TECHNICAL BULLETIN

PILOT PRESSURE REGULATING FOAM/WATER FLOW CONTROL SYSTEM SUPPLIED BY A BLADDER TANK

The Viking Corporation, 5150 Beltway Dr. SE, Caledonia, MI 49316
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
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1. SYSTEM DESCRIPTION

The Pilot Pressure Regulating Foam/Water System Supplied by a bladder tank is a UL Listed and FM Approved system, for use with Fomtec supplied foam concentrate. This sprinkler system consists of a standard sprinkler system, using a Viking flow control valve with pressure regulating trim, a release solenoid for the supplemental detection system, an In-Line Balanced Pressure Proportioner ILBP (B), a hydraulically actuated Viking Halar®-coated concentrate control valve (D), and foam concentrate approved for use with the Viking system.

This system was developed to provide constant discharge rates to eliminate over-discharge on deluge systems. It will provide constant pressure and water flow past the ILBP enabling the foam concentrate to be determined by the demand flow. Replace with: The Viking Pilot Pressure Regulating Foam/Water System combines the advantages of a conventional foam deluge system, but without the required supply hydraulic calculation to account for the over-discharge. Failure to consider over-discharge with traditional deluge systems will deplete the foam concentrate before the required duration. Water supply pressure to the bladder tank must be provided from an upstream source, after the Pilot Pressure Regulating Flow Control Valve. The listed pressure differential for the pressure regulating trim is 20 PSIG (1.38 bar). This means that the inlet pressure at the desired flow rate to the pressure regulating flow control system must be 20 psi higher than the desired pressure on the discharge side of the deluge valve.

In order to obtain the pressure differential between foam/water solution and supply water pressure, the Pilot Pressure Regulating Flow Control Valve on the pressure regulating flow control trim must be adjusted to reduce the water pressure past the discharge side of the flow control valve. For best results, the pilot pressure regulating deluge valve (C) should be set using a downstream pressure gauge of the Pilot Pressure Regulating Flow Control Valve (D) and the water pressure gauge. For existing sprinkler systems that are restricted in flow and pressure capacity, this system should not be used without supplementing the available supply pressure.

2. LISTINGS AND APPROVALS

No formal approval as a system. Main component approvals are listed below.

- Pressure Regulating Flow Control Valve and Trim
  UL Listed - Guide VLFT
  FM Approved - Automatic Water Control Valves
- In-Line Balanced Pressure Proportioner (ILBP)
  UL Listed - Guide GFGV
- 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 and High-Expansion Foam Systems
- Fomtec Enviro ARK (3% AR-SFFF) Fluorine-Free Foam Concentrate
  FM Approved
- Fomtec Enviro 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:

Refer to Tables 1 through 3.

Revised page replaces Form F_101798 Rev 03
(Added to Fig. 1, sect. D, #'s 13 & 14.)

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4. INSTALLATION

A. Discharge Devices

- Standard spray open sprinklers (refer to water/foam sprinkler data page)
- Model GN202 Grate Nozzles
- Model VFM Foam Makers
- Non-aspirating spray nozzles
- Manual monitors
- Hose reels and hand lines
- Foam Chambers
- Any open discharge device

B. General Instructions and Warnings

1. Refer to specific technical data sheets, acceptable installation standards, codes and Authority Having Jurisdiction for additional installation, operation, and maintenance instructions.
2. Inspections – The system must be inspected and tested in Accordance with NFPA 25. See Section 6 – Inspections, Tests, and Maintenance.
3. The valve, trim, bladder tank, and appurtenances 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.

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C. Design And Installation

The following guidance is given with reference to the general system schematics (Figures) detailed later in this document.

⚠ WARNING

The valve, trim, bladder tank, and associated devices must be installed in an area not subject to freezing temperatures or physical damage.

⚠ 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 watch in the affected area.

