



TECHNICAL DATA

FOAM RATIO CONTROLLER MODEL RC

Viking S.A., Z.I. Haneboesch, L-4562 Differdange/Nieder Korn, Luxembourg
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1. GENERAL DESCRIPTION

The Viking ratio controller accurately proportions foam concentrate into a water stream over a wide range of water flow rates. The controller proportions foam at concentrations of 1% or 3%.

Ratio controllers are an integral part of a foam system. In addition to the ratio controller, the main components of the foam system are foam concentrates, a foam storage tank, a concentrate control valve and foam discharge devices.

The discharge devices most commonly used are Sprinklers, Nozzles, Monitors, Grate Nozzles, Foam Makers and Foam Chambers. The system must be designed so that the ratio controller can accurately proportion foam over the range of flow rates expected during the system operation.

Intended for use in Wet, Dry, Deluge, Preaction and Refrigerated Area applications. Please refer to specific system manual(s) for further information.

This Technical Data is intended for trained experts.

For further information, please contact the appropriate Viking sales office in Section 5 Availability or refer to the technical documentation.

The contents of this publication are subject to modifications without notice.



2. LISTINGS AND APPROVALS

None.

3. TECHNICAL DATA

3.1 Construction Features

- Available in 2" (DN50), 2.5" (DN65), 3" (DN80), 4" (DN100), 6" (DN150), 8" (DN200)
- Nickel Aluminium Bronze construction for superior corrosion protection
- Horizontal or Vertical Installation
- Direction of flow indicator on body
- For use with Fresh or Salt Water
- Identification tag plate

3.2 Standard Materials

Table 3.2.1 - Standard Materials	
Nickel Aluminum Bronze	
Body & Nozzle	Nickel Aluminum Bronze UNS C95800 - ASTM B148
Orifice	UNS-C36000
Fittings	Stainless Steel
<i>See notes in Table 3.4.1 for ordering information</i>	

3.3 Standard Design Specifications

Table 3.3.1 - Standard Design Specifications	
Design Pressure	250 PSI / 17.2 bar (1.7MPa)
Design Temperature Range	14F to 120F (-10C to 49C)
Operating Temperature Range	35F to 120F (1.7C to 49C)
Minimum Operating Inlet Pressure	30 PSI / 2.1 bar (0.2MPa)
Maximum Operating Inlet Pressure	175 PSI / 12.1 bar (1.2MPa)
Proportioning Range	Refer to Table 3.4.1



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3.4 Ordering Information

Table 3.4.1 - Ordering Information

Connection		Typical Foam Type ^{2,3}	Part Number	Orifice		Minimum Solution Flow ¹		Maximum Solution Flow ¹	
Body Grooved	Foam Inlet Grooved			Inch	mm	GPM	l/min	GPM	l/min
2" (60.3mm)	1.5" (48.3mm)	AFFF 1%	ERC060N-1AFFF	0.110	2.79	50	189	311	1,177
		AFFF 3%	ERC060N-3AFFF	0.190	4.83	50	189	311	1,177
		ARC 3X3	ERC060N-3ARC	0.218	5.54	100	378	310	1,173
2.5" (76.1mm)	1.5" (48.3mm)	AFFF 1%	ERC076N-1AFFF	0.140	3.56	50	189	475	1,798
		AFFF 3%	ERC076N-3AFFF	0.252	6.40	50	189	475	1,798
		ARC 3X3	ERC076N-3ARC	0.273	6.93	160	606	475	1,798
3" (88.9mm)	1.5" (48.3mm)	AFFF 1%	ERC089N-1AFFF	0.205	5.21	50	189	750	2,839
		AFFF 3%	ERC089N-3AFFF	0.362	9.19	50	189	750	2,839
		ARC 3X3	ERC089N-3ARC	0.392	9.96	300	1136	750	2,839
4" (114.3mm)	2" (60.3mm)	AFFF 1%	ERC114N-1AFFF	0.279	7.09	50	189	1,250	4,731
		AFFF 3%	ERC114N-3AFFF	0.485	12.32	50	189	1,250	4,731
		ARC 3X3	ERC114N-3ARC	0.513	13.03	400	1,514	1,250	4,731
		FFFP 3%	ERC114N-3FFFP	0.513	13.03	75	284	1,250	4,731
6" (165.1mm)	2" (60.3mm)	AFFF 1%	ERC165N-1AFFF	0.358	9.09	140	530	2,300	8,706
		AFFF 3%	ERC165N-3AFFF	0.700	17.78	70	265	2,300	8,706
		ARC 3X3	ERC165N-3ARC	0.738	18.75	750	2,839	2,300	8,706
		FFFP 3%	ERC165N-3FFFP	0.738	18.75	152	575	2,300	8,706
6" (168.3mm) ²	2" (60.3mm)	AFFF 1%	ERC168N-1AFFF	0.358	9.09	140	530	2,300	8,706
		AFFF 3%	ERC168N-3AFFF	0.700	17.78	70	265	2,300	8,706
		ARC 3X3	ERC168N-3ARC	0.738	18.75	750	2,839	2,300	8,706
		FFFP 3%	ERC168N-3FFFP	0.738	18.75	152	575	2,300	8,706
8" (219.1mm)	2.5" (76.1mm)	AFFF 1%	ERC219N-1AFFF	0.525	13.34	200	756	4,500	17,033
		AFFF 3%	ERC219N-3AFFF	0.975	24.77	70	265	4,500	17,033
		ARC 3X3	ERC219N-3ARC	1.009	25.63	1,400	5,299	4,500	17,033
		FFFP 3%	ERC219N-3FFFP	1.009	25.63	256	969	4,500	17,033

