VIKING®

TECHNICAL DATA

LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® 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 1-6.)

Viking LPCB Type 1 SUREFIRE® Single Interlocked Preaction Systems utilize a Viking Model E Deluge Valve (A.1), a Viking Easy Riser® Check Valve (A.2), a System Control Panel (E.8), and conventional trim, together with additional valves, and devices to form a unique operating system. The system piping is pneumatically pressurized to monitor the integrity of the piping, fittings and sprinklers and to act as a fail-safe emergency backup to the electrical detection system. The system piping is normally dry and may be installed in locations subject to freezing. Built in with special features to minimize accidental water damage, unlike other systems, it may be installed where the detector and/or sprinklers are easily damaged or broken accidentally.

In addition to special features that offer perfect fail-safe modes, the Viking LPCB Type 1 SUREFIRE® Single Interlocked Preaction systems also provide excellent fire protection environment with or without electrical power. They are equipped with batteries that provide up to ninety (90) hours of emergency power. If the AC Power fails and the battery backup power expires while the system is in the automatic set mode, the preaction system will “fail-safe” when a sprinkler activates, and continue flowing until the system is manually shut-off. Refer to section 3. SYSTEM OPERATION for details.

Preaction systems are commonly used to help minimize accidental water damage and still provide fast water discharge during a fire emergency. Consult all Authorities Having Jurisdiction (AHJs) prior to installing a SUREFIRE® Single Interlocked Preaction System. The system requires use of a Viking Deluge Valve and trim kit with Pneumatic Actuators (E.3), two (2) Electric Normally Closed Solenoid Valves in parallel (E.1) and one Electric Release Normally Open Solenoid Valve (E.2) controlled by the System Control Panel (E.8), and Detectors (E.7). For proper location, spacing and positioning of detectors, refer to the manufactures recommended installation requirements and installation protection standard being applied.

NOTE: VIKING SUREFIRE® SINGLE INTERLOCKED PREACTION IS A COMPLETE SYSTEM, AND IS LISTED AS A UNIT. AS SUCH, IT IS NORMALLY NOT POSSIBLE TO MODIFY THE COMPONENTS OF THE SYSTEM CONTROLS OR THEIR INTER-RELATION WITHOUT COMPROMISING THE LISTING.

2. LISTINGS AND APPROVALS

LPCB Approved - The Viking LPCB Type 1 SUREFIRE® Single Interlocked Preaction System is LPCB Approved when installed with specific components. Refer to the current LPCB Red Book listing.

- U.S. Patent No. 7,055,612

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 (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), normally closed Emergency Release (B.11), and Pneumatic Actuators (E.3). Water Supply pressure in the priming chamber holds the clapper of the Deluge Valve (A.1) on the seat due to the differential design of the valve pressure. The clapper separates the inlet chamber from the outlet chamber, keeping the outlet chamber and system piping dry.

B. IN FIRE CONDITIONS

When the detection system (E.7) operates, the System Control Panel (E.8) energizes the normally closed Release Solenoid Valves (E.1) open, relieving air pressure from the pneumatic actuator, which allows prime pressure to be relieved from the deluge valve. Pressure is released from the priming chamber faster than it is supplied through restricted orifice (B.3). The Deluge Valve (A.1) clapper opens to allow water to flow into the system piping and to alarm devices. Water will flow from any open sprinklers or nozzles.

To return the system to “Normal” conditions, drain the system piping and replace any sprinklers that may have operated. Replace any detectors which have been damaged and re-establish system air pressure. Press the “System Reset” button on the System Control Panel (E.8) to clear all alarms.

C. FOR CONVENTIONAL DELUGE VALVE TRIM

(Refer to Figures 1-6.)

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.

Revised page replaces page 323a-I_Euro dated June 15, 2006.
(Removed reference to Easy Trim.)

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TABLE 1: IMPORTANT SETTINGS	AIR SUPERVISORY SETTINGS		
Water Supply (PSI)	Detection Circuit Two (PSI)	Detection Circuit Four (PSI)	Release & System Air Normal (PSI)
0-100 (0-6.9 bar)	15+ (1.03+ bar)	25 (1.72 bar)	30 (2.07 bar)
100-200 (6.9-13.8 bar	25+ (1.72+ bar)	35 (2.41 bar)	40 (2.76 bar)
200-250 (13.8-17.2 bar)	35+ (2.41+ bar)	45 (3.1 bar)	50 (3.45 bar)
See system wiring diagram #13654.			

