



TECHNICAL DATA

LPCB TYPE 1 SINGLE INTERLOCKED PREACTION SYSTEM WITH ELECTRIC/ PNEUMATIC 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

1. DESCRIPTION

(Refer to Figures 1-2.)

Viking LPCB Type 1 supervised, electrically controlled Single Interlocked Preaction Systems utilize a Viking Deluge Valve (A.1) and a pneumatically pressurized automatic sprinkler system. The system piping is pneumatically pressurized for supervisory purposes only. This feature serves to prevent undetected leaks. If the system piping or a sprinkler is damaged, supervisory pressure is reduced and a "low air" alarm is activated. Single interlocked preaction systems are commonly used where the sprinkler system piping and/or sprinkler may be subject to damage. The most common applications are where it is important to control accidental water discharge due to damaged sprinkler piping.

Electrically controlled preaction systems require a pneumatic Actuator (F.1) and two (2) electric Solenoid Valves (F.6) in parallel, controlled by a System Control Panel (F.8) with compatible detection system (F.7). In fire conditions, when the detection system (F.7) operates, System Control Panel (F.8) energizes Solenoid valves (F.6) open, releasing air pressure from pneumatic actuator (F.1), causing Deluge Valve (A.1) to open. The sprinkler system fills with water. If any sprinklers have opened, water will flow from the system. If sprinklers have not opened, water will be in the sprinkler system piping when the sprinkler operates. A sprinkler head must open before water flows from the system.

2. LISTINGS AND APPROVALS

LPCB Approved - The Viking supervised, electrically controlled single interlocked preaction system is LPCB Approved when installed with specific components. Refer to current LPCB Approval Guide.

3. SYSTEM OPERATION

(Refer to Figures 1-2.)

A. IN THE SET CONDITION

System water supply pressure enters the priming chamber of the Deluge Valve (A.1) 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 (B.4), pneumatic actuator (F.1). The pressure in the priming chamber holds the Deluge Valve clapper closed, keeping the outlet chamber and system piping dry.

B. IN FIRE CONDITIONS

When the detection system (F.7) operates, System Control Panel (F.8) activates an alarm and energizes normally closed Solenoid Valves (F.6) open allowing pneumatic actuator (F.1) to open. Pressure is released from the priming chamber to open Drain Cup (B.14) faster than it is supplied through restricted orifice (B.3). 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 Alarm Pressure Switch (C.1) to activate. When a sprinkler head opens, water will flow from the system.

C. FOR CONVENTIONAL DELUGE VALVE TRIM

(Refer to Figures 1-2.)

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 open releasing devices close. The deluge valve can only be reset after the system has been taken out of service, and the outlet chamber of the deluge valve and associated trim piping are depressurized and drained.

D. TROUBLE CONDITIONS

If a sprinkler opens prior to operation of the detection system (F.7), 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 detection system operates due to mechanical damage or malfunction, the Deluge Valve will open but the water will be contained in the sprinkler piping. Water Motor Alarm (C.2) and alarms connected to Alarm Pressure Switch (C.1) will activate.

E. MANUAL OPERATION

Any time the handle inside 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 (C.1 and C.2). If a sprinkler head opens, water will flow from the system.

4. INSTALLATION

Refer to applicable installation standards, codes, and Authorities Having Jurisdiction.

A. IMPORTANT SETTINGS

(Also refer to Table 1 on page 314b_Euro.)

1. Provide a minimum 30 PSI (2 bar) pneumatic pressure to the pneumatic release system and pneumatic actuator (F.1) for system water pressures of 175 PSI (12 bar) or less. For system water pressures above 175 PSI, up to a maximum of 250



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TABLE 1: IMPORTANT SETTINGS	WATER SUPPLY PRESSURES	
	Up to 175 PSI (12 bar) Set to Maintain	175 PSI (12 bar) to 250 PSI (17 bar) Set to Maintain
Air Compressor On/Off Switch	40 PSI (2.8 bar)	60 PSI (4.1 bar)
Air Maintenance Device	30 PSI (2 bar)	50 PSI (3.4 bar)
Release System Pressure Supervisory Switch	25 PSI (1.7 bar) On Pressure Drop	45 PSI (3.1 bar) On Pressure Drop

PSI (17 bar), provide a minimum of 50 PSI (3.4 bar) pneumatic pressure to the pneumatic release system and pneumatic actuator (F.1).

