1. DESCRIPTION
(Refer to Figures 1-6)
Viking Electric/Pneu-Lectric Double Interlocked Preaction Systems utilize a Viking deluge valve, pneumatic supervision of the automatic sprinkler system, and an electric detection system. The deluge valve release trim utilizes a normally closed electric solenoid valve controlled by an approved release control panel with two initiating circuits configured for "cross-zoned" operation. One initiating circuit is connected to the electric detection system; the other to a "low-air" supervisory switch.

Both the electric detection system must activate AND supervisory air pressure must be relieved from the sprinkler system before the deluge valve will open to fill the sprinkler system with water. If the electric detection system (alone) operates, an alarm will activate but the deluge valve will NOT open. If the sprinkler piping is damaged or a sprinkler is broken or fused, but the detection system has not activated, an alarm will activate, but the deluge valve will NOT open.

In fire conditions, after both the detection system and a sprinkler operate, the deluge valve opens allowing water to enter the system. Electric/Pneu-Lectric Double Interlocked Preaction Systems are commonly used as refrigerated area systems. They are also commonly used where flooding of the sprinkler system piping can have serious consequences and where it is important to control accidental water discharge due to damaged sprinkler piping.

2. LISTINGS AND APPROVALS
FM Approved: Viking Electric/Pneu-Lectric Double-Interlocked Preaction Systems are Factory Mutual (FM) Approved as refrigerated area systems when installed with specific components. Refer to current FM Approval Guide. Consult the manufacturer for any component approvals too recent to appear in the FM Approval Guide.

3. SYSTEM OPERATION
(Refer to Figures 1-6)

A. IN THE SET CONDITION
System water supply pressure enters the priming chamber of the deluge valve through the 1/4" (8 mm) priming line which includes a normally open priming valve (B.1), strainer (B.2), restricted orifice (B.3), and check valve (B.4). In the SET condition, water supply pressure is trapped in the priming chamber by check valve and normally closed solenoid valve (F.1). The water supply pressure trapped in the priming chamber holds the deluge valve clapper closed, keeping the outlet chamber and system piping dry.

B. IN FIRE CONDITIONS
In a fire condition, operation of the detection system (F.4) activates the first initiating circuit in the system control panel (F.3), causing an alarm to activate. When a sprinkler operates, air pressure escapes from the sprinkler piping. The air supervisory switch (E.3) activates the second initiating circuit in system control panel. When both initiating circuits have been activated, system control panel energizes solenoid valve (F.1) open. Pressure is released from the priming chamber to open drain cup faster than it is supplied through restricted orifice. The deluge valve clapper opens to allow water to flow into the system piping and alarm devices, causing water motor alarm (C.2) and water flow alarms connected to the alarm pressure switch (C.1) to activate. An optional accelerator may be installed to provide earlier alarms and/or allow the system to fill with water faster. An accelerator may be necessary to meet system water delivery time requirements.

When the deluge valve operates, the sensing end of PORV (B.10) is pressurized, causing the PORV to operate. When the PORV operates, it continually vents the priming chamber to prevent the deluge valve from resetting even if the solenoid valve (F.1) closes. The deluge valve can only be reset after the system is taken out of service, and the outlet chamber of the deluge valve and associated trim piping is depressurized and drained.

C. TROUBLE CONDITIONS
If a sprinkler opens prior to operation of the detection system, or any time supervisory pressure in the sprinkler piping is lost, alarms connected to air supervisory switch (E.3) will signal a low-air pressure condition but the deluge valve will NOT open. If the electric detection system (alone) operates (F.4) due to damage or malfunction, alarms connected to the system control panel (F.3) will activate, but the deluge valve will NOT open.

D. MANUAL OPERATION
Any time the handle inside the emergency release (B.11) is pulled, pressure is released from the priming chamber; the deluge valve will open. Water will flow into the system piping and alarm devices. If a sprinkler head opens, water will flow from the system.

4. INSTALLATION
Refer to current Viking Technical Data describing individual components of the Viking Electric/Pneu-Lectric Double-Interlocked Preaction System. Technical Data describing the Viking Deluge Valve and other system components are packed with product and in the
TABLE 1: IMPORTANT SETTINGS