NOTES:

¹ Please refer to graphs in **section 7** for specific flow rate parameters

² Please note that the proportioning data above is based upon Viking foam concentrates. Use of other manufacturer's foam concentrates is possible but may produce different results due to differences in viscosity and other contributing factors. For this reason, Viking cannot give any assurances regarding proportioning accuracy.

³ The foam concentrate type intended for use must be advised at enquiry or order stage.



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4. SCOPE OF DELIVERY

Ensure that all components are complete and in good condition.

The ratio controller is supplied boxed, with data plate and an integral sized orifice disc. Grooved couplings are not included.

5. AVAILABILITY

Please contact Viking for further information.

The product is available directly from Viking and official distributors only in European territories only

EMEA: Viking S.A., Z.I. Haneboesch, L-4562 Differdange/Nieder Korn, Tel.: +352 58 37 37 1, Fax: +352 38 37 36,
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6. PRODUCT VARIANTS

6.1 Options

- Suitable for various foam concentrates (to be advised at enquiry stage)
- Pre-Assembled with Bladder Tank and water/foam pipe work

6.2 Dimensions and Equivalent Length

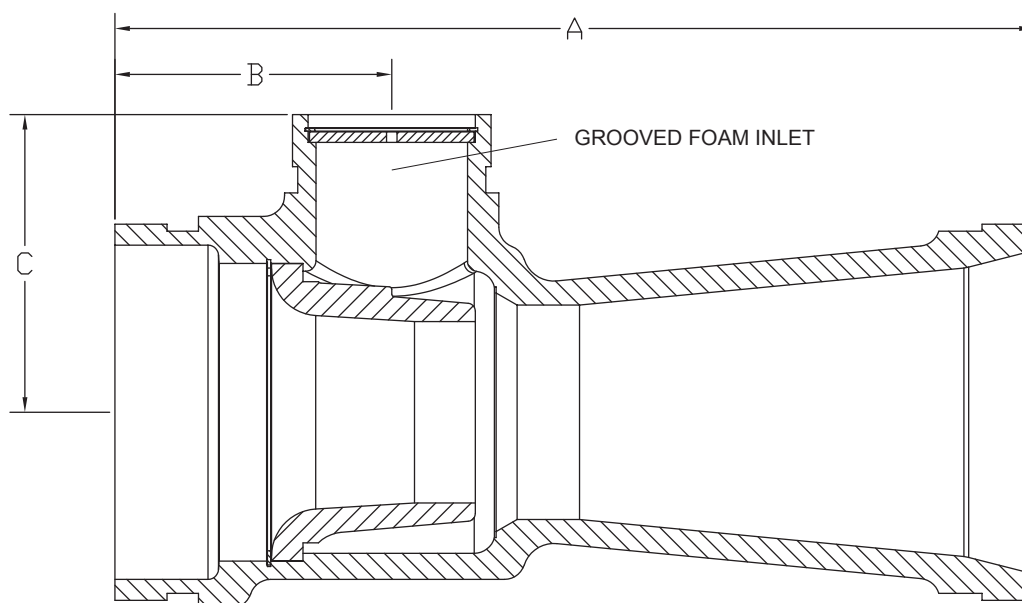


Figure 6.2.1
Model RC Ratio Controller

Table 6.2.2 Equivalent Length, Weight & Dimension Data

Nominal Size	Equivalent Length		Approximate Weight		Approximate Dimensions							
					NAB Version		A		B		C	
	Feet	Metre	LBS	KGs	Inch	mm	Inch	mm	Inch	mm	Inch	mm
2" (DN50) Grooved	46	14.02	4.9	2.2	8-1/4	210	3	76	2-9/16	65	1.5	48.3
2.5" (DN65) Grooved	39	11.89	6.0	2.7	8-3/4	222	2-15/16	75	2-13/16	71	1.5	48.3
3" (DN80) Grooved	31	9.45	8.6	3.9	9-1/4	235	2-15/16	79	3-1/8	79	1.5	48.3
4" (DN100) Grooved	37	11.28	13.9	6.3	11	279	3-5/16	84	3-9/16	91	2	60.3
6" (DN150) Grooved	88	26.82	30.6	13.9	15	381	3-5/16	84	4-5/8	118	2	60.3
8" (DN200) Grooved	114	34.75	51.8	23.5	16-3/4	426	3-11/16	94	5-5/8	143	2.5	76.1



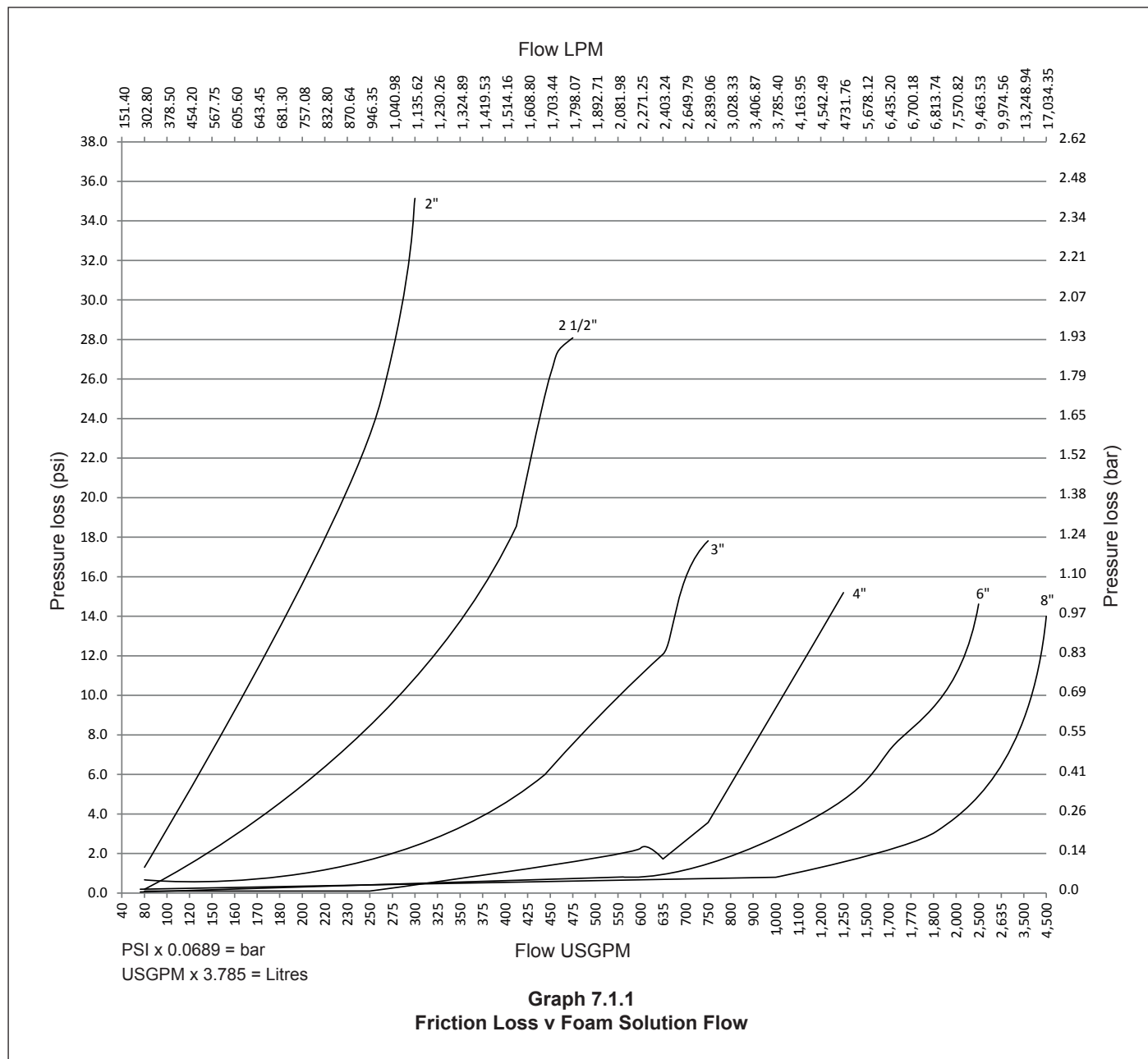
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7. PERFORMANCE DATA

