TECHNICAL BULLETIN

PREACTION FOAM/WATER SYSTEM SUPPLIED BY BLADDER TANK

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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1. DESCRIPTION

A Preaction Foam/Water System Supplied by a Bladder Tank is a standard preaction system capable of discharging a foam/water solution automatically through sprinklers. A Preaction Foam/Water System Supplied by Bladder Tank consists of a standard preaction system using a Viking deluge valve complete with conventional trim, detection and releasing devices, a hydraulically actuated Viking CCV, a foam concentrate bladder tank, foam concentrate, and a wide range proportioner.

2. LISTINGS AND APPROVALS

No formal approval as a Preaction System. Main component and sub-system approvals below.

- Deluge Valve and Trim
  - UL Listed - Guide VLFT
  - FM Approved - Automatic Water Control Valves
- EZR Swing Check Valve and Trim
  - UL Listed - Guide HMER
  - FM Approved - Single Check Valves
- Model VNR Wide Range Proportioner
  - FM Approved - Low Expansion Foam Systems
- Model F2 or J2 Halar® Coated Concentrate Control Valve (CCV)
  - UL Listed - Guide VLFT
  - FM Approved - Automatic Water Control Valve as standard deluge valve. No formal approval available for coating.
- Model VFT Viking Bladder Tank - with ASME Section VIII and/or EN13455 Design Code
  - UL Listed - Guide GHXV
  - FM Approved - Low Expansion Foam Systems
- Viking ARK (3% AR-SFFF) Fluorine Free Foam Concentrate
  - FM Approved
- Viking USP (3% SFFF) Fluorine Free Foam Concentrate
  - UL Listed
  - FM Approved

3. TECHNICAL DATA

Specifications:

Refer to individual component technical data page.

Material Standards:

Refer to individual component technical data page.

Ordering Information:

Please contact your local Viking office or distributor.

4. INSTALLATION

A. Discharge Devices

- Standard Spray Sprinklers (refer to water/foam sprinkler data page)
- Non-aspirating spray nozzles
- Manual monitors
- Hose, reels, and nozzles

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B. General Instructions and Warnings

1. Refer to specific technical data sheets, FM Global Property Loss Prevention Data Sheet 4-12, acceptable installation standards, codes and Authority Having Jurisdiction for additional installation, operation, and maintenance instructions.
2. Inspections - It is imperative that the system be inspected and tested on a regular basis. See Section 6 - Inspections, Tests and Maintenance.
3. The valve, trim, and assembly must be installed in an area not subject to freezing temperatures or physical damage.

⚠ WARNING

After the proportioning system is tested or activated, foam concentrate needs to be flushed from the pipe network downstream of the concentrate control valve. Connect a water supply to the commissioning valve on the concentrate line and flush through the test header.

⚠ WARNING

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

C. Design & Installation

⚠ WARNING

Locate all portions of the foam/water system subject to freezing in a heated area.

1. Install the deluge valve and trim (C) in accordance with the relevant Viking technical data page.
2. Install the proportioning device (B) in the system riser in accordance with the wide range proportioner technical data page and Special Notes Section of this document.
3. Install foam solution test valve (16) and system isolation valve (18). These valves are used to conduct foam/water solution tests and are required.
4. Install concentrate control valve CCV (D) and associated trim as indicated in Figure 1. FM systems require electrical supervision in accordance with FM Global Property Loss Prevention Data Sheet 4-12.
5. Install bladder tank (A) in accordance with the bladder tank operation manual and the following.
   a) Recommended connections are shown in Figure 1.
   b) Locate the tank as close as practical to the system riser. (See Special Note B).
   c) Allow enough room around the tank to perform maintenance on the bladder.
   d) Allow access to the tank for filling from containers of foam concentrate.
   e) All valves and devices should be located for easy access for operation and maintenance.
   f) Install the water supply piping (13) from the riser to the bladder tank as shown in Figure 1.
   g) The tank water supply piping connection for a deluge system shall be installed upstream of the deluge valve (C) as shown in Figure 1in order to eliminate water hammer effects from the riser on the bladder (tank) during system activation.
   h) Install the piping from the tank (A) to the concentrate controller (D) as straight as possible to limit pressure loss.
   i) Fill bladder tank (A) with foam concentrate in accordance with the bladder tank operation manual and leave isolated from the system.

