



## TECHNICAL DATA

## FOAM MAKERS

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 Chemguard and Viking Foam Makers are designed as an air-aspirating discharge device used principally for the protection of open floating roof storage tanks and dike protection systems. These devices are used in various types of proportioning systems such as bladder tanks, balanced pressure pump proportioning systems or line proportioners. The Foam Maker is normally installed in the discharge line of a semi-fixed or fixed foam fire protection system. The Foam Makers are used with appropriate Chemguard foam agents for the flammable liquid being protected.



The Foam Makers incorporate an orifice, air inlet and mixing barrel. The body and orifice are corrosion resistant brass. The air inlet screen is corrosion resistant stainless steel.

An orifice is provided at the inlet to the Foam Maker and designed to provide the required flow rate of foam solution at a specified inlet pressure. The air inlet provides uniform distribution of air into the foam solution stream to generate expanded foam. The air inlet screen conforms to the body of the Foam Maker and prevents damage by the entrance of foreign material.

### 2. LISTINGS AND APPROVALS

 Part Numbers F15094 and F15099: UL Listed

### 3. TECHNICAL DATA

#### Specifications:

See Table 1.

Minimum Operating Pressure:

Model CGFM: 30 PSI (2.07 bar)

Model VFM: 40 PSI (2.76 bar)

Maximum Operating Pressure:

Model CGFM: 150 PSI (10.34 bar)

Model VFM: 125 PSI (8.62 bar)

**Material Standards:** See Table 1.

**Ordering Information:** See Table 1.

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

The foam/water solution is provided in a "pre-mix" condition through either an automatic or mobile proportioning system. The foam maker does not proportion foam concentrate into the water stream. The foam maker discharges foam indirectly at a burning liquid by deflecting the foam at the interior wall of a dike area or bund area. Foam then spreads across the floor of the dike area and covers the surface of the liquid, creating a vapor barrier to extinguish the fire.

The foam/water solution supply provided to foam makers must be continuous, clean, and obstruction free.

Foam makers should be installed with adequate clearance and be protected from physical damage. Adequate clearance should be maintained for maintenance and inspection. Foam makers are deluge system discharge devices, and should be provided with adequate shutoff capabilities while being adjusted or maintained.

The foam maker should be installed in accordance with NFPA 11: The Standard for Low-Expansion Foam. The foam maker inlet is to be mounted to a compatible piping flange. Piping to foam maker should be self-supporting and installed in accordance with NFPA 11.

The foam maker orifice plate is to be installed between the inlet flange and the supply piping flange. Orifice plate gaskets are to be installed against the inlet flange and the supply piping flange. The orifice plate has a knife-edged or tapered-edge orifice. The flat side of the orifice plate is to be installed facing the supply piping flange. Orifice plates are identified according to size by numeric values indicated on the orifice plate. Prior to installation of orifice plate, verify the size of the orifice plate for the specific range of flows and pressures of the orifice plate for a given size foam maker. Discharge piping is to be sized in accordance with the sizing charts for the specific foam maker.

Discharge piping length is to be installed in compliance with NFPA 11.



