TECHNICAL DATA

PREACTION FOAM/WATER SYSTEM SUPPLIED BY BLADDER TANK

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
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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 any sprinklers that operate. A Preaction Foam/Water System Supplied by Bladder Tank with a hydraulically actuated Halar® Coated Deluge Concentrate Control Valve consists of a standard preaction system using a Viking deluge valve complete with full standard preaction trim, detection, and releasing devices on the water supply line, a ratio controller-proportioning device with appropriately sized orifice, a hydraulically actuated Viking Halar® coated deluge CCV on foam concentrate line, a foam concentrate bladder tank and foam concentrate.

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 VRC Ratio Controller (Proportioner)
  - UL Listed - Guide GFGV
  - FM Approved - Low Expansion Foam Systems
- Model E2, F2, H2 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 AFFF 1%S C6, AFFF 3%S C6 or ARC 3X3S C6 Foam Concentrates with C6 Formulation
  - UL Listed - Guide GFGV
  - FM Approved - Low Expansion Foam Systems

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

A1. FM Approved Discharge Devices

- Standard Spray Sprinklers (refer to water/foam sprinkler data page)

A2. Other Discharge Devices

- Non-aspirating spray nozzles
- Manual monitors
- Hose reels and hand lines

B. General Instructions And Warnings

1. Refer to the Warnings and General Notes on pages 2a-d in the “Foam Design” section of the *Viking website*.
2. 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.
3. Inspections - It is imperative that the system be inspected and tested on a regular basis. See Section 6 - Inspections, Tests and Maintenance.

⚠ 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.

4. The valve, trim, and assembly must be installed in an area not subject to freezing temperatures or physical damage.

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C. Design & Installation

⚠ WARNING

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

1. Refer to the Special Notes section on page 5 and the Warnings and General Notes on pages 2a-d in the Foam Design Section of our website.
2. Install the preaction valve and trim (C) in accordance with the relevant Viking technical data page.
3. Install the proportioning device (B) in the system riser in accordance with the ratio controller technical data page and Special Notes Section of this System Manual.
4. Install foam solution test valve (16) and system isolation valve (17). These valves are used to conduct foam/water solution tests and are required.
5. Install hydraulically actuated Halar® coated Viking Deluge CCV (D) and associated trim as indicated in Figure 1,2 or 3 or refer to technical data page 61a-g. FM systems require electrical supervision in accordance with FM Global Property Loss Prevention Data Sheet 4-12.
6. Install bladder tank (A) in accordance with the bladder tank operation manual and the following key notes;
   a. Recommended connections are shown in Figure 1,2 or 3.
   b. Locate the tank as close as practical to the system riser. (See Special Note B on Page 5).
   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 (11) from the riser to the bladder tank as shown in Figure 1,2 or 3.
   It is recommended that the tank water supply piping connection for a deluge system should be installed below the deluge valve (C) as shown in Figure 1,2 or 3. This is to eliminate water hammer effects from the riser on the bladder (tank) during system activation.
   g. Install the piping from the tank (A) to the concentrate controller (B) 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.

D. Placing System Into Service & Removing System from Service

1. Placing the System into Service:
   a. Refer to the Special Notes section on page 5 and the Warnings and General Notes on pages 2a-d in the Foam Design Section of our website.
   b. Verify the following valves are in the closed position: water supply control valve (9), bladder tank water supply control valve (10), concentrate control shut-off valve (8), foam solution test valve (16) and foam concentrate auxiliary drain valve (18).
   c. Place the preaction valve (C) in service in accordance with the relevant Viking technical data page.
   The priming line for the Halar® Coated Deluge CCV (D) is taken directly from the system preaction deluge valve (C) priming line as shown in Figure 1,2 or 3 and in technical data page 61a-g. When priming the preaction deluge valve (C), the CCV (D) will also be primed closed. Bleed off any air pressure trapped in the priming line (12) to the CCV (D) by opening the 3-way pressure gauge valve (13). Once air pressure has been relieved, close the 3-way valve and plug outlet. Re-open 3-way valve to maintain pressure on gauge (13). Continue placing the preaction deluge valve in service.
   d. The Halar® Coated Deluge CCV (D) is closed and set when gauge (13) displays equal pressure to the system supply pressure gauge.
   e. Verify normal valve positions and secure in correct position (as detailed in Figure 1,2 or 3).
   f. Check for and repair any leaks in the foam/water system pipe network.
2. For System and Riser Piping Service and Maintenance:
   a. Refer to the Special Notes section on page 5 and the Warnings and General Notes on pages 2a-d in the Foam Design Section of our website.
   b. Close the water supply control valve (9) and isolate supervisory air supply to the system pipe network.
   c. Close the bladder tank water supply control valve (10) and concentrate control shut-off valve (8).
   d. Leave the system isolation valve (17) open.
   e. Refer to instructions for removing the preaction 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 (19).
   g. Perform required service and maintenance on system devices or piping network.
   h. Refer to instructions for returning the preaction deluge valve (C) to service in the relevant Viking technical data page. The Halar® Coated Deluge CCV (D) will also be primed close as described in 1.2 above..
   i. Verify Halar® Coated Deluge CCV (D) is closed by checking water pressure gauge (13) to insure that it is the same as or higher than the system pressure.
   j. Open tank water supply valve (10) and concentrate control shut-off valve (8).
   k. Verify normal valve positions and secure in correct position (as detailed in Figure 1,2 or 3).