D. TROUBLE CONDITIONS

If the system piping and/or the sprinklers are damaged and both the AC Power and Standby Battery Power is available, the low air supervisory switch (E.5) will activate a supervisory alarm at the System Control Panel (E.8), and the normally open Solenoid Valve (E.2) closed to prevent water flow through any opened sprinkler(s) or broken pipe. In the event of fire that cause the Detector (E.7) to operate, the normally closed Release Solenoids (E.1) will open and water will flow through any open sprinkler(s).

If the detection system is damaged, the panel wiring shorts or malfunctions, or AC power is lost, the System Control Panel (E.8) will go into trouble alarm. In the event of a fire, the back up battery power will open the NC solenoid valve (E.1), or when a sprinkler opens, the system air pressure depletes and allows the Deluge Valve (A.1) to open when the trip point of the pneumatic actuator (E.3) is reached failing wet.

Loss of Power Prior to Operation:

If the AC power fails, the Type 1 SUREFIRE® Single Interlocked Preaction System continues to operate on the standby batteries. Should the AC power and the standby batteries drop power to a point less than required to operate solenoid valves (E.1), both solenoid circuits of panel drop out. Prior to the operation of the system, all alarms will be lost. As long as air pressure remains in the system piping, the Pneumatic Actuators (E.3) will keep the Deluge Valve (A.1) from opening. If AC power is lost, a trouble alarm is activated and power to the N.O. solenoid valve (E.2) is lost. If the system air pressure is lost, the Deluge Valve (A.1) will open, allowing water to flow into the system piping and be discharged from any open sprinkler(s).

E. LOSS OF POWER DURING OPERATION

If all power fails while the system is flowing water, the normally open Release Solenoid (E.2) will open and the normally closed Release Solenoids (E.1) will close. Water from main supply will continue entering the system, and flow through any open sprinkler(s).

F. MANUAL OPERATION

Any time the handle inside Emergency Release (B.11) is pulled, pressure is released from the priming chamber faster than it can be replaced through the priming line; the Deluge Valve (A.1) will open. Water will fill the system piping, activating any connected alarms, but will not discharge from any closed sprinklers attached to the system until a sprinkler has operated, as in a fire. All alarms will operate normally.

4. INSTALLATION

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

1. The Deluge Valve (A.1) and Trim must be installed only in areas where they will not be subjected to freezing temperatures or mechanical damage.
2. All indicating appliances and releasing devices must be compatible and should be LPCB certified for use with the SUREFIRE® Single Interlocked Preaction System. Refer to appropriate Fire Protection Equipment Approval Guides and current Viking Technical Data describing individual components of the Viking LPCB Type 1 Surefire® Single Interlocked Preaction System.

A. AIR SUPPLY DESIGN

The air supply compressor 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 Maintenance Device (G.7) is used to regulate air pressure in Pneumatic release piping.

The air supply must be regulated to maintain the supervisory pressure desired in the sprinkler and release piping. Pressures other than the pressure settings recommended in Table 1, 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 Figures 1-6.)

A riser mounted compressor may be suitable for small electrically operated single interlocked preaction systems. However, place-

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ment 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 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.
3. Do not install an Accelerator on the system or the NON fire pipe break feature will be lost.
4. Verify system approval. Refer to the Authority Having Jurisdiction.

It is recommended practice to provide a Test Connection on the pneumatic release piping.

B. 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 should 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. Clean 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.
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 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 1-6.)

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

To Place the System in Service:

1. Verify that the System Control Panel (E.8), Detector Circuits and Detectors have been properly installed and energized according to manufacturer’s instructions.
2. Verify that the system has been properly drained. (When plunger is depressed on drip check, (B.7) no water should flow.) System Drain (A.3) should be open. Verify that Emergency Release (B.11) is closed.
3. Verify that the System Main Water Supply Control Valve (D.1) is closed and the Deluge Valve (A.1) is trimmed according to current Viking Trim Charts and schematic drawings for the system used.
4. Verify that the system water supply piping is pressurized up to the closed System Main Water Supply Control Valve (D.1) and the priming line is pressurized up to the closed Priming Valve (B.1).
5. Establish a normal condition on the Release Control Panel (E.8).
6. Open Priming Valve (B.1).
7. Release Solenoid Valves (E.1) should close. Air flow from Release Solenoid Valves (E.1) should stop.
8. Open Flow Test Valve (B.15).
9. Partially open Main Water Supply Control Valve (D.1) (If closed).
10. 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).
11. Close Auxiliary Drain (B.6).
12. Fully open and secure the Main Water Supply Control Valve (D.1).
13. Verify that the Alarm Shut-off Valve (B.9) is open and that all other valves are in their normal operating position.
14. 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 1-6.)

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.

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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.

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.