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D. Placing System i Service & Removing System from Service

1. Placing the System into Service:
   a) Refer to the Special Notes section on page 5.
   b) Verify the following valves are in the closed position: water supply control valve (10), bladder tank water supply control valve (13), concentrate control shut-off valve (14), foam solution test valve (16), foam concentrate auxiliary drain valve (12), and the vent valves (21 and 22).
   c) Place the deluge valve (C) in service in accordance with the relevant Viking technical data page.
   d) The priming line for the CCV (D) is taken directly from the system deluge valve (C) priming line as shown in Figure 1. When priming the deluge valve (C), the CCV (D) will also be primed closed. Bleed off any air pressure trapped in the priming line to the CCV (D) by opening the 3-way pressure gauge valve (11). Once air pressure has been relieved, close the 3-way valve and plug outlet. Re-open 3-way valve to maintain pressure on gauge (11). Continue placing the deluge valve in service.
   e) Verify the CCV (D) is closed. The CCV (D) is closed and set when gauge (11) displays equal pressure to the system supply pressure gauge.
   f) Verify normal valve positions and secure in correct position (as detailed in Figure 1).
   g) Slowly open the shut-off valves (13 and 14).
   h) IMPORTANT: Bleed air from vent valves (21 and 22).
   i) Check for and repair any leaks in the foam/water system pipe network.

NOTICE
In accordance with the bladder tank operation manual, ensure that CCV (D) is closed, shut-off valves (13 and 14) are opened slowly, and the bladder tank is vented of air.

2. For System and Riser Piping Service and Maintenance:
   a) Refer to the Special Notes section on page 6.
   b) Close the water supply control valve (10) and isolate supervisory air supply to the system pipe network.
   c) Close the bladder tank water supply control valve (13) and concentrate control shut-off valve (14).
   d) Leave the system isolation valve (18) open.
   e) Refer to instructions for removing the deluge valve (C) from service in the relevant Viking technical data page.
   f) Open the main drain(s) on preaction deluge valve (C) and riser check valve (C.2).
   g) Perform required service and maintenance on system devices or piping network.
   h) Refer to instructions for returning the deluge valve (C) to service in the relevant Viking technical data page.
   i) The CCV (D) will also be primed close as described in step 1d above.
   j) Verify CCV (D) is closed by checking water pressure gauge (11) to ensure that it is the same as or higher than the system pressure.
   k) Open tank water supply valve (10) and concentrate control shut-off valve (14).
   l) Verify normal valve positions and secure in correct position (as detailed in Figure 1).
   m) IMPORTANT: Bleed air from vent valves (21 and 22).

NOTICE
In accordance with the bladder tank operation manual, ensure that CCV (D) is closed, shut-off valves (13 and 14) are opened slowly, and the bladder tank is vented of air.

3. For Total System Service and Maintenance:
   a) Refer to the Special Notes section on page 6.
   b) Close the water supply control valve (10) and isolate supervisory air supply to the system pipe network.
   c) Close the bladder tank water supply control valve (13) and concentrate control shut-off valve (14).
   d) Refer to instructions for removing the bladder tank (A) from service in the bladder tank operation manual.
   e) Leave the system isolation valve (18) open.
   f) Refer to instructions for removing the deluge valve (C) from service in the relevant Viking technical data page.
   g) Open the main drain(s) on deluge valve (C) and riser check valve (C.2).
   h) Perform required service and maintenance on system devices or piping network.
   i) Refer to instructions for removing the bladder tank (A) from service in the bladder tank operation manual.
   j) Perform required service and maintenance on bladder tank (A) in accordance with the bladder tank operation manual.
   k) To return the system into service, follow steps 1a — 1i in Section D above.

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4. For Bladder Tank Service and Maintenance - While Leaving Preaction System in Service:
   a) Refer to the Special Notes section on page 6.
   b) Close the bladder tank water supply control valve (13) and concentrate control shut-off valve (14).
   c) Refer to instructions for removing the bladder tank (A) from service in the bladder tank operation manual.
   d) Perform required service and maintenance on bladder tank (A) in accordance with the bladder tank operation manual.
   e) To place the bladder tank (A) in service refer to the bladder tank operation manual.
   f) Verify normal valve positions and secure in correct position (as detailed in Figure 1).
   g) IMPORTANT: Bleed air from vent valves (21 and 22).

NOTICE

In accordance with the bladder tank operation manual, ensure that CCV (D) is closed, shut-off valves (20) and (19) are opened slowly, and the bladder tank is vented of air.