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3. For Total System Service and Maintenance:
   a. Refer to the Special Notes section on page 5 and the Warnings and General Notes on pages 2a-d in the Foam Design Section of our website.
   b. Close the water supply control valve (9) and isolate supervisory air supply to the system pipe network.
   c. Refer to instructions for removing the bladder tank (A) from service in the bladder tank operation manual.
   d. Leave the system isolation valve (17) open.
   e. Refer to instructions for removing the preaction 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 (19).
   g. Perform required service and maintenance on system devices or piping network.
   h. Refer to instructions for removing the bladder tank (A) from service in the bladder tank operation manual.
   i. Perform required service and maintenance on bladder tank (A) in accordance with the bladder tank operation manual.
   j. To return the system into service, follow steps 2b through 2g in Section D above.
4. For Bladder Tank Service and Maintenance - While Leaving Preaction System in Service:
   a. Refer to the Special Notes section on page 5 and the Warnings and General Notes and the Warnings and General Notes on pages 2a-d in the Foam Design Section of our website.
   b. Close the bladder tank water supply control valve (10) and concentrate control shut-off valve (8).
   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.

NOTICE
In accordance with the bladder tank operation manual, ensure that CCV (D) is closed, bladder tank is vented of air and shut-off valves (10) and (8) are opened slowly..

   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 1,2 or 3).
5. For Riser Only Service and Maintenance:
   a. Refer to the Special Notes section on page 5 and the Warnings and General Notes and the Warnings and General Notes on pages 2a-d in the Foam Design Section of our website.
   b. Close the water supply control valve (9) and isolate supervisory air supply to the system pipe network.
   c. Close the bladder tank water supply control valve (10) and concentrate control shut-off valve (8).
   d. Close the system isolation valve (17).
   e. Refer to instructions for removing the preaction 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 (19).
   g. Perform required service and maintenance on preaction deluge valve (C) or riser check valve (19).
   h. Refer to instructions for returning the preaction deluge valve (C) to service in the relevant Viking technical data page. The Halar® Coated Deluge CCV (D) will also be primed close as described in 1.C above.
   i. Verify Halar® Coated Deluge CCV (D) is closed by checking water pressure gauge (13) to insure that it is the same as or higher than the system pressure.
   j. Open the system isolation valve (17).
   k. Open tank water supply valve (10) and concentrate control shut-off valve (8).
   l. Verify normal valve positions and secure in correct position (as detailed in Figure 1,2 or 3).
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 insure that it maintains a positive seal between the Halar® Coated Deluge 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 Halar® Coated Deluge CCV (D) and the swing check valve (15) by placing a container under the foam concentrate auxiliary drain valve (18) and opening the valve slowly.
   c. Drain excess foam concentrate into container. Should the leakage continue, check the priming pressure gauge (13) on the Halar® Coated Deluge CCV (D) to insure that the valve is primed and closed.
   d. If the foam concentrate auxiliary drain valve (18) continues to leak foam concentrate, then the Halar® Coated Deluge CCV (D) must be checked for proper operation and repaired if necessary. Follow the procedure in section D.5 and refer to component data page for repair instructions.
   e. Should water continue to leak from the foam concentrate auxiliary drain valve (18), the foam concentrate swing check valve (15) clapper rubber and seat should be maintained. Follow the procedure in section D.5 and 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 (9)and the tank water supply valve (10). Post a person at the valve ready to turn them back on, should the fire rekindle.
   c. Open the flow test angle valve, system drain valve, and all auxiliary drain valves. Close drain valves once the system has completely drained.
   d. 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.
   e. Isolate the bladder tank (A) by closing the concentrate control shut-off valve (8) and verify that the tank water supply control valve (10) is closed.
   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. Note: Never intermix different types or brands of foam concentrate, as this could 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 4-D-1, Steps a through g.
   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 device.

   NOTE: If replacement foam concentrate is not immediately available, activate the preaction system portion of the foam/water system until the replacement concentrate arrives.
2. For emergency shut down of the complete system:
   a. Close main water supply valve (9).
   b. Close concentrate control shut-off valve (8) to eliminate the flowing of the foam concentrate to the hydraulically actuated Viking Halar® coated deluge CCV (D) and the ratio controller (B).
   c. Open main drain.
   d. Close tank water supply control valve (10) 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 4-D-1, Steps a through g.
3. If the foam concentrate pipe system is damaged:
   a. Close the concentrate control shut-off valve (8) to eliminate the flowing of the foam concentrate to the hydraulically actuated Viking Halar® coated deluge CCV (D) and the ratio controller (B).
   b. Close the tank water supply control valve (10) to reduce the pressure on the bladder tank (A).
   c. Verify that the Viking Halar® coated deluge concentrate control valve (D) is closed by observing water pressure gauge (13). If the water pressure gauge reads the same or higher than the system water pressure gauge located on the Viking preaction deluge valve (C), the Halar® coated Viking 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 4.D.4, Steps a through f.