1. Refer to the Special Notes section in this document.
2. Install the flow control valve with pilot pressure regulating deluge trim in accordance with the technical data sheet (also refer to Figure 1).
3. Install the Viking ILBP (B) in the riser. (See Special Note A and B, Page 7).
4. Install foam solution test valve (17) and system isolation valve (18). Test valves are required in accordance with NFPA 11.
5. Install the (CCV) 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.
6. Install bladder tank (A) in accordance with the manufacturer's instructions with connections as shown on Figure 1, and herein described.
   a. Recommended connections are shown in Figure 1.
   b. Locate the tank as close as practical to the system riser.
   c. Allow enough room around the tank to service the bladder.
   d. Allow access to the tank for filling of foam concentrate.
   e. Install the water supply piping (13) from the riser to the bladder tank as shown in Figure 1.
   NOTE: *To eliminate water hammer effects during system activation, Viking recommends that the bladder tank water supply piping connection for a flow control system should be installed upstream of the flow control valve (C) as shown in Figure 1.*
   f. Install the piping from the tank (A) to the proportioner (B) as straight as possible to limit pressure loss.
7. All valves and devices should be located for easy access for operation and maintenance.
8. 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 7.
b. Verify the following valves are in the closed position: water supply control valve (10), bladder tank water supply control valve (13), foam concentrate shut-off valve (14), foam solution test valve (17) and foam concentrate auxiliary drain valve (12), and vent valve (21).
c. Place the Pilot Pressure Regulating Flow Control valve (C.1) in service in accordance with the relevant Viking technical data page. Open the priming line valve to prime the CCV (D). Bleed off any air pressure trapped in the priming line to the CCV (D) by opening the 3-way pressure gauge valve (11). Once the 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 Pilot Pressure Regulating Flow Control valve in service.
d. The CCV (D) is closed and set when gauge (11) displays equal pressure to the system supply pressure gauge.

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e. The Pilot Pressure Regulating Flow Control system's release control system should be in service. To place the bladder tank (A) in service refer to the bladder tank operation manual for the complete start-up procedure.
f. Verify the CCV (D) is closed.
g. Verify normal valve positions and secure in correct position (see Figure 1).
h. Slowly open the shut-off valves (13) and (14).
i. IMPORTANT: Bleed air from vent valves (21).
j. 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 7.
b. Close the water supply control valve (10).
c. Close the bladder tank water supply control valve (13) and foam concentrate shut-off valve (14).
d. Leave the foam system isolation valve (18) open.
e. Refer to instructions for removing the Pilot Pressure Regulating Flow Control (C.1) from service in the relevant Viking technical data page.
f. Open the main drain(s) on Pilot Pressure Regulating Flow Control valve (C.1).
g. Perform required service and maintenance on system devices or piping network.
h. Refer to instructions for returning the Pilot Pressure Regulating Flow Control valve (C.1) to service in the relevant Viking technical data page.
i. Verify the CCV (D) is closed by checking water pressure gauge (11) to ensure that it is the same as or higher than the system pressure.
j. IMPORTANT: Bleed air from vent valves (21).

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.

k. Open bladder tank water supply valve (13) and foam concentrate shut-off valve (14).
l. Verify normal valve positions and secure in correct position (as detailed in Figure 1).

3. For Total System Service and Maintenance:

a. Refer to the Special Notes section on page 7.
b. Close the bladder tank water supply control valve (13) and foam concentrate shut-off valve (14).
c. Refer to instructions for removing the bladder tank (A) from service in the bladder tank operation manual.
d. Leave the foam 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 deluge valve (C).
g. System isolation valve may now be closed if desired. 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 1a through 1j in above.

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4. For Bladder Tank Service and Maintenance - While Leaving System in Service:

a. Refer to the Special Notes section on page 7.
b. Close the bladder tank water supply control valve (13) and foam concentrate 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. IMPORTANT: Bleed air from vent valves (21).

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.

g. Verify normal valve positions and secure in correct position (as detailed in Figure 1).

5. For Riser Only Service and Maintenance:

a. Refer to the Special Notes section on page 7.
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 flow control valve (C.1) from service in the relevant Viking technical data page.
f. Open the main drain(s) on deluge valve (C).
g. Perform required service and maintenance on deluge valve (C.1).
h. Refer to instructions for returning the deluge valve (C.1) to service in the relevant Viking technical data page.
i. The CCV (D) will also be primed close as described in 1c 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. IMPORTANT: Bleed air from vent valves (21).

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

n. Verify normal valve positions and secure in correct position (as detailed in Figure 1).

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 (D)
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 section D.1.d 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

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valve (15) clapper rubber and seat should be inspected or replaced. Refer to component data page for repair instructions.