5. For Riser Only Service and Maintenance:
   a) Refer to the Special Notes section on page 6.
   b) Close the water supply control valve (10) and isolate supervisory air supply to the system pipe network.
   c) Close the bladder tank water supply control valve (13) and concentrate control shut-off valve (14).
   d) Close the system isolation valve (18).
   e) Refer to instructions for removing deluge valve (C) from service in the relevant Viking technical data page.
   f) Open the main drain(s) on deluge valve (C) and riser check valve (C.2).
   g) Perform required service and maintenance on deluge valve (C) or riser check valve (19).
   h) Refer to instructions for returning the deluge valve (C) to service in the relevant Viking technical data page.
   i) The CCV (D) will also be primed close as described in 1.d) in section E above.
   j) Verify CCV (D) is closed by checking water pressure gauge (11) to ensure that it is the same as or higher than the system pressure.
   k) Open the system isolation valve (18).
   l) Open tank water supply valve (13) and concentrate control shut-off valve (14).
   m) Verify normal valve positions and secure in correct position (as detailed in Figure 1.
   n) IMPORTANT: Bleed air from vent valves (21 and 22).

NOTICE

In accordance with the bladder tank operation manual, ensure that CCV (D) is closed, shut-off valves (20) and (19) are opened slowly, and the bladder tank is vented of air.

6. Testing the foam concentrate swing check valve:
   a) After a flow test or proportioning test has been conducted, the foam concentrate swing check valve (15) should be checked to ensure that it maintains a positive seal between the CCV (D) and the preaction system riser, by following the procedure outlined below.
   b) Bleed off any pressure which may have been trapped between the outlet of the chamber of the CCV (D) and the swing check valve (15) by placing a container under the foam concentrate auxiliary drain valve (12) and opening the valve slowly.
   c) Drain excess foam concentrate into container. Should the leakage continue, check the priming pressure gauge (11) on the CCV (D) to ensure that the valve is primed and closed.
   d) Flush the concentrate line downstream of the CCV. Connect a water supply to the commissioning valve on the concentrate line and flush through the test header.
   e) If the foam concentrate auxiliary drain valve (12) continues to leak foam concentrate, then the CCV (D) must be checked for proper operation and repaired if necessary. Follow the procedure in 1.d) in section E above and refer to component data page for repair instructions.
   f) Should water continue to leak from the foam concentrate auxiliary drain valve (12), the foam concentrate swing check valve (15) clapper rubber and seat should be inspected or replaced. Refer to component data page for repair instructions.

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E. Troubleshooting

1. For operating and maintenance instructions pertaining to Viking manufactured equipment, refer to the appropriate Viking Technical Data Sheet.
2. For operating and maintenance instructions pertaining to foam equipment manufactured for Viking, refer to the appropriate Foam section on the Viking Website.
3. For operation and maintenance instructions for all other equipment, refer to appropriate equipment data.

F. Emergency Instructions

1. During and after a fire:
   a) Make sure the fire is OUT! Make a complete inspection of all areas covered by this system, including areas not involved in the fire. Place a fire watch in the entire area until the system is back in service.
   b) Close the system water supply control valve (10) and the tank water supply valve (13). Post a person at the valve ready to turn them back on, should the fire rekindle.
   c) Isolate the bladder tank (A) by closing the concentrate control shut-off valve (14) and verify that the tank water supply control valve (13) is closed.
   d) Open the flow test valve, system drain valve, and all auxiliary drain valves. Close drain valves once the system has completely drained.
   e) Replace any fused sprinklers in the pilot line (if so equipped), and any fused sprinklers in the preaction system, with the same type and temperature rating as were removed. Check all releases and/or detectors in the fire area for damage.
   f) Check the level of foam concentrate and refill the foam concentrate bladder tank (A) in accordance with the bladder tank operation manual. Always replace the foam concentrate with the same brand and type as that being used currently.