2. Set release system air pressure supervisory switch (F.5) to activate at 25 PSI (1.7 bar) on pressure drop for system water pressures of 175 PSI (12 bar) or less. For system water pressures above 175 PSI, up to a maximum of 250 PSI (17 bar), set the air pressure supervisory switch (F.5) to activate at 45 PSI (3.1 bar) on pressure drop. Air pressure supervisory switch should be wired to activate an alarm to signal a low air pressure condition. Activation of an alarm to signal a high pressure condition may be required. Refer to applicable installation standards and the Authority Having Jurisdiction.
3. Recommended supervisory pressure in the closed sprinkler piping is 20 PSI (1.4 bar).
 - a. Where supervisory pressure is maintained at 20 PSI (1.4 bar), set air supervisory switch (E.3) to activate at 15 PSI (1.03 bar) on pressure drop.
 - b. Air supervisory switch (E.3) should be wired to activate an alarm to signal a "low air" pressure condition. Activation of an alarm to signal a high pressure condition may be required. Refer to applicable installation standards and the Authority Having Jurisdiction.
 - c. Supervisory air pressure on pneumatic actuator (F.1) must be set at a minimum 30 PSI (2.4 bar).

Note: Installation Standards may allow supervisory pressures lower than those recommended above. When using supervisory pressures lower than the recommended setting noted above, verify that air regulation equipment and air supervisory switches used are compatible with the supervisory pressure setting used.

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

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.

Riser Mounted Compressors:

(Refer to Figure 2.)

A riser mounted compressor may be suitable for small electrically operated single interlocked preaction systems. However, placement of a dehydrator and/or an air maintenance device in the outlet piping of a riser mounted compressor may affect operation of the compressor.

1. When a dehydrator (G.5) 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 (G.6) 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. Verify system approval. Refer to the Authority Having Jurisdiction.

It is recommended practice to provide a test connection on the pneumatic release line for testing.

Preaction Panel Installation Requirements:

1. Solenoid valves shall be installed in parallel.
2. Solenoid valves shall function in pneumatic conditions only, and be protected by a strainer.
3. LPCB Certified detectors compatible with the control and indicating equipment shall be used.
4. Suitable electrical detection, control and indicating equipment and pneumatic systems shall be used. The control and indicating equipment should be LPCB certified.
5. Connecting cables shall comply with BS 6387: 1994, classification, C, W, Z evidenced by LPCB certification.
6. Preaction Systems shall be electrically monitored to demonstrate that they are in a "ready to operate" state at all times.
7. Clear dry air shall be used. Compressor tank must have provision for draining.
8. Preaction system equipment shall be installed, operated and maintained as prescribed in the technical data pages for individual components.
9. Preaction systems shall be configured in accordance with the manufacturer's specifications.



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10. Preaction systems shall comply with the details specified in the related LPC Technical Bulletin TB208: Supplementary Requirements for Sprinkler Installations which can operate in the dry mode.
11. The company responsible for the complete preaction station, including electrics, shall be identified.
12. Normally unenergized solenoids may be used, provided that they are continuously monitored for "open" and "short circuit".

5. PLACING THE SYSTEM IN SERVICE

(Refer to Figures 1-2.)

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

To Return a System to Service:

1. Verify that the system has been properly drained. System Main Drain (D.3) and Auxiliary Drain (B.6) should be open. Verify that Emergency Release (B.11) is closed.
2. Close the system Main Drain (D.3).
3. Restore supervisory pressure to sprinkler piping. Verify that the 1/2" valve in the Air Maintenance Device (G.6) by-pass trim is closed and that both 1/4" valves are open.
4. Restore release air supply to Pneumatic Actuator (F.1). Make sure the Shut off Valve (G.4) is open. The Air Gauge (F.3) should show the desired air pressure.
5. Establish a normal condition on the release control panel (F.8).
6. Open Priming Valve (B.1).
7. Open Flow Test Valve (B.15).
8. Partially open Main Water Supply Control Valve (D.1).
9. When full flow develops from Flow Test Valve (B.15), close the Flow Test Valve. Verify that there is no flow from open Auxiliary Drain (B.6).
10. Close Auxiliary Drain (B.6).
11. Fully open and secure the Main Water Supply Control Valve (D.1).
12. Verify that the Alarm Shut-off Valve (B.9) is open and that all other valves are in their normal operating position.
13. Depress the plunger of Drip check (B.7). No water should flow from the Drip Check when the plunger is pushed.

