



## TECHNICAL DATA

### PILOT OPERATED PRESSURE REGULATING VALVE

#### 1. PRODUCT NAME

VIKING PILOT OPERATED  
PRESSURE CONTROL VALVE

Model H Angle Style Valve

Model A-2 Galvanized Trim

Model A-3 Brass Trim w/Halar® Coated  
Body

Model A-4 Stainless Steel Trim w/  
Halar® Coated Body

2" (DN50), 3" (DN80), 4" (DN100), and  
6" (DN150)

Model J Straight Through Style Valve

Model B-1 Galvanized Trim

Model B-2 Brass Trim

Model B-3 Brass Trim w/Halar® Coated  
Body

Model B-4 Stainless Steel Trim w/  
Halar® Coated Body

1-1/2" (DN40), 2" (DN50), 2-1/2" (DN65),  
3" (DN80), 4" (DN100), 6" (DN150) and  
8" (DN200)

#### 2. MANUFACTURER

THE VIKING CORPORATION

210 N. Industrial Park Road

Hastings, Michigan 49058 U.S.A.

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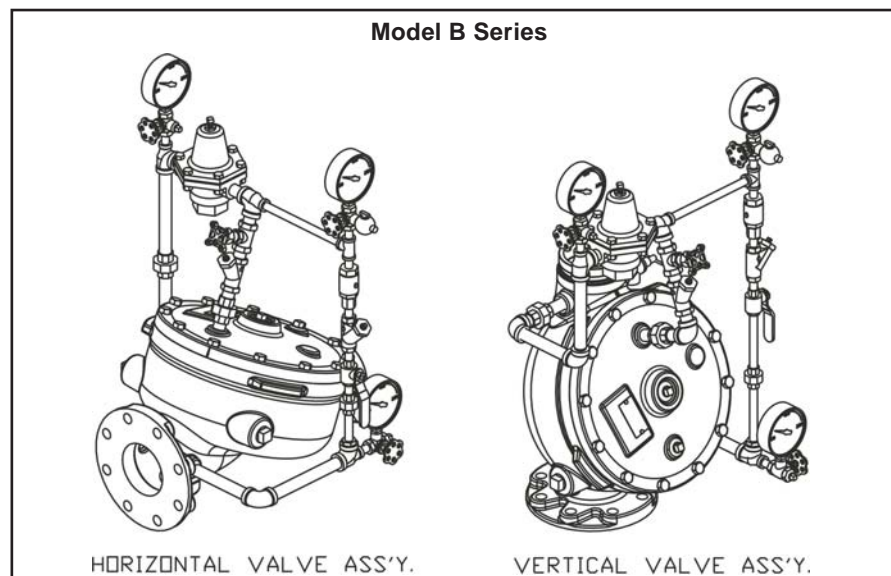
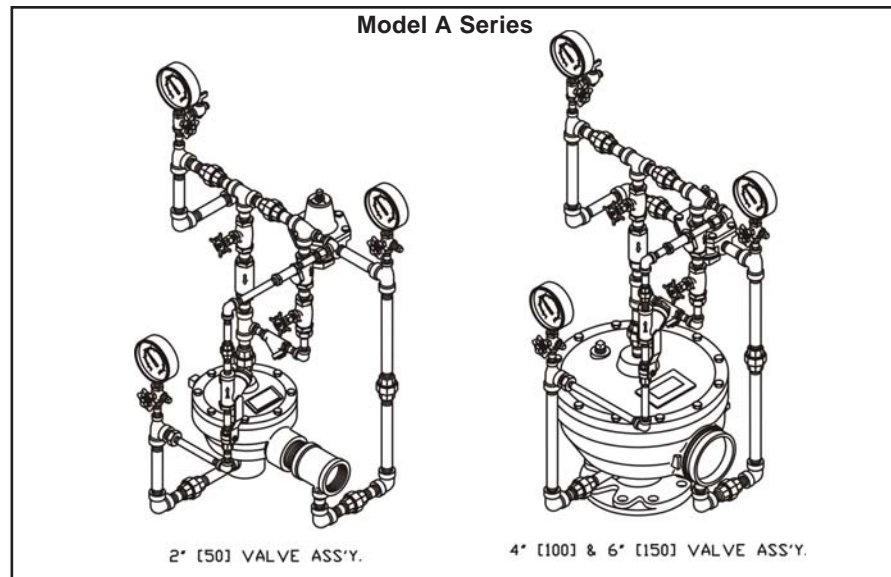
Fax: (269) 945-9599

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#### 3. PRODUCT DESCRIPTION

The Viking Pilot Operated Pressure Control Valves are a factory assembled unit. The galvanized unit consists of a Viking Model H-1 or J-1 Flow Control Valve, a Viking Speed Control Assembly or Speed Control Valve, a Viking Pilot Pressure Regulating Valve, and all necessary trim. The brass and stainless steel unit consists of a Viking Model H-2 or J-2 Flow Control Valve, a Viking Speed Control Assembly or Speed Control Valve, a Viking Pilot Pressure Regulating Valve, and all necessary trim. The Pilot Operated Pressure Control Valve is for use on wet sprinkler systems where it is necessary to reduce a higher inlet pressure to a lower delivery pressure and automatically maintain that pressure within a close limit, regardless of fluctuations in the higher pressure inlet line.

The Viking Pilot Operated Pressure Control Valves must be installed in accordance with local Authorities Having Jurisdiction, and Viking Technical Data referenced below.



Viking Pilot Operated Pressure Control Valves are to be installed in accordance with the Standard for Installation of Fire Sprinkler Systems, NFPA 13. Viking Pilot Operated Pressure Control Valves are to be tested after installation in accordance with NFPA 13.

Viking Pilot Operated Pressure Control Valves are to be inspected, tested and maintained in accordance with the Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems, NFPA 25.

Standard wet system riser equipment such as a Viking Check Valve, or Alarm Check Valve with appropriate trim and alarm attachments, are required (refer

to Figures 4, 5 or 6). Viking Pilot Operated Pressure Control Valve replacement parts are interchangeable.

#### 4. TECHNICAL DATA

##### LISTINGS AND APPROVALS

UL Listed Models A-2, B-1, B-2, B-3 & B-4 Category Guide VLMT

FM Approved Model B-1, B-2, B-3 & B-4 2-1/2" & 3" Not Listed or Approved Model H Angle Style Valve

90 degree pattern (inlet to outlet)

Model J Straight Through Style Valve  
Straight through pattern (inlet to outlet)

##### Connections available :

Angle Style Valve

	<h1 style="margin: 0;">TECHNICAL DATA</h1>	<h2 style="margin: 0;">PILOT OPERATED PRESSURE REGULATING VALVE</h2>
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See Chart 1 on page 534 g  
Straight Through Valve  
See Chart 2 on page 534 h or Chart 3  
on page 534 i

**Connection Specifications:**

Threaded openings: ANSI B2.1  
Flanges: ANSI B16.42 (150 lb.) flanges

**Water working pressure:**

Model H Angle Style Valve  
2" (DN50) Rated to 250 PSI  
(1 724 kPa)

4" (DN100) Rated to 175 PSI  
(1 207 kPa)

4" (DN100) Rated to 250 PSI  
(1 724 kPa) for Open Head  
Deluge Systems only

6" (DN150) Rated to 175 PSI  
(1 207 kPa)

6" (DN150) Rated to 250 PSI  
(1 724 kPa) for Open Head  
Deluge Systems only

Model J Straight Through Valve  
1-1/2" through 6"

Rated to 250 PSI (1 724 kPa)  
8" (DN200) Rated to 175 PSI  
(1 207 kPa)

8" (DN200) Rated to 250 PSI  
(1 724 kPa) for Open Head  
Deluge Systems only

Hydrostatically tested to 500 PSI  
(3 460 kPa) at factory

Color of Valve: Valve painted red for  
identification purposes. Halar®  
Coating is black for Models A-3,  
A-4, B-3 and B-4.