7.1 Friction Loss vs Foam Solution Flow





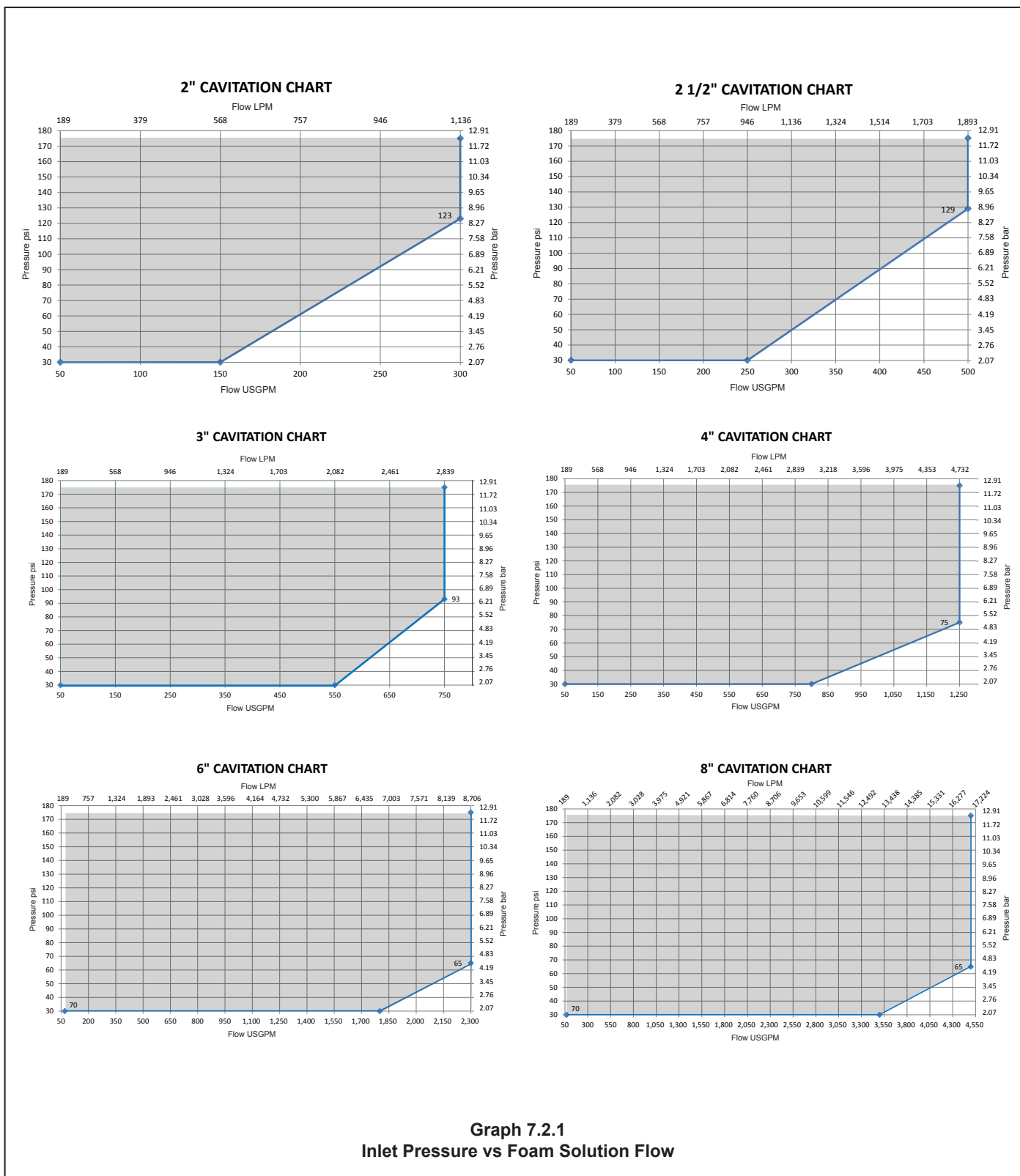
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7.2 Inlet Pressure vs Foam Solution Flow