6. EMERGENCY INSTRUCTIONS

(Refer to Figures 1-2.)

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 Water Supply Valve (D.1).
2. Open system Main Drain (D.3).
3. Silence alarms (optional).
 - a. To silence electric alarms controlled by System Control Panel (F.8): 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 installed in the 1/2" (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).
5. Open Auxiliary Drain (B.6).
6. Close Priming Valve (B.1) (optional).

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.

7. Replace any detectors (F.7) that have been damaged.
8. Replace any sprinklers that have opened, been damaged, or have been exposed to fire conditions.
9. Perform all maintenance procedures recommended in Technical Data describing individual components of the system that has operated.
10. Return the system to service as soon as possible. Refer to section 5. PLACING THE SYSTEM IN SERVICE.



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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 Single-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 pneumatic release test valve to simulate operation of the solenoid valves.
3. Verify that low air alarms operate within an acceptable time period and continue without interruption.
4. Close the test valve.
5. Establish recommended pneumatic supervisory pressure to be maintained. Refer to section 4. INSTALLATION.
6. Open the System Control Panel (F.8) 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.

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 Drip check (B.7). No water should flow from the Drip Check when the plunger is pushed. If the Main Water Supply Control Valve was NOT closed in step 1, proceed to step 8 below. If the Main Water Supply Control Valve WAS closed in step 1, proceed with steps 3 through 9 below.
3. Open Flow Test Valve (B.15) and Auxiliary Drain (B.6).
4. Partially open Main Water Supply Control Valve (D.1)
5. When full flow develops from Flow Test Valve (B.15), close the Flow Test Valve. Verify that there is no flow from open Auxiliary Drain (B.6).
6. Close Auxiliary Drain (B.6).
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 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 Single-Interlocked Preaction System:


1. Notify the Authority Having Jurisdiction and those in the area affected by the test.
2. Trip the Deluge Valve by performing option "a" or "b" below.
 - a. Operate a detector according to the manufacturers instructions.
 - b. Open the door of Emergency Release (B.11) and pull the handle.
3. The Deluge Valve will open, filling the sprinkler system with water. Water flow alarms will operate.
4. Open the pneumatic release test valve to verify adequate flow.

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 affected that testing is complete.

8. ORDERING INSTRUCTIONS

To order a complete LPCB Type 1 Single-Interlocked Preaction System with Electric/Pneumatic Release, the following components must be purchased: Deluge Valve, Conventional Trim, and a Release Trim package.

	<h1 style="margin:0;">TECHNICAL DATA</h1>	<h2 style="margin:0;">LPCB TYPE 1 SINGLE INTERLOCKED PREACTION SYSTEM WITH ELECTRIC/ PNEUMATIC RELEASE</h2>
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Deluge Valve Part Numbers

DESCRIPTION	NOMINAL SIZE	PART NUMBER
DELUGE VALVE		
Angle Style		
Threaded NPT Painted Red		
Model & Pipe O.D.		
Model E-1 60mm	DN50	05852C
Flange/Flange Painted Red		
Flange Drilling	Model E-1	
PN10/16	DN80	08626
PN10/16	DN100	08629
PN10/16	DN150	08631
Flange/Groove Painted Red		
Flange Drilling / Pipe O.D.	Model E-1	
PN10/16 / 89mm	DN80	09539
PN10/16 / 114mm	DN100	09540
PN10/16 / 168mm	DN150	05456C

Deluge Valve Trim Package Part Numbers

DESCRIPTION	NOMINAL SIZE	PART NUMBER
CONVENTIONAL DELUGE VALVE TRIM		
Includes Deluge Valve Accessory Package		
Rated to 250 psi (1 724 kPa)		
Use with Angle Style Valves		
Galvanized		
2" / DN50		10203
3" / DN80		10204
4" / DN100		10205
6" / DN150		10206
Brass		
2" / DN50		10251
3" / DN80		10252
4" / DN100		10253
6" / DN150		10254

Release Trim Package Part Numbers

DESCRIPTION	NOMINAL SIZE	PART NUMBER
Single Interlock	Need to order Deluge Valve, Trim, Check Valve and Par 3 Panel separately	
	Use with Angle Style Valves	
	DN50-DN150	Galvanized LL13607
NOTE: Solenoid valve must be ordered separately.		
SOLENOID VALVES (2 REQD)		
Normally Closed		Rated to 250 psi (17 bar)
NEMA 1,2,3,3S,4,4X		11601
24 VDC, 1/2" / DN15		

