



## TECHNICAL DATA

### MAIN AND RESERVE BLADDER TANK

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

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

#### 1. DESCRIPTION

A reserve supply of foam concentrate is required by NFPA standards. Some NFPA standards allow for the reserve supply to be placed in the original containers that the foam concentrate was packaged in and stored somewhere near the foam system. Some NFPA standards require that a reserve supply of foam concentrate be readily available in a storage container ready to supply the foam system(s) if the primary supply has been exhausted or requires re-filling. When bladder tanks are used and are required in a main and reserve capacity, the valves and piping that connects the tanks must be installed correctly to ensure that a supply of foam concentrate can be isolated or made available with only a few activities, such as closing and opening the appropriate valves.

#### 2. LISTINGS AND APPROVALS

U.L. Listed - Guide GHXV

FM Approved - Low Expansion Foam System

The bladder tanks are constructed to, and in conformance with the ASTM Standards.

#### 3. TECHNICAL DATA

##### Specifications:

N/A

##### Material Standards:

Tank: SA516-70 Carbon Steel

Flanges & Couplings: SA105 Carbon Steel

Trim and Fill Piping: 304 Stainless Steel & SA53B Schedule 40

Trim Valves: Bronze with TFE seals

Sight Tube: Clear PVC

Exterior Coating: Red Enamel Finish

Interior: Unfinished, Ground Smooth

Bladder: Vinyl Base Polymer or Polyester Reinforced Copolymer

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.

##### Ordering Information:

Refer to data page 240 a-h for bladder tank part numbers.

#### 4. INSTALLATION

The bladder tanks (A & B) require water supply piping be installed to the shell inlet of the bladder tank. A single water supply should be installed to supply both bladder tanks. In the water supply line, bladder tank water supply control valves (1 & 3) will be installed to the supply to each bladder tank. It is important to install equal pipe lengths to each bladder tank from the common water supply. (Unequal pipe lengths may be installed, but a metered pressure drop calculation should be performed on the greatest length of supply piping to ensure proper proportioning will be achieved.)

The bladder tanks (A & B) will each have concentrate discharge piping that will tie together to form a common discharge to the proportioning device(s). In the concentrate discharge line, bladder tank concentrate isolation control valves (2 & 4) will be installed after the discharge head of each bladder tank. After the bladder tank concentrate isolation control valves, install equal pipe lengths from each bladder tank to form a common discharge pipe line to the proportioning device(s). (Unequal pipe lengths may be installed, but a metered pressure drop calculation should be performed on the greatest length of supply piping to ensure proper proportioning will be achieved.)

##### A. Alternating Tank Supplies

After a system operation, the primary bladder tank will expend some or all of its foam concentrate. If this occurs, the reserve tank must be placed in service and the primary tank requires isolation from the water supply and the concentrate discharge line so its foam concentrate may be replenished. The control valves associated with a bladder tank may be supervised and the appropriate authorities must be notified before changing their position.

1. The bladder tank water supply control valves (1 & 3) should be placed in the open position while the bladder tanks are in service. Viking advises that the bladder tanks always have water pressure in the shell space of the tanks (the space between the steel tank shell and the bladder). This allows the bladder to collapse against the foam concentrate, eliminating air vapor



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from the concentrate, and also keeps the bladder wetted.

2. To take the primary bladder tank out of service, close the bladder tank water supply control valve (1). Ensure that the reserve bladder tank water supply control valve (3) is open.
3. Close the primary bladder tank's discharge isolation control valve (2). Open the reserve bladder tank's discharge isolation control valve (4).
4. Replenish the foam concentrate to the primary bladder tank as per manufacturer's instructions.
5. Open bladder tank water supply valve (1).
6. If the bladder tank discharge isolation valves are supervised, open primary bladder tank isolation valve (2), close reserve bladder tank isolation valve (4).

NOTE: The concentrate piping from the bladder tank must be compatible with the foam concentrate supplied to the proportioning device. Refer to the design notes of the Viking Foam Data book for more information.