<table>
<thead>
<tr>
<th>Device</th>
<th>Recommended Pneumatic Supervisory Pressures and Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Mounted Air Compressor On/Off Switch</td>
<td>For Supervisory Pressure of 30 PSI (2 bar) Set to Maintain</td>
</tr>
<tr>
<td></td>
<td>40 PSI (2.8 bar)</td>
</tr>
<tr>
<td></td>
<td>12.5 PSI (.9 bar) Minimum</td>
</tr>
<tr>
<td>Air Maintenance Device</td>
<td>For Supervisory Pressure of 10 PSI (.7 bar) Set to Maintain</td>
</tr>
<tr>
<td></td>
<td>30 PSI (2.1 bar)</td>
</tr>
<tr>
<td></td>
<td>10 PSI (.7 bar)</td>
</tr>
<tr>
<td>Low-Air Alarm Contact Setting on Release</td>
<td>25 PSI (1.7 bar) On Pressure Drop</td>
</tr>
<tr>
<td>System Pressure Supervisory Switch</td>
<td>(use Viking Switch Part Number 09473 or equal)</td>
</tr>
<tr>
<td></td>
<td>7.5 PSI (.52 bar) On Pressure Drop (use Viking</td>
</tr>
<tr>
<td></td>
<td>Switch Part Number 09471 or equal)</td>
</tr>
<tr>
<td>Setting for Contacts on Release System</td>
<td>20 PSI (1.4 bar) On Pressure Drop (use Viking</td>
</tr>
<tr>
<td>Pressure Switch to activate</td>
<td>Switch Part Number 09473 or equal)</td>
</tr>
<tr>
<td>Release Control Panel Initiating Circuit</td>
<td>5 PSI (.34 bar) On Pressure Drop (use Viking Switch</td>
</tr>
<tr>
<td></td>
<td>Part Number 09471 or equal)</td>
</tr>
</tbody>
</table>

Viking Engineering and Design Data book. Also, refer to applicable installation standards, codes, and Authorities Having Jurisdiction.

A. IMPORTANT SETTINGS
(Also refer to Table 1 above.)

1. Recommended pneumatic supervisory pressure in the closed sprinkler piping is 30 PSI (2.1 bar). The air supervisory switch (E.3) should be equipped with two sets of independently adjustable contacts. Use Viking Pressure Supervisory Switch Part Number 09473 (or equal) as air supervisory switch.

For 30 PSI (2.1 bar) supervisory pressure:

   a. Adjust one set of contacts of air supervisory switch (E.3) to activate at 25 PSI (1.7 bar) on pressure drop. These contacts should be wired to activate a “Low-Air” supervisory alarm.

   b. The other set of contacts in the air supervisory switch should activate at 20 PSI (1.4 bar) on pressure drop. Wire these contacts to activate the remaining initiating circuit of the system control panel (F.3) configured for “cross-zoned” operation. For Par-3 and VFR400 Release Control Panels, refer to the appropriate wiring diagram packed with the panel. Activation of an alarm to signal a high-pressure condition may be required. Refer to applicable installation standards and the Authority Having Jurisdiction.

2. Installation Standards may allow supervisory pressures lower than those recommended above. For pneumatic supervisory pressure of 10 PSI (.7 bar), use Viking Alarm Pressure Switch Part Number 09471 (or equal) as air supervisory switch.

For 10 PSI (.7 bar) Supervisory Pressure:

   a. Adjust one set of contacts of air supervisory switch (E.3) to activate at 7.5 PSI (.52 bar) on pressure drop. These contacts should be wired to activate a “Low-Air” supervisory alarm.

   b. The other set of contacts in air supervisory switch should activate at 5 PSI (3.4 bar) on pressure drop. Wire these contacts to activate the remaining initiating circuit of the system control panel (F.3) configured for “cross-zoned” operation. For Par-3 Release Control Panels, refer to the appropriate wiring diagram packed with the panel. Activation of an alarm to signal a high-pressure condition may be required. Refer to applicable installation standards and the Authority Having Jurisdiction.

Note: When using supervisory pressures, settings, or equipment other than those recommended above, verify that air regulation equipment and air supervisory switches used are compatible with the supervisory pressure setting used. Supervisory pressures other than the recommended settings noted above may affect operation of the system.

3. The alarm pressure switch (C.1) should activate when pressurized to 4 to 8 PSI (.3 to .6 bar) on pressure rise and should be wired to activate the water flow alarm (C.2).

B. AIR SUPPLY DESIGN

The air supply compressor (G.1) should be sized to establish total required air pressure in 30 minutes. The air supply must be regulated, restricted, and maintained automatically. Air maintenance device (G.6) is used to regulate and restrict the flow of supervisory air into the sprinkler system piping.

The air supply must be regulated to maintain the supervisory pressure desired in the sprinkler piping. Pressures other than the pressure settings recommended in section 4. INSTALLATION may affect operation of the system.

