Model RV-1A Pressure Relief Valve Pilot-Operated

General Description

The TYCO Model RV-1A Pressure Relief Valves, 2 in. to 8 in. (DN50 to DN200), are factory assembled and fully trimmed valve arrangements for relief of excess water pressure. These valves are typically used to automatically relieve excess pressure in a fire protection system that utilizes a fire pump.

The DV-5A Water Control Valve is the central component in the fully-trimmed assembly. For information on the DV-5A Valve assembly, see Figure 2.

Pilot-controlled, the Model RV-1A Valve maintains a relatively constant system pressure at the pump discharge as flow demands change.

The Model RV-1A valve is factory set to approximately 175 psi (12,1 bar). The valve may be field-set to a nominal relief “set pressure” of 30 to 250 psi (2,1 to 17,2 bar).

Features

• One-piece, one-moving-part diaphragm
• Epoxy-coated interior and exterior
• Accurate pressure control
• In-line service
• No need to bleed trapped air from the diaphragm chamber
• One pilot valve sub-assembly that provides for any outlet “set pressure”; that is; 30 to 250 psi (2,1 to 17,2 bar)

Technical Data

Approvals
UL Listed
FM Approved

Field Relief “Set Pressure” Range
30 to 250 psi (2,1 to 17,2 bar)

Temperature Range
50°F to 175°F (10°C to 80°C)

Maximum System Pressure
300 psi (20,6 bar)

Note: The system pressure is the maximum pressure the valve is expected to be exposed to. The valve cannot be set to relieve at any pressure greater than 250 psi (17,2 bar).

NFPA 20 Recommended

Maximum Flow
2 in. (DN50) ............... 250 gpm (946 Lpm)
3 in. (DN80) .............. 500 gpm (1893 Lpm)
4 in. (DN100) ............ 1000 gpm (3785 Lpm)
6 in. (DN150) ............ 2500 gpm (9462 Lpm)
8 in. (DN200) ............ 5000 gpm (18925 Lpm)

See Graph A for inlet pressure versus flow characteristics.

End Connections
Flanged end connections are available as drilled per Table A.

Valve Materials of Construction
See Figure 2

Body
Epoxy-coated ductile iron per ASTM A536-77, Grade 65-45-12

Diaphragm Cover
Epoxy-coated, ductile iron per ASTM A536-77, Grade 65-45-12

Diaphragm
Polyester fabric-reinforced, TEFILON coated, EPDM rubber per ASTM D2000

Diaphragm Cover Fasteners
Aluminium-zinc coated steel

Trim Materials of Construction
See Figure 6

Pilot Valve
Cast bronze and stainless steel with fabric reinforced, EPDM rubber per ASTM D2000 diaphragm

Pressure Gauges
3 3/4 in. (95 mm) diameter, UL and FM listed, 0 to 300 psi (20,7 bar)

Strainer, Tube, and Fittings
Stainless steel

NOTICE

The TYCO Model RV-1A Pressure Relief Valves described herein must be installed and maintained in compliance with this document and with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.
Operation

The TYCO Model RV-1 Pressure Relief Valve is normally installed on-line in a tee configuration, as shown in Figure 1, after the fire pump and before the system’s check valve.

When the Model RV-1 Pressure Relief Valve opens to permit excess flow and to relieve pressure to the atmosphere within the water tank, the fire protection system is accurately maintained at the desired preset pressure. In case the demand of the fire system completely stops, the Model RV-1 Pressure Relief Valve remains fully open, relieving 100% of the pump’s capacity.

The check valve then closes, isolating the system from the pump. The pump shuts off safely, avoiding the risk of system surges. As the pump shuts, the Model RV-1 Pressure Relief Valve slowly closes.

The operation sequence, shown in Figure 3, is as follows:

- When inlet pressure is below the relief “set pressure”, the Model RV-1 Pressure Relief Valve Diaphragm Seat is closed and the Pilot Valve Seat is closed. With the Pilot Valve Seat closed, pressure is trapped in the Diaphragm Chamber to seat the Diaphragm, and the Model RV-1 Pressure Relief Valve remains closed.

- When inlet pressure is above the relief “set pressure”, the Pilot Valve Seat opens to relieve pressure from the Diaphragm Chamber faster than pressure can be re-established. Loss of pressure in the Diaphragm Chamber allows the Model RV-1 Pressure Relief Valve to open.

