TECHNICAL DATA

WET PIPE LOW FLOW FOAM/WATER SYSTEM

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

1. DESCRIPTION

The Viking Low Flow Foam/Water proportioning system, is a UL Listed and FM Approved system, for use with Viking supplied foam concentrates. This system consists of a standard wet pipe sprinkler system, using a Viking alarm check valve, complete with variable pressure trim and retard chamber (C), a factory assembled and tested Viking pilot operated pressure control valve (E), an in-line balanced pressure foam concentrate proportioning assembly (ILBP) (B), bladder tank with trim (A), a hydraulic actuated Viking Halar® coated concentrate control deluge valve (D) and foam agent UL Listed and FM Approved for use with the Viking system.

This system was developed to provide an accurate foam/water solution at much lower flow ranges than what a conventional concentrate controller is capable of. The low flow foam system will also provide positive foam injection throughout the full range of system flows. It will provide a rich foam solution at low flows below the listed and approved minimum flow rates, which makes it ideal for use on closed head wet pipe sprinkler systems. Therefore, it is now possible to obtain the desired concentrate percentage at lower flows, which results in the operation of fewer sprinklers on the wet pipe systems, to achieve the desired foam/water solution percentage.

The Viking low flow foam system combines the advantages of a conventional foam pump/ILBP system, but without the additional maintenance or cost of a foam pump. Although the system cannot be re-filled while it is in operation, it requires less service than a foam pump, while maintaining the dependability of a bladder system. The Viking Wet Pipe Low Flow Foam System also allows for the use of multiple foam discharge points with variable pressure, and the capability of sizing the proportioner specifically for the area of application, while only using a single source of foam concentrate supply. Water supply pressure to the bladder tank must be provided from upstream source, prior to pilot regulating control valve, preferably near main fire water supply source, pump, or centrally located bladder tank. The inlet foam concentrate pressure to balancing valve (42) must be 15-20 PSI (1.03-1.37 BAR) higher for Viking ILBP Assembly than the water inlet pressure to the concentrate controller (B) at each proportioner location. The balancing valve (42) senses inlet water pressure and balances the foam concentrate pressure to match water pressure at inlet of foam concentrate to metering orifice of concentrate controller. At initial flow conditions of the sprinkler system (low flow), the foam/water mixture is rich in foam concentrate, approximately 6% for 3% mixtures, until the flow rate reaches the indicated minimum flow rate of the concentrate controller. In order to obtain the pressure differential between foam concentrate and water pressure, the pilot operated pressure control valve (E) must be adjusted to reduce the pressure to the concentrate controller (B) to meet the required pressure differential, between gauges (38 & 30).

For best results the pilot pressure control valve should be set using the downstream dual pressure gauge (30) of the pressure control valve (B) and the water supply pressure gauge (38) pilot operated pressure control valve (E). For existing sprinkler systems that are restricted in flow and pressure capacity this system should not be used. The minimum recommended water supply pressure to concentrate controller (B) is 40 PSI (2.75 BAR) in flowing condition, which requires 55-60 PSI (3.79-4.13 BAR) for Spool ILBP foam concentrate pressure, at point of usage.

NOTE: This system requires a minimum Δ P, also a maximum Δ P of 50 PSIG (3.44 BAR) between foam concentrate pressure vs. water pressure is recommended. If this Δ P is exceeded, the foam/water solution will proportion rich (higher than 3.9%) at low flows listed.

2. LISTINGS AND APPROVALS

- As a Complete Viking System
  - UL Listed - Guide GHXV
  - FM Approved - Low Expansion Foam Systems
- Alarm Check Valve and Trim
  - UL Listed - Guide VPLX
  - FM - Waterflow Alarm Valves
- In-line Balalanced Pressure Proportioner (ILBP)
  - UL Listed - Guide GFGV
  - FM Approved - Low Expansion Foam Systems
- 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.
- Viking Bladder Tank ASME Sect. VIII Certified
  - UL Listed - Guide GHXV
  - FM Approved - Low Expansion Foam Systems
- Pilot Operated Pressure Control Valve
  - UL Listed Category VLMT
  - FM Approved (with this system) Category Low Expansion Foam Systems Foam Concentrate

Revised page replaces page Foam 14a-j, dated June 1, 2008.
(Added Special Notes section on page 14d and updated Table 3.)

VIKING®

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- Foam Concentrate
  UL Listed - Guide GFGV
  FM Approved - Low Expansion Foam Systems

NOTE: The Listings and Approvals for the Viking Low Flow Foam System are based on a complete system as indicated and described in this technical data page. Any alterations to the system configuration will void the listings and approvals as well as any Viking warranty.

3. TECHNICAL DATA

Specifications:
Refer to individual component technical data pages.

Material Standards:
Refer to individual component technical data pages.

Ordering Information:
Refer to Tables 1 through 3.

Viking Technical Data may be found on The Viking Corporation's Web site at http://www.vikinggroupinc.com. The Web site may include a more recent edition of this Technical Data Page.

