VIKING®

TECHNICAL DATA

DOUBLE INTERLOCKED PREACTION SYSTEM WITH PNEUMATIC/ PNEUMATIC RELEASE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

(Refer to Figures 1-3.)

Viking Pneumatic/Pneumatic Double Interlocked Preaction Systems utilize a Viking deluge valve controlled by pressure maintained in the pneumatic release system and supervisory pressure maintained in the automatic sprinkler system. BOTH the release system must activate AND supervisory pressure must be relieved from the sprinkler system before the deluge valve will open to fill the sprinkler system with water. If the pneumatic release system (alone) operates due to fire, damage, or malfunction, 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 release system has not activated, an alarm will activate but the deluge valve will NOT open. In fire conditions, operation of both a releasing device and a sprinkler is required before the deluge valve will open, allowing water to enter the system piping.

Pneumatically controlled preaction systems require a pneumatic release system, equipped with thermostatic (rate-of-rise) releases (E.4), and/or fixed-temperature releases (E.5), and/or pilot heads (E.6). Release trim for the pneumatic/pneumatic double interlocked preaction system requires the factory pre-assembled pneumatic/ pneumatic release module consisting of two pneumatic actuators and a pressure releasing vent valve. Pneumatic actuator #1 is normally held closed by the pressure maintained in the pneumatic release system. Pneumatic actuator #2 is normally held closed by pressure maintained in the sprinkler system.

Viking Pneumatic/Pneumatic Double Interlocked Preaction Systems are commonly used as refrigerated area systems when used with fixed-temperature releasing devices, such as pilot heads (E.6). Double interlocked preaction systems are also commonly used where flooding of the pipe can have serious consequences, and where it is important to control accidental water discharge due to damaged sprinkler piping. Care should be taken because double interlocked preaction systems may not produce flow from opened sprinklers as quickly as single- or non-interlocked preaction systems. Activation of a releasing device alone, or operation of a sprinkler alone, will sound an alarm, but will NOT cause the system to fill with water.

2. LISTINGS AND APPROVALS

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

3. SYSTEM OPERATION

WARNING: Cancer and Reproductive Harm- www.P65Warnings.ca.gov

(Refer to Figures 1-3.)

A. IN THE SET CONDITION

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 the check valve (B.4) and the two pneumatic actuators in the pneumatic/pneumatic release module. Pneumatic actuator #1 is held closed by pressure maintained in the pneumatic release system. Pneumatic actuator #2 is held closed by supervisory pressure maintained in the sprinkler system. 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

When a releasing device (E4, E.5, or E.6) operates, pressure in the pneumatic release system escapes, causing alarms controlled by the air supervisory switch to activate, and pneumatic actuator #1 to open. When a sprinkler opens, supervisory pressure in the sprinkler piping is reduced, causing alarms controlled by the air supervisory switch to activate, and pneumatic actuator #2 to open.

After BOTH the pressure in the pneumatic release system and supervisory pressure in the sprinkler system have been reduced below their set point, pressure is released from the priming chamber to the open drain cup (B.14) faster than it is supplied through the restricted orifice (B.3). The deluge valve (A.1) clapper opens to allow water to flow into the system piping and alarm devices, causing the water motor alarm (C.2) and waterflow alarms connected to the alarm pressure switch (C.1) to activate.

Optional accelerator(s) (E.7), may be installed to accelerate operation of the release system and/or sprinkler system to provide earlier alarms and/or to allow the system to fill with water faster. Accelerator(s) (E.7) may be necessary to meet system discharge time requirements.

When the deluge valve operates, the sensing end of the PORV (B.10) loses pressure, causing the PORV (B.10) to operate. When the PORV (B.10) 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.

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TABLE 1: IMPORTANT SETTINGS

Device	Water Supply Settings	
	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	50 PSI (3.5 bar)	70 PSI (4.8 bar)
Air Maintenance Device	30 PSI (2.1 bar)	50 PSI (3.5 bar)
Release System Pressure Supervisory Switch	25 PSI (1.7 bar) On Pressure Drop	45 PSI (3.1 bar) On Pressure Drop
Nitrogen Supply Regulator	40 PSI (2.8 bar)	60 PSI (4.1 bar)
Nitrogen Backup Pressure Supervisory Switch	35 PSI (2.4 bar) on Pressure Drop	55 PSI (3.8 bar) on Pressure Drop

C. TROUBLE CONDITIONS

If a sprinkler opens prior to operation of a releasing device, or any time supervisory pressure in the sprinkler piping is lost, alarms connected to the air supervisory switch will signal a low air pressure condition, but the deluge valve will NOT open.