Ratio Controller must be used within the shaded flow and pressure conditions



Graph 7.2.1
 Inlet Pressure vs Foam Solution Flow



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8. INSTALLATION

Refer to appropriate Installation Standards (i.e. NFPA, VdS, LPCB, etc.).

Do not alter the piping without consulting a system design representative.

Before installing a ratio controller, check the system design drawing to ensure the controller location does not create excessive head pressure or frictional losses.

- The ratio controller must be installed with the arrow pointing in the direction of the water flow
- The ratio controller can be installed in the vertical or horizontal position
- Straight piping equal to a minimum of five (5) pipe diameters should be installed before and after the ratio controller to help ensure proportioning accuracy
- In Dry, Deluge and Preaction systems a removable section of pipe should be installed between the Concentrate Control Valve and Ratio Controller foam inlet to allow the flushing of foam concentrate after system activation
- The ideal location for the controller is level or below the top discharge and within 3 feet (1m) of the tank. The controller can be placed further from the bladder tank, as long as the pressure of the foam concentrate at the foam inlet of the ratio controller is within 2PSI of the incoming water pressure
- The pressure drop within the piping to the bladder tank water or foam concentrate piping can be minimized by:
 1. Limiting the number of tees and elbows used
 2. Using full port valves
 3. Increasing the pipe diameter

A good rule to follow to ensure the piping is designed properly is as follows:

The combined total equivalent length (pipe length plus equivalent lengths for fittings and valves) of the water supply inlet piping and the foam concentrate discharge piping should not exceed 50 equivalent feet (15.2m). The diameter of this piping must be the same size or larger than the foam concentrate inlet into the ratio controller.

Viking requires the installation of a concentrate control valve and a suitable check valve between the bladder tank and ratio controller. This will prevent migration of water into, and foam out of, the bladder tank.

9. OPERATION

The ratio controller is a modified Venturi device. As water flows through the calibrated water nozzle, it creates an area of lower pressure, referred to as the metering pressure drop. As the water flow increases through the Venturi, the metering pressure drop increases, allowing more foam concentrate to enter through the sized foam orifice. A decrease in the water flow reduces the metering pressure drop, thereby reducing the foam concentrate flow.

Because the foam concentrate flow changes in direct proportion to the water flow, the ratio controller can accurately proportion foam concentrate over a wide range of water flow rates.

The flow rate at which the metering pressure drop is just high enough to overcome the pressure losses through the bladder tank and its piping, is called the low flow rating. The water flow rate through the ratio controller must be at or above its low flow rating in order to properly proportion foam concentrate.

10. GUARANTEE

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



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11. INSPECTION, TESTS AND MAINTENANCE

Refer to respective requirements, according to the relevant standards for Inspection, Testing and Maintenance.

In addition, the "Authority Having Jurisdiction" (AHJ) may have additional maintenance, testing and inspection requirements that must be followed.

WARNING

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

12. DISPOSAL

At end of use the product described here should be disposed of via the national recycling system.



13. ACCESSORIES AND SPARE PARTS

None

14. DECLARATION OF CONFORMITY

If required

Contact the appropriate Viking sales office in **Section 5 Availability** for further assistance.