DESCRIPTION	MODEL	PART NUMBER
MODEL B-1 PAR-3 DELUGE / PREACTION RELEASE CONTROL PANEL		
Includes: - Zone Relay Module	Power Supply 110 VAC	07907
	220VAC	07908
CANADIAN ULC Approved	110VAC	07953

Check Valve Part Numbers

DESCRIPTION	NOMINAL SIZE	PART NUMBER
IN-LINE CHECK VALVE		
Groove / Groove	Model L-1	
	1-1/2" / DN40	11054
	2" / DN50	11059
EASY RISER® SWING CHECK VALVE		
Rated to 250 psi (17 bar)		
Flange/Flange		
Flange Drilling		
ANSI	Model F-1	
ANSI	3"	08505
ANSI	4"	08508
ANSI	6"	08511
ANSI/Japan	DN100	09039
ANSI/Japan	DN150	09385
ANSI/Japan	DN200	14023
PN10/16	DN80	08796
PN10/16	DN100	08797
PN10/16	DN150	08835
PN10	DN200	08836
PN16	DN200	12355

DESCRIPTION	NOMINAL SIZE	PART NUMBER
Flange/Groove		
Flange Drilling / Pipe O.D.		
ANSI / 89mm	Model F-1	08506
ANSI / 114mm	3"	08509
ANSI / 168mm	4"	08512
ANSI / 219mm	6"	08515
PN10/16 / 89mm	8"	12648
PN10/16 / 114mm	DN80	12649
PN10/16 / 165mm	DN100	12652
PN10/16 / 168mm	DN150	08512
PN10 / 219mm	DN150	12651
PN16 / 219mm	DN200	12650
Groove/Groove		
Pipe O.D.		
73mm	Model E-1	07929
	2½" / DN65	
89mm	Model F-1	08507
114mm	3" / DN80	08510
165mm	4" / DN100	12356
168mm	DN150	08513
219mm	6" / DN150	08516
	8" / DN200	

Check Valve Trim Package Part Numbers

DESCRIPTION	NOMINAL SIZE	PART NUMBER
Check Valve Trim		
	1½" / DN40	12960
	2" / DN50	12960
	2½" / DN65	13776
	3", 4", 6", 8" / DN80, DN100, DN150, DN200	13777