If the pneumatic release system (alone) operates due to damage or malfunction, alarms connected to the air supervisory switch 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.

E. BACKUP NITROGEN SUPPLY

By cross-connecting the air supply and nitrogen supply as shown in Figures 1-3, the air compressor will maintain air in the sprinkler system and release system piping. If the air compressor fails, the nitrogen supply will maintain pressure in the release system only, keeping pneumatic actuator #1 closed. The air supervisory pressure switch will activate an electric alarm if a low supervisory pressure condition occurs in the sprinkler system. The supervisory pressure switch will actuate an electric alarm if nitrogen pressure drops below the set point of the switch.

4. INSTALLATION

Refer to current Viking Technical Data describing individual components of the Viking Pneumatic/Pneumatic Double Interlocked Preaction System. Technical Data describing the Viking Deluge Valve and other system components are packed with product and in the *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.)

Recommended settings for pneumatic pressure maintained in the pneumatic release system and supervisory pressure maintained in the sprinkler system vary depending on the maximum water supply pressure of the system:

1. Set the air compressor “On/Off” switch, air maintenance devices (G.6), and release system pressure supervisory switch to the appropriate settings shown in Table 1 for the maximum water supply pressure available.
   a. The air pressure 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.
2. **When backup nitrogen supply is provided, set the nitrogen supply regulator and nitrogen backup pressure supervisory switch to the appropriate settings shown in Table 1 for the maximum water supply pressure available.**
   a. The supervisory switch should be wired to activate an alarm to signal a “low air” pressure condition.
3. The alarm pressure switch (C.1) should activate when pressurized to 4 to 8 PSI (0.3 to 0.6 bar) on pressure rise and should be wired to activate the water flow alarm.

B. 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 devices (G.6) are used to regulate and restrict air flow into the

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sprinkler system and release system piping.

The air supply must be regulated to maintain the pressure desired in the release system and supervisory pressure desired in the sprinkler piping. Pressures in excess of 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 releasing device or a sprinkler operates. It is recommended practice to provide inspector's test connections on both the pneumatic release system and the supervised sprinkler piping.

The sprinkler system inspector's test connection should be equipped with a ball valve (normally locked closed) capable of being opened to simulate the opening of a sprinkler and should terminate in an orifice equal to the smallest sprinkler orifice provided on the system. The sprinkler system inspector's test connection should be installed at the most hydraulically demanding location of the system.

The inspector's test connection provided on the pneumatic release system should be equipped with a ball valve (normally locked closed) capable of being opened to simulate the opening of a releasing device. Locate the connection and valve at the highest, most demanding location of the release system. Test connections provided on pneumatic release systems should terminate in an orifice equal to the smallest orifice of the releasing devices provided.

The inspector's test connection may be used to verify that the automatic air supply cannot replace air as fast as it escapes when a releasing device operates. Refer to section 7. INSPECTIONS and TESTS.

C. SPEED OF OPERATION

The optional accelerator(s) (F.7) may be installed to accelerate operation of the release system and/or sprinkler system to provide earlier alarms and/or allow the system to fill with water faster. Accelerator(s) (F.7) may be necessary to meet system discharge time requirements.

5. PLACING THE SYSTEM IN SERVICE

(Refer to Figures 1-3.)

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 valve (B.6) should be open. Verify that the emergency release (B.11) is closed.
2. Close the system main drain and any auxiliary drain valve (B.6) that may have been opened.
3. Open the priming valve (B.1).
4. Restore pneumatic pressure to the sprinkler system.
   a. Refer to section 4. INSTALLATION and Table 1 on page 316b for pressure required by the pneumatic actuator.
   b. Verify that the ½" valve in the air maintenance device by-pass trim is closed and that both 1/4" valves are open.
5. Open the pressure release valve on the pneumatic/pneumatic release module to relieve pressure between pneumatic actuators #1 and #2.
6. Restore pneumatic pressure to the pneumatic release system.
   a. Refer to section 7. INSTALLATION and Table 1 on page 316b for pressure required by the pneumatic actuator.
7. Close the pressure release valve on the pneumatic/pneumatic release module.