5. OPERATION

Actuation of the supplemental detection system (pneumatically or electrically) will release the priming water pressure in the flow control valve's priming chamber allowing the valve to open, filling the system with water. While water flows through the flow control valve, water will flow out a ½" (13 mm) port on the discharge side of the flow control valve and pressurize the sensing end of the pressure operated relief valve (PORV), which will release the prime pressure of the Halar® coated concentrate control valve (D), allowing it to open and supply foam concentrate to the ILBP (B). Foam/water solution will be proportioned throughout the system.

The bladder tank will be pressurized by the water flowing through the piping and supply inlet to the bladder tank. System water pressure in the space between the flexible bladder and the inside surface of the tank causes the bladder to collapse, forcing foam concentrate out through the concentrate supply piping, Halar® concentrate control valve, and to the ILBP. The low venturi of the ILBP meters foam concentrate into the water stream passing by the ILBP. The listed minimum flow rate of the ILBP must be achieved before accurate proportioning will occur.

6. INSPECTION, 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.

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.

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 alarm test valve.

B. Main Drain 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 any problems found.

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 Pilot Pressure Regulating Foam/Water System Supplied by a Bladder Tank is available through a network of domestic and international distributors. See the Viking Corporation website for closest distributor or contact The Viking Corporation.

8. GUARANTEE

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

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⚠ 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.

SPECIAL NOTES

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

B. The combined total equivalent length of pipe (pipe length, plus equivalent lengths for fittings and valves) including both the water supply inlet piping and the foam concentrate discharge piping, should not exceed 165 equivalent feet (50.3 meters); specifically, 100’ (30.5 m) water supply and 65’ (19.8 m) foam concentrate piping.

C. The CCV (D) and swing check valve (15) must be connected adjacent to the ILBP using pipe nipples as short as possible.

D. The release of the concentrate control valve and the flow control valve must NOT be combined. The concentrate control valve must be primed and released separately of the pressure regulating valve to ensure open position of the concentrate control valve clapper.

E. Figure 1 is a general schematic of the required piping arrangement. Refer to the appropriate technical data page for specific information regarding the valve, tank, and related trim and devices.

F. The technical information, statements, and recommendations contained in this manual are based on information and tests that, 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 since 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.

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

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

I. Where post operation abort is required, an additional check valve shall be added to the system piping downstream of the PORV connection location. This check valve will prevent the water column from holding the PORV in the open position during abort operation.

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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 – ILBP

C. Type of System – PILOT PRESSURE REGULATING (each item below sold separately)
- Flow Control Valve (Straight through or angle style)
- Pressure Regulating Flow Control Trim (Vertical)
- Release Trim (Electric)
- Release Device (Solenoid valve)

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

E. Riser Check Valve

Accessory Trim – (Each item below sold separately)
13. Bladder tank water supply control valve – NORMALLY OPEN (sized per bladder tank)
14. 2-1/2" 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
20. Prime line connection package

Commissioning and Flushing Valves
21. 2½" Ball Valves (2) - NORMALLY CLOSED (Installed on customer-supplied outlet)

Air Vent and Drain Valves
22. ½" Air vent valves (2) - 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)