1. If all System Components are Operational:
   a. Open Auxiliary Drain (B.6).
   b. Silence alarms (optional).
      1. To silence electric alarms controlled by the System Control Panel (E.8), open panel and press “ALARM SILENCE”
      2. To silence electric alarms not controlled by the System Control Panel (E.8), close the Alarm Shut-Off Valve (B.9).
   c. To return to service immediately, (when no maintenance or repairs are required) :
      1. Close Auxiliary Drain (B.6) if opened in step 1-A. If necessary, open System Drain (A.3) to drain system and/or Test Valve (B.15) to drain the inlet chamber of the Deluge Valve (A.1).
      2. Open the System Control Panel (E.8) and press “RESET”.
      3. Restore system air pressure.
      4. Open Alarm Shut-Off Valve (B.9) (If it was closed in step B-2 above).
      5. Verify that all valves are secured in their normal operating position. (Refer to Figure 1.)
2. If it is necessary to remove the LPCB Type 1 Surefire® Single Interlocked Preaction System from service:
   a. Close the Main Water Supply control Valve (D.1).
   b. If necessary, open System Drain (A.3) to drain system and/or Test Valve (B.15) to drain the inlet chamber of the Deluge Valve (A.1).
   c. Disconnect all power sources to the System Control Panel prior to performing any maintenance or repairs to the detection system (E.7), the panel (E.8), solenoid valves (E.1, E.2), or any electrical component of the system.
3. Perform all maintenance procedures recommended in the Technical Data Pages for the individual components of the system that has operated.
   a. Replace any piping, detectors (E.7), or sections of detection cable that have been damaged.

Note: The complete system operation must be tested after servicing, changing programming, addition or deletion of system components or after any modification, repair, or adjustment to system hardware or wiring. All components, circuits, system operation or software functions known to be affected by a change must be 100% tested.

   b. Replace any sprinklers that have been damaged or exposed to fire conditions.
4. Restore AC power to the System Control Panel (E.8). Always connect and turn on AC power source prior to connecting the standby batteries. Connecting the standby batteries to the System Control Panel (E.8) before the AC power is connected and turned on may damage the panel.
5. Return the system to service. 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 LPCB Type 1 Surefire® Single Interlocked Preaction System. (See section 8 for hyperlinks to Viking Technical Data.)
Where difficulty in performance is experienced, contact Viking Technical Service if any field adjustment is to be made.
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 during the test, CLOSE main water supply control valve (D.1) and fully open the system drain valve (A.3).
2. Verify that low air alarms operate within an acceptable time period and continue without interruption.
3. Close the drain valve (A.3).
4. Establish recommended pneumatic pressure to be maintained. Refer to section 4. INSTALLATION.
5. Open the system control panel and press RESET. Alarms should stop.

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When testing is complete, return the system to service following steps 1 through 8 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 indicates that the priming chamber is pressurized with system water supply pressure. Verify that auxiliary drain is open.
2. Open flow test valve.
3. Partially open main water supply control valve
4. When full flow develops from flow test valve, close the flow test valve. Verify that there is no flow from open auxiliary drain.
5. Close auxiliary drain.
6. Fully open and secure the main water supply control valve.
7. Verify that the alarm shut-off valve is open and that all other valves are in their normal operating position.
8. Depress the plunger of drip check. 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 Type 1 SUREFIRE® 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 and pull the handle.
3. The deluge valve should open, filling the sprinkler system with water. Water flow alarms should operate.
4. Open the sprinkler system inspectors test valve to verify adequate flow.

When Trip Testing is complete:

5. Perform steps 1 through 5 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 LPCB Type 1 SUREFIRE® Single Interlocked Preaction System, the following components must be purchased: Deluge Valve, Easy Riser Check Valve, Conventional Trim, Release Trim package, and a Par-3 Panel.

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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
SUREFIRE®	Need to order Deluge Valve, Trim, Check Valve and Par 3 Panel separately	
	Use with Angle Style Valves	
Single Interlock		**Galvanized**
	DN50	LL13609
	DN80	LL13927
	DN100	LL13928
	DN150	LL13929
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 24 VDC, 1/2" / DN15	11601	

Par-3 Panel Part Numbers

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	**Model L-1**	
Groove / Groove	1-1/2" / DN40	11054
	2" / DN50	11059
EASY RISER ® SWING CHECK VALVE	Rated to 250 psi (17 bar)	
Flange/Flange		
Flange Drilling	**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.	**Model F-1**	
ANSI / 89mm	3"	08506
ANSI / 114mm	4"	08509
ANSI / 168mm	6"	08512
ANSI / 219mm	8"	08515
PN10/16 / 89mm	DN80	12648
PN10/16 / 114mm	DN100	12649
PN10/16 / 165mm	DN150	12652
PN10/16 / 168mm	DN150	08512
PN10 / 219mm	DN200	12651
PN16 / 219mm	DN200	12650
Groove/Groove		
Pipe O.D.	**Model E-1**	
73mm	2½" / DN65	07929
	Model F-1	
89mm	3" / DN80	08507
114mm	4" / DN100	08510
165mm	DN150	12356
168mm	6" / DN150	08513
219mm	8" / DN200	08516