   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.

5. OPERATION

Actuation of the non-interlock, single or double 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 Halar® coated deluge CCV (D). This allows the clapper to open on both valves (C) and (D) If fitted, the priming line pressure switch (30) 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 (11). 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 (14), Viking Halar® coated deluge concentrate control valve (D), and the metering orifice of the ratio controller (B) into the venturi (low pressure) area of the ratio controller (B). The foam concentrate is proportioned (usually 1% or 3%), with the main water supply, sending foam solution to the sprinklers or other foam/water discharge devices downstream.

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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.

A. Alarm Test - At least quarterly, test all connected alarm devices by opening the remote inspector's test valve.
B. Riser Flow Test - At least quarterly, perform a riser flow test. Observe and record the supply pressure gauge reading. Open the main drain valve fully. Again, observe and record the supply pressure gauge reading. Close the main drain 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.
C. 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 closest distributor or contact Viking.

8. GUARANTEE

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

SPECIAL NOTES

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

⚠ 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, fittings and valves in both the water supply inlet piping (12) and the foam concentrate discharge piping (15), must not exceed 50 equivalent feet (15.2 meters). This will allow both pipes to be the same size as the foam liquid inlet to the ratio controller.

C. Figures 1-3 are 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.

D. 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.

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

F. 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. Refer to the "Valves" section of this data book to find the correct trim kit part number for the corresponding size of foam concentrate control Halar® coated deluge valve (D) required.

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

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NOTE: *Illustrations are not technically representative of available products. Please refer to component data pages for specific design details and features.*

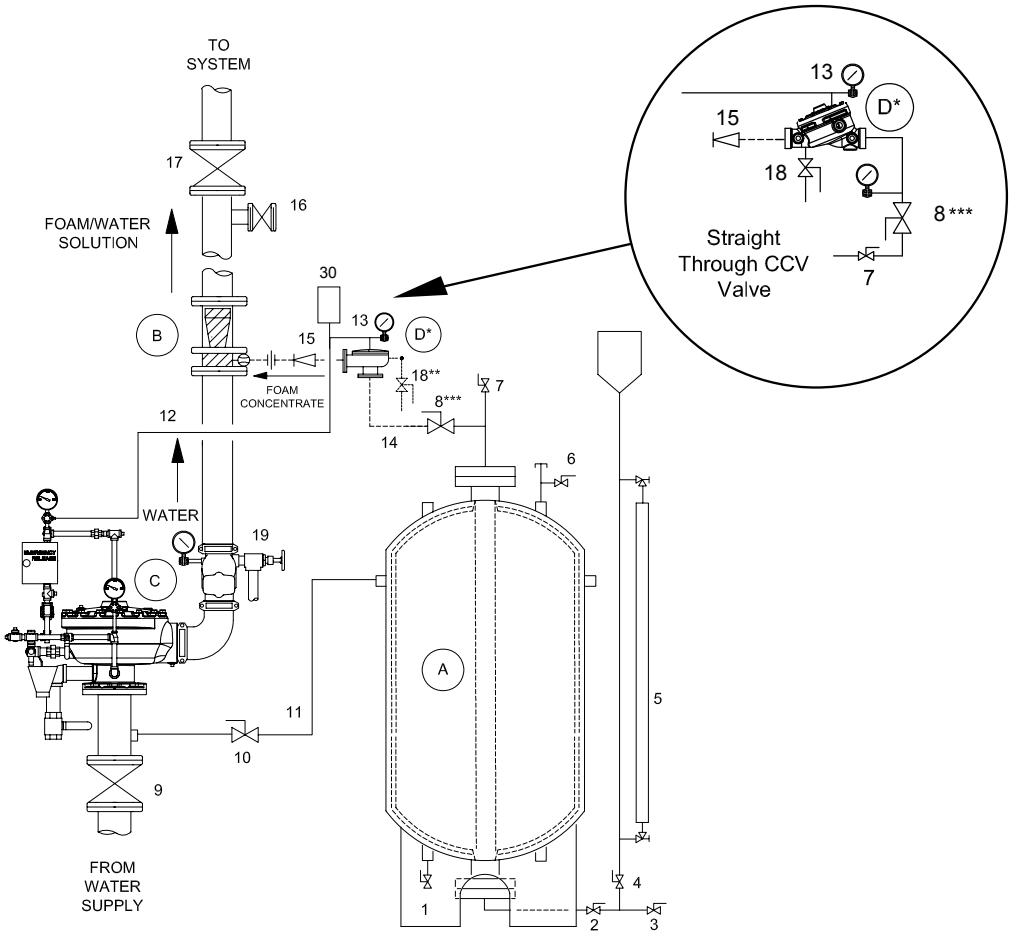

Figure 1

Table A: Preaction Foam/Water System Components

A. Foam Concentrate Bladder Tank complete with Items 1-7
1. Water Drain/Fill Valve - NORMALLY CLOSED
2. Fill Line Master Shut-off Valve - NORMALLY CLOSED
3. Concentrate Drain/Fill Valve - NORMALLY CLOSED
4. Fill Cup/Sight Gauge Shut-off Valve
5. Sight Gauge Assembly (or Hydrometer) - The trim for this assembly varies with the type of foam concentrates to be used. Refer to Tank Manufacturer's O & M Manual for specific details.
6. Tank Water Vent Valve - NORMALLY CLOSED
7. Diaphragm Concentrate Vent Valve - NORMALLY CLOSED