## 5. OPERATION

The Viking bladder tank stores foam concentrate and when used in conjunction with a Viking concentrate control system (CCS), proportions the foam concentrate into the water stream. The foam concentrate is stored in the bladder tank. The water supply is used to pressurize the area between the bladder tank and the steel tank, forcing the foam concentrate out of the bladder tank and to the concentrate controller.

## 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 bladder tanks are available through a network of domestic, Canadian and international distributors. See the Yellow Pages of the telephone directory for a distributor near you (listed under "Sprinkler 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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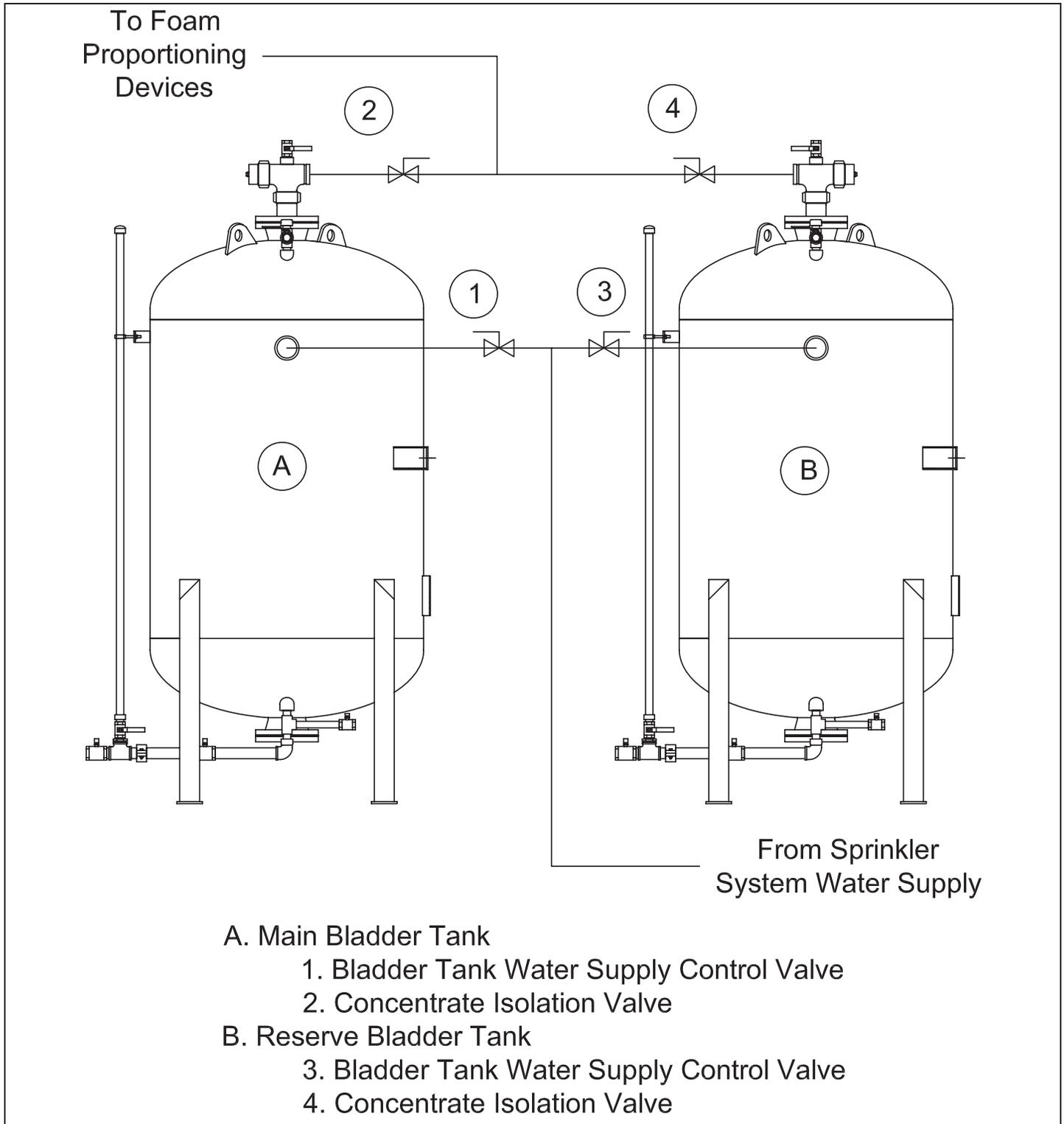