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Table 1: Specifications

Part Number	Model Number	Flow Range	Length	Inlet Connection	Outlet Connection	K-Factor	Shipping Weight
F15085	CGFM1.5L	3.3 - 37 GPM	14-1/2" (368.3 mm)	1-1/2" NPT Female	1-1/2" NPT Male	0.6	4 lbs. (1.8 kg)
F15086						0.8	4 lbs. (1.8 kg)
F15087						1.0	4 lbs. (1.8 kg)
F15088						1.5	4 lbs. (1.8 kg)
F15089						2.0	4 lbs. (1.8 kg)
F15090						2.5	4 lbs. (1.8 kg)
F15091						3.0	4 lbs. (1.8 kg)
F15092	CGFM1.5	24.6 - 83 GPM	14-3/4" (374.7 mm)	1-1/2" NPT Female	1-1/2" NPT Male	4.5	5.5 lbs. (2.5 kg)
F15093						6	5.5 lbs. (2.5 kg)
F15094						6.8**	5.5 lbs. (2.5 kg)
F15095	CGFM2.5	44 - 200 GPM	14-3/4" (374.7 mm)	2-1/2" NPT Female	2-1/2" NPT Male	8	10 lbs. (4.5 kg)
F15096						10	10 lbs. (4.5 kg)
F15097						12	10 lbs. (4.5 kg)
F15098			16-3/8" (415.9 mm)	2-1/2" NPT Female	2-1/2" NPT Male	14	10 lbs. (4.5 kg)
F15099						16.3**	10 lbs. (4.5 kg)
F15100	CGFM2.5H	98 - 294 GPM	16-1/4" (412.8 mm)	2-1/2" NPT Female	2-1/2" NPT Male	18	12 lbs. (5.4 kg)
F15101						20	12 lbs. (5.4 kg)
F15102						22	12 lbs. (5.4 kg)
F15103						24	12 lbs. (5.4 kg)
F01627-20/0510	VFM-20	32 - 125 GPM	16" (406.4 mm)	2" NPT Female	2" NPT Male	C=0.64*	16 lbs. (7.3 kg)
F01636-25/0721	VFM-25	63 - 230 GPM	16" (406.4 mm)	2-1/2" NPT Female	2-1/2" NPT Male	C=0.63*	20 lbs. (9 kg)
F01637-30/0984	VFM-30	117 - 494 GPM	30-1/4" (768 mm)	3" NPT Female	4" Flange	C=0.64*	45 lbs. (20.4 kg)
F01638-40/1491	VFM-40	228 - 682 GPM	36-1/4" (921 mm)	4" NPT Female	6" Flange	C=0.63*	60 lbs. (27.2 kg)

\* Sizing of Inlet Orifice shall be done after determination of protected area (ft<sup>2</sup> and application density (gpm/ft<sup>2</sup>) (see foam and fuel listings). Refer to standards for minimum quantity of chambers per tank diameter. After determining the available pressure and required flow rate per each foam maker, calculate the orifice diameter using the following formula:

$$d = \left( \frac{Q}{29.836 c P^{1/2}} \right)^{1/2}$$

Where:  
d = orifice Ø (in.)  
Q = Solution Flow Rate (GPM)  
P = Pressure at orifice inlet (PSI)  
c = Orifice Coefficient

\*\* UL Listed

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**5. OPERATION**

Foam Makers are in-line foam discharge devices. Foam/water solution is supplied to the inlet side of the foam makers. The inlet side of the foam maker is equipped with an orifice plate and air strainer. When foam solution initially passes through the air strainer, water will discharge from the vent holes. When the flow rate is of a greater velocity, a venturi effect will draw air into the fluid stream at a greater rate than water is escaping. At this point, solution will cease to flow from the air strainer. The foam solution is aerated, which will cause the foam discharge to expand at a greater rate than normal. The aerated foam solution will have enhanced foam qualities of greater expansion and normally longer drain times.

**6. INSPECTIONS, TESTS AND MAINTENANCE**

**NOTICE:** The owner is responsible for maintaining the fire protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to recognized standards such as those produced by NFPA, LPC, and VdS, which describe care and maintenance of sprinkler systems. In addition, the "Authority Having Jurisdiction" may have additional maintenance, testing and inspection requirements which must be followed.

 **WARNING**

Any system maintenance that involves placing a control valve or detection system out of service will impair the fire protection capabilities of that system. Prior to proceeding, appropriate impairment procedures per NFPA 25 shall be followed with the notification of all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

**Failure to follow these instructions could cause improper system operation, resulting in serious personal injury and/or property damage.**

**7. AVAILABILITY**

Viking Foam Products are available through a network of domestic and international distributors. See the Viking 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.



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