4. INSTALLATION

A. Discharge Devices
- Standard Spray Sprinklers Approved with Foam Concentrate and Fuel Being Protected.
- Non Aspirating Spray Nozzles.
- Manual Monitors
- Hose Reels and Hand lines

B. General Instructions and Warnings
1. Refer to the General Notes and Warnings on page 2a-d in the "Foam Design" section of the *Viking Foam Systems Engineering and Design Data* book.
2. Refer to specific technical data sheets, acceptable installation standards, applicable codes, and Authority Having Jurisdiction for additional installation, operation, and maintenance instructions. The alarm check valve (C) must be installed using the variable pressure trim to minimize false operation of the Halar® coated concentrate control deluge valve (D).
3. Inspections - It is imperative that the system be inspected and tested on a regular basis. See Section 6 - Inspections, Tests, and Maintenance.
4. **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.
5. The valve, trim, and assembly must be installed in an area not subject to freezing temperatures or physical damage.

C. 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 14d and Warnings and General Notes on page 2a-d in the "Foam Design" section of the Viking foam data book.
2. Install the pilot operated pressure control valve assembly and alarm check valve and trim (E & C) in accordance with the *Viking Engineering and Design Data* book and Figures 1-3.
3. Install the in-line balancing proportioning device, including the concentrate controller with integral orifice (B), in the riser piping level with the top of the bladder tank (A). This will help prevent the foam concentrate from draining or siphoning from the tank into the water supply piping due to expansion of foam in the bladder tank.
4. Install the foam solution test valve (25) and system isolation valve (26).
5. Install the hydraulically actuated Halar® coated concentrate control deluge valve (D) and associated trim as indicated in Figures 1-3, trim charts, or technical data pages.
6. Install bladder tank (A) in accordance with the manufacturer's instructions with connections as shown on Figures 1-3, and herein described.
   a. Locate the tank as close as practical to the system riser.
   b. Allow enough room around the tank to service the bladder.
   c. Allow access to the tank for filling from barrels of foam concentrate
   d. Install the pipe from the riser to the tank as indicated on Figures 1-3. The bladder tank water supply piping (16) must be connected below the Model A-1 Pilot Operated Pressure Control Valve Assembly (E). Install the piping from the tank (A) to the ILBP (B) as straight as possible.
   e. All valves and devices should be located for easy access for operation and maintenance.

VIKING® TECHNICAL DATA WET PIPE LOW FLOW FOAM/WATER SYSTEM

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7. All valves should be closed, including the water supply control valve (8), the PORV water supply ball valve (14), the tank water supply control valve (15), the 1/2" ball valve (21), the concentrate control shut-off valve (22***), the foam solution test valve (25), and the alarm test shut-off valve on the alarm check valve (C) trim.
8. Pressurize the System:
   a. Open the system isolation valve (26) and remote inspector's test.
   b. Partially open the water supply control valve (8) to slowly fill system. When full stream of water appears at the inspector's test connection, close the inspector's test valve. Fully open and secure the water supply control valve (8).
   c. After pressurizing the complete system, bleed all air from priming chamber of pilot operated pressure control valve (E). The discharge pressure may require adjustment to fit system in installation requirements. See data pages included with the pilot pressure regulating valve for pressure adjustments.
   d. When the system piping is pressurized and has stabilized, prime the Halar® coated concentrate control deluge valve(D) by opening and securing the 1/2" ball valve (21) in the open position. When the pressure on the priming chamber water pressure gauge (27) equals the supply water pressure, the deluge valve will close.
   e. Check for and repair any leaks in the foam/water discharge system pipe.
9. When the system is completely pressurized, follow the tank manufacturer's filling sequence.
10. To place the bladder tank (A) in service:
   a. Refer to bladder tank manufacturing instructions for placing the tank in service, except to slowly open concentrate control shut-off valve (22***) to allow foam concentrate to flow slowly to the Halar® coated concentrate control deluge valve (D). Place the alarm test shut-off valve on the Viking alarm check valve (C) trim, in the alarm position. When system pressure has stabilized, open the PORV water supply ball valve (14).
   b. Verify normal valve positions and secure in proper position.
   c. Check for and repair any leaks.
11. Testing the foam concentrate swing check valve: After a flow test or proportioning test has been conducted, the foam concentrate swing check valve (24) should be checked to insure that it maintains a positive seal between the concentrate control deluge valve (D) and the wet system riser, by following the procedure outlined below.
   a. Bleed off any pressure that may have been trapped between the outlet of the chamber of the Halar® coated concentrate control deluge valve (D) and the swing check valve (24) by placing a container under the foam concentrate auxiliary drain valve (29) and opening the valve slowly.
   b. Drain excess of foam concentrate into container. Should the leakage continue, check the priming pressure gauge (27) on the Viking concentrate control deluge valve to insure that the valve is primed and closed.
   c. If the foam concentrate auxiliary drain valve (29) continues to leak foam concentrate, then the concentrate control valve must be checked for proper operation and repaired if necessary. Follow the procedure as indicated in Section 4-D in the Wet Pipe Foam/Water System data page for repair.
   d. Should water continue to leak from the foam concentrate auxiliary drain valve (29), the foam concentrate swing check valve (24) clapper rubber and seat should be maintained. Follow the procedure as indicated in Section 4-D in Wet Pipe Foam/Water System data page 10a-i for repair.

D. Placing The System In Service Or Removing The System From Service

Refer to Wet Pipe Foam/Water System on page 10a-i for instructions. Refer to th epilot operated pressure control valve data page 534a-f in the *Viking Engineering Design Data* book for placing the valve in service, setting the discharge pressure, and testing the valve.