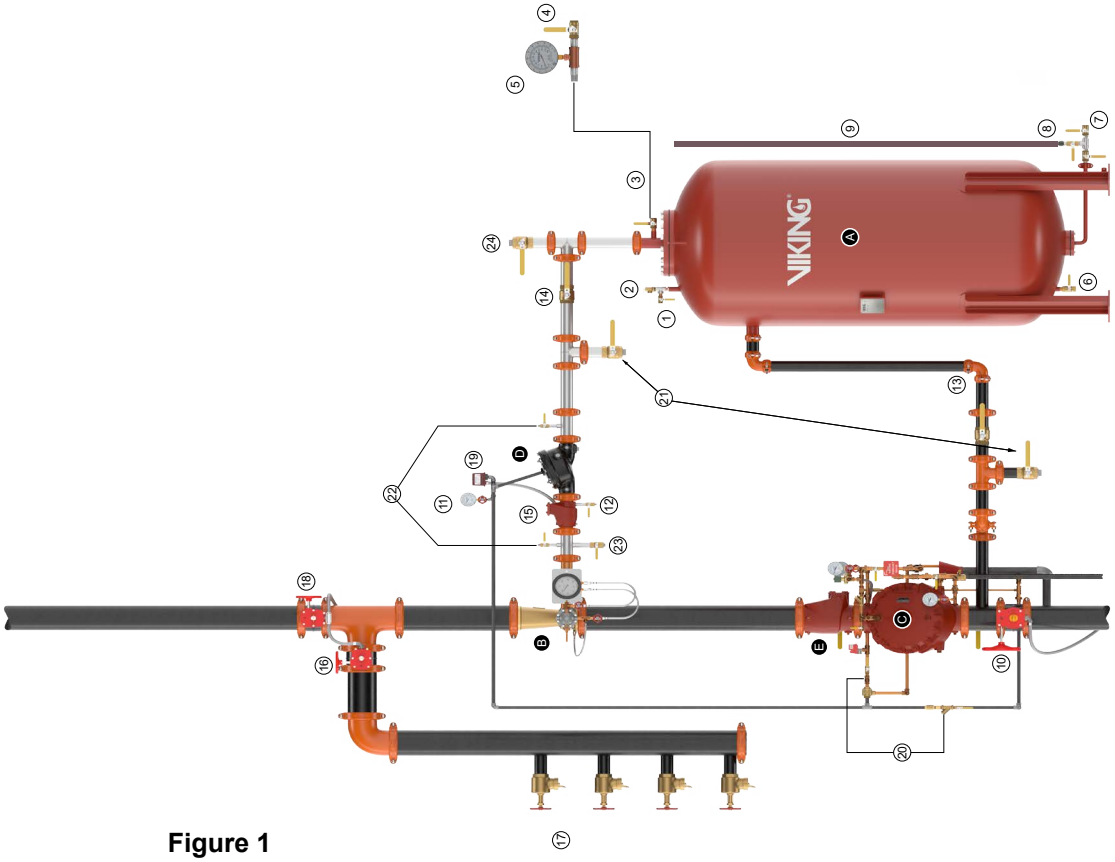

Figure 1

TECHNICAL BULLETIN

PILOT PRESSURE REGULATING FOAM/WATER FLOW CONTROL SYSTEM SUPPLIED BY A BLADDER TANK

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ORDERING INSTRUCTIONS:

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

- Flow Control Valve and Trim
- Release Trim
- Foam Concentrate Control Valve and Trim
- Foam Concentrate
- In-Line Balanced Proportioner
- Bladder Tank

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

https://digital.vikingcorp.com

DESCRIPTION		NOMINAL SIZE	PART NUMBER
Flow Control Valves - Straight Through			
Threaded	**Pipe O.D.**	**Model J-1**	**Painted Red**
	NPT 48 mm	1½"	12130
	NPT 60 mm	2"	12063
	NPT 65 mm	2½"	12405
	BSP 48 mm	DN40	12684
	BSP 60 mm	DN50	12688
	Pipe O.D.	**Model J-2**	**Halar® Coated**
	NPT 65 mm	2½"	12406Q/B
Flange/ Flange	**Flange Drilling**	**Model J-1**	**Painted Red**
	ANSI	3"	12016
	ANSI	4"	11968
	ANSI	6"	11970
	ANSI	8"	11993
	ANSI/Japan	4"	11975
	ANSI/Japan	6"	11981
	PN10/16	DN80	12028
	PN10/16	DN100	11973
	PN10/16	DN150	11971
	PN10	DN200	11997
	PN16	DN200	12001
	Flange Drilling	**Model J-2**	**Halar® Coated**
	ANSI	3"	12017Q/B
	ANSI	4"	11977Q/B
	ANSI	6"	11979Q/B
	ANSI	8"	11994Q/B
	PN10/16	DN80	12029Q/B
	PN10/16	DN100	11982Q/B
	PN10/16	DN150	11980Q/B
	PN10	DN200	11998Q/B
	PN16	DN200	12002Q/B