      WARNING: Never mix different types or brands of foam concentrate. Mixing foam concentrates can cause them to gel or solidify, and render the concentrate useless.

   g) Return the complete system to service by following the procedure listed in section E 1.
   h) Perform quarterly test.
   i) Fire can damage piping and supports, so call your Viking representative for assistance in obtaining a complete inspection and additional replacement sprinklers. For additional details, see technical data sheets for specific devices.
      NOTE: *If replacement foam concentrate is not immediately available, the deluge portion of the system can remain in service if desired.*
2. For emergency shut down of the complete system:
   a) Close main water supply valve (10).
   b) Close concentrate control shut-off valve (14) to eliminate the flowing of the foam concentrate to the hydraulically actuated Viking CCV (D) and the wide range proportioner (B).
   c) Open main drain.
   d) Close tank water supply control valve (13) to reduce the pressure on the bladder tank (A).
   e) Completely drain system.
   f) Repair the damaged portion of the discharge system, or perform emergency maintenance as required.
   g) Return the riser and foam system to service by following the procedure listed in section E 1.
3. If the foam concentrate pipe system is damaged:
   a) Close the concentrate control shut-off valve (14) to eliminate the flowing of the foam concentrate to the CCV (D) and the wide range proportioner (B).
   b) Close the tank water supply control valve (13) to reduce the pressure on the bladder tank (A).
   c) Verify that the concentrate control valve (D) is closed by observing water pressure gauge (11). If the water pressure gauge reads the same or higher than the system water pressure gauge located on the deluge valve (C), the deluge CCV (D) is closed.
   d) Repair the damaged portion of the foam concentrate piping system.
   e) Return the foam concentrate system to service by following the procedure listed above in section E 1.
      NOTE: *If there are no damaged sections of the distribution system, the preaction portion of the sprinkler system may be kept in service for protection, while repairs to the foam concentrate system are performed.*

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5. OPERATION

Actuation of the non-interlock, single interlock preaction system release line (pneumatic, hydraulic or electric) relieves the pressure in the priming chamber of both the Viking deluge valve (C) and the Viking CCV (D). This allows the clapper assembly to open on both valves (C) and (D) If fitted, the priming line pressure switch will signal the CCV's activation.The system piping is filled with water, activating connected alarms. The bladder tank (A) is already pressurized by the water supply piping. System water pressure in the space between the flexible bladder and the inside surface of the steel tank causes the bladder to collapse, forcing the foam concentrate out through the foam concentrate discharge piping, concentrate control valve (D), and the wide range proportioner. The foam concentrate is proportioned, with the main water supply, sending foam solution to the sprinklers or other foam/water discharge devices downstream.

SPECIAL NOTES

A. Provide a minimum of 5 pipe diameters of straight pipe on the inlet and outlet of the wide range proportioner (B) to minimize the turbulence inside the proportioner.

⚠ WARNING

If the outlet to the foam solution test valve is located closer than 5 pipe diameters, there may be turbulence at high flow rates.

B. The combined total equivalent length of pipe (pipe length, plus equivalent lengths for fittings and valves) on the water supply inlet piping shall be less than 100' (30.5 m) and the foam concentrate discharge piping, should be less than 65 equivalent feet (50.3 meters).

C. The CCV (D) and swing check valve (15) must be connected adjacent to the wide range proportioner using the shortest pipe nipples possible.

D. Figure 1 contains general schematics of the required piping arrangement. Refer to the appropriate technical data page for specific information regarding the valve, tank, and related trim and devices.

E. The technical information, statements and recommendations contained in this manual are based on information and tests which, to the best of our knowledge, we believe to be dependable. It represents general guidelines only, and the accuracy or completeness thereof are not guaranteed because conditions of handling and usage are outside our control. The purchaser should determine the suitability of the product for its intended use and assumes all risks and liability whatsoever in connection therewith.

F. A strainer is not required in the foam concentrate discharge piping of bladder tank systems per NFPA Standards.

G. The foam deluge CCV (D) does not require any trim, except for a ½" priming line, ½" auxiliary drain valve, and gauge with 3-way valve. Plug all remaining valve trim outlets.

H. FM Global Property Loss Prevention Data Sheet 4-12 requires that the activation of the CCV must be supervised.

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6. INSPECTION, TESTS, & MAINTENANCE

NOTICE

The owner is responsible for maintaining the fire protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to recognized standards such as those produced by NFPA, FM Global Property Loss Prevention Data Sheet 4-12, LPC and VdS, which describe care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

WARNING

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

Inspections - It is imperative that the system be inspected and tested on a regular basis. The following recommendations are minimum requirements. The frequency of the inspections may vary due to contaminated or corrosive water supplies and corrosive atmospheres. In addition, the alarm devices or other connected equipment may require more frequent inspections. Refer to the technical data, system description, applicable codes, and Authority Having Jurisdiction for minimum requirements. Prior to testing the equipment, notify appropriate personnel.