- Subsequent to relieving excess pressure, when the inlet pressure starts to fall below the relief “set pressure”, the Pilot Valve Seat closes to allow the Diaphragm Chamber to re-pressurize automatically and close the Model RV-1 Pressure Relief Valve. The restriction orifice controls the speed at which the Model RV-1 Valve closes to provide a slow re-closure.

<table>
<thead>
<tr>
<th>Item</th>
<th>Available End Connections</th>
<th>Nominal Valve Size in. (DN)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2 (50) 3 (80) 4 (100) 6 (150) 8 (200)</td>
</tr>
<tr>
<td>Groove</td>
<td>✓</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Flange (ANSI)</td>
<td>N/A</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Flange (PN)</td>
<td>N/A</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>

NOTES:
1. EMEA and APAC only.
### TABLE A

#### Nominal Valve Size ANSI Inch (DN)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>Nominal Valve Size ANSI Inch (DN)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 (DN50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P/N</td>
</tr>
<tr>
<td>1</td>
<td>Valve Body</td>
<td>1</td>
<td>N/R</td>
</tr>
<tr>
<td>2</td>
<td>Diaphragm</td>
<td>1</td>
<td>5450000020</td>
</tr>
<tr>
<td>3</td>
<td>Diaphragm Cover</td>
<td>1</td>
<td>N/R</td>
</tr>
<tr>
<td>4</td>
<td>Hex Bolt, Short</td>
<td>2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>545100001</td>
</tr>
<tr>
<td>5</td>
<td>Hex Bolt, Long</td>
<td>2</td>
<td>545100011</td>
</tr>
<tr>
<td>6</td>
<td>Lift Washer</td>
<td>2&lt;sup&gt;b&lt;/sup&gt;</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>Hex Nut</td>
<td>2</td>
<td>545100031</td>
</tr>
<tr>
<td>8</td>
<td>Hoist Ring</td>
<td>2</td>
<td>545100041</td>
</tr>
<tr>
<td>9</td>
<td>Flat Washer</td>
<td>2</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### NOTES:

- a. Hex Bolt, Short, Qty. 6 in 6 and 8 inch (DN150 and DN200) assemblies
- b. Lift Washer not used in 2 inch (DN50) assembly
- c. N/R = Not Replaceable
- d. Order replacements parts only via Part Numbers given, do not replace Hex Bolt, Hex Nut, Lift Washer or Hoist Ring with common hardware parts

### FIGURE 2

**DV-5A VALVE ASSEMBLY AND REPLACEMENT PARTS**

(See Figure 6 For RV-1a Trim Assembly)

### TABLE A

#### Flange Drilling Specifications

<table>
<thead>
<tr>
<th>Nominal Valve Size ANSI in. (DN)</th>
<th>Flange Drilling Specification</th>
<th>Nominal Dimensions in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI B16.1&lt;sup&gt;a&lt;/sup&gt; (Class 125)</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>3 (80)</td>
<td>6.00</td>
<td>0.75</td>
</tr>
<tr>
<td>4 (100)</td>
<td>7.50</td>
<td>0.75</td>
</tr>
<tr>
<td>6 (150)</td>
<td>9.50</td>
<td>0.88</td>
</tr>
<tr>
<td>8 (200)</td>
<td>11.75</td>
<td>0.88</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal Valve Size ANSI in. (DN)</th>
<th>Flange Drilling Specification</th>
<th>Nominal Dimensions in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 7005-2 (PN16)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>3 (80)</td>
<td>6.30</td>
<td>0.75</td>
</tr>
<tr>
<td>4 (100)</td>
<td>7.09</td>
<td>0.75</td>
</tr>
<tr>
<td>6 (150)</td>
<td>9.45</td>
<td>0.91</td>
</tr>
<tr>
<td>8 (200)</td>
<td>11.61</td>
<td>0.91</td>
</tr>
</tbody>
</table>

#### NOTES:

- a. Same drilling as for ANSI B16.5 (Class 150) and ANSI B16.42 (Class 150)
- b. Same drilling as for BS 4504 Section 3.2 (PN16) and DIN 2532 (PN16)
**SET CONDITION**

- **Pressure Relief Port Open to Atmosphere**: Through valve downstream port
- **Water Supply Pressure to Diaphragm Chamber**: Pipe arrow open
- **Valve Waterway Closed by Seated Diaphragm**: Circle arrow back
- **Open to Atmosphere**: Arrow back