**Material Standards:**

Model H or J Flow Control Valves:

Refer to current Technical Data des-  
cribing the Viking Flow Control  
Valve used.

Model C-2 Pilot Pressure Regulating  
Valve:

Refer to current Technical Data des-  
cribing the Viking Pilot Pressure  
Regulating Valve.

Model A Speed Control Assembly:

Refer to current Technical Data des-  
cribing the Viking Speed Control  
Assembly.

**Speed Control:**

Model A Speed Control Assembly  
for use on Model A-2, A-3 & A-4  
Series Valves.

Speed Control Valve for use on  
Model B-1, B-2, B-3 & B-4 Series  
Valves.

**Accessories:**

A Viking Check Valve or Alarm Check  
Valve with appropriate trim and alarm  
attachments are required. Order sepa-

rately (refer to Figures 4, 5 or 6).

**Ordering Procedure:**

Viking Pilot Operated Pressure Control  
Valves are factory assembled and

VALVE SIZE	INLET TYPE	OUTLET TYPE	PIPE O.D. ACTUAL	FLANGE DRILLING	FRICTION LOSS	SHIPPING WEIGHT	PART NO.
<b>GALVANIZED - MODEL A-2</b>							
2" (DN50)	Thread	Thread	11.5 threads	N/A	See Note "A"	65 lbs. (29,5 kg)	10793
<b>3" Not UL Listed or FM Approved. Use for Deluge Applications only.</b>							
3" (DN80)	Flange	Groove	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	165 lbs. (71,8 kg)	10800
3" (DN80)	Flange	Flange	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	176 lbs. (79,8 kg)	10801
4" (DN100)	Flange	Groove	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	142 lbs. (64,4)	10794
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	153 lbs. (69,4 kg)	10795
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	DIN 2501/BS 4504 PN 10/16	See Note "A"	153 lbs. (69,4 kg)	10795FFPN10/16
6" (DN150)	Flange	Groove	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	266 lbs. (107,1 kg)	10806
6" (DN150)	Flange	Flange	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	266 lbs. (107,1 kg)	10807
6" (DN150)	Flange	Flange	6.500 in. 165.1 mm	DIN 2501/BS 4504 PN 10/16	See Note "A"	281 lbs. (125,5 kg)	10807FFPN10/16
<b>BRASS - MODEL A-3 - Halar® Coated Valve Body</b>							
2" (DN50)	Thread	Thread	11.5 threads	N/A	See Note "A"	65 lbs. (29,5 kg)	10798
4" (DN100)	Flange	Groove	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	142 lbs. (64,4)	10802
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	153 lbs. (69,4 kg)	10803
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	DIN 2501/BS 4504 PN 10/16	See Note "A"	153 lbs. (69,4 kg)	10803FFPN10/16
6" (DN150)	Flange	Groove	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	266 lbs. (107,1 kg)	11475
6" (DN150)	Flange	Flange	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	266 lbs. (107,1 kg)	11476
6" (DN150)	Flange	Flange	6.500 in. 165.1 mm	DIN 2501/BS 4504 PN 10/16	See Note "A"	281 lbs. (125,5 kg)	11476FFPN10/16
<b>STAINLESS STEEL - MODEL A-4 - Halar® Coated Valve Body</b>							
2" (DN50)	Thread	Thread	11.5 threads	N/A	See Note "A"	65 lbs. (29,5 kg)	11559
4" (DN100)	Flange	Groove	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	142 lbs. (64,4)	10804
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	153 lbs. (69,4 kg)	10805
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	DIN 2501/BS 4504 PN 10/16	See Note "A"	153 lbs. (69,4 kg)	10805FFPN10/16
6" (DN150)	Flange	Groove	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	266 lbs. (107,1 kg)	11477
6" (DN150)	Flange	Flange	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	266 lbs. (107,1 kg)	11478
6" (DN150)	Flange	Flange	6.500 in. 165.1 mm	DIN 2501/BS 4504 PN 10/16	See Note "A"	281 lbs. (125,5 kg)	11478FFPN10/16
<b>Note "A":</b> For friction loss, at full flow, refer to Tables 1 or 2 in the current Viking Technical Data page describing the Model C-2 Pilot Pressure Regulating Valve. Friction loss data provided there is expressed in equivalent length of pipe based on Hazen & Williams formula, C=120, and are for the Pilot Operated Pressure Control Valve only. They do NOT include friction loss for additional wet system riser equipment such as a Viking Check Valve or Alarm Check Valve.							

Chart 1



# TECHNICAL DATA

## PILOT OPERATED PRESSURE REGULATING VALVE

individually adjusted for pressure regulation. Factory set at 80 PSI.

### 5. OPERATION

System water supply pressure from the inlet chamber of the Flow Control Valve enters the Flow Control Valve priming chamber through the factory installed priming line and Viking Speed Control. Speed Control allows flow into and out of the priming chamber. Speed Control also allows flow out of the priming chamber and into the Viking Pilot Pressure Regulating Valve. Flow through the Pilot Pressure Regulating Valve is controlled by a regulating spring, which is field adjustable to the desired downstream pressure to be maintained. A sensing line connects

the system piping downstream of Flow Control Valve, to the outlet chamber of the Pilot Pressure Regulating Valve. When downstream pressure rises above the set point of spring, flow through the Pilot Pressure Regulating Valve is stopped. When downstream pressure falls below the set point of spring, flow through the valve resumes. The regulated flow through the Pilot Pressure Regulating Valve controls the pressure in the priming chamber of the Flow Control Valve to open or close the Flow Control Valve clapper as required to regulate downstream system pressure.

### 6. AVAILABILITY AND SERVICE

The Viking Pilot Operated Pressure Control Valve is available through a network of domestic, Canadian, and international distributors. See the Viking Web site or contact The Viking Corporation for closest distributor.

