VIKING®

TECHNICAL DATA

WARNINGS AND GENERAL NOTES

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

Warnings

- WARNING! Locate all portions of the foam/water system subject to freezing in a heated area.
- When considering the installation of a vertical bladder tank, you must remember to provide space so the tank could be laid on its side to remove the bladder from the tank. An area twice as long as the tank is tall will be required to remove the bladder.
- Horizontal bladder tanks require horizontal clearance, in order to remove the piping and bladder. A clear area at least twice as long as the tank, is required at one end. Access through double doors, etc., is acceptable.
- The concentrate controller must be ordered specifically for the type of foam concentrate used and foam/water solution desired. Refer to concentrate controller technical data page.
- Do not remove or modify the orifice plate in the controller in any manner, unless directed by manufacturer.
- The Viking Deluge Valve when used as a foam concentrate control valve, must be coated as required by the material and coatings applications for Viking valves. Information on the Halar® coated valve may be found in the Viking Engineering and Design Data Book under “Deluge Valves.”
- Should the foam/water system be a pre-charged system, i.e. a system where the foam/water solution is pre-mixed before it enters the system alarm valve, deluge valve or other system valve - the valve should be a standard valve with no special coating. However, the valve trim should be brass and not galvanized. For seawater applications, refer to the table found in the “Halar® Coated Deluge Valve” section of the Viking Engineering and Design Data Book.
- Do not use galvanized pipe for the foam concentrate supply piping. Stainless steel or black steel are the suggested piping materials for the concentrate supply line. On ARC concentrate systems, stainless steel or brass piping is recommended. Refer to the Viking Engineering and Design Data Book in the Deluge section for Halar® Coated Deluge Valve and associated trim for AFFF and ARC compatible materials.
- The tank filling instructions must be followed explicitly. Otherwise, the bladder may be damaged, and void the warranty.
- Always follow the manufacturer’s procedures when handling foam concentrates.
- Should any foam concentrate contact a painted surface, rinse the affected area immediately with water.
- Never intermix different types or brands of foam concentrate, as this could cause them to gel or solidify and render the concentrate useless.

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- Always flush the entire discharge system with fresh water immediately after any foam concentrate discharge has taken place. This may be accomplished by isolating the foam concentrate supply from the sprinkler riser by closing the concentrate control valve and the tank water supply valve, then continue to flow water through the system piping for an additional 1-2 minutes after the concentrate supply has been isolated.
- Do not exceed 175 PSI (12.1 bar) on any portion of the system, including bladder tank, alarm valve, etc.
- When performing maintenance on a foam/water bladder tank system, especially after a flow of foam/water solution, always check the level of foam concentrate in the bladder tank by following the tank manufacturer's procedures. (Add concentrate as necessary by following tank manufacturer's procedures)
- WARNING: Turning off the alarm test shut-off valve during a fire may cause the concentrate control valve to close, stopping the flow of foam concentrate. The installing contractor should post a sign stating the same at the alarm shut-off valve and/or install a monitor switch on the alarm shut-off valve.
- For retrofit projects where foam concentrate or foam solution will be present in the valve and trim piping, such as in pre-mixed systems, the existing galvanized trim must be modified by adding strainers to the piping which feeds all small orifices of the trim. An inspection of the strainer after the annual foam/water flow test of the system is recommended to verify that debris is not causing blockage in the system components and also to keep fresh foam/water solution in the piping.
- Conformance with environmental rules and regulations for testing, drainage, run-off and disposal of foam solution, by products of combustion and other similar potentially harmful environmental materials must be considered for each project on an individual basis. Environmental rules and regulations vary considerably - check with local, state, and national authorities, and/or codes to insure compliance with environmental regulations.
- When selecting a concentrate controller for a closed head sprinkler system (wet, dry, preaction), both minimum and maximum concentrate controller flows must be considered. The concentrate controller must have a maximum flow which is higher than the total system demand, but should still have a low minimum flow so that only a minimum number of sprinklers need to open before the minimum flow required for proper