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

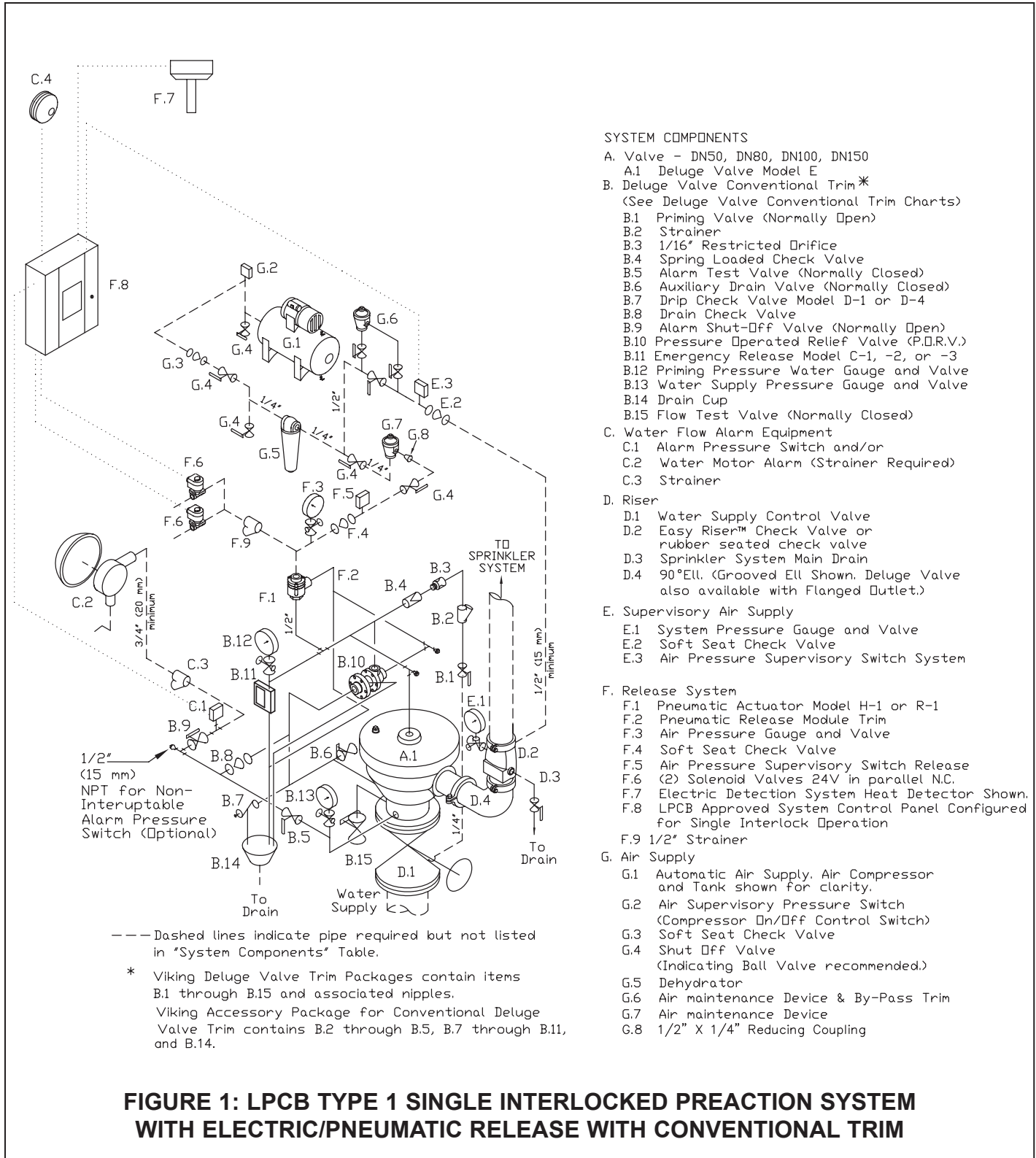


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SYSTEM COMPONENTS

- A. Valve - DN50, DN80, DN100, DN150
 - A.1 Deluge Valve Model E
- 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 Model D-1 or D-4
 - 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 Model C-1, -2, or -3
 - 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
- 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
 - D.4 90° Ell. (Grooved Ell Shown. Deluge Valve also available with Flanged Outlet.)
- E. Supervisory Air Supply
 - E.1 System Pressure Gauge and Valve
 - E.2 Soft Seat Check Valve
 - E.3 Air Pressure Supervisory Switch System
- F. Release System
 - F.1 Pneumatic Actuator Model H-1 or R-1
 - F.2 Pneumatic Release Module Trim
 - F.3 Air Pressure Gauge and Valve
 - F.4 Soft Seat Check Valve
 - F.5 Air Pressure Supervisory Switch Release
 - F.6 (2) Solenoid Valves 24V in parallel N.C.
 - F.7 Electric Detection System Heat Detector Shown.
 - F.8 LPCB Approved System Control Panel Configured for Single Interlock Operation
 - F.9 1/2" Strainer
- 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
 - G.7 Air maintenance Device
 - G.8 1/2" X 1/4" Reducing Coupling

--- Dashed lines indicate pipe required but not listed in "System Components" Table.

* 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: LPCB TYPE 1 SINGLE INTERLOCKED PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE WITH CONVENTIONAL TRIM