CAUTION! THIS VALVE MUST REMAIN CLOSED DURING NORMAL OPERATION. WHEN THE VALVE IS OPEN, THE SYSTEM IS NOT DOUBLE INTERLOCKED. LOSS OF SUPERVISORY PRESSURE IN THE RELEASE PIPING OR THE SPRINKLER PIPING WHILE THIS VALVE IS OPEN WILL TRIP THE SYSTEM.

8. Open the flow test valve (B.15) and the auxiliary drain valve (B.6).
9. Partially open the main water supply control valve.
10. When full flow develops from the flow test valve (B.15), then close the flow test valve (B.15).
    a. Verify that there is no flow from the open auxiliary drain valve (B.6).
11. Close the auxiliary drain valve (B.6).
12. Fully open and secure the main water supply control valve.
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 the drip check. No water should flow from the drip check when the plunger is pushed.

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6. EMERGENCY INSTRUCTIONS

(Refer to Figures 1-3.)

⚠ WARNING

Any system maintenance that involves placing a control valve or detection system out of service will impair the fire protection capabilities of that system. Prior to proceeding, appropriate impairment procedures per NFPA 25 shall be followed with the notification of all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

Failure to follow these instructions could cause improper system operation, resulting in serious personal injury and/or property damage.

To Take System Out of Service:

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).
3. Silence alarms (optional).
   a. To silence electric alarms controlled by the pressure switch (C.1) and to silence the water motor alarm (C.2), close the 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 the auxiliary drain (B.6).
6. Close the 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 thermostatic releases (F.4) that have been damaged. Replace any fixed-temperature releases or pilot heads (F.6) that have operated.
8. Replace any sprinklers that have opened, that have been damaged, or that 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 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 is 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 Pneumatic/Pneumatic Double Interlocked Preaction System used. (See section 8 for hyperlinks to Viking Technical Data.)

The frequency of 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 will impair the fire protection capabilities of that system. Prior to proceeding, appropriate impairment procedures per NFPA 25 shall be followed with the notification of all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

Failure to follow these instructions could cause improper system operation, resulting in serious personal injury and/or property damage.

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Low Air Pressure Alarm Test:

Quarterly testing of low air alarms is recommended.

To Test the Pneumatic Release System "Low Air" Alarm:

1. To prevent operation of the deluge valve during the test, DO NOT open the sprinkler system inspector's test valve when the release system is in a "low-air" condition, and DO NOT open the release system inspector's test valve when the sprinkler system is in a "low supervisory air" condition. Consider closing the main water supply control valve.
2. Fully open the inspector's test valve on the system being tested.
3. Verify that low air alarms operate within an acceptable time period and continue without interruption.
4. Close the inspector's test valve.
5. Establish recommended pneumatic pressure to be maintained. Refer to section 4. INSTALLATION and Table 1 on page 316b.
6. Alarms should stop.

To Test Sprinkler System "Low Supervisory Air" Alarm:

7. Repeat steps 1 through 6 above, operating the sprinkler system inspector's test valve.

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 the 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. 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 the flow test valve (B.15) and the auxiliary drain valve (B.6).
4. Partially open the main water supply control valve.
5. When full flow develops from the flow test valve (B.15), close the flow test valve (B.15).
   a. Verify that there is no flow from the open auxiliary drain valve (B.6).
6. Close the auxiliary drain valve (B.6).
7. Fully open and secure the main water supply control valve.
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. 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 releasing devices.

CAUTION! PERFORMANCE OF THIS TEST WILL CAUSE THE DELUGE VALVE TO OPEN AND THE SPRINKLER SYSTEM TO FILL WITH WATER. IF TRIP TESTING IS NOT CONSIDERED PRACTICAL, CONSULT THE AUTHORITY HAVING JURISDICTION.

To trip test the Pneumatically Controlled Double Interlocked Preaction System:

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.
2. To trip the deluge valve:
   a. Open the release system inspector's test valve or operate a releasing device according to the manufacturer's instructions.
   b. Open the sprinkler system inspector's test valve.
3. The deluge valve should open, filling the sprinkler system with water.
   a. Water flow 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 14 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 Pneumatic/Pneumatic Release, the following components must be purchased: Deluge Valve, Easy Riser Check Valve, Conventional Trim, and Release Trim Package.