The air supply must be restricted to ensure that the automatic air supply cannot replace air as fast as it escapes when a sprinkler operates. It is recommended practice to provide an inspector’s test connection on the supervised sprinkler piping. For systems in excess of 750 gal (2840 L), a trip test connection must be installed per NFPA 13, on the end of the most distant sprinkler pipe in the upper story, equipped with a readily accessible shutoff valve and plug not less 1” (25 mm), at least one of which shall be brass. The trip test connection shall be not less than 1” (25 mm) in diameter, terminating in a smooth bore corrosion-resistant orifice to provide a flow equivalent to one sprinkler of a type installed on the system.

Speed of Operation: An optional accelerator (F.5) may be installed to allow the system to fill with water faster. An accelerator may be necessary to meet water delivery time requirements.

Riser Mounted Compressors:
A riser mounted compressor (G.1) may be suitable for small electrically operated double interlocked preaction systems. However, placement of a dehydrator (G.5) and/or an air maintenance device (G.6) in the outlet piping of a riser mounted compressor may affect operation of the compressor.

1. When a dehydrator is not installed, verify that the installation is located in a dry environment (not humid) and that the supervised sprinkler piping is never subject to freezing.
2. When an air maintenance device is not used, verify that the air supply produced is properly “regulated” and “restricted”. See Air Supply Design paragraphs above, and section 7. INSPECTIONS AND TESTS.
3. Do not install an accelerator on the system.
4. Verify system approval. Refer to the Authority Having Jurisdiction.

5. PLACING THE SYSTEM IN SERVICE
(Refer to Figures 1-6)

NOTE: REFER TO INSTRUCTIONS PROVIDED IN TECHNICAL DATA DESCRIBING THE VIKING DELUGE VALVE AND OTHER SYSTEM COMPONENTS. (SEE SECTION 8.)

Placing the System to Service:

1. Verify that the system has been properly drained. System main drain and auxiliary drain should be open. Verify that the emergency release (B.11) is closed.
2. Close the system main drain (D.3).
3. Restore supervisory pressure to sprinkler piping.
4. Establish a normal condition on the release control panel F.3).
   a. Verify that the ½” valve in the air maintenance device by-pass trim (G.6) is closed and that both 1/4” valves are open.
5. Open the priming valve (B.1).
6. Open the flow test valve (B.15).
7. Partially open the main water supply control valve (D.1).
8. When full flow develops from the flow test valve, close the flow test valve (B.15).
   a. Verify that there is no flow from the open auxiliary drain (B.6).
9. Fully open and secure the main water supply control valve (D.1).
10. Verify that the alarm shut-off valve (B.9) is open and that all other valves are in their normal operating position.
11. Depress the plunger of the drip check (B.7). No water should flow from the drip check when the plunger is pushed.

6. EMERGENCY INSTRUCTIONS
(Refer to Figures 1-6)

To Take System Out of Service:
WARNING: PLACING A CONTROL VALVE OR DETECTION SYSTEM OUT OF SERVICE MAY ELIMINATE THE FIRE PROTECTION CAPABILITIES OF THE SYSTEM. PRIOR TO PROCEEDING, NOTIFY ALL AUTHORITIES HAVING JURISDICTION. CONSIDERATION SHOULD BE GIVEN TO EMPLOYMENT OF A FIRE PATROL IN THE AFFECTED AREAS.

After a fire, verify that the fire is OUT and that placing the system out of service has been authorized by the appropriate Authority Having Jurisdiction.

1. Close the water supply valve (D.1).
2. Open the system main drain (D.3).
   a. To silence electric alarms controlled by the Viking Par-3 or VFR400 Release Control Panel (F.3), open panel and press “ALARM SILENCE”
   b. To silence electric alarms controlled by pressure switch (C.1) and to silence water motor alarm (C.2), close alarm shut-off valve (B.9).

NOTE: ELECTRIC ALARMS CONTROLLED BY A PRESSURE SWITCH (G.2) INSTALLED IN THE ½” (15 MM) NPT CONNECTION FOR A NON-INTERRUPTIBLE ALARM PRESSURE SWITCH CANNOT BE SHUT OFF UNTIL THE DELUGE VALVE IS RESET OR TAKEN OUT OF SERVICE.

4. Shut off the air supply (optional) (G.4).
5. Open auxiliary drain (B.6).

NOTE: SPRINKLER SYSTEMS THAT HAVE BEEN SUBJECTED TO A FIRE MUST BE RETURNED TO SERVICE AS SOON AS POSSIBLE. THE ENTIRE SYSTEM MUST BE INSPECTED FOR DAMAGE, AND REPAIRED OR REPLACED AS NECESSARY.

6. Replace any detectors that have been damaged.
7. Replace any sprinklers that have opened, been damaged, or have been exposed to fire conditions.
8. Perform all maintenance procedures recommended in technical data describing individual components of the system that has operated.