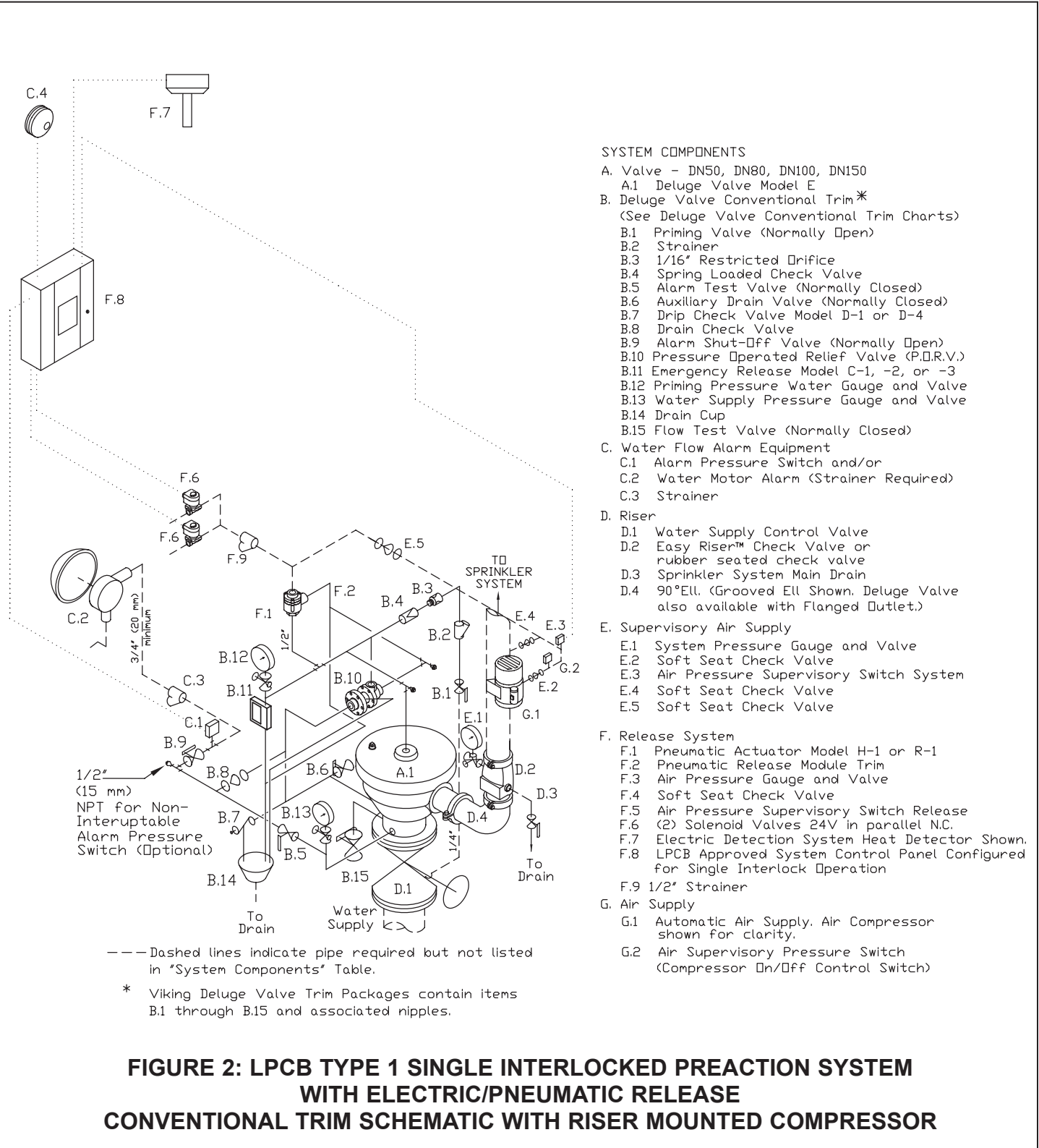


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SYSTEM COMPONENTS

- A. Valve - DN50, DN80, DN100, DN150
 - A.1 Deluge Valve Model E
- 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 Model D-1 or D-4
 - 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 Model C-1, -2, or -3
 - 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
- 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
 - D.4 90° Ell. (Grooved Ell Shown. Deluge Valve also available with Flanged Outlet.)
- E. Supervisory Air Supply
 - E.1 System Pressure Gauge and Valve
 - E.2 Soft Seat Check Valve
 - E.3 Air Pressure Supervisory Switch System
 - E.4 Soft Seat Check Valve
 - E.5 Soft Seat Check Valve
- F. Release System
 - F.1 Pneumatic Actuator Model H-1 or R-1
 - F.2 Pneumatic Release Module Trim
 - F.3 Air Pressure Gauge and Valve
 - F.4 Soft Seat Check Valve
 - F.5 Air Pressure Supervisory Switch Release
 - F.6 (2) Solenoid Valves 24V in parallel N.C.
 - F.7 Electric Detection System Heat Detector Shown.
 - F.8 LPCB Approved System Control Panel Configured for Single Interlock Operation
 - F.9 1/2" Strainer
- G. Air Supply
 - G.1 Automatic Air Supply. Air Compressor shown for clarity.
 - G.2 Air Supervisory Pressure Switch (Compressor On/Off Control Switch)

FIGURE 2: LPCB TYPE 1 SINGLE INTERLOCKED PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE CONVENTIONAL TRIM SCHEMATIC WITH RISER MOUNTED COMPRESSOR

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