



TECHNICAL DATA

IN-LINE BALANCED PRESSURE PROPORTIONER

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

1. DESCRIPTION

The Viking In-Line Balanced Proportioner (ILBP) is a foam proportioning device which is used to balance the higher foam pressure to the lower water pressure on a Viking Low Flow Foam System or foam pump proportioning system. The device comes equipped with a balanced spool type balancing valve, brass swing check valve, duplex gauge which indicates both water pressure (black needle) and foam pressure (red needle), flexible braided sensing lines, and the interconnecting brass nipples as indicated on the detailed drawings.



2. LISTINGS AND APPROVALS

UL Listed - Guide GHXV

Please note that this device is a required component of the Viking Low Flow Foam System, and has been tested and approved for system applications using the Viking Low Flow Foam System and Foam Concentrates shown in Table 1. This device has also passed UL Testing for use with Foam Pump Systems. Refer to Table 1 for flow information.

3. TECHNICAL DATA

Specifications:

- Foam concentrate inlet pressure must be minimum 15 PSI higher than water inlet pressure and max 50 PSI higher at concentrate controller (10).
- Each ILBP shall include 4-5 pipe diameters of straight pipe unobstructed upstream and downstream of concentrate controller (10).
- ILBP may be installed vertical or horizontal.
- Maximum foam inlet pressure, 200 PSI
- For hydraulic loss due to flow, see Figure 2.
- Foam concentrate supply shall include a manual full port ball valve and Viking Model E-2/F-2 Deluge Valve or Model H-2/J-2 Flow Control Valve for automatic operation. See system drawing for detail.
- Foam concentrate line size may require being increased over inlet size "D" due to friction loss in piping from riser to foam source.
- A foam concentrate supply pressure gauge is recommended adjacent to inlet of connection "D".
- If installed in a horizontal header, the check valve (3) must be oriented so that the clapper is perpendicular to the floor and access hole is facing up.

Table 1 - Specifications

ILBP							
Size	Chemguard Model No.	Viking Part Number	Nominal Flow Rate GPM (LPM)		Inlet Connection Size	Required Foam Concentrate	Viking Base Part Number
			MIN	MAX			
3"	CVILBP-3	F20636A	203 (768)	774 (2930)	1-1/4"	C1B 1% AFFF	F20717
		F20636B	221 (837)	763 (2888)		C3B 3% AFFF	F20718
		F20636C	209 (791)	795 (3009)		C306-MS 3% AFFF	F20719
		F20636H	199 (753)	770 (2915)		C2 2% High Expansion	F20721
		F20636J	217 (821)	778 (2945)		C334-LV 3% AR-AFFF	F20722
4"	CVILBP-4	F20637A	286 (1083)	1342 (5080)	1-1/2"	C1B 1% AFFF	F20717
		F20637B	346 (1310)	1419 (5371)		C3B 3% AFFF	F20718
		F20637C	327 (1238)	1416 (5360)		C306-MS 3% AFFF	F20719
		F20637H	291 (1102)	1222 (4626)		C2 2% High Expansion	F20721
		F20637J	394 (1491)	1348 (5103)		C334-LV 3% AR-AFFF	F20722

Table continues on next page.



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Table 1 - Specifications

ILBP							
Size	Chemguard Model No.	Viking Part Number	Nominal Flow Rate GPM (LPM)		Inlet Connection Size	Required Foam Concentrate	Viking Base Part Number
			MIN	MAX			
6"	CVILBP-6	F20638A	654 (2476)	3115 (11792)	2"	C1B 1% AFFF	F20717
		F20638B	629 (2381)	3082 (11667)		C3B 3% AFFF	F20718
		F20638C	690 (2612)	3028 (11462)		C306-MS 3% AFFF	F20719
		F20638J	868 (3286)	2915 (11034)		C334-LV 3% AR-AFFF	F20722
8"	CVILBP-8	F20639A	1246 (4717)	4925 (18643)	2"	C1B 1% AFFF	F20717
		F20639B	1224 (4633)	4925 (18643)		C3B 3% AFFF	F20718
		F20639C	1224 (4633)	4785 (18113)		C306-MS 3% AFFF	F20719
		F20639J	1522 (5761)	2848 (10781)		C334-LV 3% AR-AFFF	F20722

4. INSTALLATION

(Refer to Figure 1 for identification of ILBP components.) **NOTE:** On Viking Low Flow Bladder Tank Systems, the system flowing pressure at the inlet of the venturi concentrate controller and the discharge outlet of the Viking pressure regulating valve, must be set at a minimum of 15 psi lower than the system flowing pressure at the inlet to the Viking pressure regulating valve. (Refer to the Viking Technical Data Book for instructions on how to adjust the outlet pressure on the Viking Pilot Operated Pressure Control Valve under a flowing condition.) For Foam Pump Systems, the foam concentrate pressure must be a minimum of 15 PSI higher than the system water pressure inlet of the venturi concentrate controller.