9. Return the system to service as soon as possible. Refer to section 5. PLACING THE SYSTEM IN SERVICE.

7. INSPECTIONS AND TESTS

NOTICE: THE OWNER IS RESPONSIBLE FOR MAINTAINING THE FIRE PROTECTION SYSTEM AND DEVICES IN PROPER OPERATING CONDITION.

It is imperative that the system be inspected and tested on a regular basis in accordance with NFPA 25. Refer to INSPECTIONS and TESTS recommended in current Viking Technical Data describing individual components of the Viking Electric/Pneu-Lectric Double-Interlocked Preaction System used. (See section 8 for hyperlinks to Viking Technical Data.)

The frequency of the inspections may vary due to contaminated water supplies, corrosive water supplies, corrosive atmospheres, as well as the condition of the air supply to the system. For minimum maintenance and inspection requirements, refer to NFPA 25. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

WARNING: Any system maintenance that involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

Low Air pressure Alarm Test
Quarterly testing of low air alarms is recommended.

To Test sprinkler system “Low supervisory Air” Alarm:
1. To prevent operation of the deluge valve and filling the system with water during the test, DO NOT operate the electric detection system during this test. Consider closing the main water supply control valve (D.1).

2. Fully open the sprinkler system trip test connection to simulate operation of a sprinkler.

3. Verify that low-air alarms operate within an acceptable time period and continue without interruption.

4. Close the trip test connection valve.

5. Establish pneumatic supervisory pressure to be maintained. Refer to section 4. INSTALLATION.

6. Open the system control panel (F.3) and press RESET. Alarms should stop.

When testing is complete, return the system to service following steps 1 through 9 below.

Caution! This procedure applies only when done in conjunction with “Low Air” Alarm testing described above.

If main water supply valve (D.1) was closed in step 1 above, proceed with steps 1 through 9 below.

1. Verify that the pressure indicated on priming pressure water gauge (B.12) indicates that the priming chamber is pressurized with system water supply pressure.

2. Depress the plunger of the drip check (B.7). No water should flow from the drip check when the plunger is pushed.

If the main water supply control valve (D.1) was NOT closed in step 1, proceed to step 8 below.

3. Open the flow test valve (B.15) and auxiliary drain.

4. Partially open the main water supply control valve (D.1).

5. When full flow develops from the flow test valve, close the flow test valve.
   a. Verify that there is no flow from the open auxiliary drain (B.6).

6. Close the auxiliary drain.

7. Fully open and secure the main water supply control valve (D.1).

8. Verify that the alarm shut-off valve (B.9) is open and that all other valves are in their normal operating position.

9. Depress the plunger of the drip check (B.7). No water should flow from the drip check when the plunger is pushed.

Full Flow Trip Test:
Performance of a trip test is recommended annually during warm weather. Consider coordinating this test with operation testing of the detectors.

Caution! Performance of this test will cause the deluge valve to open and the sprinkler system to fill with water.

To Trip Test the Electrically Controlled Double-Interlocked Preaction System:
1. Notify the Authority Having Jurisdiction and those in the area affected by the test.

2. Trip the deluge valve:
   a. Operate a detector according to the manufacturer’s instructions.
   b. Open the sprinkler system inspector’s test connection.

3. The deluge valve should open, filling the sprinkler system with water.
   a. Waterflow alarms should operate.

4. Verify adequate flow from the sprinkler system inspector’s test valve within an acceptable time period.
When Trip Testing is Complete:
5. Perform steps 1 through 10 of section 6. EMERGENCY INSTRUCTIONS to take the system out of service.
6. Perform steps 1 through 12 of section 5. PLACING THE SYSTEM IN SERVICE to return the system to service.
7. Notify the Authority Having Jurisdiction and those in the affected area that testing is complete.

8. ORDERING INSTRUCTIONS
To order a complete Double-Interlocked Preaction System with Electric/Pneu-Lectric Release, the following components must be purchased: Deluge Valve, Conventional Trim, and a Release Trim package.