1. Alarm Test - At least quarterly, test all connected alarm devices by opening the alarm test valve.
2. Main drain test - At least quarterly, perform a riser flow test. Observe and record the supply pressure gauge reading. Open the flow test valve fully. Again, observe and record the supply pressure gauge reading. Close the flow test valve. If the readings vary significantly from those previously established or from normal, check the main supply line for obstructions or closed valves and correct.
3. General - Visually inspect the valve, trim, piping, alarm devices, and connected equipment for physical damage, freezing, corrosion, or other conditions that may inhibit the proper operation of the system.

7. AVAILABILITY

The preaction foam/water system supplied by a bladder tank is available through a network of domestic and international distributors. See the Viking web site for the closest distributor or contact Viking.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

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A. Foam Concentrate Bladder Tank
1. Water Vent Valve – NORMALLY CLOSED
2. Safety Thermal Relief Valve
3. Foam Concentrate Vent Valve – NORMALLY CLOSED
4. Filling Vent Valve (Optional)
5. Filling Pressure Gauge (Optional)
6. Water filling/drain valve –NORMALLY CLOSED
7. Foam concentrate filling/drain valve – NORMALLY CLOSED
8. Concentrate level sight tube drain valve – NORMALLY CLOSED
9. Concentrate level sight tube

B. Proportioning Device – Wide Range Proportioner

C. Type of System – CLOSED SPRINKLER PREACTION
C.1 Single Interlock Preaction (Each item below sold separately)
- Deluge Valve (Straight through or angle style)
- Conventional Trim (Vertical or Horizontal)
- Release Trim (Electric or Pneumatic)
- Release Device (Solenoid valve or Pneumatic Actuator)

C.2 Easy Riser Check Valve (Order Separately)
10. Water Supply Control Valve – NORMALLY OPEN

D. Concentrate Control Valve (CCV)
(Hydraulically activated Halar® coated straight through deluge valve)
11. CCV Priming pressure gauge
12. ½" Foam concentrate auxiliary drain valve

Accessory Trim – (Each item below sold separately)
13. Bladder tank water supply control valve – NORMALLY OPEN
14. Foam concentrate shut-off valve – NORMALLY OPEN*
15. Foam concentrate swing check valve
16. Foam solution test valve – NORMALLY CLOSED
17. Foam solution test header
18. Foam system Isolation valve – NORMALLY OPEN
19. Prime line supervision switch

Commissioning and Flushing Valves
20. 2½" Ball Valves (2) - NORMALLY CLOSED (Installed on customer-supplied outlet)

Air Vent and Drain Valves
21. ½" Air vent valve (1) - NORMALLY CLOSED (Installed on customer-supplied outlet)
22. ½" Air vent valve (1) - NORMALLY CLOSED (Installed on customer-supplied outlet)
23. 1" Drain valve (1) - NORMALLY CLOSED (Installed on customer-supplied outlet)

Bladder Tank Dip Valve
24. 1" Dip valve - NORMALLY CLOSED (Installed on customer-supplied outlet)

***Full port bronze body with 316 stainless steel trim and ball valve**
****Five pipe diameters required before and after proportioning**