4-a. General Instruction

The Viking ILBP is a pre-assembled proportioning device complete with a duplex water and foam pressure gauge, spool valve, concentrate controller, check valve, sensing lines and associated brass piping. It is an integral part of the Viking Low Flow Foam System, and must be installed in accordance with the following instructions. The Concentrate Controller (10) is installed in the riser, on the system side of the Viking Pressure Regulating Valve assembly (on Viking Low Flow Foam Bladder Tank Systems), usually between two flanges and a removable spool piece at least as long as the concentrate controller is. The spool piece makes it easier to service the concentrate controller, should that become necessary.

The ILBP unit is shipped with the foam pressure sensing line already installed at the end of the spool valve (4). The water sensing line must be field installed and a 1/4" water pressure tap must be provided by the installing contractor, upstream of concentrate controller approximately one (1) pipe diameter in riser. The foam concentrate supply line from the Viking Halar® coated concentrate valve, is then connected to the inlet of the swing check valve (3), to complete the installation of the Viking ILBP. Refer to the appropriate Viking technical data pages for instructions as to completing the system installation and testing of the Low Flow Foam System or foam pump system.

5. OPERATION

The system water pressure, under a water flow condition, must be at least 15 psi lower than the foam concentrate pressure at proportioner. The reduction in system water pressure for a Viking Low Flow Bladder Tank System is accomplished by the use of the Viking Pilot Pressure Regulating Valve, Model C-2, which is also a component of the Viking Low Flow Foam System. For foam pump systems, the foam pressure at the ILBP must be at least 15 PSI higher than the water pressure. Upon actuation of a sprinkler head, water begins to flow through the system piping, including the Viking ILBP. The ILBP water sensing line connected up stream of concentrate controller (made by field) and foam sensing brass tubing line integral with the balancing valve, are connected to upper and lower side of internal hydraulic piston. The piston is integrally attached to balanced spool of pressure balancing valve. As the foam concentrate discharge pressure from spool valve increases above the inlet water pressure, the spool closes over discharge ports of balancing valve, until foam pressure equals water pressure, allowing the properly balanced pressure foam concentrate to flow through the metering orifice of the proportioner. As the discharge foam concentrate pressure is lowered below the water supply pressure due to increase in flow and metering pressure drop caused by venturi of proportioner, the piston and spool open to allow more flow as required. When the foam concentrate inlet pressure is equal to the water inlet pressure of the proportioner, the proper mixture of foam solution is developed at the minimum and maximum flow rates shown for each size ILBP and foam concentrate being applied. Due to the foam concentrate pressure being supplied at a higher pressure than the water

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supply, a positive injection of foam concentrate occurs. This will cause rich foam solution below the minimum flow rates shown or at the initial fire condition where one (1) or two (2) sprinklers open. As additional sprinklers operate and flow increases the metering pressure drop across venturi of proportioner matches the metering orifice sized for foam concentrate and proportioner thus producing the desired solution of water and foam mixture.

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to the applicable Viking foam system technical data pages for instructions on Inspections and Testing of the complete foam system.

7. AVAILABILITY AND SERVICE

The Viking ILBP is available through a network of Domestic, Canadian, and International Distributors. See the Yellow Pages of the telephone directory for your closest distributor (listed under "Sprinklers Automatic Fire"), or contact The Viking Corporation.