B. Proportioning Device - Concentrate Controller with Integral Orifice

C. Type of System - Preaction Valve with Standard Trim and Gauges connected to an appropriate release and detection system
9. Water Supply Control Valve - NORMALLY OPEN
19. Easy Riser Check Valve and Trim

D. Concentrate Control Valve (CCV) Hydraulically actuated Halar Coated Viking Deluge Valve
13. Water Pressure Gauge and 3-way valve and remainder of CCV special trim.
30. CCV Actuation Alarm Pressure Switch (Mandatory for FM Systems)

E. Accessory Trim - (Order each item separately)
8. Concentrate Control Shut-off Valve - NORMALLY OPEN***
10. Tank Water Supply Control Valve - NORMALLY OPEN
11. Water Supply Piping to Bladder Tank
12. Release Line/Priming Line Piping to foam CCV (D)
14. Foam Concentrate Discharge Piping
15. Foam Concentrate Swing Check Valve
16. Foam Solution Test Valve - NORMALLY CLOSED
17. System Isolation Valve - NORMALLY OPEN
18. 1/2" Foam concentrate auxiliary drain valve**

* Angle Style and Straight Thru Style CCV available.
** Only required on systems where concentrate controller (B) is installed below preaction valve (C).
*** Full Port Bronze Body with 316 Stainless Steel Trim and Ball (2" and under). Cast Iron Body OS & Y with Bronze Trim and seats (over 2")

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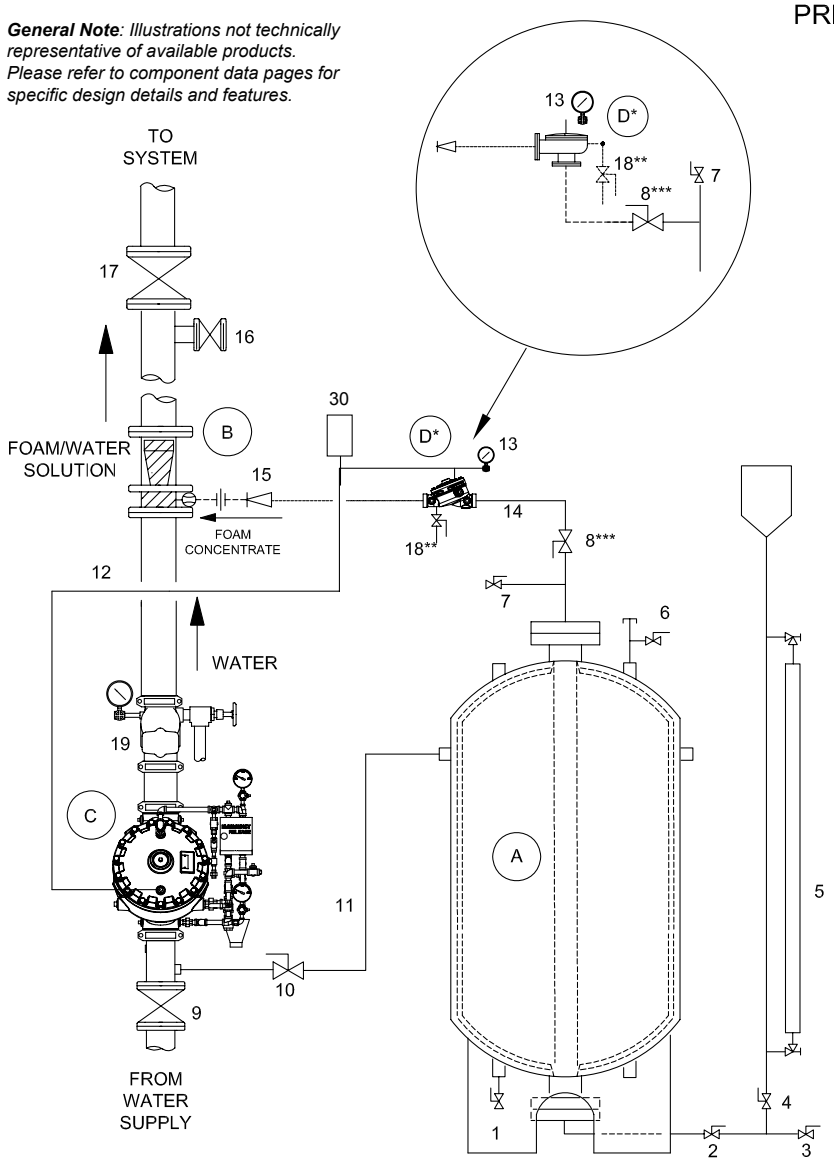