5. OPERATION

Actuation of a sprinkler head allows system water to flow, causing the alarm check valve (C) clapper to open. The retard chamber (43) and alarm line (13) are pressurized, which causes the PORV (17) to operate. Pressure is relieved from priming chamber of Viking Halar® coated concentrate control deluge valve (D), allowing the valve to open. The bladder tank (A) is already pressurized by the water supply valve (15) and piping (16). 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 foam concentrate supply piping (23), Halar® coated concentrate control deluge valve (D), and to balancing valve (42) of ILBP assembly (B). The balancing valve (42) senses the inlet water pressure upstream of the concentrate controller (B) and adjusts the foam concentrate pressure to the same water pressure as the inlet to metering orifice of concentrate controller (B).

6. INSPECTION & MAINTENANCE

Refer to Wet Pipe Foam/Water System data page 10a-i, Section 6, for inspection and maintenance instructions for the wet pipe foam/water system. Refer to data page 534a-f in the *Viking Engineering and Design Data* book for inspection and maintenance of the Viking pilot operated pressure control valve.

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7. AVAILABILITY

The Wet Pipe Low Flow Foam/Water System is available through a network of domestic and international distributors. See the Viking Corporation web site 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.

SPECIAL NOTES

A. Provide a minimum of 5 pipe diameters of straight pipe on the inlet and outlet of the concentrate controller (B) to minimize turbulence inside the concentrate controller. Exception: The outlet for the tank water supply control valve (15) may be connected nearer to the inlet of the concentrate controller and should not cause excessive turbulence. However, if the outlet to the foam solution test valve (25) 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) including both the water supply inlet piping (16) and the foam concentrate discharge piping (23), should 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 concentrate controller. If the total equivalent length must exceed 50 feet (15.2 meters), then refer to the "Proportioning Equipment" section of this data book for the method of calculating these pipe sizes.

C. The CCV (D) and swing check valve (24) must be connected adjacent to the concentrate controller using pipe nipples as short as possible.

D. The alarm check valve must be installed using the variable pressure trim and retard chamber (30) to minimize false operation of the CCV (D). The releasing PORV (17) for the CCV (D) is activated by the operation of the alarm valve.

E. The ball valve (14) must be left in the open position, except when conducting alarm or flow test. Failure to close ball valve (14) before running an alarm or flow test will result in the unwanted discharge of foam concentrate. Once the test is completed, the ball valve (14) must be returned to the open position, or the foam CCV (D) will not operate, and the foam concentrate will not flow to the concentrate controller. WARNING: Turning off the alarm test shut-off valve during a fire may cause the concentrate control valve to close, stopping the flow of foam concentrate. The installing contractor should post a sign stating the same at alarm shut-off valve and/or install a monitor switch on the alarm shut-off valve.

F. The suggested location for a water flow switch, should one be required, is between the outlet of the alarm check valve (C) and the inlet to the concentrate controller.

G. 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.

H. 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 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.

I. A strainer is not required in the foam concentrate discharge piping (23) of bladder tank systems per NFPA Standards.

J. The foam deluge CCV (D) does not require any trim except for a 1/2" priming line (28), 1/2" auxiliary drain valve (29), and gauge with 3-way valve (27). 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.

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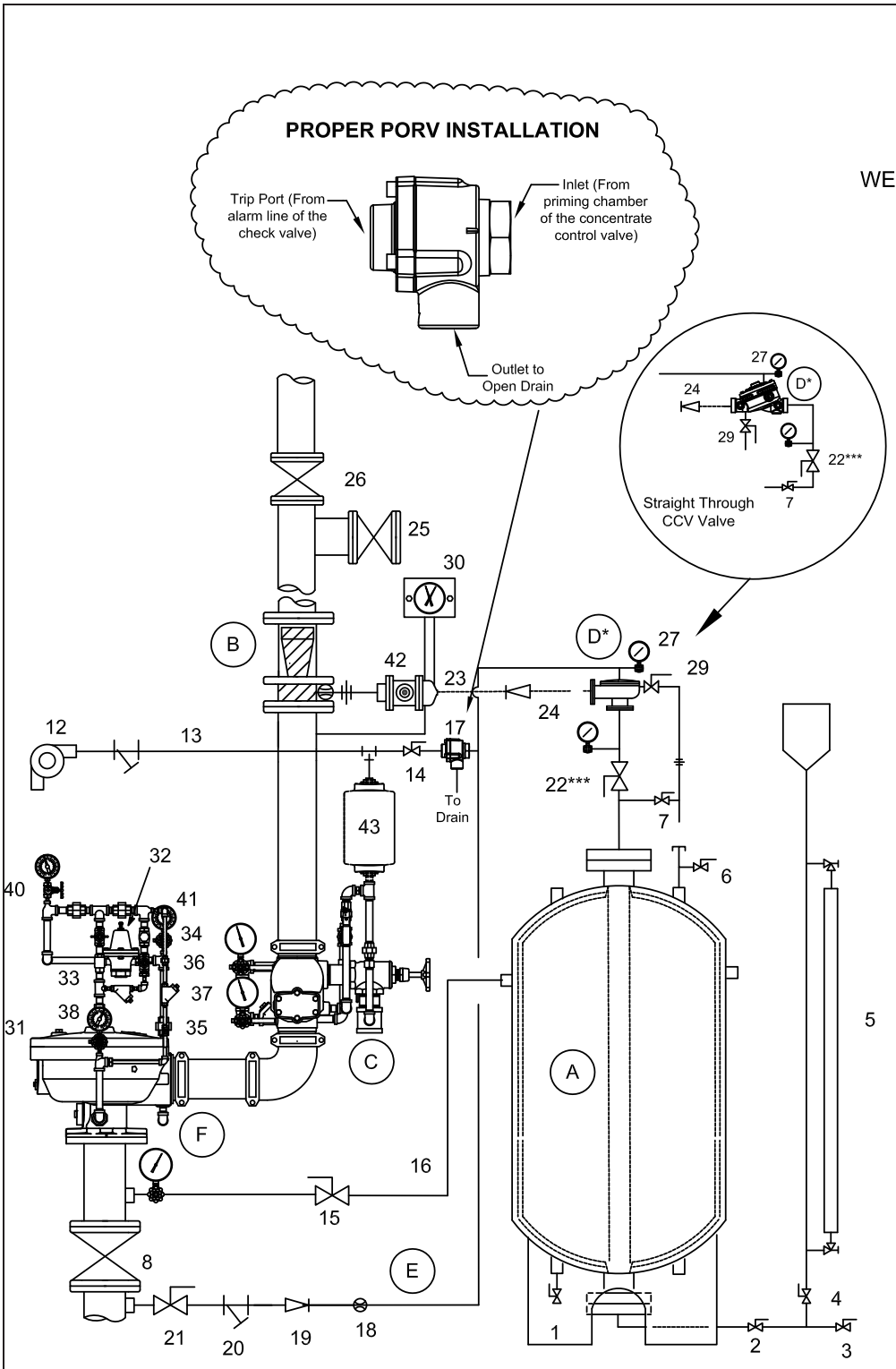