### VALVE PART NUMBERS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>NOMINAL SIZE</th>
<th>PART NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threaded NPT</td>
<td>Pipe O.D. 48mm 1½&quot; / DN40</td>
<td>Painted Red 09889  HALAR® 09890QB</td>
</tr>
<tr>
<td></td>
<td>Flange Model E-1</td>
<td>Model E-2 05852C 08361QB</td>
</tr>
<tr>
<td></td>
<td>Flange ANSI 3&quot; 05912C 08362QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flange ANSI 4&quot; 05909C 08363QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flange ANSI 6&quot; 05906C 08364QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANSII/Japan 6&quot; 07136 ----</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 DN80 08626 08626QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 DN100 08629 08630QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 DN150 09631 08642QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 Flange Drilling 09633 ----</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 Flange Drilling / Pipe O.D. 09633-1 11001QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANSI / 89mm 3&quot; 08635C 11004QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANSI / 114mm 4&quot; 06639C 11005QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANSI / 168mm 6&quot; 05466C 11001QB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 / 89mm DN80 09634 ----</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 / 114mm DN100 09640 ----</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN10/16 / 168mm DN150 05456C 11001QB</td>
<td></td>
</tr>
</tbody>
</table>

### VALVE TRIM PACKAGE PART NUMBERS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>NOMINAL SIZE</th>
<th>PART NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use with Angle Style Valves</td>
<td>1½&quot; / DN40 14629-1 14629-2</td>
<td>Galvanized 14629-1  Brass 14629-2</td>
</tr>
<tr>
<td></td>
<td>2&quot; / DN50 14630-1 14630-2</td>
<td>Galvanized 14630-1  Brass 14630-2</td>
</tr>
<tr>
<td></td>
<td>3&quot; / DN80 14631-1 14631-2</td>
<td>Galvanized 14631-1  Brass 14631-2</td>
</tr>
<tr>
<td></td>
<td>4&quot; / DN100 14632-1 14632-2</td>
<td>Galvanized 14632-1  Brass 14632-2</td>
</tr>
<tr>
<td></td>
<td>6&quot; / DN150 14633-1 14633-2</td>
<td>Galvanized 14633-1  Brass 14633-2</td>
</tr>
<tr>
<td></td>
<td>1½&quot; / DN40 14635-1 14635-2</td>
<td>Galvanized 14635-1  Brass 14635-2</td>
</tr>
<tr>
<td></td>
<td>2&quot; / DN50 14635-1 14635-2</td>
<td>Galvanized 14635-1  Brass 14635-2</td>
</tr>
<tr>
<td></td>
<td>3&quot; / DN80 14637-1 14637-2</td>
<td>Galvanized 14637-1  Brass 14637-2</td>
</tr>
<tr>
<td></td>
<td>4&quot; / DN100 14638-1 14638-2</td>
<td>Galvanized 14638-1  Brass 14638-2</td>
</tr>
<tr>
<td></td>
<td>6&quot; / DN150 14640-1 14640-2</td>
<td>Galvanized 14640-1  Brass 14640-2</td>
</tr>
<tr>
<td></td>
<td>8&quot; / DN200 14643-1 14643-2</td>
<td>Galvanized 14643-1  Brass 14643-2</td>
</tr>
</tbody>
</table>

| Use with Straight Through Valves | 1½" / DN40 14634-1 14634-2 | Galvanized 14634-1  Brass 14634-2 |
|             | 2" / DN50 14634-1 14634-2 | Galvanized 14634-1  Brass 14634-2 |
|             | 3" / DN80 14636-1 14636-2 | Galvanized 14636-1  Brass 14636-2 |
|             | 4" / DN100 14638-1 14638-2 | Galvanized 14638-1  Brass 14638-2 |
|             | 6" / DN150 14641-1 14641-2 | Galvanized 14641-1  Brass 14641-2 |
|             | 8" / DN200 14642-1 14642-2 | Galvanized 14642-1  Brass 14642-2 |

Note: When viewing this datapage online, Part Numbers displayed in BLUE are hyperlinks. Clicking the part number will open the corresponding Technical Data Page.
# Release Trim Package Part Numbers

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PART NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release Trim</td>
<td>10830, 10832</td>
</tr>
<tr>
<td>Solenoid Valve</td>
<td>11601</td>
</tr>
</tbody>
</table>

# Check Valve Part Numbers

**IN-LINE CHECK VALVE**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>NOMINAL SIZE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groove / Groove</td>
<td>1.1/2&quot; / DN40</td>
<td>11054</td>
</tr>
<tr>
<td></td>
<td>2&quot; / DN50</td>
<td>11059</td>
</tr>
<tr>
<td>Threaded NPT</td>
<td>1.1/2&quot; / DN40</td>
<td>10659</td>
</tr>
<tr>
<td></td>
<td>2&quot; / DN50</td>
<td>10667</td>
</tr>
</tbody>
</table>