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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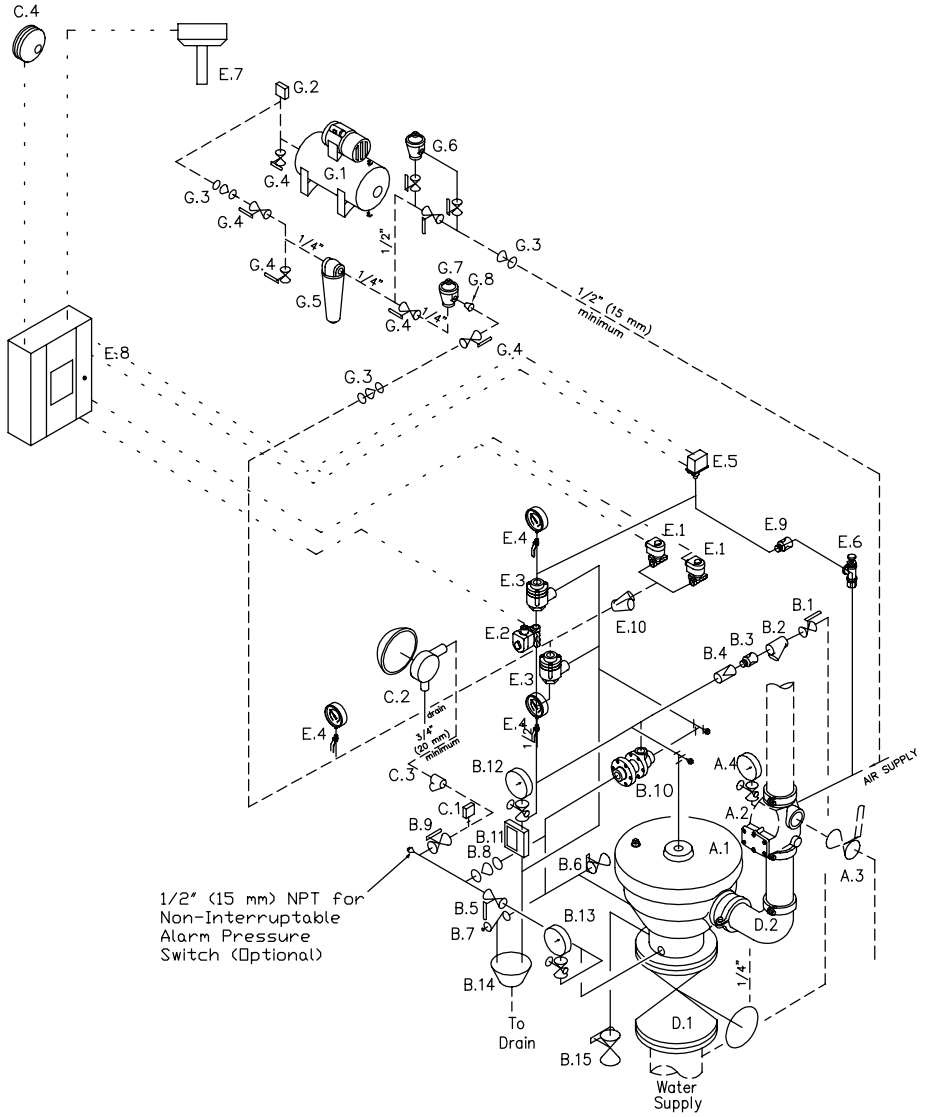


SYSTEM COMPONENTS

A. Valve
- A.1 Deluge Valve
- A.2 Check Valve
- A.3 System Drain Valve
- A.4 System Pressure Gauge

B. Deluge Valve Conventional Trim*
(See Deluge Valve Conventional Trim Charts)
- B.1 Priming Valve
- 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 90 Ell. (Grooved Ell Shown. Deluge Valve also available with Flanged Outlet.)

E. Release System
- E.1 Solenoid Valve (Normally Closed)
- E.2 Solenoid Valve (Normally Open)
- E.3 Pneumatic Actuator
- E.4 Air Pressure Gauge
- E.5 Air Pressure Supervisory Switch (DPST)
- E.5 Air Pressure Supervisory Switch CTRL SOLENOID E.2
- E.6 Float Check Valve
- E.7 Electric Detection System. Heat Detector shown for clarity.
- E.8 System Control Panel configured for Single Zone Deluge operation.
- E.9 5/64" Restricted Orifice
- E.10 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.

