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

\(^1\) ISO 4414: Pneumatic fluid power – General rules relating to systems.

\(^2\) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warrantied for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

### Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.

2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.
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