Figure 1 - Vertical Tank Arrangement

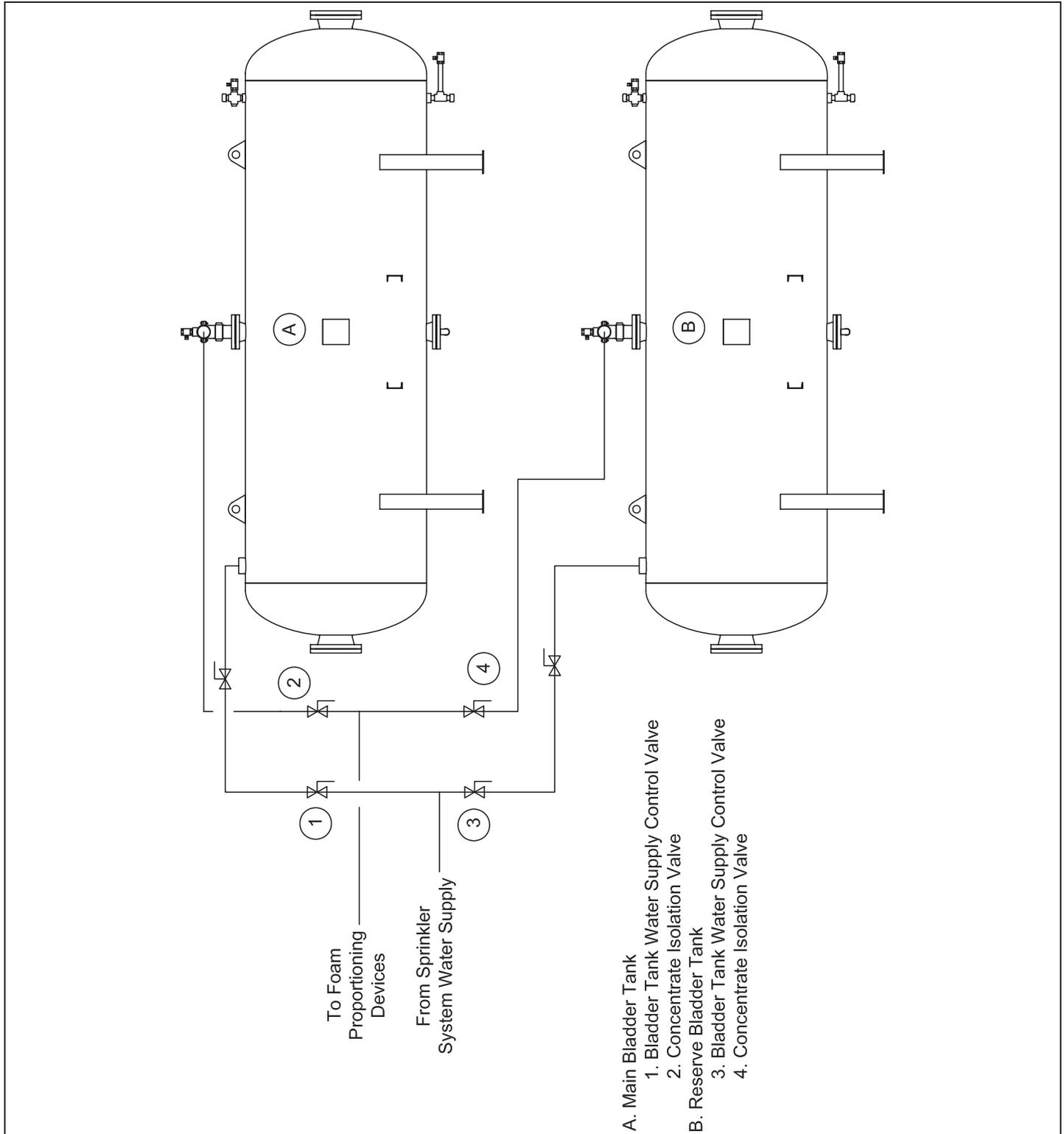


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**Figure 2 - Horizontal Tank Arrangement**