– - - – Dashed 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.

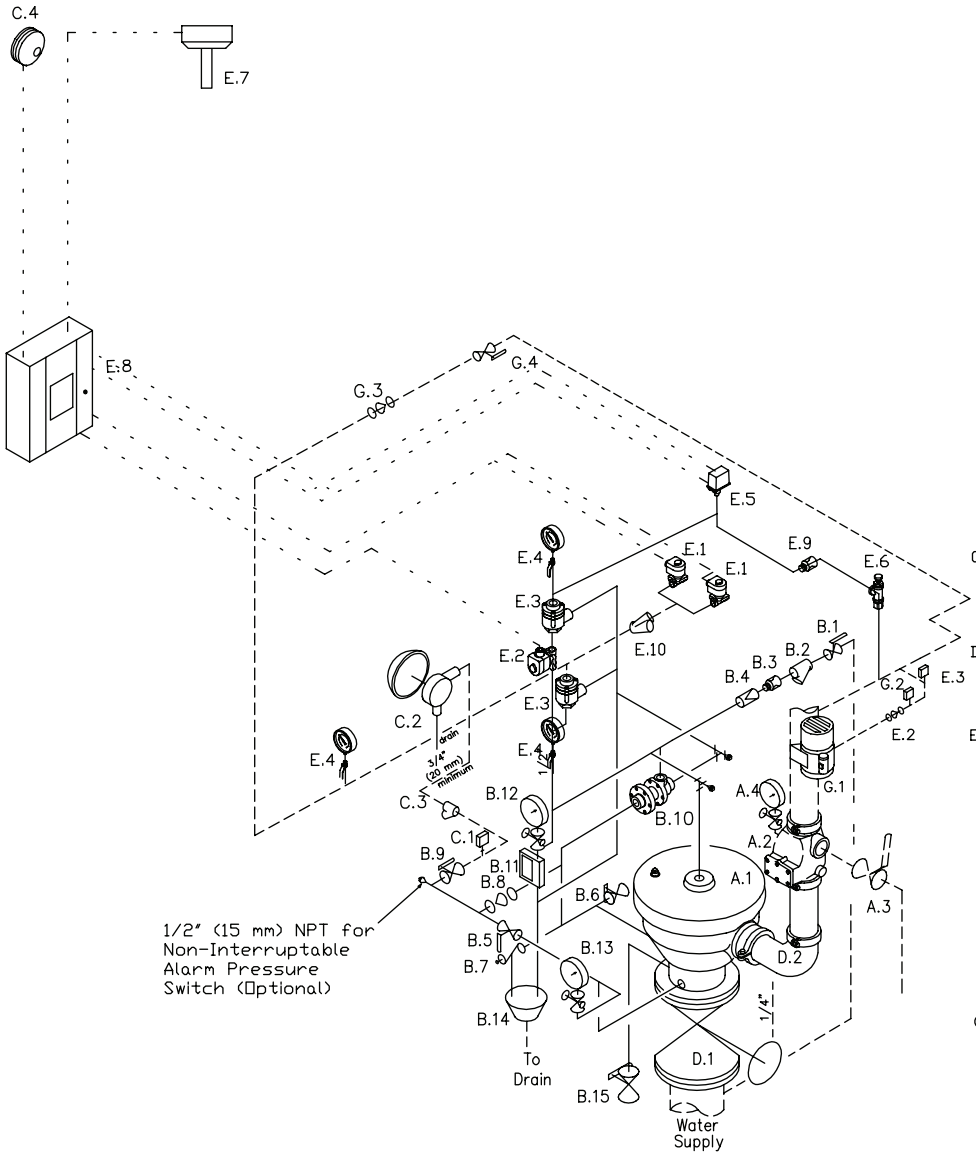
* Viking Deluge Valve Trim Packages contain items B.1 through B.15 and associated nipples.Viking Accessory Package for Deluge Valve Easy Trim contains B.2 through B.5, Viking Accessory Package for Deluge Valve Easy Trim contains B.2 through B.5, B7 through B.11, and B.14.

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

TECHNICAL DATA

LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® 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



SYSTEM COMPONENTS

A. Valve
- A.1 Deluge Valve
- A.2 Check Valve
- A.3 System Drain Valve
- A.4 System Pressure Gauge

B. Deluge Valve Conventional Trim*
(See Deluge Valve Conventional Trim Charts)
- B.1 Priming Valve
- 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 90 Ell. (Grooved Ell Shown. Deluge Valve also available with Flanged Outlet.)