8. GUARANTEES

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



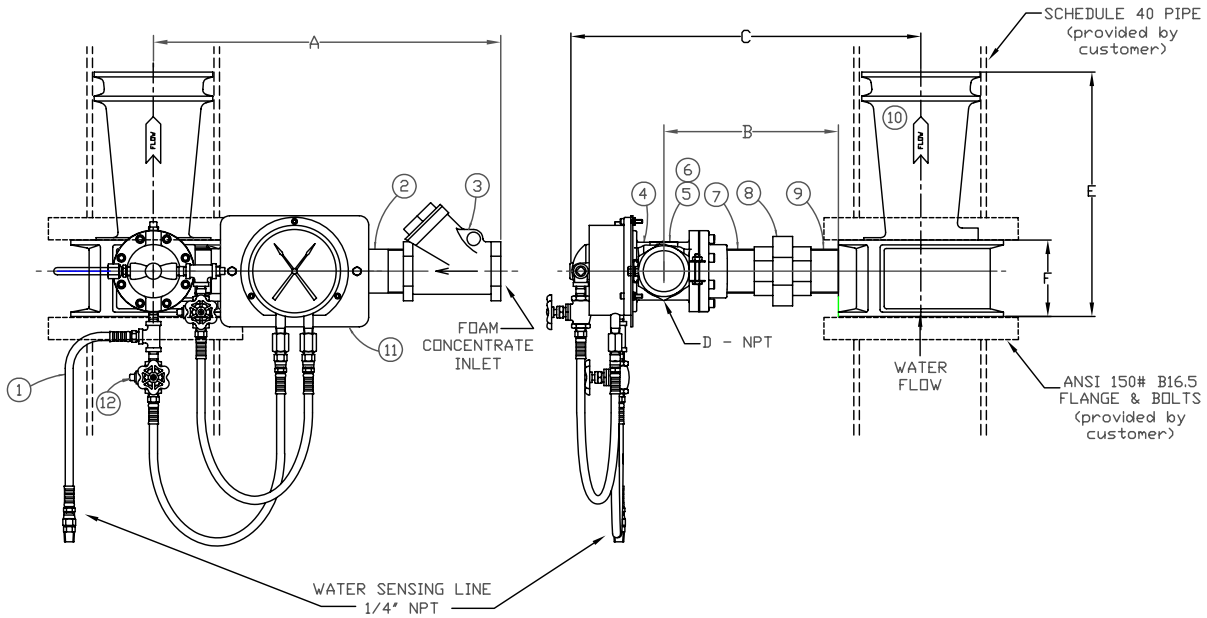
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ITEM	DESCRIPTION	REQ.	MATERIAL
1	SENSING LINE ASS'Y.	1	TFE LINED STAINLESS STEEL BRAIDED
2	NIPPLE, 2" x 12"	1	BRASS
3	CHECK VALVE, 2"	1	BRONZE
4	VALVE ASS'Y., SPOOL	1	UNS C844000 BRASS & STAINLESS STEEL ELECTROLESS NICKEL PLATED
5	PLATE, DATA	1	STAINLESS STEEL ETCHED
6	TACK	2	TACK
7	NIPPLE, 2" x 2 1/2"	1	BRASS
8	UNION, 2"	1	BRASS
9	NIPPLE, 2" x 3"	1	BRASS
10	CONCENTRATE CONTROLLER	1	UNS C83600 BRASS AND STAINLESS STEEL
11	GAUGE ASS'Y.	1	BRASS
12	PLUG, PIPE, 1/4" NPT	4	STAINLESS STEEL

Figure 1

DIMENSION TABLE

NOMINAL PIPE SIZE	A	B	C	D	E	F
3"	17-3/4"	11-5/8"	16-5/8"	1-1/4"	6.3"	2.5"
4"	17-3/4"	12-3/8"	17-1/8"	1-1/2"	8.0"	2.75"
6"	18-3/4"	12-7/8"	18-5/8"	2"	12.4"	3.25"
8"	18-3/4"	15"	20-3/4"	2"	12.4"	3.55"