WET PIPE LOW FLOW FOAM SYSTEM

Angle Style
Pilot Operated Pressure Control
Valve Assembly w/CCV Valve

A. Foam Concentrate Bladder Tank (includes 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 - NORMALLY CLOSED
5. Sight Gauge Assembly - 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. Viking In-line Balanced Pressure Proportioner Assembly (ILBP) including Concentrate Controller with Metering Orifice (Includes Items 30 and 42)
30. Duplex Gauge
42. Spool Balancing Valve w/TFE lined stainless steel braided hose and fitting - ΔP foam vs. water, min. 15 PSIG ILBP Piping Stainless Steel or Brass (order separately)

C. Type of System - Alarm Check Valve with Variable Pressure Trim
43. Retard Chamber (Order separately)
44. Circuit Closer Vent Trim (order separately)

D. Concentrate Control Valve (CCV) - Hydraulically actuated Halar Coated Viking Deluge Valve (*Angle Style or Straight Through Style CCV valve available) CCV Trim (includes items 27 & 29)
27. CCV Priming Pressure Gauge
29. 1/2" foam concentrate auxiliary drain valve

E. Priming Line Connection (includes items 17-21)
17. PORV
18. Restricted Orifice .125"
19. 1/2" Soft Seat Check Valve
20. 1/2" Strainer
21. 1/2" Ball Valve - NORMALLY OPEN

F. Factory assembled and tested Viking Model A or B Pilot Operated Pressure Control Assembly (includes items 31 through 41)
31. Viking Model H or J Flow Control Valve
32. Viking Model C-2 Pilot Pressure Regulating Valve
33. Viking Speed Control Assembly or Valve
34. Check Valve
35. Priming Valve
36. Restricted Orifice
37. Strainer
38. Water Supply Pressure Gauge
39. Drain Valve (Not shown)
40. Air Bleed Valve and Pressure Gauge
41. Downstream Pressure Gauge (Not Shown)

G. Accessory Trim - (Order each item separately)
8. Water Supply Control Valve - NORMALLY OPEN
12. Water Motor Alarm and Strainer
13. Alarm Line Piping
14. 1/2" PORV Water Supply Ball Valve - NORMALLY OPEN
15. Tank Water Supply Control Valve - NORMALLY OPEN
16. Water Supply Piping to Bladder Tank
22. Concentrate Control Shut-off Valve - NORMALLY OPEN ***
23. Foam Concentrate Discharge Piping
24. Foam Concentrate Swing Check Valve
25. Foam Solution Test Valve - NORMALLY CLOSED
26. System Isolation Valve - NORMALLY OPEN
28. 1/2" Priming Line