E. Release System
- E.1 Solenoid Valve (Normally Closed)
- E.2 Solenoid Valve (Normally Open)
- E.3 Pneumatic Actuator
- E.4 Air Pressure Gauge
- E.5 Air Pressure Supervisory Switch (DPST)
- E.5 Air Pressure Supervisory Switch CTRL SOLENOID E.2
- E.6 Float Check Valve
- E.7 Electric Detection System. Heat Detector shown for clarity.
- E.8 System Control Panel configured for Single Zone Deluge operation.
- E.9 5/64" Restricted Orifice
- E.10 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)

– – – – – Dashed lines indicate pipe required but not listed IN "SYSTEM COMPONENTS" TABLE.

– - - – Dashed 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 Deluge Valve Easy Trim contains B.2 through B.5, Viking Accessory Package for Deluge Valve Easy Trim contains B.2 through B.5, B7 through B.11, and B.14.

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

VIKING®

TECHNICAL DATA

LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® 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

DN50 SUREFIRE® Release Trim Arrangement
LL13609
See separate trim drawing for base Trim arrangement. See Section 8 for ordering complete SUREFIRE® Assembly.

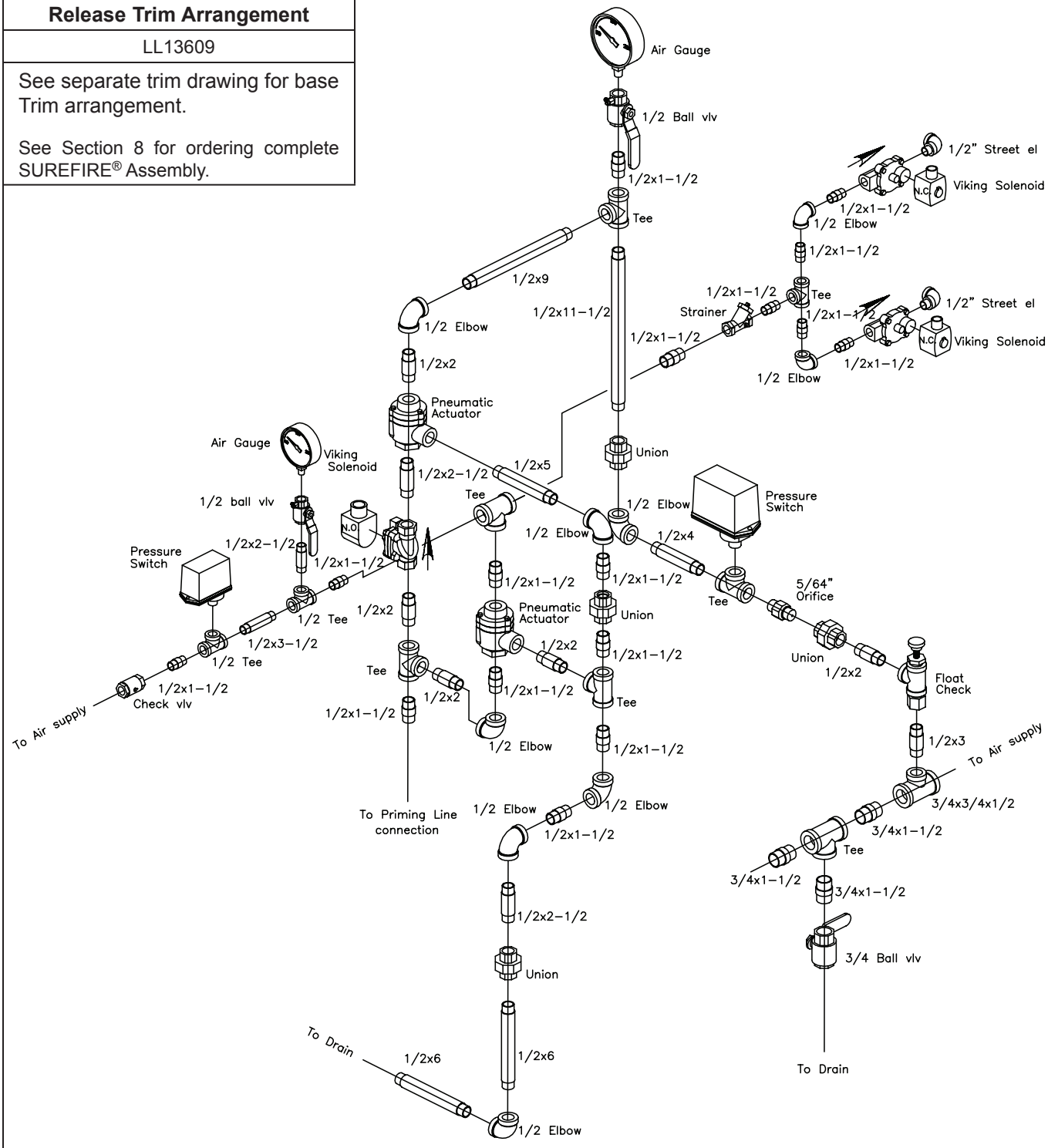


FIGURE 3: LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE DN50 ANGLE STYLE

TECHNICAL DATA

LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® 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

DN80 SUREFIRE®
Release Trim Arrangement

LL13927

See separate trim drawing for base Trim arrangement.