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General Notes

- The estimated bladder tank size may be calculated by applying the following formula:

  Estimated Bladder tank size in gallons or liters = TSD x C% x D + (15%)*

  with TSD = total estimated foam/water system demand
  C% = percentage of foam concentrate
  D = required duration of foam concentrate supply in minutes

  *Note: It is not necessary to add 15% to the actual tank size when sizing bladder tanks for ordering purposes. Substituting the actual (F)inal (H)ydraulic (C)alculation (R)esult or (FHCR) for the TSD, and using the following formula will provide the actual tank sizing:

  Actual bladder tank size in gallons or liters = FHCR x C% x D

  Then refer to the tank size table located in the equipment section of this data book. Should the calculated tank size fall between two sizes in the table, always select the larger size tank. Also refer to Technical Bulletin 102, regarding listed starting pressures for foam/water sprinklers.

- Do not subject the bladder tank to a 200 PSI (13.8 bar) hydrostatic test. It has been factory tested and is so labelled. Isolate the bladder tank during the hydrostatic and pneumatic test by closing the inlet water supply and outlet foam concentrate valves.
- To select the concentrate controller, find the total foam/water system demand in GPM (liters per minute) from the table, and select the proper size controller. For some flows, there may be several controller sizes to select from. Therefore, the hydraulic calculations must always reflect the correct loss in pressure for the selected controller size.
- On systems with hydraulically or electrically operated full port ball valves or deluge concentrate control valves, connect the valve and swing check valve to the controller using shoulder nipples. The foam concentrate control valve and swing check valve must be mounted as close to the controller as possible.
- Teflon tape or sealing compounds are recommended at pipe joints in the foam concentrate supply line. Foam concentrates act as harsh detergents and may wash other pipe joint compounds out of the joint.
- It is suggested that a union or grooved coupling be installed between the foam concentrate swing check valve and the inlet to the concentrate controller to facilitate servicing the concentrate controller.

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- The foam concentrate manufacturer must be consulted to determine the optimum method of application, rate of discharge, application density, and frequency of replenishment, in order to establish and maintain the foam blanket integrity, if not specified by the authority having jurisdiction.
- When conducting a foam/water solution flow test, always flow more solution than the minimum GPM (liters per minute) required on the flow range chart found on the concentrate controller Technical Data page. This will result in better foam/water ratios, since the test flows will be higher than the minimum operating range of the controller.
- Verification of proper foam concentrate percentage in the foam/water solution is normally required by the Authority Having Jurisdiction for foam/water sprinkler installations. This service, plus filling of the bladder tank with foam concentrate, can be provided by the bladder tank manufacturer for an additional charge. It is highly recommended that these two functions be performed by the bladder tank manufacturer initially, and by the fire sprinkler system installer only after proper training. The bladder tank manufacturer will provide training of installer or customer personnel for an additional fee. Contact your Viking Representative for further details.
- The water supply must always be checked for suitable quality. Should the water supply contain corrosion inhibitors, emulsion braking chemicals, or any other additives, the foam concentrate manufacturer must be consulted.
- Please note that multiple systems can also be supplied from a single bladder tank by using a manifold foam concentrate supply system.
- Unions, couplings, or other similar fittings necessary to complete the piping connections between the system riser and the bladder tank are not indicated on the general schematic figures. However, the installing contractor must incorporate them into the piping system in order to install the system as indicated.
- Check for compliance with environmental rules and regulations for design, testing, drainage, system runoff or other potential environmental requirements.
- A foam concentrate control valve is always recommended on a balanced pressure Viking Foam/Water system. This is to prevent the unwanted discharge of foam concentrate caused by thermal expansion, siphoning or any other reason. It is a positive closure of the foam concentrate supply line and should always be included as part of a complete foam/water system package.
- Wet pipe AFFF systems should be pre-primed with foam solution per NFPA 16.
- The foam solution test valve must be large enough to flow full system demand for testing purposes.