### 7. GUARANTEES

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

### 8. INSTALLATION

General Installation Instructions: The Viking Pilot Operated Pressure Control Valve Model H must be installed in the upright position only and the Model J must be installed in the horizontal or vertical position only and in an

VALVE SIZE	INLET TYPE	OUTLET TYPE	PIPE O.D. ACTUAL	FLANGE DRILLING	FRICTION LOSS	GALVANIZED (Model B-1)				BRASS (Model B-2)			
						SHIPPING WEIGHT		PART NUMBER		SHIPPING WEIGHT		PART NUMBER	
						HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
1-1/2" (DN40)	Thread	Thread	11.5 threads	N/A	See Note "A"	62 lbs. (28,1 kg)	64 lbs. (29,0 kg)	12774	12791	61 lbs. (27,6 kg)	64 lbs. (29,0 kg)	13313	13328
1-1/2" (DN40)	Groove	Groove	1.9 in. 48.2 mm	N/A	See Note "A"	61 lbs. (27,6 kg)	63 lbs. (28,6 kg)	12775	12792	60 lbs. (27,2 kg)	63 lbs. (28,6 kg)	13314	13329
2" (DN50)	Thread	Thread	11.5 threads	N/A	See Note "A"	63 lbs. (28,6 kg)	65 lbs. (29,5 kg)	12776	12793	62 lbs. (28,1 kg)	65 lbs. (29,5 kg)	13315	13330
2" (DN50)	Groove	Groove	2.375 in. 60.3 mm	N/A	See Note "A"	62 lbs. (28,1 kg)	64 lbs. (29,0 kg)	12777	12794	61 lbs. (27,6 kg)	64 lbs. (29,0 kg)	13316	13331
2-1/2" <sup>1</sup> (DN65)	Thread	Thread	2.875 in. 73.0 mm	ANSI B16.42 Class 150	See Note "A"	98 lbs. (44,5 kg)	95 lbs. (43,1 kg)	12778	12795	94 lbs. (29,0 kg)	96 lbs. (43,5 kg)	13317	13332
2-1/2" <sup>1</sup> (DN65)	Groove	Groove	2.875 in. 73.0 mm	ANSI B16.42 Class 150	See Note "A"	97 lbs. (44,0 kg)	94 lbs. (42,6 kg)	12779	12796	93 lbs. (42,2 kg)	95 lbs. (43,1 kg)	13318	13333
3" <sup>1</sup> (DN80)	Groove	Groove	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	96 lbs. (43,5 kg)	93 lbs. (42,2 kg)	12780	12797	91 lbs. (41,3 kg)	93 lbs. (42,2 kg)	13319	13334
3" <sup>1</sup> (DN80)	Flange	Groove	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	104 lbs. (47,2 kg)	101 lbs. (45,8 kg)	12781	12798	102 lbs. (46,3 kg)	104 lbs. (47,2 kg)	13320	13335
3" (DN80)	Flange	Flange	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	112 lbs. (50,8 kg)	109 lbs. (49,4 kg)	12782	12799	109 lbs. (49,4 kg)	111 lbs. (50,3 kg)	13321	13336
4" (DN100)	Groove	Groove	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	152 lbs. (68,9 kg)	157 lbs. (71,2 kg)	12783	12800	156 lbs. (70,7 kg)	158 lbs. (71,7 kg)	13322	13337
4" (DN100)	Flange	Groove	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	163 lbs. (73,9 kg)	168 lbs. (76,2 kg)	12784	12801	165 lbs. (74,8 kg)	167 lbs. (75,7 kg)	13323	13338
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	173 lbs. (78,5 kg)	178 lbs. (80,7 kg)	12785	12802	175 lbs. (79,4 kg)	177 lbs. (80,3 kg)	13324	13339
6" (DN150)	Groove	Groove	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	272 lbs. (123,4 kg)	273 lbs. (123,8 kg)	12786	12803	278 lbs. (126,1 kg)	276 lbs. (125,2 kg)	13325	13340
6" (DN150)	Flange	Groove	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	288 lbs. (130,6 kg)	289 lbs. (131,1 kg)	12787	12804	294 lbs. (133,3 kg)	292 lbs. (132,4 kg)	13326	13341
6" (DN150)	Flange	Flange	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	298 lbs. (135,2 kg)	299 lbs. (135,6 kg)	12788	12805	304 lbs. (137,9 kg)	302 lbs. (137,0 kg)	13327	13342
8" (DN200)	Groove	Groove	8.625 in. 219.1 mm	ANSI B16.42 Class 150	See Note "A"	434 lbs. (196,8 kg)	431 lbs. (195,5 kg)	12789	12806	436 lbs. (197,7 kg)	433 lbs. (196,4 kg)	13343	13345
8" (DN200)	Flange	Flange	8.625 in. 219.1 mm	ANSI B16.42 Class 150	See Note "A"	497 lbs. (225,4 kg)	494 lbs. (224,1 kg)	12790	12807	499 lbs. (226,3 kg)	496 lbs. (225,0 kg)	13344	13346

**Note "A":**

For friction loss, at full flow, refer to Figure 4 in the current Viking Technical Data page describing the Model C-2 Pilot Pressure Regulating Valve. Friction loss data provided there is expressed in equivalent length of pipe based on Hazen & Williams formula, C=120, and are for the Pilot Operated Pressure Control Valve only. They do NOT include friction loss for additional wet system riser equipment such as a Viking Check Valve or Alarm Check Valve.

<sup>1</sup> Not UL Listed or FM Approved. Use for Deluge Systems Only.

Chart 2



# TECHNICAL DATA

## PILOT OPERATED PRESSURE REGULATING VALVE

area not subject to freezing temperatures or physical damage. The valve is for use with fresh water. When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Pilot Operated Pressure Control Valve and associated equipment.

**Inlet/Outlet Pressures:**

The difference between the water supply pressure and the desired outlet (downstream) pressure should be greater than 20 PSI (138 kPa) to maintain accurate control of discharge pressure. Refer to the Cavitation and Operating Chart in the Technical Data page describing the Viking Model C-2 Pilot Pressure Regulating Valve<sup>1</sup> for proper operating range of pressure reduction and flow. To accomplish large pressure reductions indicated by the shaded portion of the Cavitation and Operating Chart, and avoid cavitation, pressure

reduction should be taken in two stages using two Pilot Operated Pressure Regulating Valves arranged in series as shown in Figure 2.

For pressures above 175 PSI, the heavy spring (P/N 09200) must be used.

Caution: Due to the flow regulating characteristic of this device, its impact on system hydraulics should be carefully considered, especially when retrofitted onto existing systems.

**Regulating Spring Options:**

The Pilot Pressure Regulating Valve is factory assembled and shipped with a regulating spring for use where the desired discharge pressure is 80 to 150 psi (552 kPa to 1 034 kPa). If the desired discharge pressure is below that range, the factory-installed spring must be removed and the appropriate regulating spring installed. For regulating spring pressure range options, part numbers, and identification, see Table

1 or 2 on the Technical Data page 531e-I describing the Viking Model C-2 Pilot Pressure Regulating Valve. To replace the factory-installed regulating spring, refer to step D of paragraph 10. INSPECTIONS, TESTS, and MAINTENANCE on the Model C-2 Pilot Pressure Regulating Valve Technical Data page.

**Trim:**

The factory-connected priming line is supplied from the inlet chamber of the Flow Control Valve.