See Section 8 for ordering complete SUREFIRE® Assembly.

FIGURE 4: LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE DN80 ANGLE STYLE

TECHNICAL DATA

LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® 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

DN100 SUREFIRE® Release Trim Arrangement

LL13928

See separate trim drawing for base Trim arrangement.

See Section 8 for ordering complete SUREFIRE® Assembly.

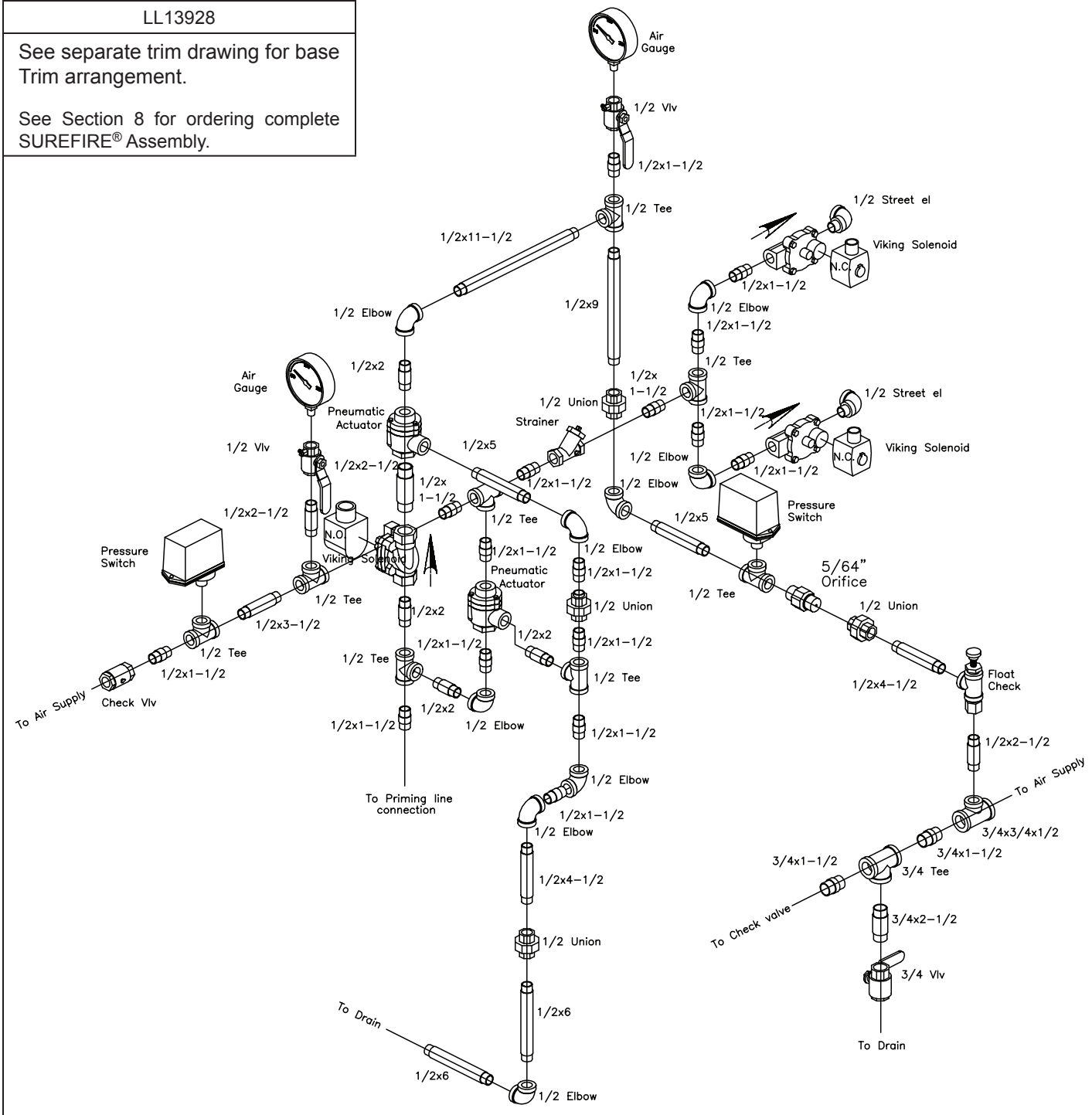


FIGURE 5: LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE DN100 ANGLE STYLE

TECHNICAL DATA

LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® 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

DN150 SUREFIRE® Release Trim Arrangement
LL13929
See separate trim drawing for base Trim arrangement. See Section 8 for ordering complete SUREFIRE® Assembly.