**EASY RISER ® SWING CHECK VALVE**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>NOMINAL SIZE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange Flange</td>
<td>3&quot;</td>
<td>08505</td>
</tr>
<tr>
<td></td>
<td>4&quot;</td>
<td>08508</td>
</tr>
<tr>
<td></td>
<td>6&quot;</td>
<td>08511</td>
</tr>
<tr>
<td></td>
<td>ANSI/Japan</td>
<td>09039</td>
</tr>
<tr>
<td></td>
<td>ANSI/Japan</td>
<td>09385</td>
</tr>
<tr>
<td></td>
<td>ANSI/Japan</td>
<td>14023</td>
</tr>
<tr>
<td></td>
<td>PN10/16</td>
<td>08796</td>
</tr>
<tr>
<td></td>
<td>PN10/16</td>
<td>08797</td>
</tr>
<tr>
<td></td>
<td>PN10/16</td>
<td>08835</td>
</tr>
<tr>
<td></td>
<td>PN10/16</td>
<td>08836</td>
</tr>
<tr>
<td></td>
<td>PN10/16</td>
<td>12655</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flange / Pipe O.D.</th>
<th>NOMINAL SIZE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI / 89mm</td>
<td>3&quot;</td>
<td>08506</td>
</tr>
<tr>
<td>ANSI / 114mm</td>
<td>4&quot;</td>
<td>08509</td>
</tr>
<tr>
<td>ANSI / 168mm</td>
<td>6&quot;</td>
<td>08512</td>
</tr>
<tr>
<td>ANSI / 219mm</td>
<td>8&quot;</td>
<td>08515</td>
</tr>
<tr>
<td>PN10 / 16 / 89mm</td>
<td>DN80</td>
<td>12648</td>
</tr>
<tr>
<td>PN10 / 16 / 114mm</td>
<td>DN100</td>
<td>12649</td>
</tr>
<tr>
<td>PN10 / 16 / 165mm</td>
<td>DN150</td>
<td>12652</td>
</tr>
<tr>
<td>PN10 / 16 / 168mm</td>
<td>DN150</td>
<td>08512</td>
</tr>
<tr>
<td>PN10 / 219mm</td>
<td>DN200</td>
<td>12651</td>
</tr>
<tr>
<td>PN16 / 219mm</td>
<td>DN200</td>
<td>12650</td>
</tr>
</tbody>
</table>

# Release Control Panel Part Numbers

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>VFR-400</td>
<td>14152</td>
</tr>
</tbody>
</table>

# Check Valve Trim Package Part Numbers

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>NOMINAL SIZE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check Valve Trim</td>
<td>1 1/2&quot; / DN40</td>
<td>12960</td>
</tr>
<tr>
<td></td>
<td>2&quot; / DN50</td>
<td>12960</td>
</tr>
<tr>
<td></td>
<td>2 1/2&quot; / DN65</td>
<td>13776</td>
</tr>
<tr>
<td></td>
<td>3&quot;, 4&quot;, 6&quot;, 8&quot; / DN80, DN100, DN150, DN200</td>
<td>13777</td>
</tr>
</tbody>
</table>

# Check Valve Trim Cross-Reference

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MODEL</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>VFR-400</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Air Maintenance Device and Supervisory Switch Part Numbers

**Pressurized Maintenance Device Complete with Trim**

- **MODEL D-2**
  - Pressure Monitoring Switch
    - Adjustable Range 10 - 175 PSI (0.7 - 12 Bar)
  - Single SPDT: 09472
  - Dual SPDT: 09473

**Pressurized Maintenance Device Complete with Trim**

- Pressure Monitoring Switch
  - Adjustable Range 10 - 175 PSI (0.7 - 12 Bar)
  - Single SPDT: 09472
  - Dual SPDT: 09473

---

**Note:** When viewing this datapage online, Part Numbers displayed in **BLUE** are hyperlinks. Clicking the part number will open the corresponding Technical Data Page.
SYSTEM COMPONENTS

A. Valve
   A.1 Deluge Valve
   A.2 Deluge Valve Conventional Trim *
      (See Deluge Valve Conventional Trim Charts)
   B.1 Priming Valve (Normally Open)
   B.2 Strainer
   B.3 1/16" Restricted Orifice
   B.4 Spring Loaded Check Valve
   B.5 Alarm Test Valve (Normally Closed)
   B.6 Auxiliary Drain Valve (Normally Closed)
   B.7 Drip Check Valve
   B.8 Drain Check Valve
   B.9 Alarm Shut-Off Valve (Normally Open)
   B.10 Pressure Operated Relief Valve (P.O.R.V.)
   B.11 Emergency Release
   B.12 Priming Pressure Water Gauge and Valve
   B.13 Water Supply Pressure Gauge and Valve
   B.14 Drain Cup
   B.15 Flow Test Valve (Normally Closed)

C. Water Flow Alarm Equipment
   C.1 Alarm Pressure Switch and/or
   C.2 Water Motor Alarm (Strainer Required)
   C.3 Strainer
   C.4 Electric Alarm Bell

D. Riser
   D.1 Water Supply Control Valve
   D.2 Easy Riser Check Valve or
      rubber seated check valve
   D.3 Sprinkler System Main Drain

E. Supervisory Air Supply
   E.1 System Pressure Gauge and Valve
   E.2 Soft Seat Swing Check Valve
   E.3 Air Pressure Supervisory Switch

F. Release System
   F.1 Solenoid Valve (Normally Closed)
   F.2 Electric Release Trim
   F.3 System Control Panel configured for
      Non-Interlocked Preaction operation
   F.4 Electric Detection System. Heat Detector
      shown for clarity.