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VALVE PART NUMBERS

Angle Style Valves

DESCRIPTION		NOMINAL SIZE	PART NUMBERS	
			Painted Red	HALAR®
Threaded NPT	Pipe O.D.		Model E-3	Model E-4
	48 mm	1½" / DN40	09889	09890Q/B
			Model E-1	Model E-2
	260 mm	2" / DN50	05852C	08361Q/B
Flange/ Flange	Flange Drilling		Model E-1	Model E-2
	ANSI	3"	05912C	08362Q/B
	ANSI	4"	05909C	08363Q/B
	ANSI	6"	05906C	08364Q/B
	ANSI/Japan	6"	07136	----
	PN10/16	DN80	08626	08862Q/B
	PN10/16	DN100	08629	08863Q/B
	PN10/16	DN150	08631	08864Q/B
Flange/ Groove	Flange Drilling / Pipe O.D.		Model E-1	Model E-2
	ANSI / 89 mm	3"	05835C	11064Q/B
	ANSI / 114 mm	4"	05839C	11065Q/B
	ANSI / 168 mm	6"	05456C	11001Q/B
	PN10/16 / 89 mm	DN80	09539	----
	PN10/16 / 114 mm	DN100	09540	----
	PN10/16 / 168 mm	DN150	05456C	11001Q/B

Straight Through Valves

DESCRIPTION		NOMINAL SIZE	PART NUMBERS	
			Painted Red	HALAR®
Threaded NPT	Pipe O.D.		Model F-1	Model F-2
	NPT 48 mm	1½"	12126	----
	NPT 60 mm	2"	12059	----
	NPT 65 mm	2½"	12401	12402Q/B
	BSP 48 mm	DN40	12682	----
	BSP 60 mm	DN50	12686	----
Flange/ Flange	Flange Drilling		Model F-1	Model F-2
	ANSI	3"	12014	12015Q/B
	ANSI	4"	11953	11960Q/B
	ANSI	6"	11955	11962Q/B
	ANSI	8"	11991	11992Q/B
	ANSI/Japan	6"	11964	----
	PN10/16	DN80	12026	12027Q/B
	PN10/16	DN100	11965	11966Q/B
	PN10/16	DN150	11956	11963Q/B
	PN10	DN200	11995	11996Q/B
	PN16	DN200	11999	12000Q/B
Flange/ Groove	Flange Drilling / Pipe O.D.		Model F-1	Model F-2
	ANSI / 89 mm	3"	12018	12019Q/B
	ANSI / 114 mm	4"	11952	11959Q/B
	ANSI / 168 mm	6"	11954	11961Q/B
	PN10/16 / 89 mm	DN80	12030	12644Q/B
	PN10/16 / 114 mm	DN100	11958	12645Q/B
	PN10/16 / 165 mm	DN150	12640	12641Q/B
	PN10/16 / 168 mm	DN150	11954	11961Q/B
Groove/ Groove	Pipe O.D.		Model F-1	Model F-2
	48 mm	1½" / DN40	12125	12127Q/B
	60 mm	2" / DN50	12057	12058Q/B
	73 mm	2½" / DN65	12403	12404Q/B
	76 mm	DN80	12729	12730Q/B
	89 mm	3" / DN80	12022	12023Q/B
	114 mm	4" / DN100	11513	11514Q/B
	165 mm	DN150	11910	11911Q/B
	168 mm	6" / DN150	11524	11525Q/B
	219 mm	8" / DN200	11018	11118Q/B

