

Fixed Extinguishing Systems | Foam | **Foam Extinguishing Systems, Low Expansion**

Low Expansion Foam Systems Using Viking USP Foam Concentrate



Product Description

Foam Concentrates

Used as a component of foam systems. Concentrates are only Approved for use with the specific proportioning, bladder tank, foam water sprinklers, and discharge devices listed below.

Use of a concentrate with other devices or outside the listed ranges may result in solutions too lean or rich or may produce foam unable to provide the required extinguishing or sealing performance.

The concentrate listed below was evaluated for compatibility with fresh water only.

Product	Concentrate Type	Concentrate % in Water	Configuration	Approved Fuel Hazards
Viking USP	SFFF	3%	For use with Viking ratio controllers and bladder tanks specifically tested with this concentrate, pre-mixed solution, or other FM Approved proportioning methods within acceptable viscosity range only. For use with Viking discharge devices evaluated with the specific concentrate only.	Heptane, Jet A-1

GREEN - Foam concentrate formulations are in accordance with the US EPA Stewardship Program 2010/15, EU Directive 2006/122/EC, and amended Council Directive 76/769/EEC.

Foam Concentrate Viscosity

The viscosity of non-Newtonian foam concentrates will vary depending on the fluid's flow velocity and resultant shear rate. As such, it is important to define this relationship and consider how the viscosity changes with shear rate. The following table provides viscosity vs. shear rate data for the subject concentrate throughout a range of given shear rates.

Shear Rate, (1/s)	Viscosity @ 68°F (20°C), (Cp)
5	5532
10	3340
20	2017
50	1035
100	625
600	170

Bladder Tanks

For use with the concentrate specified in this listing within the specifications identified in the table below.

Product	Type of Equipment	Concentrate % in Water	Configuration	Approved Fuel Hazards	CCV Part No	CCV Valve Size		CCV Min Actuator Pressure		CCV Max Operating Pressure		Type	Max Operating Pressure		Sizes	
						in	(mm)	psi	(bar)	psi	(bar)		psi	(bar)	gal	(L)
Vertical Bladder Tank Model VFT	Bladder Tank	3%	Vertical	Heptane, Jet A-1	Viking Corp Model E2, F2, H2, J2 Deluge Valve	1 1/2, 2, 2 1/2, 3, 4	(40, 50, 65, 80, 100)	20	(1.4)	250	(17)	ASME Section VIII Division 1, EN13445, Epoxy Coating (Any Color) or Stainless Steel	175 or 235	(12 or 16)	25-4000	(95-15142)
Horizontal Bladder Tank Model VFT	Bladder Tank	3%	Horizontal	Heptane, Jet A-1	Viking Corp Model E2, F2, H2, J2 Deluge Valve	1 1/2, 2, 2 1/2, 3, 4	(40, 50, 65, 80, 100)	20	(1.4)	250	(17)	ASME Section VIII Division 1, EN13445, Epoxy Coating (Any Color) or Stainless Steel	175 or 235	(12 or 16)	50-5250	(189-19873)

Proportioners

For use with the concentrate specified in this listing within the specifications identified in the table below.

Product	Type of Equipment	Concentrate % in Water	Configuration	Approved Fuel Hazards	Approved Flow Range		Approved Pressure Range		Connection	Construction Material	Sizes	
					gpm	(Lpm)	psi	(bar)			in	(mm)
Model VRCS Ratio Controller (Low Flow Version)	Ratio Controller	3%	Low flow version. For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	49-104	(185-394)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	2	(50)
Model VRC Ratio Controller	Ratio Controller	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	95-309	(360-1170)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	2	(50)
Model VRC Ratio Controller	Ratio Controller	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	155-502	(587-1900)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	2 1/2	(65)
Model VRC Ratio Controller	Ratio Controller	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	360-775	(1363-2933)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	3	(80)
Model VRC Ratio Controller	Ratio Controller	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	370-1250	(1400-4731)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	4	(100)
Model VRC Ratio Controller	Ratio Controller	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	845-2350	(3198-8895)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	6	(150)



Product	Type of Equipment	Concentrate % in Water	Configuration	Approved Fuel Hazards	Approved Flow Range		Approved Pressure Range		Connection	Construction Material	Sizes	
					gpm	(Lpm)	psi	(bar)			in	(mm)
Model VRC Ratio Controller	Ratio Controller	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	2010-4640	(7608-17563)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	8	(200)
Model VLF Ratio Controller with Balancing Valve(ILBP)	Ratio Controller with Balancing Valve(ILBP)	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	180-760	(681-2877)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	3	(80)
Model VLF Ratio Controller with Balancing Valve(ILBP)	Ratio Controller with Balancing Valve(ILBP)	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	455-1275	(1722-4826)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	4	(100)
Model VLF Ratio Controller with Balancing Valve(ILBP)	Ratio Controller with Balancing Valve(ILBP)	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	1240-2640	(4693-9993)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	6	(150)
Model VLF Ratio Controller with Balancing Valve(ILBP)	Ratio Controller with Balancing Valve(ILBP)	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	1650-4250	(6245-16086)	30-175	(2-12)	Grooved, Flanged	Aluminum Bronze or Brass	8	(200)
Model VNR Wide Range Proportioner	Wide Range Proportioner	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	50-1420	(189-5375)	30-175	(2-12)	Wafer	Brass	6	(150)
Model VNR Wide Range Proportioner	Wide Range Proportioner	3%	For use with Viking bladder tanks and discharge devices as appear in the FM Approval Guide only.	Heptane, Jet A-1	50-3010	(189-11393)	30-175	(2-12)	Wafer	Brass	8	(200)

Topside Discharge Devices

For use with the concentrate specified in this listing within the specifications identified in the table below.