All water released from the priming chamber of the Flow Control Valve must pass through the Pilot Pressure Regulating Valve for regulation to occur. For proper operation and approval, DO NOT modify the factory-installed trim arrangement.

Wet system riser components, including a listed check valve or alarm check valve with appropriate trim and alarm

VALVE SIZE	INLET TYPE	OUTLET TYPE	PIPE O.D. ACTUAL	FLANGE DRILLING	FRICTION LOSS	BRASS W/HALAR BODY (Model B-3)				STAINLESS STEEL W/HALAR BODY (Model B-4)			
						SHIPPING WEIGHT		PART NUMBER		SHIPPING WEIGHT		PART NUMBER	
						HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
1-1/2" (DN40)	Groove	Groove	1.9 in. 48.2 mm	N/A	See Note "A"	61 lbs. (27,6 kg)	63 lbs. (28,6 kg)	13518	13532	61 lbs. (27,6 kg)	63 lbs. (28,6 kg)	13548	13562
2" (DN50)	Groove	Groove	2.375 in. 60.3 mm	N/A	See Note "A"	62 lbs. (28,1 kg)	64 lbs. (29,0 kg)	13519	13533	62 lbs. (28,1 kg)	64 lbs. (29,0 kg)	13549	13563
2-1/2" <sup>1</sup> (DN65)	Groove	Groove	2.875 in. 73.0 mm	ANSI B16.42 Class 150	See Note "A"	97 lbs. (44,0 kg)	94 lbs. (42,6 kg)	13520	13534	97 lbs. (44,0 kg)	94 lbs. (42,6 kg)	13550	13564
3" <sup>1</sup> (DN80)	Groove	Groove	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	96 lbs. (43,5 kg)	93 lbs. (42,2 kg)	13521	13535	96 lbs. (43,5 kg)	93 lbs. (42,2 kg)	13551	13565
3" <sup>1</sup> (DN80)	Flange	Groove	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	104 lbs. (47,2 kg)	101 lbs. (45,8 kg)	13522	13536	104 lbs. (47,2 kg)	101 lbs. (45,8 kg)	13552	13566
3" (DN80)	Flange	Flange	3.500 in. 88.9 mm	ANSI B16.42 Class 150	See Note "A"	112 lbs. (50,8 kg)	109 lbs. (49,4 kg)	13523	13537	112 lbs. (50,8 kg)	109 lbs. (49,4 kg)	13553	13567
4" (DN100)	Groove	Groove	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	152 lbs. (68,9 kg)	157 lbs. (71,2 kg)	13524	13538	152 lbs. (68,9 kg)	157 lbs. (71,2 kg)	13554	13568
4" (DN100)	Flange	Groove	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	163 lbs. (73,9 kg)	168 lbs. (76,2 kg)	13525	13539	163 lbs. (73,9 kg)	168 lbs. (76,2 kg)	13555	13569
4" (DN100)	Flange	Flange	4.500 in. 114.3 mm	ANSI B16.42 Class 150	See Note "A"	173 lbs. (78,5 kg)	178 lbs. (80,7 kg)	13526	13540	173 lbs. (78,5 kg)	178 lbs. (80,7 kg)	13556	13570
6" (1DN50)	Groove	Groove	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	272 lbs. (123,4 kg)	273 lbs. (123,8 kg)	13527	13541	272 lbs. (123,4 kg)	273 lbs. (123,8 kg)	13557	13571
6" (1DN50)	Flange	Groove	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	288 lbs. (130,6 kg)	289 lbs. (131,1 kg)	13528	13542	288 lbs. (130,6 kg)	289 lbs. (131,1 kg)	13558	13572
6" (1DN50)	Flange	Flange	6.625 in. 168.3 mm	ANSI B16.42 Class 150	See Note "A"	298 lbs. (135,2 kg)	299 lbs. (135,6 kg)	13529	13543	298 lbs. (135,2 kg)	299 lbs. (135,6 kg)	13559	13573
8" (DN200)	Groove	Groove	8.625 in. 219.1 mm	ANSI B16.42 Class 150	See Note "A"	434 lbs. (196,8 kg)	431 lbs. (195,5 kg)	13530	13544	434 lbs. (196,8 kg)	431 lbs. (195,5 kg)	13560	13574
8" (DN200)	Flange	Flange	8.625 in. 219.1 mm	ANSI B16.42 Class 150	See Note "A"	497 lbs. (225,4 kg)	494 lbs. (224,1 kg)	13531	13545	497 lbs. (225,4 kg)	494 lbs. (224,1 kg)	13561	13575

**Note "A":**

For friction loss, at full flow, refer to Figure 4 in the current Viking Technical Data page describing the Model C-2 Pilot Pressure Regulating Valve. Friction loss data provided there is expressed in equivalent length of pipe based on Hazen & Williams formula, C=120, and are for the Pilot Operated Pressure Control Valve only. They do NOT include friction loss for additional wet system riser equipment such as a Viking Check Valve or Alarm Check Valve.

<sup>1</sup> Not UL Listed or FM Approved. Use for Deluge Systems Only.

Chart 3



# TECHNICAL DATA

## PILOT OPERATED PRESSURE REGULATING VALVE

devices, must be connected to the outlet of the Pilot Operated Pressure Control Valve (refer to Figures 4 - 6). Install all components according to current technical data and trim charts for the equipment used.

A 1/2" pressure relief valve<sup>1</sup> is installed on the outlet chamber of the Model B pilot operated pressure control valve. The pressure relief valve shall be set 10 PSIG higher than Pilot Pressure Regulating Valve. It may be necessary to remove the relief valve before hydrostatic testing is performed.

<sup>1</sup> Larger pressure relief valve may be required downstream of the POPCV. Consult Installation Standards and the Authority Having Jurisdiction.

### Hydrostatic Testing:

The Viking Pilot Operated Pressure Control Valve has been hydrostatically tested to 500 PSI (3 460 kPa) at the factory. The assembly is rated for use up to 250 PSI (1 724 kPa) water working pressure. When performing hydrostatic testing for system acceptance purposes, comply with recommendations set forth in the Installation Standards.

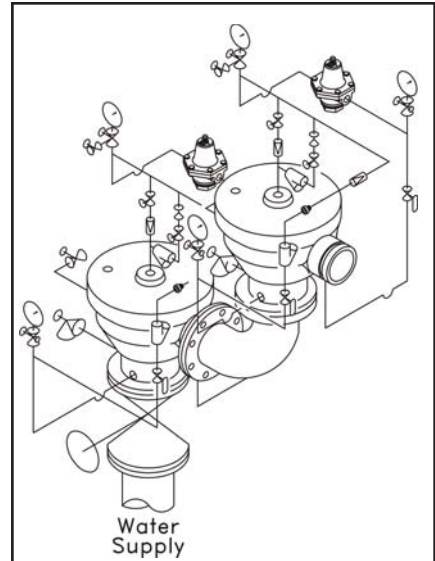
### 9. PLACING THE VALVE IN SERVICE

(Refer to Figures 4-6.)

1. Verify that the Pilot Operated Pressure Control Valve is trimmed according to current Viking schematic drawings (refer to Figures 4, 5 & 6) and that all riser

components and alarm devices have been installed and tested according to current technical data and trim charts.