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5. Sight Gauge Assembly (or Hydrometer) The trim for this assembly varies with the type of foam concentrates to be used. Refer to Tank Manufacturer's O & M Manual for specific details.
6. Tank Water Vent Valve - NORMALLY CLOSED
7. Diaphragm Concentrate Vent Valve - NORMALLY CLOSED

B. Proportioning Device - Ratio Controller with Integral Orifice

C. Type of System - Preaction Valve with Standard Trim and Gauges connected to an appropriate release and detection system
9. Water Supply Control Valve - NORMALLY OPEN
19. Easy Riser Check Valve and Trim

D. Concentrate Control Valve (CCV) Hydraulically actuated Halar Coated Viking Deluge Valve (*Angle Style and Straight Thru Style CCV available.)
13. Water Pressure Gauge and 3-way valve and remainder of CCV special trim
30. CCV Actuation Alarm Pressure Switch (Mandatory for FM Systems)

E. Accessory Trim - (Order each item separately)
8. Concentrate Control Shut-off Valve - NORMALLY OPEN ***
10. Tank Water Supply Control Valve - NORMALLY OPEN
11. Water Supply Piping to Bladder Tank
12. Release Line/Priming Line Piping to foam CCV (D)
14. Foam Concentrate Discharge Piping
15. Foam Concentrate Swing Check Valve
16. Foam Solution Test Valve - NORMALLY CLOSED
17. System Isolation Valve - NORMALLY OPEN
18. 1/2" Foam concentrate auxiliary drain valve** (Only required on systems where concentrate controller (B) is installed below preaction valve (C)

*** Full Port Bronze Body with 316 Stainless Steel Trim and Ball (2" and under). Cast Iron Body OS & Y with Bronze Trim and seats (over 2")

Figure 2

TECHNICAL DATA

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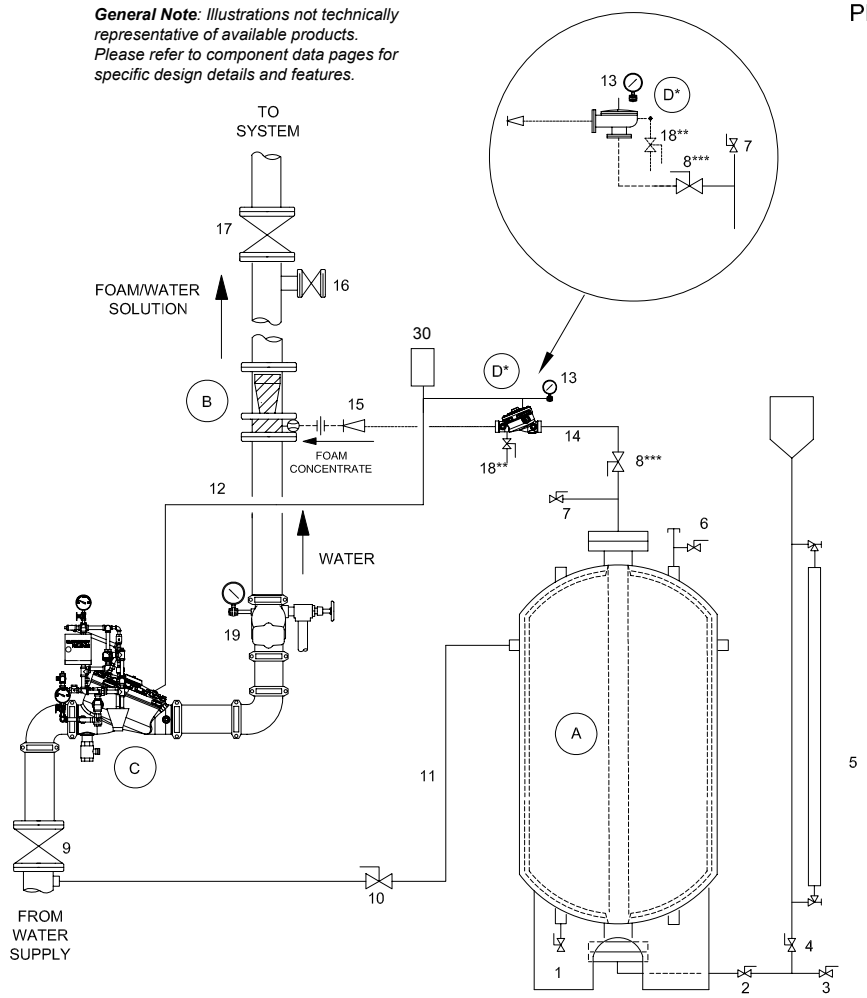

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6. Tank Water Vent Valve - NORMALLY CLOSED
7. Diaphragm Concentrate Vent Valve - NORMALLY CLOSED