*** 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 1

TECHNICAL DATA

WET PIPE LOW FLOW FOAM/WATER SYSTEM

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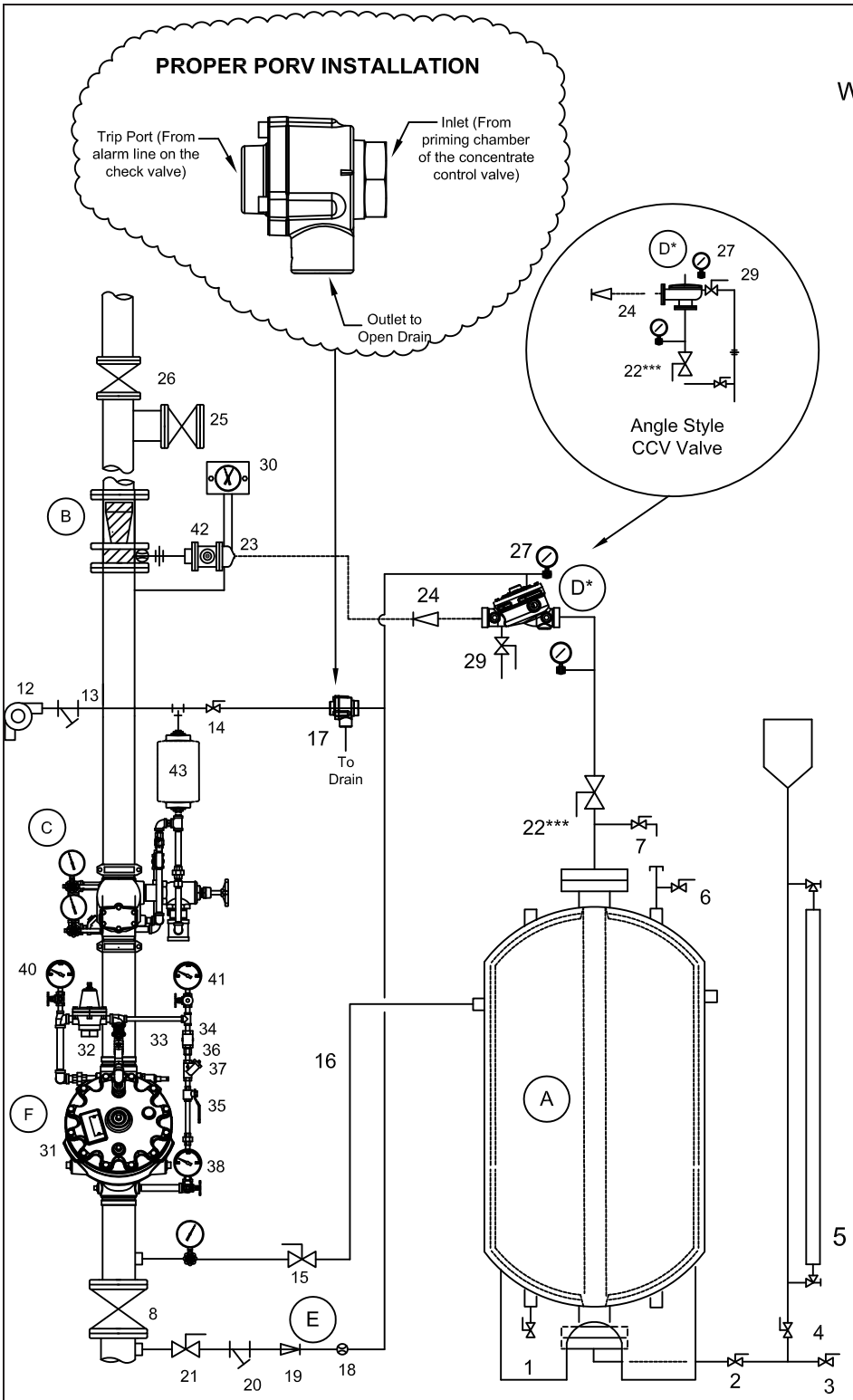

WET PIPE LOW FLOW FOAM SYSTEM

Vertical Straight Through Pilot Operated Pressure Control Valve Assembly w/CCV Valve

A. Foam Concentrate Bladder Tank (includes 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 - NORMALLY CLOSED
5. Sight Gauge Assembly - 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. Viking In-line Balanced Pressure Proportioner Assembly (ILBP) including Concentrate Controller with Metering Orifice (Includes Items 30 and 42)
30. Duplex Gauge
42. Spool Balancing Valve w/TFE lined stainless steel braided hose and fitting -ΔP foam vs. water, min. 15 PSIG ILBP Piping Stainless Steel or Brass (order separately)

C. Type of System - Alarm Check Valve with Variable Pressure Trim
43. Retard Chamber (Order separately)
44. Circuit Closer Vent Trim (order separately)

D. Concentrate Control Valve (CCV) - Hydraulically actuated Halar Coated Viking Deluge Valve (*Angle Style or Straight Through Style CCV valve available) CCV Trim (includes items 27 & 29)
27. CCV Priming Pressure Gauge
29. 1/2" foam concentrate auxiliary drain valve

E. Priming Line Connection (includes items 17-21)
17. PORV
18. Restricted Orifice .125"
19. 1/2" Soft Seat Check Valve
20. 1/2" Strainer
21. 1/2" Ball Valve - NORMALLY OPEN

F. Factory assembled and tested Viking Model A or B Pilot Operated Pressure Control Assembly (includes items 31 through 41)
31. Viking Model H or J Flow Control Valve
32. Viking Model C-2 Pilot Pressure Regulating Valve
33. Viking Speed Control Assembly or Valve
34. Check Valve
35. Priming Valve
36. Restricted Orifice
37. Strainer
38. Water Supply Pressure Gauge
39. Drain Valve (Not shown)
40. Air Bleed Valve and Pressure Gauge
41. Downstream Pressure Gauge (Not Shown)