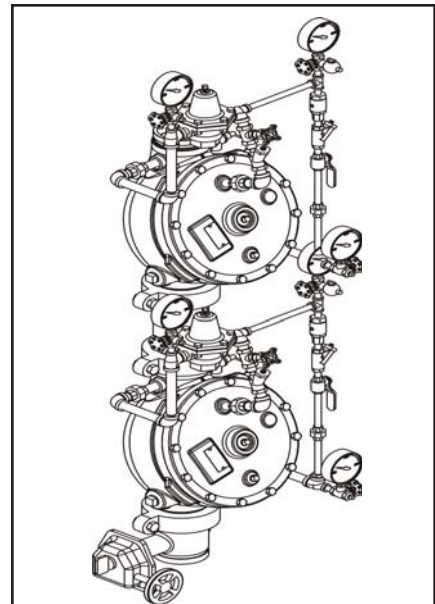
2. Verify that the Pilot Pressure Regulating Valve is equipped with the regulating spring appropriate for the desired downstream pressure.
3. Verify that auxiliary drains are closed and the system is free of leaks.
4. Open the system (inspector's) test valve, and any auxiliary vents provided to facilitate removal of air from the system to allow air to escape from the system while it is filling with water.
5. Open the priming valve (B.2) to pressurize the priming chamber with water supply pressure.
6. If optional shut-off valve (B.11 or B.13) is provided, verify that it is OPEN and locked.
7. Slowly open the water supply main control valve (C.1).
8. Allow the system to completely fill with water. Allow water to flow from the system test valve, and any other open vents provided, until all air is exhausted from the system.
9. After all air is exhausted from the system, close the system test valve and all other open vents.
10. To ensure smooth regulation, all air must be removed from the priming



### Model A Series

For two-stage pressure reduction, two Pilot Operated Pressure Regulating Valves may be connected in series. Maintain upright position of both valves.

**Figure 1**

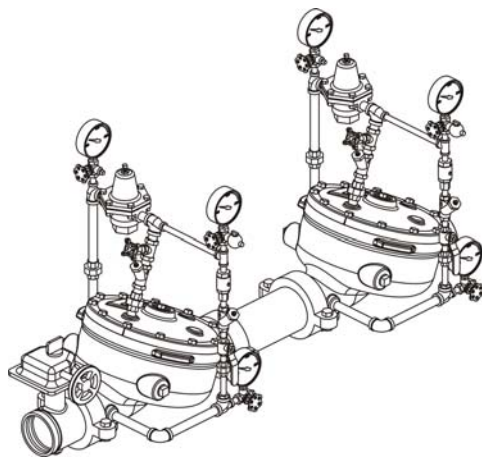


### Model B Series

For two-stage pressure reduction, two Pilot Operated Pressure Regulating Valves may be connected in series. Maintain upright position of both valves.

### VERTICAL VALVES IN SERIES

**Figure 3**



### Model B Series

For two-stage pressure reduction, two Pilot Operated Pressure Regulating Valves may be connected in series. Maintain upright position of both valves.

### HORIZONTAL VALVES IN SERIES

**Figure 2**



## TECHNICAL DATA

### PILOT OPERATED PRESSURE REGULATING VALVE

chamber of the Flow Control Valve.

- a. Temporarily open the air bleed-off valve (B.7) (water will flow from the opening).
  - b. Close the bleed-off valve after air is expelled.
11. Secure all valves in their normal operating position.
  12. Notify the Authority Having Jurisdiction, remote station alarm monitors, and those in the affected area that the system is in service.
- Verify Downstream Pressure Setting:  
It is recommended that the desired discharge pressure of the system be tested (and when necessary, adjusted) with a minimum flow of 25 GPM (95 LPM) or greater flowing through the Flow Control Valve. The system main drain valve (E.4 or F.4), located downstream from the clapper of the check valve on the system riser, can be used for this purpose.
13. OPEN the main drain (E.4 or F.4) located downstream from the check valve in the system riser.
  14. Establish a minimum flow of 25 GPM (95 LPM) or greater and observe the downstream pressure gauge.
  15. If a surging flow occurs, repeat step 10 above. If surging continues, adjust speed control assembly or speed control valve (B.6). If necessary, refer to adjustment instructions provided in current Technical Data describing the Viking Pilot Pressure Regulating Valve.
  16. If adjustment of the Speed Control Assembly is necessary, refer to adjustment instructions printed in current Technical Data describing the Viking Speed Control Assembly. If adjustment of Speed Control Valve is necessary, closing the valve will slow the surges.
  17. CLOSE the system main drain (E.4 or F.4) opened in step 12 above.

NOTE: The pressure gauge installed on outlet piping from the Pilot Pressure Regulating Valve may indicate static pressure higher than 50 PSI above the outlet "set" pressure determined above. This is due to changes in flow velocity that may occur when flow through the system is stopped. Actual "set" pressure should not be affected.

18. Record "set" pressure in the

space provided on the Regulating Spring Identification Tag provided.

19. Verify:
  - a. The water supply main control valve (C.1) is fully OPEN and properly locked or supervised.
  - b. The priming valve (B.2) is fully OPEN and secure.
  - c. If optional shut-off valve (B.11 or B.13) is provided, verify that it is OPEN and secure.
  - d. If an alarm valve and trim are provided, the alarm test valve is in the normal (ALARM) position (see trim chart).
  - e. Alarms are operational and in service.
  - f. All other valves are in their normal operating position and secure.
  - g. Equipment is adequately heated and protected to prevent freezing and physical damage.

#### 10. INSPECTIONS, TESTS AND MAINTENANCE

NOTE: Valves are to be set to provide outlet pressures and flows, and are to be tested after installation in accordance with NFPA 13, and tested periodically thereafter in accordance with NFPA 25.

NOTICE: The owner is responsible for maintaining the fire protection system and devices in proper operating condition. The Pilot Operated Pressure Control Valve must be kept from freezing conditions and physical damage that could impair its operation.

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

It is imperative that the system be inspected and tested on a regular basis. The frequency of the inspections may vary due to contaminated water supplies, corrosive water supplies, or corrosive atmospheres. Also, the alarm devices, detection systems, or other connected trim may require a more frequent schedule. For minimum maintenance and inspection

requirements, refer to the National Fire Protection Association's pamphlet that describes care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

The following recommendations are minimum requirements for inspection, testing, and maintenance of the Viking Pilot Operated Pressure Control Valve. For minimum maintenance, testing, and inspection requirements for Viking Check Valves, Alarm Check Valves, associated trim and alarm attachments, refer to current Technical Data for the equipment used.

#### 10-A. INSPECTION

##### Monthly:

Monthly visual external inspection of the Pilot Operated Pressure Control Valve assembly is recommended.

1. Verify that pressure gauges indicate normal water supply pressures.
- NOTE: The pressure gauge installed on outlet piping from the Pilot Pressure Regulating Valve (B.10) may indicate static pressure approximately 8 to 10 PSIG higher than the outlet "set" pressure determined above. This is due to changes in flow velocity that may occur when flow through the system is stopped. Actual "set" pressure should not be affected.