B. Proportioning Device - Ratio Controller with Integral Orifice

C. Type of System - Preaction Valve with Standard Trim and Gauges connected to an appropriate release and detection system
9. Water Supply Control Valve - NORMALLY OPEN
19. Easy Riser Check Valve and Trim

D. Concentrate Control Valve (CCV) Hydraulically actuated Halar Coated Viking Deluge Valve (*Angle Style and Straight Thru Style CCV available.)
13. Water Pressure Gauge and 3-way valve and remainder of CCV special trim
30. CCV Actuation Alarm Pressure Switch (Mandatory for FM Systems)

E. Accessory Trim - (Order each item separately)
8. Concentrate Control Shut-off Valve - NORMALLY OPEN ***
10. Tank Water Supply Control Valve - NORMALLY OPEN
11. Water Supply Piping to Bladder Tank
12. Release Line/Priming Line Piping to foam CCV (D)
14. Foam Concentrate Discharge Piping
15. Foam Concentrate Swing Check Valve
16. Foam Solution Test Valve - NORMALLY CLOSED
17. System Isolation Valve - NORMALLY OPEN
18. 1/2" Foam concentrate auxiliary drain valve** (Only required on systems where concentrate controller (B) is installed below preaction valve (C)

*** Full Port Bronze Body with 316 Stainless Steel Trim and Ball (2" and under). Cast Iron Body OS & Y with Bronze Trim and seats (over 2")

Figure 3

TECHNICAL DATA

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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For complete Preaction Foam/Water System Supplied by a Bladder Tank, select Deluge Valve and Trim, Release Trim, Foam Concentrate Control Valve and Trim, Easy Riser® Swing Check Valve and Trim, Foam Concentrate, Ratio Flow Controller, Bladder Tank, and Accessories.

DESCRIPTION		NOMINAL SIZE	PART NUMBER	DATA PAGE
DELUGE VALVES - ANGLE STYLE				
Threaded	**Model & Pipe O.D.**		**Painted Red**	
	Model E-3 48 mm	1½" / DN40	09889	209 a-h
	Model E-1 60 mm	2" / DN50	05852C	210 a-h
	Model & Pipe O.D.		**Halar® Coated**	
	Model E-4 48 mm	1½" / DN40	09890Q/B	212 a-j
	Model E-2 60 mm	2" / DN50	08361Q/B	213 a-j
Flange/ Flange	**Flange Drilling**	**Model E-1**	**Painted Red**	
	ANSI	3"	05912C	211 a-h
	ANSI	4"	05909C	
	ANSI	6"	05906C	
	ANSI/Japan	6"	07136	
	PN10/16	DN80	08626	
	PN10/16	DN100	08629	
	PN10/16	DN150	08631	
	Flange Drilling	**Model E-2**	**Halar® Coated**	
	ANSI	3"	08362Q/B	213 a-j
	ANSI	4"	08363Q/B	
	ANSI	6"	08364Q/B	
	PN10/16	DN80	08862Q/B	
	PN10/16	DN100	08863Q/B	
	PN10/16	DN150	08864Q/B	
Flange/ Groove	**Flange Drilling / Pipe O.D.**	**Model E-1**	**Painted Red**	
	ANSI / 89 mm	3"	05835C	211 a-h
	ANSI / 114 mm	4"	05839C	
	ANSI / 168 mm	6"	05456C	
	PN10/16 / 89 mm	DN80	09539	
	PN10/16 / 114 mm	DN100	09540	
	PN10/16 / 168 mm	DN150	05456C	
	Flange Drilling / Pipe O.D.	**Model E-2**	**Halar® Coated**	
	ANSI / 89 mm	3"	11064Q/B	213 a-j
	ANSI / 114 mm	4"	11065Q/B	
	ANSI / 168 mm	6"	11001Q/B	
	PN10/16 / 168 mm	DN150	11001Q/B	

DESCRIPTION		NOMINAL SIZE	PART NUMBER	DATA PAGE
DELUGE VALVES - STRAIGHT THROUGH				
Threaded	**Pipe O.D.**	**Model F-1**	**Painted Red**	
	NPT 48 mm	1½"	12126	214 a-f
	NPT 60 mm	2"	12059	
	NPT 65 mm	2½"	12401	218 a-j
	BSP 48 mm	DN40	12682	
	BSP 60 mm	DN50	12686	
	Pipe O.D.	**Model F-2**	**Halar® Coated**	
	NPT 65 mm	2½"	12402Q/B	219 a-k

DESCRIPTION		NOMINAL SIZE	PART NUMBER	DATA PAGE
DELUGE VALVES - STRAIGHT THROUGH				
Flange/ Flange	**Flange Drilling**	**Model F-1**	**Painted Red**	
	ANSI	3"	12014	218 a-j
	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	219 a-k
	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	218 a-j
	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	219 a-k
	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	
Groove/ Groove	**Pipe O.D.**	**Model F-1**	**Painted Red**	
	48 mm	1½" / DN40	12125	214 a-f
	60 mm	2" / DN50	12057	
	73 mm	2½" / DN65	12403	218 a-j
	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	219 a-k
	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	