DESCRIPTION		NOMINAL SIZE	PART NUMBER
Flow Control Valves - Straight Through			
Flange/ Groove	**Flange Drilling / Pipe O.D.**	**Model J-1**	**Painted Red**
	ANSI / 89 mm	3"	12020
	ANSI / 114 mm	4"	11967
	ANSI / 168 mm	6"	11969
	PN10/16 / 89 mm	DN80	12031
	PN10/16 / 114 mm	DN100	11974
	PN10/16 / 165 mm	DN150	12642
	PN10/16 / 168 mm	DN150	11969
	Flange Drilling / Pipe O.D.	**Model J-2**	**Halar® Coated**
	ANSI / 89 mm	3"	12021Q/B
	ANSI / 114 mm	4"	11976Q/B
	ANSI / 168 mm	6"	11978Q/B
	PN10/16 / 89 mm	DN80	12646Q/B
	PN10/16 / 114 mm	DN100	12647Q/B
	PN10/16 / 165 mm	DN150	12643Q/B
	PN10/16 / 168 mm	DN150	11978Q/B
Groove/ Groove	**Pipe O.D.**	**Model J-1**	**Painted Red**
	48 mm	1½" / DN40	12129
	60 mm	2" / DN50	12061
	73 mm	2½" / DN65	12407
	76 mm	DN80	12731
	89 mm	3" / DN80	12024
	114 mm	4" / DN100	11516
	165 mm	DN150	11912
	168 mm	6" / DN150	11527
	219 mm	8" / DN200	11019
	Pipe O.D.	**Model J-2**	**Halar® Coated**
	48 mm	1½" / DN40	12131Q/B
	60 mm	2" / DN50	12062Q/B
	73 mm	2½" / DN65	12408Q/B
	76 mm	DN80	12732Q/B
	89 mm	3" / DN80	12025Q/B
	114 mm	4" / DN100	11517Q/B
	165 mm	DN150	11913Q/B
	168 mm	6" / DN150	11528Q/B
	219 mm	8" / DN200	11119Q/B

Table 1

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DESCRIPTION	NOMINAL SIZE	PART NUMBER	
Flow Control Pressure Regulating Trim for Straight Through Valves			
		Galvanized	**Brass**
Includes both conventional flow control trim and pilot regulator trim, as well as speed control assembly and pilot pressure regulating valve.	1½" / DN40	14768-1	14768-2
	2" / DN50	14768-1	14768-2
	2½" / DN65	14769-1	14769-2
	3" / DN80	14769-1	14769-2
	4" / DN100	14770-1	14770-2
	6" / DN150	14771-1	14771-2
	8" / DN200	14772-1	14772-2

DESCRIPTION		PART NUMBER	
Release Trim Packages			
Use with Angle or Straight Through Valves		**Galvanized**	**Brass**
	Electric Release	10830	10832

DESCRIPTION	NOMINAL SIZE	PART NUMBER
Foam Concentrate Control Valve Trim		
Use with Straight Through Valves	**Brass**	
	2½" / DN65	12929-2

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

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)				

Table 2

TECHNICAL BULLETIN

PILOT PRESSURE REGULATING FOAM/WATER FLOW CONTROL SYSTEM SUPPLIED BY A BLADDER TANK

The Viking Corporation, 5150 Beltway Dr. SE, Caledonia, MI 49316
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 www.vikinggroupinc.com

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

ILBP				
Connection		Foam Type	Part Number	
Body Grooved	Foam Inlet Grooved		Nickel[1] Aluminium Bronze[2,4]	Brass[2]
3" (88.9mm)	1.5" (48.3 mm)	Fomtec Enviro USP	VLF089JAL	F20316L
4" (114.3mm)	2" (60.3 mm)	Fomtec Enviro USP	VLF114JAL	F20317L
4" (114.3mm)	2" (60.3 mm)	Fomtec Enviro ARK	VLF114JP	F20317P
6" (165.1mm)	2" (60.3 mm)	Fomtec Enviro USP	VLF165JAL	--
6" (165.1mm)	2" (60.3 mm)	Fomtec Enviro ARK	VLF165JP	--
6" (168.3mm)	2" (60.3 mm)	Fomtec Enviro USP	VLF168JAL	F20184L
6" (168.3mm)	2" (60.3 mm)	Fomtec Enviro ARK	VLF168JP	F20184P
8" (219.1mm)	2" (60.3 mm)	Fomtec Enviro USP	VLF2196JAL	--
8" (219.1mm)	2" (60.3 mm)	Fomtec Enviro USP	VLF2193JAL	F20185L

NOTES:
[1] Nickel Aluminium Bronze (NAB) - Standard Offering in Viking EMEA & APAC Territories. Brass available on request with longer delivery.
[2] Brass - Standard Offering in Viking Americas Territories. Nickel Aluminium Bronze available on request with longer delivery.

Foam Concentrate			
Foam Type	Part Number		
	US Gallon		
	6.5	55	265
Fomtec Enviro ARK	12-3370-00	12-3370-03	12-3370-05
Fomtec Enviro USP	11-6000-00	11-6000-03	11-6000-05

Table 3

Revised page replaces Form F_101798 Rev 03
(Added to Fig. 1, sect. D, #'s 13 & 14.)