G. Accessory Trim - (Order each item separately)
8. Water Supply Control Valve - NORMALLY OPEN
12. Water Motor Alarm and Strainer
13. Alarm Line Piping
14. 1/2" PORV Water Supply Ball Valve - NORMALLY OPEN
15. Tank Water Supply Control Valve - NORMALLY OPEN
16. Water Supply Piping to Bladder Tank
22. Concentrate Control Shut-off Valve - NORMALLY OPEN ***
23. Foam Concentrate Discharge Piping
24. Foam Concentrate Swing Check Valve
25. Foam Solution Test Valve - NORMALLY CLOSED
26. System Isolation Valve - NORMALLY OPEN
28. 1/2" Priming Line

*** 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

WET PIPE LOW FLOW FOAM/WATER SYSTEM

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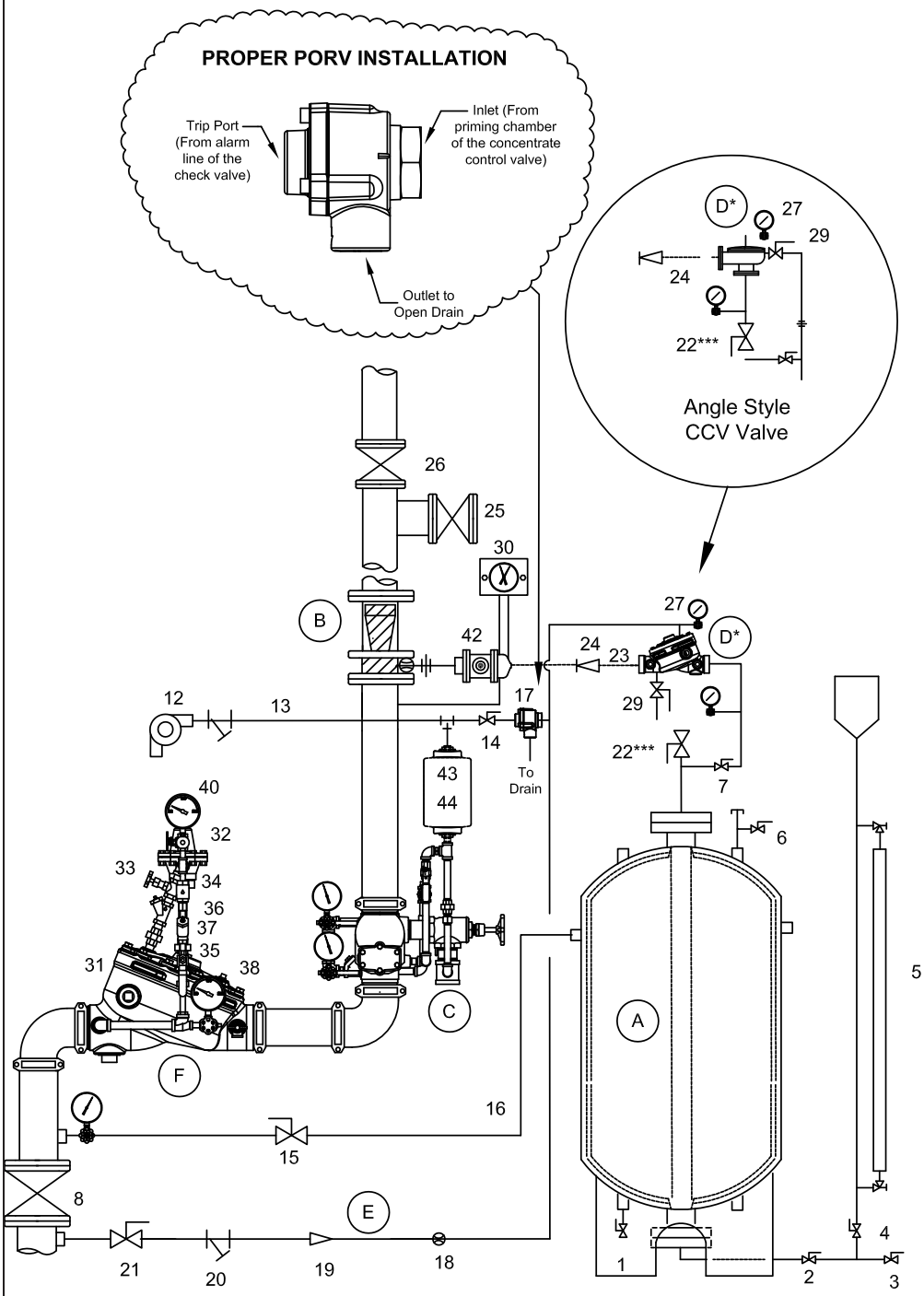

WET PIPE LOW FLOW FOAM SYSTEM

Horizontal Straight Through
Pilot Operated Pressure Control
Valve Assembly w/CCV Valve

A. Foam Concentrate Bladder Tank (includes 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 - NORMALLY CLOSED
5. Sight Gauge Assembly - 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. Viking In-line Balanced Pressure Proportioner Assembly (ILBP) including Concentrate Controller with Metering Orifice (Includes Items 30 and 42)
30. Duplex Gauge
42. Spool Balancing Valve w/TFE lined stainless steel braided hose and fitting - ΔP foam vs. water, min. 15 PSIG ILBP Piping Stainless Steel or Brass (order separately)

C. Type of System - Alarm Check Valve with Variable Pressure Trim
43. Retard Chamber (Order separately)
44. Circuit Closer Vent Trim (order separately)