**Operated Condition**

- **Pressure Relief Port Flow to PRV-1A Valve Downstream Port**: Pipe arrow open
- **Diaphragm Retracts Opening Valve Waterway**: Pipe arrow back
- **Pressure Relief Flow**: Pipe arrow back
- **Pressure Relief Flow from Pilot Valve to PRV-1A Valve Downstream Port**: Pipe arrow back
- **Over-Pressure Flow**: Pipe arrow back
- **Upstream Water Supply Port to PRV-1A Valve Over-Pressure**: Pipe arrow back

**Model RV-1a Pressure Relief Valve Operation**

- **Figure 3**
- **Legend**: Arrows showing direction of flow
TURN ADJUSTING SCREW COUNTERCLOCKWISE TO DECREASE RV-1A VALVE RELIEF PRESSURE

TURN ADJUSTING SCREW CLOCKWISE TO INCREASE RV-1A VALVE RELIEF PRESSURE

LOWER SET PRESSURE RELIEF CONDITION

FIGURE 4
MODEL RV-1A PRESSURE RELIEF VALVE
MODEL R1 PILOT VALVE ASSEMBLY AND ADJUSTMENT
Design Considerations

The following items must be considered and applied accordingly for an installation that will be using the TYCO Model RV-1A Pressure Relief Valve:

- When planning the positioning of the Model RV-1A Valve, it is recommended that consideration be given to the viewing of the pressure gauge. Consideration should also be given to positioning the Model RV-1A Valve so that the diaphragm cover is facing up. With the cover facing up, internal access is more easily achieved.

- The installation of an isolation valve in the inlet connection to the Model RV-1A Pressure Relief Valve is recommended to facilitate performing preventative maintenance on the Model RV-1A Valve. Isolating valves installed per Figure 1 will meet this recommendation in addition to providing isolation means for the fire pump, water tank, and fire protection system.

- The Model RV-1A Pressure Relief Valve must be in an area that is easily accessible for maintenance purposes, not subject to freezing temperatures, and not subject to physical damage.

- The Model RV-1A Pressure Relief Valve is designed for fresh water service. When corrosive atmospheres and/or contaminated water supplies are present, responsibility lies with owners to verify compatibility with the pressure relief valve, pilot valve, and trim.

Installation

Note: The valve may be installed in any orientation provided the gauges are readable from a safe position and the valve can be adequately inspected in accordance with NFPA 25.

The TYCO Model RV-1A Pressure Relief Valve must be installed with the flow arrow located on the Diaphragm Cover pointing in the intended direction of flow. Installation dimensions are provided in Figures 7 and 8.

Before installing the Model RV-1A Pressure Relief Valve, flush pipe lines to remove all chips, scale, and foreign matter. Exercise care to assure that the trim is not damaged during installation.

NOTICE

Do not lift the valve by its trim. Otherwise, the trim may be damaged and impair system operation.

Make the inlet and outlet connections based on the direction of arrow provided on the Diaphragm Cover. The valve cannot operate if connected backwards.

Do not alter the trim. Altering the trim will render the valve ineffective and impair system operation.

---

FIGURE 5
RV-1A VALVE
TAKE-OUT DIMENSIONS
Placing the Valve in Service

Perform Steps 1 to 4 when placing the TYCO Model RV-1a Pressure Relief Valve in service.

**NOTICE**

Pressure relief adjustment is only to be performed by experienced personnel who understand the impact of adjusting the pressure relief setting and who take full responsibility of the relief setting.

Prior to pressurizing the Model RV-1a Pressure Relief Valve, make sure the necessary pressure gauges to measure pressure in the system are installed as required by the system designer.

Note: If adjusting the set pressure, venting any trapped air from the Diaphragm Chamber is not necessary.

If not adjusting the set pressure, air may need to be bled from the system by cracking the flare fittings on either side of the pilot valve (only necessary if valve is not shut when installed).

**Step 1.** Loosen the Pilot Valve Locknut, then completely loosen the Adjusting Screw. Tighten the Adjusting Screw three turns beyond the point at which spring resistance is encountered.

**Step 2.** Start the pump. One hundred percent of pump capacity will now flow through the Model RV-1a Pressure Relief Valve into the tank.

**Step 3.** Slowly tighten the Pilot Valve Adjusting Screw until the desired relief "set pressure" is achieved on the Pilot Valve Pressure Gauge. Make all pilot adjustments slowly and in small increments.

**Step 4.** Tighten the Locknut and shut off the pump.

The tag is not to be removed until after the system has been accepted by the Authority Having Jurisdiction. It is recommended that the tag not be removed even after acceptance by the Authority Having Jurisdiction unless another means of record-keeping is maintained.