VALVE TRIM PACKAGE PART NUMBERS

DESCRIPTION		NOMINAL SIZE	PART NUMBERS	
			Galvanized	Brass
Use with Angle Style Valves		1½" / DN40	14629-1	14629-2
		2" / DN50	14630-1	14630-2
		3" / DN80	14631-1	14631-2
		4" / DN100	14632-1	14632-2
		6" / DN150	14633-1	14633-2
Use with Straight Through Valves			Galvanized	Brass
	Horizontal Arrangment	1½" / DN40	14635-1	14635-2
		2" / DN50	14635-1	14635-2
		2½" / DN65	14637-1	14637-2
		3" / DN80	14637-1	14637-2
		4" / DN100	14638-1	14638-2
		6" / DN150	14640-1	14640-2
		8" / DN200	14643-1	14643-2
	Vertical Arrangment	1½" / DN40	14634-1	14634-2
		2" / DN50	14634-1	14634-2
		2½" / DN65	14636-1	14636-2
		3" / DN80	14636-1	14636-2
		4" / DN100	14639-1	14639-2
		6" / DN150	14641-1	14641-2
		8" / DN200	14642-1	14642-2

RELEASE TRIM PART NUMBERS

DESCRIPTION	PART NUMBERS	
	Galvanized	Brass
Release Trim	12662-1	12662-2

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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
Threaded NPT	**Model K-1**	1-1/2" / DN40	10659
		2" / DN50	10667
EASY RISER® SWING CHECK VALVE			
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
Flange/ Groove	**Flange Drilling / Pipe O.D.**	**Model F-1**	
	ANSI / 89 mm	3"	08506
	ANSI / 114 mm	4"	08509
	ANSI / 168 mm	6"	08512
	ANSI / 219 mm	8"	08515
	PN10/16 / 89 mm	DN80	12648
	PN10/16 / 114 mm	DN100	12649
	PN10/16 / 165 mm	DN150	12652
	PN10/16 / 168 mm	DN150	08512
	PN10 / 219 mm	DN200	12651
	PN16 / 219 mm	DN200	12650
Groove/ Groove	**Pipe O.D.**	**Model E-1**	
	73 mm	2½" / DN65	07929
		Model F-1	
	89 mm	3" / DN80	08507
	114 mm	4" / DN100	08510
	165 mm	DN150	12356
	168 mm	6" / DN150	08513
	219 mm	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

AIR MAINTENANCE DEVICE AND SUPERVISORY SWITCH PART NUMBERS

DESCRIPTION	MODEL	PART NUMBER
AIR PRESSURE MAINTENANCE DEVICE Complete with Trim	**D-2**	07459
PRESSURE SUPERVISORY SWITCH Adjustable Range 10-175 PSI (0.7-12 bar)	**1/2" / DN15**	
	Single SPDT	PS40-1A
	Dual SPDT	PS40-2A

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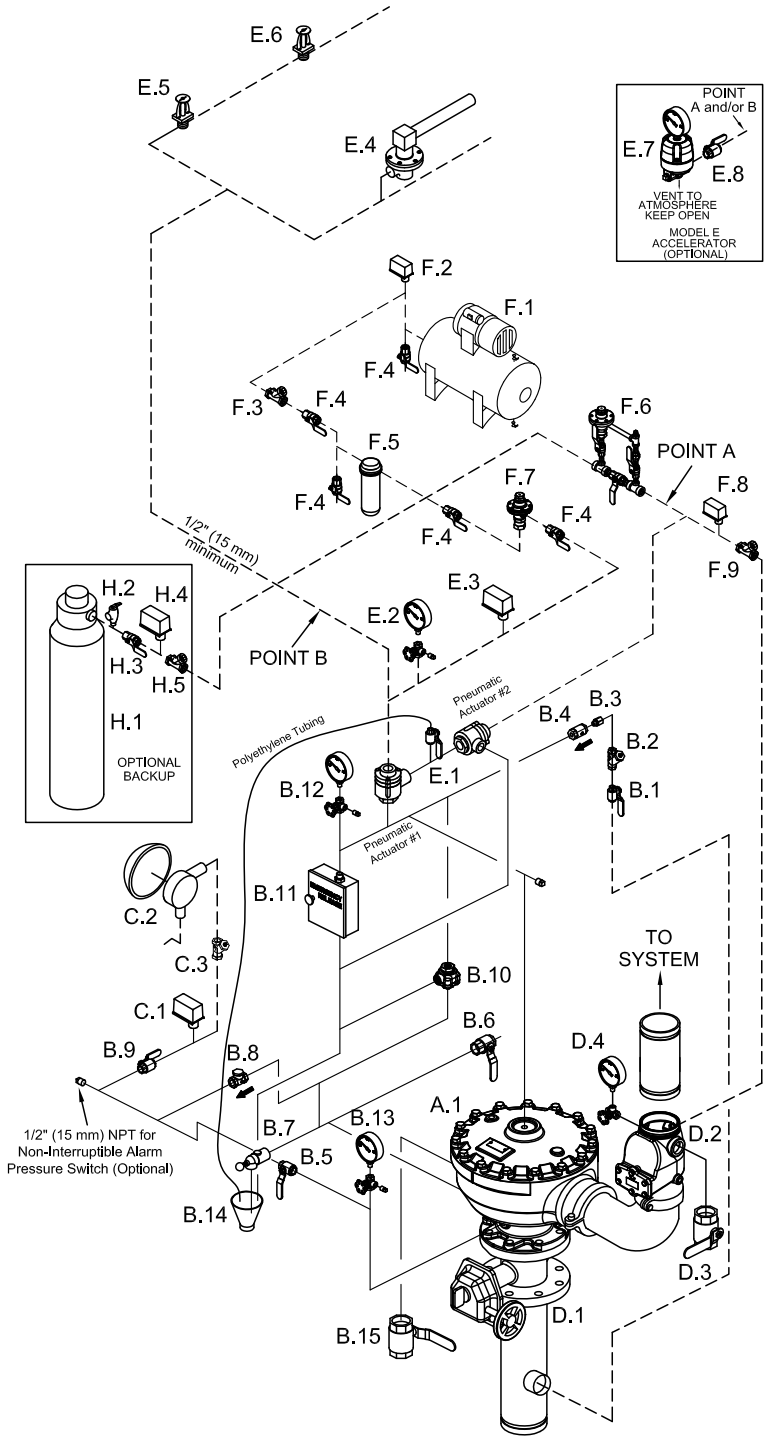