Table 1

TECHNICAL DATA

PREACTION FOAM/WATER SYSTEM SUPPLIED BY BLADDER TANK

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DESCRIPTION		NOMINAL SIZE	PART NUMBER		DATA PAGE
DELUGE VALVE TRIM					
			Galvanized	Brass	
Use with Angle Style Valves		1½" / DN40	14629-1	14629-2	225 a-c
		2" / DN50	14630-1	14630-2	226 a-c
		3" / DN80	14631-1	14631-2	227 a-c
		4" / DN100	14632-1	14632-2	
		6" / DN150	14633-1	14633-2	
Use with Straight Through Valves	Horizontal	1½" / DN40	14635-1	14635-2	235 a-c
		2" / DN50			
		2½" / DN65	14637-1	14637-2	239 e-g
		3" / DN80			
		4" / DN100	14638-1	14638-2	240 a-c
		6" / DN150	14640-1	14640-2	241 a-c
		8" / DN200	14643-1	14643-2	242 a-c
	Vertical	1½" / DN40	14634-1	14634-2	235 e-g
		2" / DN50			
		2½" / DN65	14636-1	14636-2	239 e-g
		3" / DN80			
		4" / DN100	14639-1	14639-2	240 e-g
		6" / DN150	14641-1	14641-2	241 a-c
		8" / DN200	14643-1	14643-2	242 e-g

DESCRIPTION		PART NUMBER		DATA PAGE
RELEASE TRIM PACKAGES				
		Galvanized	Brass	
Use with Angle or Straight Through Valves	Pneumatic Release	10809	10811	265 b
	Electric Release	10830	10832	265 a
	Electric / Pneumatic Release	12661-1	12661-2	266 a
	Pneumatic / Pneumatic Release	12662-1	12662-2	266 b

DESCRIPTION	NOMINAL SIZE	PART NUMBER		DATA PAGE
TRIMPAC®				
Includes Conventional Trim, Release Trim, and Flexible Hose Kit	**SINGLE INTERLOCK**			
		Galvanized	Brass	
	Electric Release	13792B-3	13792B-3B	248 a-s
	Pneumatic Release	13793B-4	13793B-4B	249 a-t
	DOUBLE INTERLOCK			
		Galvanized	Brass	
	Electric/Pneumatic Release	13794B-5	19794B-5B	250 a-s
	Electric/Pneu-lectric Release	13796B-6	13796B-6B	251 a-s
DRAIN PACKAGE				
Use with TrimPac (above)	1½" / DN40	11894-1		See Trimpac Data Pages
	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	DATA PAGE
FOAM CONCENTRATE CONTROL VALVE HALAR® COATED				
Straight Through				
Groove/ Groove	Pipe O.D.	Model F-2		61a-f
	48 mm	1½" / DN40	12127Q/B	
	60 mm	2" / DN50	12058Q/B	
	73 mm	2½" / DN65	12404Q/B	
	76 mm	2½" / DN65	12730Q/B	
	89 mm	3" / DN80	12023Q/B	

DESCRIPTION	NOMINAL SIZE	PART NUMBER	DATA PAGE
FOAM CONCENTRATE CONTROL VALVE TRIM			
Use with Straight Through Valves	**Galvanized**		61a-f
	1½" / DN40	12848-1	
	2" / DN50	12848-1	
	2½" / DN65	12929-1	
	Brass		
	1½" / DN40	12848-2	
	2" / DN50	12848-2	
	2½" / DN65	12929-2	

Table 2

TECHNICAL DATA

PREACTION FOAM/WATER SYSTEM SUPPLIED BY BLADDER TANK

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DESCRIPTION		NOMINAL SIZE	PART NUMBER	DATA PAGE
EASY RISER® SWING CHECK VALVE				
Flange/ Flange	Flange Drilling	Model F-1		815 a-g
	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		DATA PAGE
EASY RISER® SWING CHECK TRIM				
		Galvanized	Brass	815 a-g
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	DATA PAGE
Vertical Bladder Tank	175psi (12bar)	25 to 4000 US Gallon	EN13445	VFTV****GF	xx
Horizontal Bladder Tank	175psi (12bar)	50 to 5250 US Gallon	EN13445	VFTH****GF	xx
Vertical Bladder Tank	232psi (16bar)	25 to 4000 US Gallon	EN13445	VFTV****GF-16	xx
Horizontal Bladder Tank	232psi (16bar)	50 to 5250 US Gallon	EN13445	VFTH****GF-16	xx
Vertical Bladder Tank	175psi (12bar)	25 to 4000 US Gallon	ASME Sec.VIII Div.1	VFTV****GAF	xx
Horizontal Bladder Tank	175psi (12bar)	50 to 5250 US Gallon	ASME Sec.VIII Div.1	VFTH****GAF	xx
Vertical Bladder Tank	232psi (16bar)	25 to 4000 US Gallon	ASME Sec.VIII Div.1	VFTV****GAF-16	xx
Horizontal Bladder Tank	232psi (16bar)	50 to 5250 US Gallon	ASME Sec.VIII Div.1	VFTH****GAF-16	xx
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)					

Table 3

TECHNICAL DATA

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For complete Wet Pipe Low Flow Foam Water System, select alarm valve and trim, Retard Chamber and Circuit Closer Vent Trim, Pilot Operated Pressure Control Valve, Foam Concentrate Control Valve and Trim, Foam Concentrate, Ratio Flow Controller, Bladder Tank and accessories.