### ITEM | QTY | DESCRIPTION | CH | 2 IN. (DN50) | 3 IN. (DN80) | 4 IN. (DN100) | 6 IN. (DN150) | 8 IN. (DN200)
--- | --- | --- | --- | --- | --- | --- | --- | ---
1 | 1 | DV-5a AUTOMATIC WATER CONTROL VALVE | | 545100069 | 545100069 | 545100069 | 545100069 | 545100069 |
2 | 1 | RT PILOT VALVE | | 92-343-1-005 | 92-343-1-005 | 92-343-1-005 | 92-343-1-005 | 92-343-1-005 |
3 | 1 | WATER PRESSURE GAUGE, 300 PSI / 2000 kPa | | 545100068 | 545100068 | 545100068 | 545100068 | 545100068 |
4 | 1 | TUBING ASSEMBLY, DV-5a RV-1 INTERCONNECT TUBE 1 | | 545100067 | 545100067 | 545100067 | 545100067 | 545100067 |
5 | 1 | TUBING ASSEMBLY, DV-5a RV-1 INTERCONNECT TUBE 2 | | 545100032 | 545100032 | 545100032 | 545100032 | 545100032 |
6 | 1 | FLARE FITTING REDUCER 1/2" TUBE x 1/4" NPT | | 545100086 | 545100086 | 545100086 | 545100086 | 545100086 |
7 | 1 | FLARE FITTING STRAINER 1/2" NPT x 1/2" TUBE | | 545100073 | 545100073 | 545100073 | 545100073 | 545100073 |
8 | 1 | FLARE FITTING 1/2" NPT x 1/2" TUBE | | 545100061 | 545100061 | 545100061 | 545100061 | 545100061 |
9 | 1 | 1/2" UNION | ✓ | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" |
10 | 2 | 1/2" x CLOSE PIPE NIPPLE | ✓ | 1/2" x CLOSE | 1/2" x CLOSE | 1/2" x CLOSE | 1/2" x CLOSE | 1/2" x CLOSE |
11 | 1 | 1/2" SOCKET HEAD PIPE PLUG | ✓ | 3/4" | 3/4" | 3/4" | 3/4" | 3/4" |
12 | 2 | 3/4" SOCKET HEAD PIPE PLUG | ✓ | 3/4" | 1 1/4" | 2" | 2" | 2" |
13 | 1 | PIPE PLUG
<table>
<thead>
<tr>
<th>Nominal Valve Size Inches (DN)</th>
<th>O.D. Pipe Size in. (mm)</th>
<th>Nominal Installation Dimensions in. (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (DN50)</td>
<td>2.88 (80.3)</td>
<td>10-3/16 (260) 2.80 (71.1) 11.17 (283.7) 5.93 (150.6) 6.53 (165.9) 34.0 (15.4)</td>
<td></td>
</tr>
<tr>
<td>3 (DN80)</td>
<td>3.50 (88.9)</td>
<td>13-3/4 (349) 2.95 (74.9) 12.84 (326.1) 8.05 (204.5) 8.05 (204.5) 71.0 (32.2)</td>
<td></td>
</tr>
<tr>
<td>4 (DN100)</td>
<td>4.50 (114.3)</td>
<td>16-3/4 (425) 3.00 (76.2) 14.11 (358.4) 8.93 (226.8) 9.53 (242.1) 106.0 (48.1)</td>
<td></td>
</tr>
<tr>
<td>6 (DN150)</td>
<td>6.62 (168.3)</td>
<td>22-3/8 (569) 4.52 (114.8) 15.50 (393.7) 12.43 (315.7) 11.03 (280.2) 182.0 (82.6)</td>
<td></td>
</tr>
<tr>
<td>8 (DN200)</td>
<td>8.62 (219.1)</td>
<td>27-7/16 (697) 5.29 (134.4) 18.20 (462.3) 14.43 (366.5) 15.03 (381.8) 336.3 (152.5)</td>
<td></td>
</tr>
</tbody>
</table>