SYSTEM COMPONENTS

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 (PORV)
- 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

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 System Pressure Gauge and Valve

E. Release System
- E.1 Pneumatic/Pneumatic Release Trim
- E.2 Air Pressure Gauge and Valve
- E.3 Air Pressure Supervisory Switch
- E.4 Thermostatic Release and/or
- E.5 Fixed Temperature Release and/or
- E.6 Pilot Head (Sprinkler)
- E.7 Accelerator (Optional. See Inset.)
- E.8 Accelerator Isolation Valve (See Inset.)

F. Air Supply
- F.1 Tank Mounted Air Compressor
- F.2 Air Supervisory Pressure Switch (Compressor On/Off Control Switch)
- F.3 Soft Seat Check Valve
- F.4 Shut Off Valve (Indicating Ball Valve recommended.)
- F.5 Dehydrator
- F.6 Air maintenance Device & By-Pass Trim
- F.7 Air maintenance Device
- F.8 Air Pressure Supervisory Switch
- F.9 Soft Seat Swing Check Valve

H. Nitrogen Supply Trim (optional backup)
- H.1 Nitrogen Cylinder, Regulator, & Controls
- H.2 Relief Valve
- H.3 Shut Off Valve (Indicating Ball Valve recommended.)
- H.4 Pressure Supervisory Switch
- H.5 Soft Seated Check Valve

– – – 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.