Product	Type of Equipment	Concentrate % in Water	Configuration	Approved Fuel Hazards	Approved Flow Range		Approved Pressure Range		Connection	Construction Material	Sizes	
					gpm	(Lpm)	psi	(bar)			in	(mm)
Model VFM Foam Maker	Foam Maker	3%	For use with Viking bladder tanks and proportioners as appear in the FM Approval Guide only.	Heptane	45-230	(170-871)	40-125	(3-9)	Flanged	Painted Carbon Steel or Stainless Steel	2 1/2	(65)
Model VFM Foam Maker	Foam Maker	3%	For use with Viking bladder tanks and proportioners as appear in the FM Approval Guide only.	Heptane	101-392	(382-1484)	40-75	(3-5)	Flanged	Painted Carbon Steel or Stainless Steel	3	(80)
Model VFM Foam Maker	Foam Maker	3%	For use with Viking bladder tanks and proportioners as appear in the FM Approval Guide only.	Jet A-1	150-590	(568-2233)	40-75	(3-5)	Flanged	Painted Carbon Steel or Stainless Steel	4	(100)
Model VFC Foam Chamber	Foam Chamber	3%	For use with Viking bladder tanks and proportioners as appear in the FM Approval Guide only.	Heptane	132-395	(500-1495)	75	(5)	Flanged	Painted Carbon Steel or Stainless Steel	3	(80)

Foam Water Sprinkler Discharge Devices

Foam water sprinklers are Approved with the concentrate specified in this listing and at the application rates specified in the table below. The use of foam water sprinklers with other concentrates or at other application rates may result in foam of significantly different fire extinguishing capabilities and burn back (reignition) resistance.

Product	Type of Equipment	Concentrate % in Water	Configuration	Approved Fuel Hazards	Min Solution Application Rate		Max Subsequent Water Application Rate		Min Installation Height		Max Installation Height		Connection	Orientation	K-Factor
					gpm/ft ²	(mm/min)	gpm/ft ²	(mm/min)	ft	(m)	ft	(m)			
VK1001, VK3001	Automatic Foam Water Sprinkler	3%	For use with proportioners specifically tested with this concentrate, pre-mixed solution or Water Motor-Powered Positive Displacement Pumps within acceptable viscosity range only.	Heptane	.2	(8.0)	.3	(12.22)	6	(1.8)	24.8	(7.6)	1/2"	Upright	5.6
VK1021, VK3021	Automatic Foam Water Sprinkler	3%	For use with proportioners specifically tested with this concentrate, pre-mixed solution or Water Motor-Powered Positive Displacement Pumps within acceptable viscosity range only.	Heptane	.2	(8.0)	.3	(12.22)	6	(1.8)	44	(13.4)	1/2"	Pendent	5.6
VK1021, VK3021	Automatic Foam Water Sprinkler	3%	For use with proportioners specifically tested with this concentrate, pre-mixed solution or Water Motor-Powered Positive Displacement Pumps within acceptable viscosity range only.	Jet A-1	.2	(8.0)	.3	(12.2)	8.5	(2.6)	44	(13.4)	1/2"	Pendent	5.6
VK200, VK204, VK350, VK351	Automatic Foam Water Sprinkler	3%	For use with proportioners specifically tested with this concentrate, pre-mixed solution or Water Motor-Powered Positive Displacement Pumps within acceptable viscosity range only.	Heptane	.3	(12.2)	.3	(12.2)	9	(2.7)	45	(13.7)	3/4"	Upright	8.0



Product	Type of Equipment	Concentrate % in Water	Configuration	Approved Fuel Hazards	Min Solution Application Rate		Max Subsequent Water Application Rate		Min Installation Height		Max Installation Height		Connection	Orientation	K-Factor
					gpm/ft ²	(mm/min)	gpm/ft ²	(mm/min)	ft	(m)	ft	(m)			
VK2021, VK3521, VK2022, VK3522	Automatic Foam Water Sprinkler	3%	For use with proportioners specifically tested with this concentrate, pre-mixed solution or Water Motor-Powered Positive Displacement Pumps within acceptable viscosity range only.	Heptane	.3	(12.2)	.3	(12.2)	8	(2.4)	44	(13.4)	3/4"	Pendent	8.0
VK377, VK536	Automatic Foam Water Sprinkler	3%	For use with proportioners specifically tested with this concentrate, pre-mixed solution or Water Motor-Powered Positive Displacement Pumps within acceptable viscosity range only.	Heptane	.3	(12.2)	.3	(12.2)	6	(1.8)	25.2	(7.7)	3/4"	Pendent	11.2

Details

Category	Foam Extinguishing Systems, Low Expansion
Class of Work	5135 - Low Expansion Foam Systems
Approval Standard	FM 5130 - Foam Extinguishing Systems
Certification Type	FM Approved
Concentrate Type	SFFF
Listing Country	United States of America

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