*FIGURE 7*
MODEL RV-1A PRESSURE RELIEF VALVE
GROOVE x GROOVE END CONNECTIONS
NOMINAL INSTALLATION DIMENSIONS

<table>
<thead>
<tr>
<th>Nominal Valve Size Inches (DN)</th>
<th>Nominal Installation Dimensions in. (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 (DN80)</td>
<td>13-3/4 (349) 4.00 (101.6) 12.84 (326.1) 8.05 (204.5) 8.05 (204.5) 83.0 (37.6)</td>
<td></td>
</tr>
<tr>
<td>4 (DN100)</td>
<td>16-3/4 (425) 4.42 (112.3) 14.11 (358.4) 8.93 (226.8) 9.53 (242.1) 127.0 (57.6)</td>
<td></td>
</tr>
<tr>
<td>6 (DN150)</td>
<td>22-3/8 (569) 5.41 (137.4) 15.50 (393.7) 12.43 (315.7) 11.03 (280.2) 209.0 (94.8)</td>
<td></td>
</tr>
<tr>
<td>8 (DN200)</td>
<td>27-7/16 (697) 6.76 (171.7) 18.20 (462.3) 14.43 (366.5) 15.03 (381.8) 374.3 (169.8)</td>
<td></td>
</tr>
</tbody>
</table>

*FIGURE 8*
MODEL RV-1A PRESSURE RELIEF VALVE
FLANGE x FLANGE END CONNECTIONS
NOMINAL INSTALLATION DIMENSIONS
Care and Maintenance

Inspection, testing, and maintenance must be performed in accordance with the requirements of the NFPA. Any impairment must be immediately corrected. See Table C for information on troubleshooting valve problems.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of any authorities having jurisdiction. Contact the installing contractor or product manufacturer with any questions.

Automatic sprinkler systems are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

Note: Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, obtain permission to shut down the affected fire protection systems from the proper authorities and notify all personnel who may be affected by this decision.

The TYCO Model RV-1A Pressure Relief Valve requires no lubrication, packing or preventative maintenance. However, replacement of the diaphragm every ten years is recommended.

Inspections
- Inspect the Model RV-1A Pressure Relief Valve on a weekly basis.
- Check the valve under static conditions to assure that the Model RV-1A Pressure Relief Valve is not unnecessarily relieving pressure. If necessary, re-adjust the Model RV-1A Pressure Relief Valve by following the instructions in the section Placing the Valve in Service. If the desired pressure cannot be achieved, the Diaphragm and/or Pilot Valve should be replaced.
- During pump start-ups, check that the Model RV-1A Pressure Relief Valve relieves pressure as necessary. If necessary, re-adjust the Model RV-1A Pressure Relief Valve by following the instructions in the section Placing the Valve in Service. If the desired pressure cannot be achieved, the Diaphragm and/or Pilot Valve should be replaced.
- Check that the Model RV-1A Pressure Relief Valve, Pilot Valve, Tube, Fittings, and Pressure Gauge are in good condition and do not exhibit signs of damage or leakage.
- Make sure that the Pilot Valve Locknut is securely tightened.

Diaphragm Replacement
Prior to replacing the Diaphragm, the Model RV-1A Pressure Relief Valve must be taken out of service and completely drained.

When reinstalling the Diaphragm Cover, the Diaphragm Cover Fasteners must be uniformly and securely tightened using a cross-draw sequence. After tightening, double check to make certain that all Diaphragm Cover fasteners are securely tightened.

After cleaning and inspecting valve interior, and replacing parts as necessary, reinstall the Diaphragm Cover by completing the following steps to assure the Diaphragm Cover Fasteners are uniformly and securely tightened.

Step 1. Ensure that the Diaphragm is properly oriented and that the proper hardware arrangement is utilized when assembling the Diaphragm Covers. The hardware arrangements differ depending on the size of the DV-5a Valve.

Step 2. By first using the Long Hex Bolts, support of the Diaphragm Cover will be provided before installing the Short Hex Bolts. Align Diaphragm in proper orientation with Valve Body, and then align Diaphragm Cover in proper orientation with Valve Body. Hand-tighten all fasteners.

Step 3. Using crossdraw sequence to assure uniformity, wrench-tighten Long Hex Bolts and Short Hex Bolts to appropriate torque values. Repeat crossdraw sequence two to three times at incremental torque valves until reaching the torque valves found in Table B.

Step 4. Inspect to assure all Hex Bolts are securely tightened.

Step 5. Using the union, secure the RV-1A to the Diaphragm cover.

Step 6. Using the union, secure the RV-1A trim.

Step 7. Ensure that the unions and pipe nipples flare fittings are securely tightened.

Pilot Valve Replacement
Prior to removing the Pilot Valve, the Model RV-1A Pressure Relief Valve must be taken out of service and completely drained.

When installing the replacement Pilot Valve, the trim components must be replaced exactly as they were. After reinstalling the Pilot Valve and before returning the Model RV-1A Pressure Relief Valve into service, completely unscrew the Adjusting Screw. Then, to place the Model RV-1A Pressure Relief Valve in service, follow the instructions in the section Placing the Valve in Service.