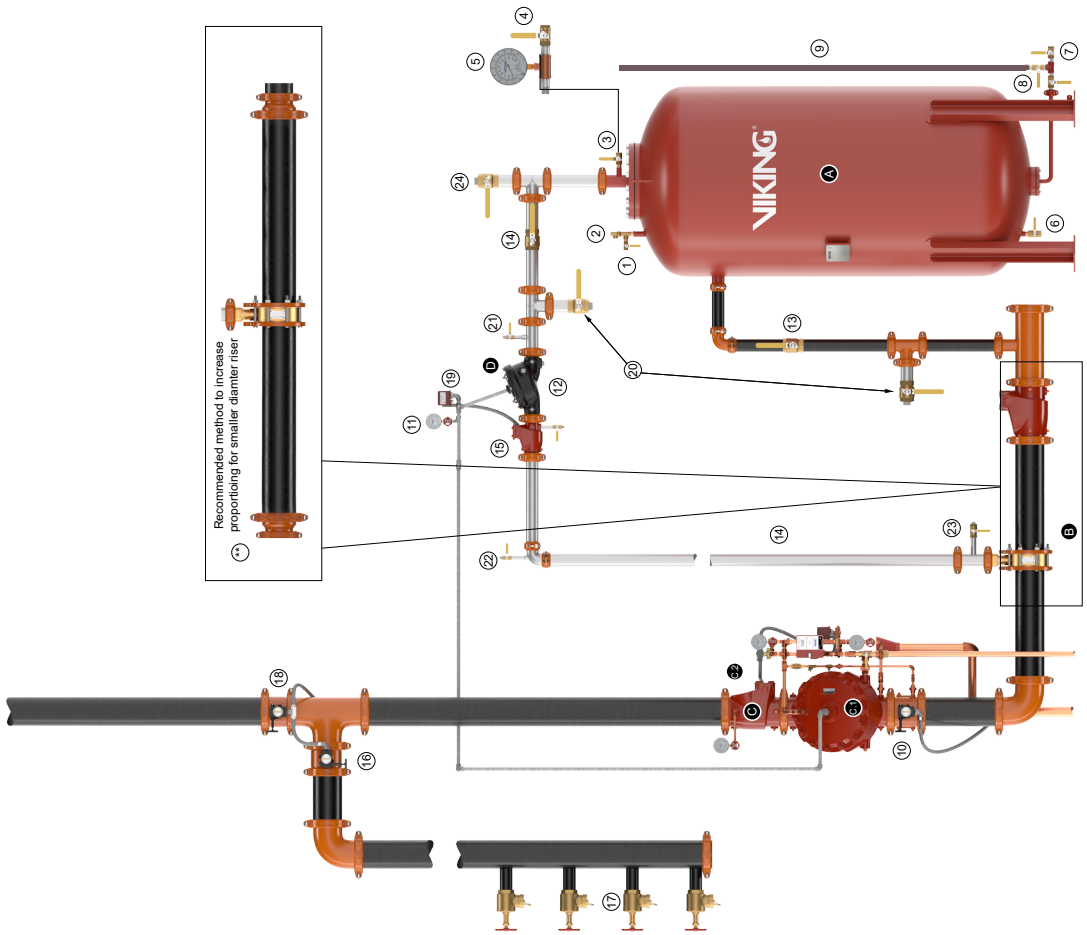

Figure 1

TECHNICAL BULLETIN

PREACTION FOAM/WATER SYSTEM SUPPLIED BY BLADDER TANK

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ORDERING INSTRUCTIONS:

For complete Preaction Foam/Water System Supplied by a Bladder Tank, select 1 each of the following as well as all desired Accessories from the tables below:

- Deluge Valve and Trim
- Release Trim
- Foam Concentrate Control Valve and Trim
- Foam Concentrate
- Wide Range Proportioner
- Bladder Tank

Scan or click to visit Viking's digital system estimators.

https://digital.vikingcorp.com

DESCRIPTION		NOMINAL SIZE	PART NUMBER
Deluge Valves - Straight Through			
Threaded	**Pipe O.D.**	**Model F-1**	**Painted Red**
	NPT 48 mm	1½"	12126
	NPT 60 mm	2"	12059
	NPT 65 mm	2½"	12401
	BSP 48 mm	DN40	12682
	BSP 60 mm	DN50	12686
	Pipe O.D.	**Model F-2**	**Halar® Coated**
	NPT 65 mm	2½"	12402Q/B
Flange/ Flange	**Flange Drilling**	**Model F-1**	**Painted Red**
	ANSI	3"	12014
	ANSI	4"	11953
	ANSI	6"	11955
	ANSI	8"	11991
	ANSI/Japan	6"	11964
	PN10/16	DN80	12026
	PN10/16	DN100	11965
	PN10/16	DN150	11956
	PN10	DN200	11995
	PN16	DN200	11999
	Flange Drilling	**Model F-2**	**Halar® Coated**
	ANSI	3"	12015Q/B
	ANSI	4"	11960Q/B
	ANSI	6"	11962Q/B
	ANSI	8"	11992Q/B
	PN10/16	DN80	12027Q/B
	PN10/16	DN100	11966Q/B
	PN10/16	DN150	11963Q/B
	PN10	DN200	11996Q/B
	PN16	DN200	12000Q/B
Flange/ Groove	**Flange Drilling / Pipe O.D.**	**Model F-1**	**Painted Red**
	ANSI / 89 mm	3"	12018
	ANSI / 114 mm	4"	11952
	ANSI / 168 mm	6"	11954
	PN10/16 / 89 mm	DN80	12030
	PN10/16 / 114 mm	DN100	11958
	PN10/16 / 165 mm	DN150	12640
	PN10/16 / 168 mm	DN150	11954
	Flange Drilling / Pipe O.D.	**Model F-2**	**Halar® Coated**
	ANSI / 89 mm	3"	12019Q/B
	ANSI / 114 mm	4"	11959Q/B
	ANSI / 168 mm	6"	11961Q/B
	PN10/16 / 89 mm	DN80	12644Q/B
	PN10/16 / 114 mm	DN100	12645Q/B
	PN10/16 / 165 mm	DN150	12641Q/B
	PN10/16 / 168 mm	DN150	11961Q/B