DESCRIPTION	NOMINAL SIZE	PART NUMBER	DATA PAGE
FOAM CONCENTRATE SWING CHECK VALVE			
	1½" / DN40	99S-0150	-
	2" / DN50	99S-0200	-
	2½" / DN65	05497C	803 a-d
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			
OS & Y	2½" / DN65	8068A-0250	-
	3" / DN80	8068A-0300	
	4" / DN100	8068A-0400	
	6" / DN150	8068A-0600	
	8" / DN200	8068A-0800	
FOAM CONCENTRATE SHUT-OFF VALVE			
Ball Valve	1½" / DN40	T595Y66-0150	-
	2" / DN50	T595Y66-0200	
ACCESSORIES FOR FOAM/WATER SPRINKLER SYSTEMS			
MODEL D-3 PORV	½" / DN15	16970	287e-f
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	1½" / DN40	WBV-0150	-
Ball Valve	2" / DN50	WBV-0200	
OS & Y	2½" / DN65	8068A-0250	
OS & Y	3" / DN80	8068A-0300	

RATIO CONTROLLERS					
Connection		Foam Type	Part Number		Data Page
"Body Grooved"	"Foam Inlet Grooved"		NAB (1)(3)	Brass (2)	
2" (60.3mm)	1.5" (48.3mm)	AFFF 1% S C6	VRC060JAA	F20282A	xx
		AFFF 3% S C6	VRC060JAB	F20282B	
		ARC 3X3 S C6	VRC060JAJ	F20282J	
2.5" (76.1mm)	1.5" (48.3mm)	AFFF 1% S C6	VRC076JAA	N/A	
		AFFF 3% S C6	VRC076JAB	N/A	
		ARC 3X3 S C6	VRC076JAJ	N/A	
2.5" (73.0mm)	1.5" (48.3mm)	AFFF 1% S C6	VRC073JAA	F20162A	
		AFFF 3% S C6	VRC073JAB	F20162B	
		ARC 3X3 S C6	VRC073JAJ	F20162J	
3" (88.9mm)	1.5" (48.3mm)	AFFF 1% S C6	VRC089JAA	F20152A	
		AFFF 3% S C6	VRC089JAB	F20152B	
		ARC 3X3 S C6	VRC089JAJ	F20152J	
4" (114.3mm)	2" (60.3mm)	AFFF 1% S C6	VRC114JAA	F20217A	
		AFFF 3% S C6	VRC114JAB	F20217B	
		ARC 3X3 S C6	VRC114JAJ	F20217J	
6" (165.1mm)	2" (60.3mm)	AFFF 1% S C6	VRC165JAA	N/A	
		AFFF 3% S C6	VRC165JAB	N/A	
		ARC 3X3 S C6	VRC165JAJ	N/A	
6" (168.3mm)	2" (60.3mm)	AFFF 1% S C6	VRC168JAA	F20214A	
		AFFF 3% S C6	VRC168JAB	F20214B	
		ARC 3X3 S C6	VRC168JAJ	F20214J	
8" (219.1mm)	2.5" (76.1mm)	AFFF 1% S C6	VRC219JAA	N/A	
		AFFF 3% S C6	VRC2196JAB	N/A	
		ARC 3X3 S C6	VRC2196JAJ	N/A	
8" (219.1mm)	2.5" (73.0mm)	AFFF 1% S C6	VRC2193JAA	F20137A	
		AFFF 3% S C6	VRC2193JAB	F20137B	
		ARC 3X3 S C6	VRC2193JAJ	F20137J	

(1) Nickel Aluminium Bronze (NAB) - Standard Offering in Viking EMEA & APAC Territories. Brass available on request.

(2) Brass - Standard Offering in Viking Americas Territories. Nickel Aluminium Bronze available on request.

(3) NAB 73mm and NAB 219mm with 73mm foam inlet are non standard and could be subject to additional lead time and price.

Foam Type	Part Number		
	US Gallon		
	5	55	265
AFFF 1% S C6	F20335/5	F20335/55	F20335/265
AFFF 3% S C6	F20336/5	F20336/55	F20336/265
ARC 3X3 S C6	F20227/5	F20227/55	F20227/265
Foam Type	**Litres**		
	25	**200**	**1000**
AFFF 1% S C6	V-AFFF1S/25	V-AFFF1S/200	V-AFFF1S/1000
AFFF 3% S C6	V-AFFF3S/25	V-AFFF3S/200	V-AFFF3S/1000
ARC 3X3 S C6	V-ARC3X3S/25	V-ARC3X3S/200	V-ARC3X3S/1000

Table 4