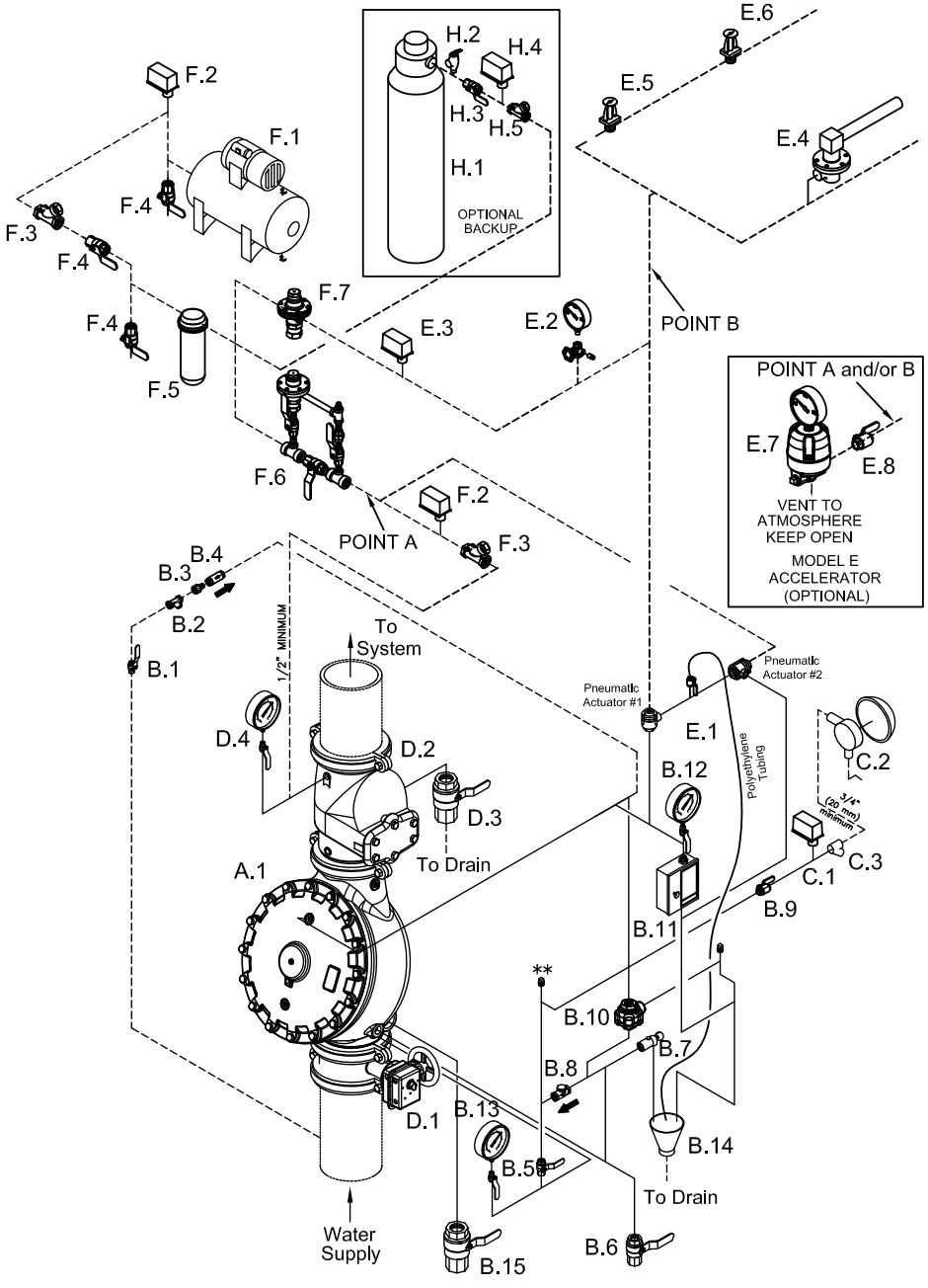
FIGURE 1: Angle Style Valve with Tank-Mounted Compressor (6" Valve Shown)

VIKING®

TECHNICAL DATA

DOUBLE INTERLOCKED PREACTION SYSTEM WITH PNEUMATIC/ PNEUMATIC RELEASE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com



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(See Deluge Valve Conventional Trim Charts)
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- B.7 Drip Check Valve
- B.8 Drain Check Valve
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- B.14 Drain Cup
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- C.1 Alarm Pressure Switch and/or
- C.2 Water Motor Alarm (Strainer Required)
- C.3 Strainer

D. Riser
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- E.2 Air Pressure Gauge and Valve
- E.3 Air Pressure Supervisory Switch
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- H.5 Soft Seated Check Valve

---------- Dashed lines indicate pipe is required but not listed in the "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.