DESCRIPTION		NOMINAL SIZE	PART NUMBER
Deluge Valves - Straight Through			
Groove/ Groove	**Pipe O.D.**	**Model F-1**	**Painted Red**
	48 mm	1½" / DN40	12125
	60 mm	2" / DN50	12057
	73 mm	2½" / DN65	12403
	76 mm	DN80	12729
	89 mm	3" / DN80	12022
	114 mm	4" / DN100	11513
	165 mm	DN150	11910
	168 mm	6" / DN150	11524
	219 mm	8" / DN200	11018
	Pipe O.D.	**Model F-2**	**Halar® Coated**
	48 mm	1½" / DN40	12127Q/B
	60 mm	2" / DN50	12058Q/B
	73 mm	2½" / DN65	12404Q/B
	76 mm	DN80	12730Q/B
	89 mm	3" / DN80	12023Q/B
	114 mm	4" / DN100	11514Q/B
	165 mm	DN150	11911Q/B
	168 mm	6" / DN150	11525Q/B
	219 mm	8" / DN200	11118Q/B

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DESCRIPTION		NOMINAL SIZE	PART NUMBER	
Deluge Valve Trim				
			Galvanized	**Brass**
Use with Straight Through Valves	Horizontal	1½" / DN40	14635-1	14635-2
		2" / DN50		
		2½" / DN65	14637-1	14637-2
		3" / DN80		
		4" / DN100	14638-1	14638-2
		6" / DN150	14640-1	14640-2
		8" / DN200	14643-1	14643-2
	Vertical	1½" / DN40	14634-1	14634-2
		2" / DN50		
		2½" / DN65	14636-1	14636-2
		3" / DN80		
		4" / DN100	14639-1	14639-2
		6" / DN150	14641-1	14641-2
		8" / DN200	14643-1	14643-2

DESCRIPTION		PART NUMBER	
Release Trim Packages			
		Galvanized	**Brass**
Use with Straight Through Valves	Pneumatic Release	10809	10811
	Electric Release	10830	10832
	Electric / Pneumatic Release	12661-1	12661-2
	Pneumatic / Pneumatic Release	12662-1	12662-2

DESCRIPTION	NOMINAL SIZE	PART NUMBER
Trimpac®		
	Pneumatic Release	
Includes Conventional Trim, Release Trim, and Flexible Hose Kit	Galvanized	13788B-2
	Brass	13788B-2B
	Electric Release	
	Galvanized	137887B-1
	Brass	13787B-1B
Drain Packages		
Use with TrimPac (above)	1½" / DN40	11894-1
	2" / DN50	11894-2
	2½" / DN65	11894-3
	3" / DN80	11894-3
	4" / DN100	11894-4
	6" / DN150	11894-4
	8" / DN200	11894-4

DESCRIPTION		NOMINAL SIZE	PART NUMBER
Foam Concentrate Control Valves (Halar® Coated)			
Straight Through			
Groove/ Groove	Pipe O.D.	Model F-2	
	73 mm	2½" / DN65	12404Q/B

DESCRIPTION	NOMINAL SIZE	PART NUMBER
CCV Trims		
Use with Straight Through Valves	Brass	
	2½" / DN65	12929-2

Wide Range Proportioner			
Connection		**Foam Type**	**Part Number**
"Body Grooved"	**"Foam Inlet Grooved"**		
6" (150mm)	2.5" (73.0mm)	**ARK (3% SFFF)**	VNR063P
8" (200mm)	2.5" (73.0mm)		VNR083P
6" (150mm)	2.5" (73.0mm)	**USP (3% SFFF)**	VNR063L
8" (200mm)	2.5" (73.0mm)		VNR083L

TECHNICAL BULLETIN

PREACTION FOAM/WATER SYSTEM SUPPLIED BY BLADDER TANK

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
VISIT THE VIKING WEBSITE FOR THE LATEST EDITION OF THIS TECHNICAL DATA PAGE

DESCRIPTION		NOMINAL SIZE	PART NUMBER
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
	76 mm	DN65	13516
	Pipe O.D.	**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