2. Verify that the water supply main control valve is open and all valves are in their normal operating position and appropriately secured.
3. Check for signs of mechanical damage, leakage, and/or corrosive activity. If detected, perform maintenance as required. If necessary, replace the device.
4. Verify that valve and trim are adequately heated and protected from freezing and physical damage.

#### 10-B. TESTS

##### Quarterly:

Quarterly testing of water flow alarms and performance of a Main Drain Test is recommended and may be required by the Authority Having Jurisdiction. Refer to current Technical Data describing the Viking Alarm Check Valve, trim, and/or alarm attachments used.



## TECHNICAL DATA

### PILOT OPERATED PRESSURE REGULATING VALVE

#### Annually:

Annually, it is recommended that the desired discharge pressure of the system be tested (and when necessary, adjusted) with a minimum flow of 25 GPM (95 LPM) or greater flowing through the Flow Control Valve.

1. Perform steps 13 through 17 of paragraph 9. **PLACING THE VALVE IN SERVICE.**
2. Compare pressure and flow performance with original installation and/or acceptance tests. If changes are detected, take appropriate steps to establish the desired downstream pressure and flow.
3. Record and/or provide notification of test results as required by the Authority Having Jurisdiction.

#### Every Fifth Year

1. Internal inspection of Flow Control Valves is recommended every five years unless inspections and tests indicate more frequent internal inspections are required. Refer to Technical Data describing the Viking Flow Control Valve.
2. Internal inspection of strainers, restricted orifices, and diaphragm chambers is recommended every five years unless inspections and tests indicate more frequent internal inspections are required. For strainer disassembly and maintenance instructions, refer to Technical Data describing the Viking Pilot Pressure Regulating Valve and/or the Viking Speed Control Assembly.
3. Record and provide notification of

inspection results as required by the Authority Having Jurisdiction.

#### After Each Operation:

Sprinkler systems that have been subjected to a fire must be returned to service as soon as possible. The entire system must be inspected for damage, and repaired or replaced as necessary.

#### 10-C. MAINTENANCE

Model H-1/ H-2 or Model J-1/J-2 Flow Control Valve: Refer to current Technical Data describing the Viking Flow Control Valve used.

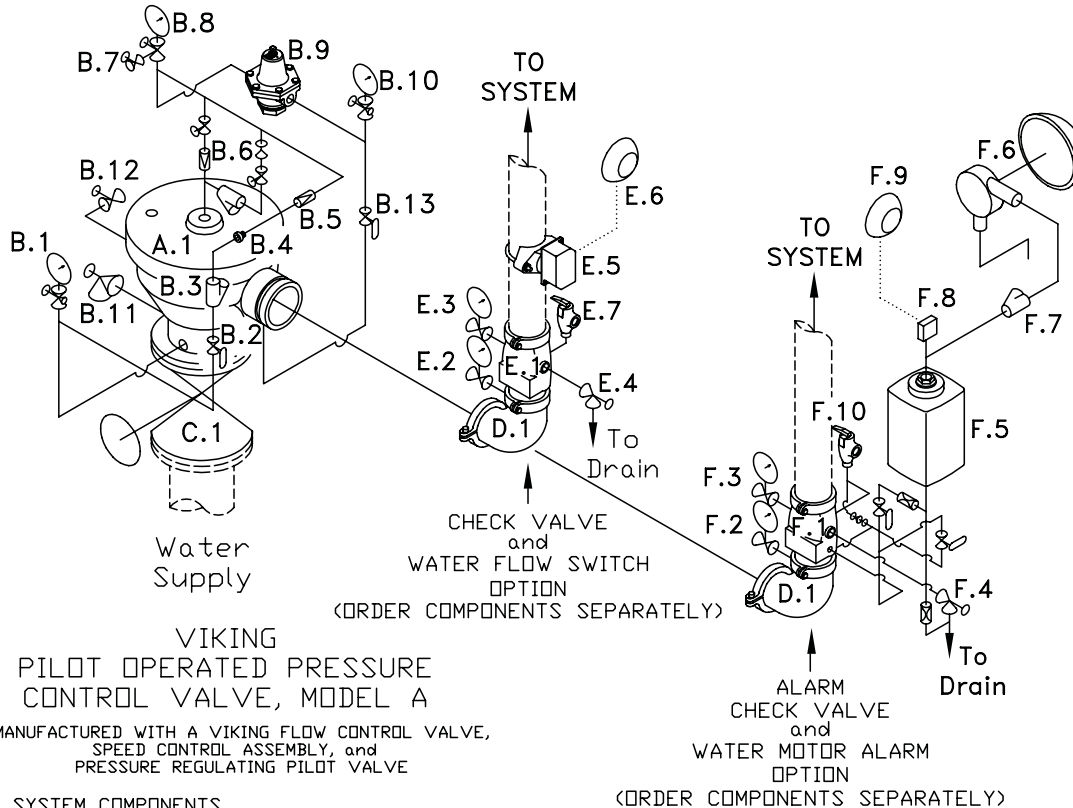
Model C-2 Pilot Pressure Regulating Valve: Refer to current Technical Data describing the Viking Pilot Pressure Regulating Valve.

Model A Speed Control Assembly: Refer to current Technical Data describing the Viking Speed Control Assembly.

# VIKING®

## TECHNICAL DATA

### PILOT OPERATED PRESSURE REGULATING VALVE



- A. Valve\***  
A.1 Viking Flow Control Valve
- B. Trim**  
B.1 Water Supply Pressure Gauge and Valve  
B.2 Priming Valve (Normally Open)  
B.3 Strainer  
B.4 1/8" Restriction  
B.5 Spring Loaded Check Valve  
B.6 Viking Speed Control Assembly  
B.7 Air Bleed-Off Valve (Normally Closed)  
B.8 Water Pressure Gauge and Valve  
B.9 Viking Model C-1 Pilot Pressure Regulating Valve  
B.10 Outlet Pressure Gauge and Valve  
B.11 Flow Test Valve (Normally Closed)  
B.12 Auxiliary Drain Valve (Normally Closed)  
B.13 Optional Shut-Off Valve (Normally Locked Open)
- C. Water Supply**  
C.1 Water Supply Control Valve (Normally Open)
- D. Riser**  
D.1 90° Ell. (Grooved Ell Shown. Flow Control Valve also available with Flanged Outlet.)

Dashed lines indicate pipe required but not listed in "System Components" Table.

Dotted lines indicate electrical detection system wiring required but not listed in "System Components" Table. For additional wiring requirements, refer to technical data for components used.

\* Viking Pilot Operated Pressure Control Valve is Factory trimmed and shipped complete with items A-1 and B.1 through B.12 installed.

Order Water Supply Control Valve and components listed for Riser Equipment, Check Valve and Flow Switch option and Alarm Check Valve or Water Motor Alarm equipment separately.