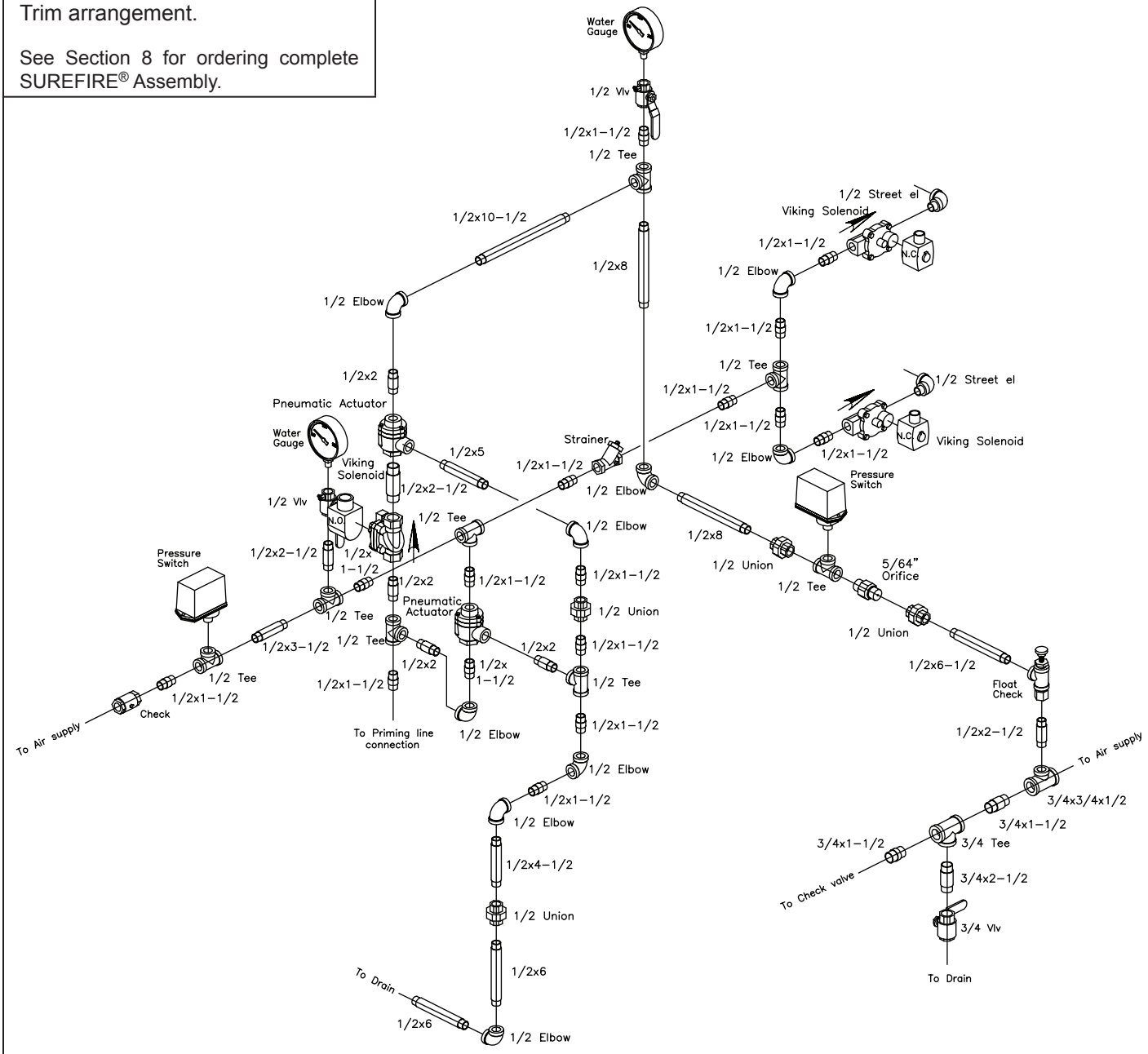


FIGURE 6: LPCB TYPE 1 SINGLE INTERLOCKED SUREFIRE® PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE DN150 ANGLE STYLE

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Revised page replaces page 323a-l_Euro dated June 15, 2006.
(Removed reference to Easy Trim.)