D. Concentrate Control Valve (CCV) - Hydraulically actuated Halar Coated Viking Deluge Valve (*Angle Style or Straight Through Style CCV valve available) CCV Trim (includes items 27 & 29)
27. CCV Priming Pressure Gauge
29. 1/2" foam concentrate auxiliary drain valve

E. Priming Line Connection (includes items 17-21)
17. PORV
18. Restricted Orifice .125"
19. 1/2" Soft Seat Check Valve
20. 1/2" Strainer
21. 1/2" Ball Valve - NORMALLY OPEN

F. Factory assembled and tested Viking Model A or B Pilot Operated Pressure Control Assembly (includes items 31 through 41)
31. Viking Model H or J Flow Control Valve
32. Viking Model C-2 Pilot Pressure Regulating Valve
33. Viking Speed Control Assembly or Valve
34. Check Valve
35. Priming Valve
36. Restricted Orifice
37. Strainer
38. Water Supply Pressure Gauge
39. Drain Valve (Not shown)
40. Air Bleed Valve and Pressure Gauge
41. Downstream Pressure Gauge (Not Shown)

G. Accessory Trim - (Order each item separately)
8. Water Supply Control Valve - NORMALLY OPEN
12. Water Motor Alarm and Strainer
13. Alarm Line Piping
14. 1/2" PORV Water Supply Ball Valve - NORMALLY OPEN
15. Tank Water Supply Control Valve - NORMALLY OPEN
16. Water Supply Piping to Bladder Tank
22. Concentrate Control Shut-off Valve - NORMALLY OPEN ***
23. Foam Concentrate Discharge Piping
24. Foam Concentrate Swing Check Valve
25. Foam Solution Test Valve - NORMALLY CLOSED
26. System Isolation Valve - NORMALLY OPEN
28. 1/2" Priming Line

*** 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

WET PIPE LOW FLOW FOAM/WATER SYSTEM

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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 and ILBP, Bladder Tank and Accessories.

DESCRIPTION		NOMINAL SIZE	PART NUMBER	DATA PAGE
ALARM CHECK VALVE				
Flange/ Flange	Flange Drilling	Model J-1		26 a-g
	ANSI	3”	08235	
	ANSI	4”	08238	
	ANSI	6”	08241	
	ANSI	8”	08244	
	PN10/16	DN80	09108	
	PN10/16	DN100	09109	
	PN10/16	DN150	09110	
	PN10	DN200	09111	
	PN16	DN200	12388	
Flange/ Groove	Flange Drilling / Pipe O.D.	Model J-1		26 a-g
	ANSI / 89 mm	3”	08236	
	ANSI / 114 mm	4”	08239	
	ANSI / 168 mm	6”	08242	
	ANSI / 219 mm	8”	08245	
	PN10/16 / 89 mm	DN80	09535	
	PN10/16 / 114 mm	DN100	09536	
	PN10/16 / 168 mm	DN150	09874	
	PN10 / 219 mm	DN200	09877	
	PN16 / 219 mm	DN200	12389	
Groove/ Groove	Pipe O.D.	Model J-1		26 a-g
	89 mm	3” / DN80	08237	
	114 mm	4” / DN100	08240	
	165 mm	DN150	09405	
	168 mm	6” / DN150	08243	
	219 mm	8” / DN200	08246	
MODEL J-1 ALARM VALVE TRIM BRASS				
Vertical		3” / DN80	11428	27 a-c
		4” / DN100	11429	
		6” / DN150	11430	
		8” / DN200	11431	
Horizontal		3” / DN80	11432	28 a-c
		4” / DN100	11433	
		6” / DN150	11434	
		8” / DN200	11435	

DESCRIPTION	NOMINAL SIZE	PART NUMBER	DATA PAGE
CIRCUIT CLOSER VENT BRASS TRIM		08220	38 a-b
MODEL C-1 RETARDING CHAMBER (not included in the trim)		05904B	

FOAM CONCENTRATE CONTROL VALVE HALAR® COATED				
Angle Style				61a-f
Threaded NPT	Model & Pipe O.D.			
	Model E-4 48 mm	1½” / DN40	09890Q/B	
	Model E-2 60 mm	2” / DN50	08361Q/B	
Straight Through				
Threaded NPT	Pipe O.D.	Model F-2		
	NPT 65 mm	2½”	12402Q/B	
Groove/ Groove	Pipe O.D.	Model F-2		
	48 mm	1½” / DN40	12127Q/B	
	60 mm	2” / DN50	12058Q/B	
	73 mm	2½” / DN65	12404Q/B	
FOAM CONCENTRATE CONTROL VALVE TRIM				
Use with Angle Style Valve		**Galvanized**		61 a-f
		1½” / DN40	08098	
		2” / DN50	08099	
		Brass		
		1½” / DN40	09694	
		2” / DN50	09695	
Use with Straight Through Valves		**Galvanized**		
		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	

DESCRIPTION	TANK SIZE	PART NUMBER	DATA PAGE
HORIZONTAL BLADDER TANK	50 - 4500 Gallon	CHBT2-xxxx *	240 a-h
VERTICAL BLADDER TANK	25 - 4500 Gallon	CVBT2-xxxx *	
* Where xxxx is the tank size			

Table 1

VIKING®

TECHNICAL DATA

WET PIPE LOW FLOW FOAM/WATER SYSTEM

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

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-1 PORV	½" / DN15	13598	287 a-b
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	