- E. Check Valve and Flow Switch Option**  
E.1 Easy Riser Check Valve (or rubber seated check valve) (Grooved Valve shown for clarity)  
E.2 Supply Water Pressure Gauge and Valve  
E.3 System Water Pressure Gauge and Valve  
E.4 System Main Drain Valve  
E.5 Waterflow Switch  
E.6 Electric Alarm Bell  
E.7 Pressure Relief Valve
- F. Alarm Check Valve and Water Motor Alarm Option**  
F.1 Viking Alarm Check Valve (Grooved Valve shown for clarity)  
F.2 Supply Water Pressure Gauge and Valve  
F.3 System Water Pressure Gauge and Valve  
F.4 Vertical Alarm Valve Trim Includes Main Drain Valve  
F.5 Retard Chamber  
F.6 Water Motor Alarm (Strainer Required) and Alarm Gong  
F.7 3/4" (20 mm) Strainer  
F.8 Alarm Pressure Switch. (Note: Circuit Closer Vent Trim is required when an Alarm Pressure Switch is installed on a Retard Chamber if a Water Motor Alarm is NOT used.)  
F.9 Electric Alarm Bell  
F.10 Pressure Relief Valve (3/4 x 1/2 x 3/4 Tee Required.)

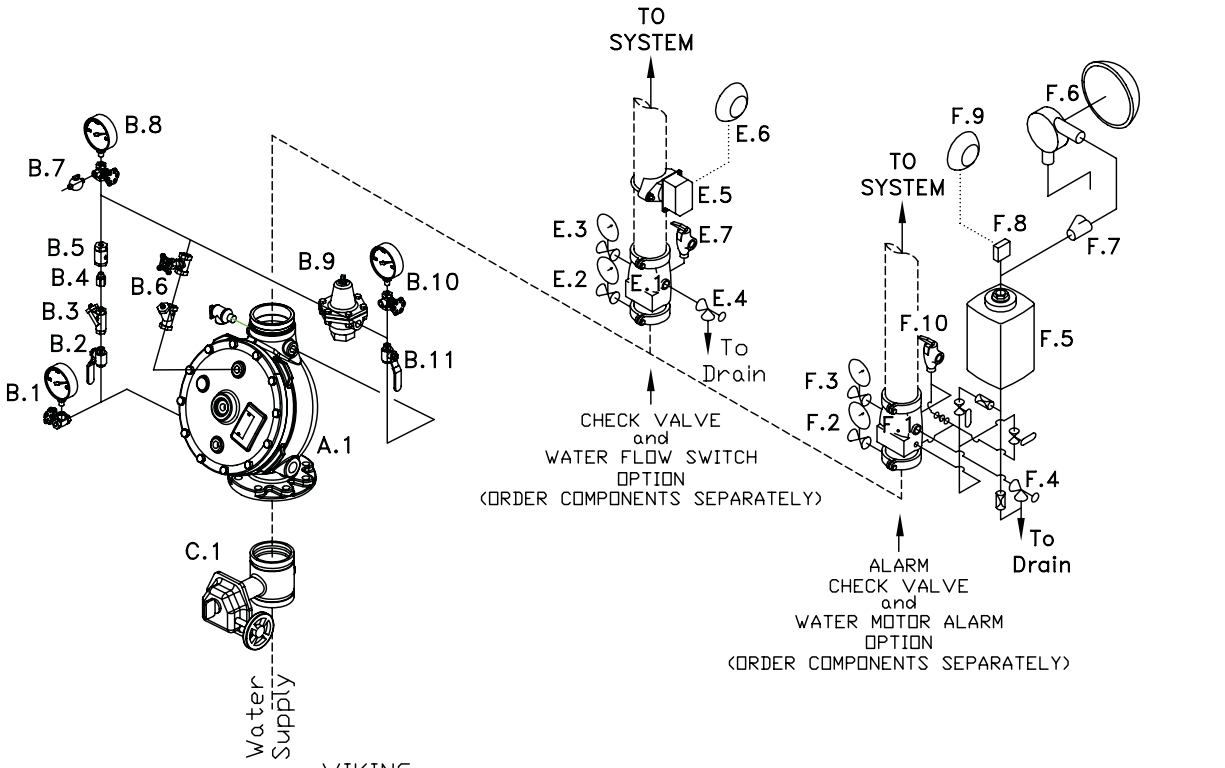
**Figure 4**  
**Angle Valve - Model A Series**  
**Pilot Operated Pressure Control Valve System Schematic Drawing**





**TECHNICAL DATA**

**PILOT OPERATED  
PRESSURE REGULATING  
VALVE**



**VIKING  
PILOT OPERATED PRESSURE  
CONTROL VALVE, MODEL B**

MANUFACTURED WITH A VIKING FLOW CONTROL VALVE,  
SPEED CONTROL ASSEMBLY, and  
PRESSURE REGULATING PILOT VALVE

**SYSTEM COMPONENTS**

- A. Valve\*
  - A.1 Viking Flow Control Valve
- B. Trim
  - B.1 Water Supply Pressure Gauge and Valve
  - B.2 Priming Valve (Normally Open)
  - B.3 Strainer
  - B.4 1/8" Restriction
  - B.5 Spring Loaded Check Valve
  - B.6 Viking Speed Control Valve
  - B.7 Air Bleed-Off Valve (Normally Closed)
  - B.8 Water Pressure Gauge and Valve
  - B.9 Viking Model C-2 Pilot Pressure Regulating Valve
  - B.10 Outlet Pressure Gauge and Valve
  - B.11 Optional Shut-Off Valve (Normally Locked Open)
- C. Water Supply
  - C.1 Water Supply Control Valve (Normally Open)

- E. Check Valve and Flow Switch Option
  - E.1 Easy Riser Check Valve (or rubber seated check valve) (Grooved Valve shown for clarity)
  - E.2 Supply Water Pressure Gauge and Valve
  - E.3 System Water Pressure Gauge and Valve
  - E.4 System Main Drain Valve
  - E.5 Waterflow Switch
  - E.6 Electric Alarm Bell
  - E.7 Pressure Relief Valve
- F. Alarm Check Valve and Water Motor Alarm Option
  - F.1 Viking Alarm Check Valve (Grooved Valve shown for clarity)
  - F.2 Supply Water Pressure Gauge and Valve
  - F.3 System Water Pressure Gauge and Valve
  - F.4 Vertical Alarm Valve Trim (Includes Main Drain Valve)
  - F.5 Retard Chamber
  - F.6 Water Motor Alarm (Strainer Required) and Alarm Gong
  - F.7 3/4" (20 mm) Strainer
  - F.8 Alarm Pressure Switch. (Note: Circuit Closer Vent Trim is required when an Alarm Pressure Switch is installed on a Retard Chamber if a Water Motor Alarm is NOT used.)
  - F.9 Electric Alarm Bell
  - F.10 Pressure Relief Valve (3/4 x 1/2 x 3/4 Tee Required.)

--- Dashed lines indicate pipe required but not listed in "System Components" Table.

..... Dotted lines indicate electrical detection system wiring required but not listed in "System Components" Table. For additional wiring requirements, refer to technical data for components used.

\* Viking Pilot Operated Pressure Control Valve is Factory trimmed and shipped complete with items A-1 and B.1 through B.12 installed.