G. Air Supply
   G.1 Automatic Air Supply. Air Compressor
      and Tank shown for clarity.
   G.2 Air Supervisory Pressure Switch
      (Compressor On/Off Control Switch)
   G.3 Soft Seat Check Valve
   G.4 Shut Off Valve
      (Indicating Ball Valve recommended.)
   G.5 Dehydrator
   G.6 Air maintenance Device & By-Pass Trim

--- Dashed lines indicate pipe required but not listed in "System Components" Table. ---
Dotted lines indicate electrical detection system wiring required but not listed in
"System Components" Table. For additional wiring requirements refer to technical
data for components used.

* Viking Deluge Valve Trim Packages contain items B.1 through B.15 and associated
nipples. Viking Accessory Package for Conventional Deluge Valve Trim contains B.2
through B.5, B.7 through B.11, and B.14.

FIGURE 1: ANGLE DELUGE VALVE WITH TANK MOUNTED COMPRESSOR
6” Valve Shown
DoubLe INTeRLoCkED prEaCTIoN sysTeM wITH ELECTrIC/PNEu-LECTrIC RELEASE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

SYSTEM COMPONENTS:
A. Valve
   A.1 Deluge Valve
   B. Deluge Valve Conventional Trim *
      (See Deluge Valve Conventional Trim Charts)
   B.1 Priming Valve (Normally Open)
   B.2 Strainer
   B.3 1/16” Restricted Orifice
   B.4 Spring Loaded Check Valve
   B.5 Alarm Test Valve (Normallly Closed)
   B.6 Auxiliary Drain Valve (Normallly Closed)
   B.7 Drop Check Valve
   B.8 Drain Check Valve
   B.9 Alarm Shut-Off Valve (Normaly Open)
   B.10 Pressure Operated Relief Valve (P.O.R.V.)
   B.11 Emergency Release
   B.12 Priming Pressure Water Gauge and Valve
   B.13 Water Supply Pressure Gauge and Valve
   B.14 Drain Cup
   B.15 Flow Test Valve (Normaly Closed)

C. Water Flow Alarm Equipment
   C.1 Alarm Pressure Switch and/or
   C.2 Water Motor Alarm (Strainer Required)
   C.3 Strainer
   C.4 Electric Alarm Bell

D. Riser
   D.1 Water Supply Control Valve
   D.2 Easy Riser Check Valve or rubber seated check valve
   D.3 Spindler System Main Drain

E. Supervisory Air Supply
   E.1 System Pressure Gauge and Valve
   E.2 Soft Seat Swing Check Valve
   E.3 Air Pressure Supervisory Switch

F. Release System
   F.1 Solenoid Valve (Normally Closed)
   F.2 Electric Release Trim
   F.3 System Control Panel configured for Double Interlocked Preaction operation.

G. Air Supply
   G.1 Riser Mounted Air Compressor
   G.2 Air Supervisory Pressure Switch
      (Compressor On/Off Control Switch)

FIGURE 2: ANGLE DELUGE VALVE WITH RISER MOUNTED COMPRESSOR
6” Valve Shown
FIGURE 3: VERTICAL DELUGE VALVE WITH TANK MOUNTED COMPRESSOR
6" Valve Shown
SYSTEM COMPONENTS

A. Valve
   A.1 Deluge Valve

B. Deluge Valve Conventional Trim
   (See Deluge Valve Conventional Trim Charts)
   B.1 Priming Valve (Normally Open)
   B.2 Strainer
   B.3 1/16" Restricted Orifice
   B.4 Spring Loaded Check Valve
   B.5 Alarm Test Valve (Normally Closed)
   B.6 Auxiliary Drain Valve (Normally Closed)
   B.7 Drip Check Valve
   B.8 Drain Check Valve
   B.9 Alarm Shut-Off Valve (Normally Open)
   B.10 Pressure Operated Relief Valve (P.O.R.V.)
   B.11 Emergency Release
   B.12 Priming Pressure Water Gauge and Valve
   B.13 Water Supply Pressure Gauge and Valve
   B.14 Drain Cup
   B.15 Flow Test Valve (Normally Closed)