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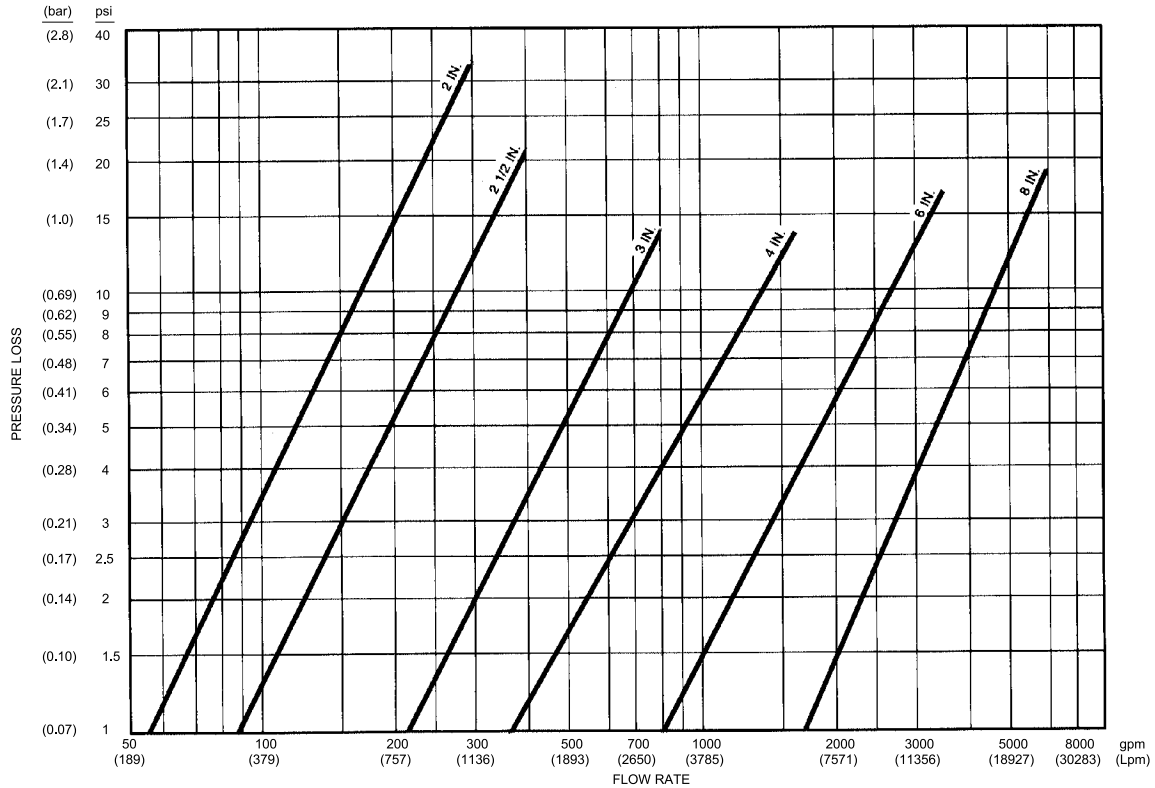


Figure 2: Friction Loss Curves (Through Proportioner)

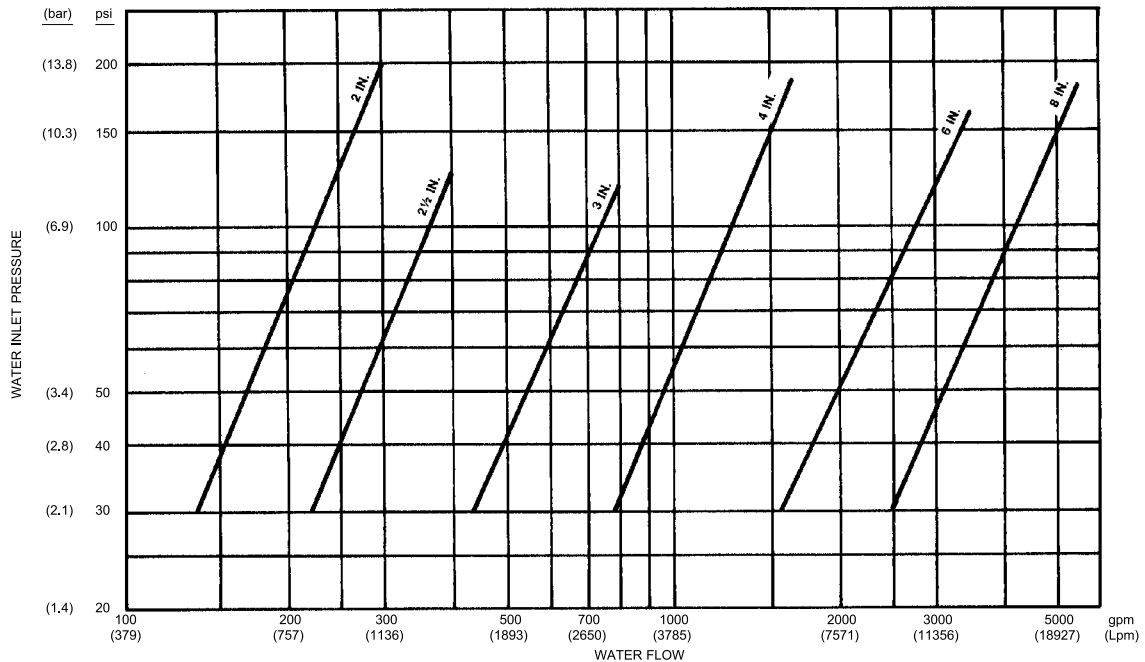


Figure 3: Minimum Inlet Pressure Versus Water Flow