FOAM CONCENTRATES AND ILBP ASSEMBLIES					
FOAM CONCENTRATE			**ILBP ASSEMBLY**		
DESCRIPTION	**BASE PART NUMBER**	**FOAM CONCENTRATE DATA PAGE**	**NOMINAL SIZE**	**VIKING PART NUMBER**	**ILBP DATA PAGE**
1% AFFF C103	F14969	100 a-b	2½"	F15006/A	171 a-d
			3"	F15012/A	
			4"	F15018/A	
			6"	F15025/A	
			8"	F15032/A	
3% AFFF C303	F14970	101 a-b	2½"	F15006/B	
			3"	F15012/B	
			4"	F15018/B	
			6"	F15025/B	
			8"	F15032/B	
3% AFFF MS C301 MS	F14971	102 a-b	2½"	F15006/C	
			3"	F15012/C	
			4"	F15018/C	
			6"	F15025/C	
			8"	F15032/C	
3% - 6% AFFF @ 3% C363	F14973	103 a-b	2½"	F15006/D	
			3"	F15012/D	
			4"	F15018/D	
			6"	F15025/D	
			8"	F15032/D	
3% - 6% AFFF @ 3% C363	F14973	103 a-b	2½"	F15006/E	
			3"	F15012/E	
			4"	F15018/E	
			6"	F15025/E	
			8"	F15032/E	
3% AR-AFFF CUG	F14972	104 a-b	2½"	F15006/J	
			3"	F15012/J	
			4"	F15018/J	
			6"	F15025/J	
			8"	F15032/J	
2% Hi Ex C2	F14974	105 a-b	2½"	F15006/H	
			3"	F15012/H	
			4"	F15018/H	
			6"	F15025/H	
			8"	F15032/H	

Table 2

VIKING® TECHNICAL DATA

WET PIPE LOW FLOW FOAM/WATER SYSTEM

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

DESCRIPTION		NOMINAL SIZE	PART NUMBER	DATA PAGE
PILOT OPERATED PRESSURE CONTROL VALVES				
ANGLE STYLE VALVES (INCLUDES MODEL A-2 GALVANIZED TRIM. BRASS OR STAINLESS STEEL ALSO AVAILABLE)				
Threaded	Pipe O.D.			534 a-f
	60 mm	2" / DN50	10793	
Flange/ Flange	Flange Drilling			
	ANSI	3" / DN80	10801	
	ANSI	4" / DN100	10795	
	ANSI	6" / DN150	10807	
	PN10/16	DN80	10801FFPN1016	
	PN10/16	DN100	10795FFPN1016	
	PN10/16	DN150	10807FFPN1016	
Flange/ Groove	Flange Drilling / Pipe O.D.			
	ANSI / 89 mm	3" / DN80	10800	
	ANSI / 114 mm	4" / DN100	10794	
	ANSI / 168 mm	6" / DN150	10806	

DESCRIPTION		NOMINAL SIZE	PART NUMBER	DATA PAGE
PILOT OPERATED PRESSURE CONTROL VALVES				
STRAIGHT THROUGH VALVES (INCLUDES MODEL B-1 GALVANIZED TRIM. BRASS OR STAINLESS STEEL ALSO AVAILABLE)				
Horizontal Arrangement				
Threaded	Pipe O.D.			536 a-i
	48 mm	1½" / DN40	12774	
	60 mm	2" / DN50	12776	
	65 mm	2½" / DN65	12778	
Flange/ Flange	Flange Drilling			
	ANSI	3" / DN80	12782	
	ANSI	4" / DN100	12785	
	ANSI	6" / DN150	12788	
	ANSI	8" / DN200	12790	
Flange/ Groove	Flange Drilling / Pipe O.D.			
	ANSI / 89 mm	3" / DN80	12781	
	ANSI / 114 mm	4" / DN100	12784	
	ANSI / 168 mm	6" / DN150	12787	
Groove/ Groove	Pipe O.D.			
	48 mm	1½" / DN40	12775	
	60 mm	2 " / DN50	12777	
	73 mm	2½" / DN65	12779	
	89 mm	3" / DN80	12780	
	114 mm	4" / DN100	12783	
	168 mm	6" / DN150	12786	
	219 mm	8" / DN200	12789	
Vertical Arrangement				
Threaded	Pipe O.D.			536 a-i
	48 mm	1½" / DN40	12791	
	60 mm	2" / DN50	12793	
	65 mm	2½" / DN65	12795	
Flange/ Flange	Flange Drilling			
	ANSI	3" / DN80	12799	
	ANSI	4" / DN100	12802	
	ANSI	6" / DN150	12805	
	ANSI	8" / DN200	12807	
Flange/ Groove	Flange Drilling / Pipe O.D.			
	ANSI / 89 mm	3" / DN80	12798	
	ANSI / 114 mm	4" / DN100	12801	
	ANSI / 168 mm	6" / DN150	12804	
Groove/ Groove	Pipe O.D.			
	48 mm	1½" / DN40	12792	
	60 mm	2" / DN50	12794	
	73 mm	2½" / DN65	12796	
	89 mm	3" / DN80	12797	
	114 mm	4" / DN100	12800	
	168 mm	6" / DN150	12803	
	219 mm	8" / DN200	12806	

Table 3

Revised page replaces page Foam 14a-j, dated June 1, 2008.
(Added Special Notes section on page 14d and updated Table 3.)