C. Water Flow Alarm Equipment
   C.1 Alarm Pressure Switch and/or
   C.2 Water Motor Alarm (Strainer Required)
   C.3 Strainer
   C.4 Electric Alarm Bell

D. Riser
   D.1 Water Supply Control Valve
   D.2 Easy Riser Check Valve or rubber seated check valve
   D.3 Sprinkler System Main Drain

E. Supervisory Air Supply
   E.1 System Pressure Gauge and Valve
   E.2 Soft Seat Swing Check Valve
   E.3 Air Pressure Supervisory Switch

F. Release System
   F.1 Solenoid Valve (Normally Closed)
   F.2 Electric Release Trim
   F.3 System Control Panel configured for Non-Interlocked Preaction operation.

G. Air Supply
   G.1 Riser Mounted Air Compressor
   G.2 Air Supervisory Pressure Switch
   (Compressor On/Off Control Switch)
   G.3 Soft Seat Check Valve

Dashed lines indicate pipe required but not listed in “System Components” Table.
Dotted lines indicate electrical detection system wiring required but not listed in
“System Components” Table. For additional wiring requirements refer to technical
data for components used.

* Viking Deluge Valve Trim Packages contain items B.1 through B.15 and associated
  nipples. Viking Accessory Package for Conventional Deluge Valve Trim contains B.2
  through B.5, B7 through B.11, and B.14.

** 1/2" (15 mm) NPT for Non-Interuptable Alarm Pressure Switch (Optional)

FIGURE 4: VERTICAL DELUGE VALVE WITH RISER MOUNTED COMPRESSOR
6” Valve Shown
Figure 5: Horizontal Deluge Valve with Tank Mounted Compressor

6” Valve Shown

**SYSTEM COMPONENTS**

A. Valve
   A.1 Deluge Valve
   A.2 Deluge Valve Conventional Trim
     (See Deluge Valve Conventional Trim Charts)
   B.1 Priming Valve (Normally Open)
   B.2 Strainer
   B.3 1/16” Restricted Orifice
   B.4 Spring Loaded Check Valve
   B.5 Alarm Test Valve (Normally Closed)
   B.6 Auxiliary Drain Valve (Normally Closed)
   B.7 Drip Check Valve
   B.8 Drain Check Valve
   B.9 Alarm Shut-Off Valve (Normally Open)
   B.10 Pressure Operated Relief Valve (P.O.R.V.)
   B.11 Emergency Release
   B.12 Priming Pressure Water Gauge and Valve
   B.13 Water Supply Pressure Gauge and Valve
   B.14 Drain Cup
   B.15 Flow Test Valve (Normally Closed)

B. Water Flow Alarm Equipment
   C.1 Alarm Pressure Switch and/or
   C.2 Water Motor Alarm (Strainer Required)
   C.3 Strainer
   C.4 Electric Alarm Bell

C. Riser
   D.1 Water Supply Control Valve
   D.2 Easy Riser Check Valve or rubber sealed check valve
   D.3 Sprinkler System Main Drain

D. Supervisory Air Supply
   E.1 System Pressure Gauge and Valve
   E.2 Soft Seat Swing Check Valve
   E.3 Air Pressure Supervisory Switch

E. Release System
   F.1 Solenoid Valve ( Normally Closed)
   F.2 Electric Release Trim
   F.3 System Control Panel configured for Double Interlocked Preamtion operation.

F. Air Supply
   G.1 Automatic Air Supply. Air Compressor and Tank shown for clarity.
   G.2 Air Supervisory Pressure Switch (Compressor On/Off Control Switch)
   G.3 Soft Seat Check Valve
   G.4 Shut Off Valve
     (Indicating Ball Valve recommended.)
   G.5 Dehydrator
   G.6 Air maintenance Device & By-Pass Trim

--- Dashed lines indicate pipe required but not listed in *System Components* Table.
     Dotted lines indicate electrical detection system wiring required but not listed in
     "System Components" Table. For additional wiring requirements refer to technical
     data for components used.

* Viking Deluge Valve Trim Packages contain items B.1 through B.15 and associated
  nipples. Viking Accessory Package for Conventional Deluge Valve Trim contains B.2
  through B.5, B.7 through B.11, and B.14.
Dashed lines indicate pipe required but not listed in "System Components" Table. Dotted lines indicate electrical detection system wiring required but not listed in "System Components" Table. For additional wiring requirements refer to technical data for components used.


FIGURE 6: HORIZONTAL DELUGE VALVE WITH RISER MOUNTED COMPRESSOR
6" Valve Shown