DESCRIPTION	NOMINAL SIZE	PART NUMBER	
Easy Riser® Swing Check Trim			
		Galvanized	**Brass**
Model E-1	2½” / DN65	07236	07236-1
	3” / DN80	07236	07236-1
Model F-1	4” / DN100	07237	07237-1
	6” / DN150	07237	07237-1
	8” / DN200	07237	07237-1

DESCRIPTION	PRESSURE RATING	TANK SIZE	DESIGN CODE	PART NUMBER
Vertical Bladder Tank	175psi (12bar)	25 to 4000 US Gallon	EN13445	VFTV****GF
Horizontal Bladder Tank	175psi (12bar)	50 to 5250 US Gallon	EN13445	VFTH****GF
Vertical Bladder Tank	232psi (16bar)	25 to 4000 US Gallon	EN13445	VFTV****GF-16
Horizontal Bladder Tank	232psi (16bar)	50 to 5250 US Gallon	EN13445	VFTH****GF-16
Vertical Bladder Tank	175psi (12bar)	25 to 4000 US Gallon	ASME Sec.VIII Div.1	VFTV****GAF
Horizontal Bladder Tank	175psi (12bar)	50 to 5250 US Gallon	ASME Sec.VIII Div.1	VFTH****GAF
Vertical Bladder Tank	232psi (16bar)	25 to 4000 US Gallon	ASME Sec.VIII Div.1	VFTV****GAF-16
Horizontal Bladder Tank	232psi (16bar)	50 to 5250 US Gallon	ASME Sec.VIII Div.1	VFTH****GAF-16
Where **** is the tank size in US Gallon				
(Example1: VFTV0025F = Model VFT Vertical 25 US Gallon Bladder Tank in accordance with EN13445 design code)				
(Example2: VFTH2000AF = Model VFT Horizonal 2000 US Gallon Bladder Tank in accordance with ASME Sec.VIII Div.1 design code)				

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Accessories		
DESCRIPTION	NOMINAL SIZE	PART NUMBER
Foam Concentrate Swing Check Valve		
	2½" / DN65	05497C
Foam Solution Test Valve		
Grooved Butterfly Valve	2½" / DN65	01G-0250
	3" / DN80	01G-0300
	4" / DN100	01G-0400
	6" / DN150	01G-0600
	8" / DN200	01G-0800
System Isolation Valve		
Grooved Butterfly Valve	2½" / DN65	01G-0250
	3" / DN80	01G-0300
	4" / DN100	01G-0400
	6" / DN150	01G-0600
	8" / DN200	01G-0800
Water Supply Control Valve		
Grooved Butterfly Valve	2½" / DN65	01G-0250
	3" / DN80	01G-0300
	4" / DN100	01G-0400
	6" / DN150	01G-0600
	8" / DN200	01G-0800
Foam Concentrate Shut-Off Valve		
Ball Valve	2½" / DN65	23247
ACCESSORIES FOR FOAM/WATER SPRINKLER SYSTEMS		
Model D-3 PORV	½" / DN15	16970
1/8" / 3 mm Restricted Orifice	½" / DN15	06555A
Soft Seat Check Valve	½" / DN15	03945A
Y Strainer	½" / DN15	01054A
Ball Valve	½" / DN15	10355
Concentrate Control Valve Priming Connection Pkg.		
Required to connect priming chamber		10985
Bladder Tank Water Supply Control Valve		
Ball Valve	2½" / DN65	23247
Vent Valves		
Ball Valve	½" / DN15	10355
Ball Valve	1" / DN25	10356

Wide Range Proportioner			
Connection		Foam Type	Part Number
"Body Grooved"	"Foam Inlet Grooved"		
6" (150mm)	2.5" (76.1mm)	ARK (3% AR-SFFF)	VNR066P
6" (150mm)	2.5" (73.0mm)		VNR063P
8" (200mm)	2.5" (76.1mm)		VNR086P
8" (200mm)	2.5" (73.0mm)		VNR083P

Foam Concentrate			
Foam Type	Part Number		
	US Gallon		
	6.5	55	265
ARK (3% AR-SFFF)	F24175-6.5	F24175-55	F24175-265
USP (3% SFFF)	F21720-6.5	F21720-55	F21720-265
Foam Type	Litres		
	25	200	1000
ARK (3% AR-SFFF)	V-SFFFARK/25	V-SFFFARK/200	V-SFFFARK/1000
USP (3% SFFF)	V-SFFFUSP/25	V-SFFFUSP/200	V-SFFFUSP/1000