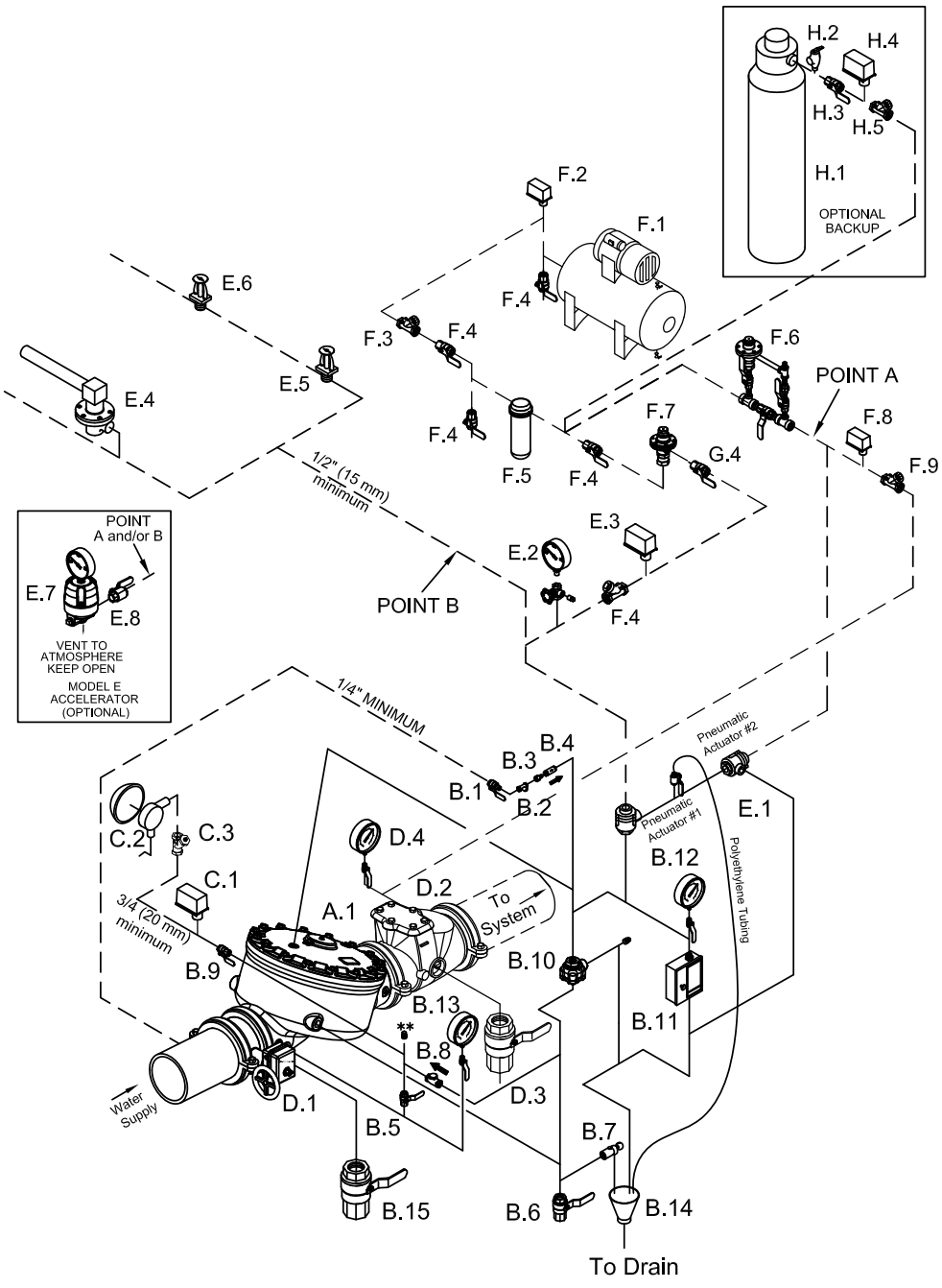
** 1/2" (15 mm) NPT for Non-Interruptible Alarm Pressure Switch (Optional)

FIGURE 2: Straight Through Vertical Valve with Tank-Mounted Compressor (6” Valve Shown)

TECHNICAL DATA

DOUBLE INTERLOCKED PREACTION SYSTEM WITH PNEUMATIC/ PNEUMATIC RELEASE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com



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- B.2 Strainer
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- B.14 Drain Cup
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- C.1 Alarm Pressure Switch and/or
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- F.7 Air maintenance Device
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H. Nitrogen Supply Trim (optional backup)
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Viking Accessory Package for Conventional Deluge Valve Trim contains B.2 through B.5, B.7 through B.11, and B.14.

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

FIGURE 3: Straight Through Horizontal Valve with Tank-Mounted Compressor (6" Valve Shown)

Replaces Form No. F_070789, dated January 27, 2012
(Added P65 Warning.)