NOTICE
The Pilot Valve is not field repairable. Attempting to repair the Pilot Valve may render the valve ineffective and impair the system operation.

Completely unscrewing the Adjusting Screw of the replacement Pilot Valve will help to avoid an accidental over-pressurization of the system piping prior to achieving the desired relief “set pressure.”

<table>
<thead>
<tr>
<th>Nominal Valve Sizes ANSI Inches (DN)</th>
<th>Torque lb-ft (N-m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nuts</td>
</tr>
<tr>
<td>1 1/2 (40)</td>
<td>44 (59.7)</td>
</tr>
<tr>
<td>2 (50)</td>
<td>44 (59.7)</td>
</tr>
<tr>
<td>3 (80)</td>
<td>188 (254.9)</td>
</tr>
<tr>
<td>4 (100)</td>
<td>396 (536.9)</td>
</tr>
<tr>
<td>6 (150)</td>
<td>265 (359.3)</td>
</tr>
<tr>
<td>8 (200)</td>
<td>545 (738.9)</td>
</tr>
</tbody>
</table>

**TABLE B DIAPHRAGM COVER BOLTS MINIMUM TORQUE**
<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Valve fails to open| 1. Water connections are blocked  
2. Pilot adjustment is too high  
3. Pilot diaphragm or seal is damaged | 1. Dismantle and clean downstream tubing*  
2. Reset pressure by turning pressure adjusting screw CCW  
3. Replace pilot valve* |
| Valve fails to close| 1. Water connections are blocked  
2. Blocked finger filter  
3. Foreign object stuck under valve diaphragm  
4. Valve diaphragm is leaking  
5. Pilot seal is damaged. | 1. Dismantle and clean upstream tubing*  
2. Dismantle and clean finger filter*  
3. Loosen cover bolts, remove cover and diaphragm, and dispose of foreign object*  
4. Loosen cover bolts and replace diaphragm*  
5. Replace pilot valve* |

NOTES:  
* Prior to performing a solution, the Model RV-1a must be taken out of service and completely drained.
Limited Warranty
For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure
Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

North America Pressure Relief Valve
Specify: Model RV-1A Valve, size (specify), Connection Type (specify Grooved or Flanged, including flange drilling specification from below), and P/N (specify):

- Valve Size
  2, 3, 4, 6, or 8 in.
- Connection Type - Grooved or Flanged
  For flanged, identify flange drilling specification as follows:
  ANSI B16-1 (Class 125)

Note: See Table A for flange drilling dimensional specifications.

South America, Central America and Eastern Hemisphere Pressure Reducing Valve
Specify: Model RV-1A Valve, size (specify), Connection Type (specify Grooved or Flanged, including flange drilling specification from below), and P/N (specify):

- Valve Size
  2, 3, 4, 6, or 8 in.
- Connection Type - Grooved or Flanged
  For flanged, identify flange drilling specification as follows:
  ANSI B16-1 (Class 125)
  ISO 7005-2 (PN16)

Note: See Table A for flange drilling dimensional specifications.

<table>
<thead>
<tr>
<th>Size</th>
<th>Connection Type</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 in G x G Grooved</td>
<td>55-001-3-020</td>
<td></td>
</tr>
<tr>
<td>3 in G x G Grooved</td>
<td>55-001-3-030</td>
<td></td>
</tr>
<tr>
<td>4 in G x G Grooved</td>
<td>55-001-3-040</td>
<td></td>
</tr>
<tr>
<td>6 in G x G Grooved</td>
<td>55-001-3-060</td>
<td></td>
</tr>
<tr>
<td>8 in G x G Grooved</td>
<td>55-001-3-080</td>
<td></td>
</tr>
<tr>
<td>3 in F x F ANSI Flange</td>
<td>55-002-3-030</td>
<td></td>
</tr>
<tr>
<td>4 in F x F ANSI Flange</td>
<td>55-002-3-040</td>
<td></td>
</tr>
<tr>
<td>6 in F x F ANSI Flange</td>
<td>55-002-3-060</td>
<td></td>
</tr>
<tr>
<td>8 in F x F ANSI Flange</td>
<td>55-002-3-080</td>
<td></td>
</tr>
</tbody>
</table>

Replacement Valve Parts
See Figure 6 for replacement parts.
Specify: Model RV-1A Pressure Relief Valve, (specify size), (specify part description), P/N (specify, see Figures 2 and 6)