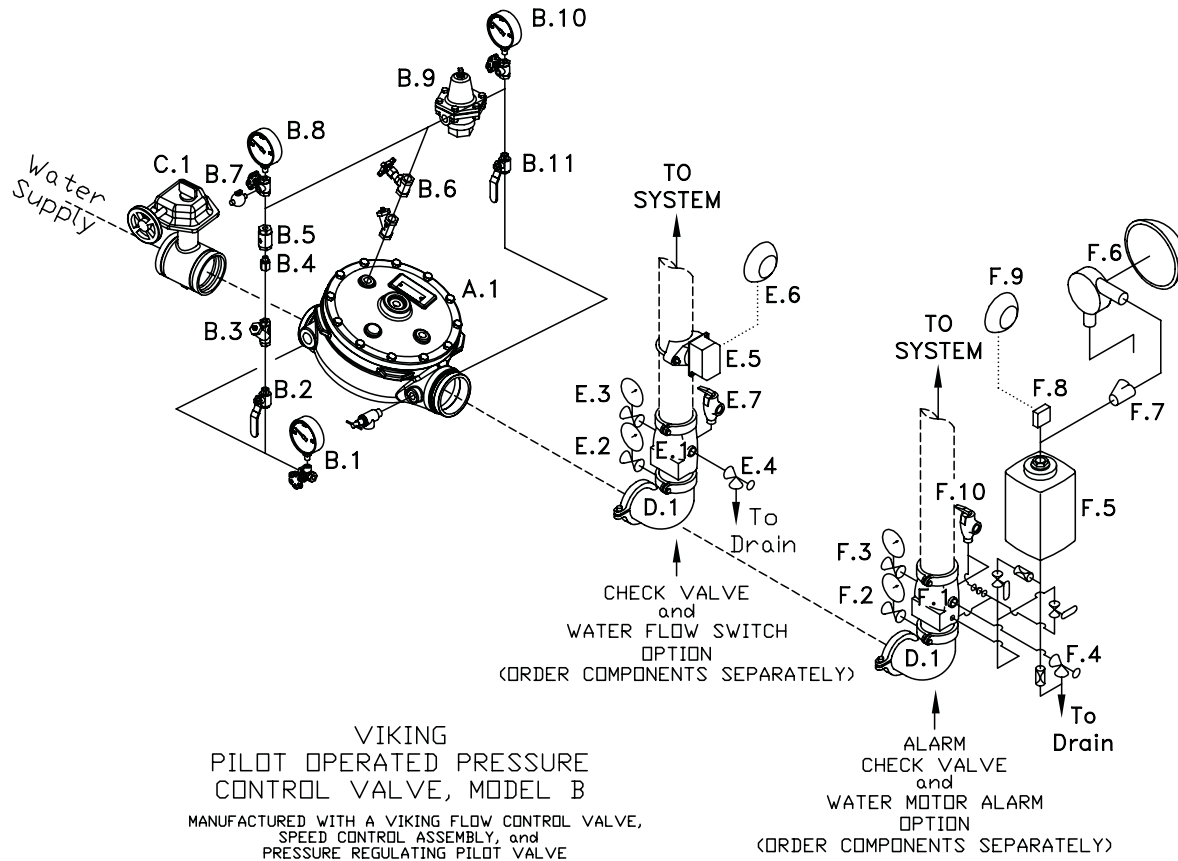
Order Water Supply Control Valve and components listed for Riser Equipment, Check Valve and Flow Switch option and Alarm Check Valve or Water Motor Alarm equipment separately.

**Figure 5  
Vertical Straight Through Valve - Model B Series  
Pilot Operated Pressure Control Valve System Schematic Drawing**



**TECHNICAL DATA**

**PILOT OPERATED  
PRESSURE REGULATING  
VALVE**



**VIKING  
PILOT OPERATED PRESSURE  
CONTROL VALVE, MODEL B**  
MANUFACTURED WITH A VIKING FLOW CONTROL VALVE,  
SPEED CONTROL ASSEMBLY, and  
PRESSURE REGULATING PILOT VALVE

**SYSTEM COMPONENTS**

- A. Valve\*
  - A.1 Viking Flow Control Valve
- B. Trim
  - B.1 Water Supply Pressure Gauge and Valve
  - B.2 Priming Valve (Normally Open)
  - B.3 Strainer
  - B.4 1/8" Restriction
  - B.5 Spring Loaded Check Valve
  - B.6 Viking Speed Control Valve
  - B.7 Air Bleed-Off Valve (Normally Closed)
  - B.8 Water Pressure Gauge and Valve
  - B.9 Viking Model C-2 Pilot Pressure Regulating Valve
  - B.10 Outlet Pressure Gauge and Valve
  - B.11 Optional Shut-Off Valve (Normally Locked Open)
- C. Water Supply
  - C.1 Water Supply Control Valve (Normally Open)
- D. Riser
  - D.1 90° Ell. (Grooved Ell Shown. Flow Control Valve also available with Flanged Outlet.)

--- Dashed lines indicate pipe required but not listed in "System Components" Table.

..... Dotted lines indicate electrical detection system wiring required but not listed in "System Components" Table. For additional wiring requirements, refer to technical data for components used.

\* Viking Pilot Operated Pressure Control Valve is Factory trimmed and shipped complete with items A-1 and B.1 through B.12 installed.

Order Water Supply Control Valve and components listed for Riser Equipment, Check Valve and Flow Switch option and Alarm Check Valve or Water Motor Alarm equipment separately.

- E. Check Valve and Flow Switch Option
  - E.1 Easy Riser Check Valve (or rubber seated check valve) (Grooved Valve shown for clarity)
  - E.2 Supply Water Pressure Gauge and Valve
  - E.3 System Water Pressure Gauge and Valve
  - E.4 System Main Drain Valve
  - E.5 Waterflow Switch
  - E.6 Electric Alarm Bell
  - E.7 Pressure Relief Valve
- F. Alarm Check Valve and Water Motor Alarm Option
  - F.1 Viking Alarm Check Valve (Grooved Valve shown for clarity)
  - F.2 Supply Water Pressure Gauge and Valve
  - F.3 System Water Pressure Gauge and Valve
  - F.4 Vertical Alarm Valve Trim Includes Main Drain Valve
  - F.5 Retard Chamber
  - F.6 Water Motor Alarm (Strainer Required) and Alarm Gong
  - F.7 3/4" (20 mm) Strainer
  - F.8 Alarm Pressure Switch. (Note: Circuit Closer Vent Trim is required when an Alarm Pressure Switch is installed on a Retard Chamber if a Water Motor Alarm is NOT used.)
  - F.9 Electric Alarm Bell
  - F.10 Pressure Relief Valve (3/4 x 1/2 x 3/4 Tee Required.)

**Figure 6  
Horizontal Straight Through Valve - Model B Series  
Pilot Operated Pressure Control Valve System Schematic Drawing**

Note: Units of measure in parentheses may be approximations.  
Form No. F\_100699

Replaces page 534f-j, dated March 15, 2005  
(Added reference to straight through valves.)