



TECHNICAL DATA

FLEXIBLE SPRINKLER CONNECTION

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

Viking Flexible Sprinkler Connections are available for use with suspended tile ceilings, allowing ease and accuracy of sprinkler placement. They connect the branch line to the sprinkler head using a 38" (965 mm) flexible stainless steel tube and a special reducer fitting. They provide extra vertical adjustment for flush fits and precise center-of-tile sprinkler installation.

Specific Viking sprinklers are available pre-packaged factory installed onto a reducer fitting along with a sprinkler support (see Figure 2). Frame style sprinklers VK302 and VK608 are available with the Model E-1 or threaded Model E-2 Recessed Escutcheon pre-packaged as Flexible Sprinkler Assemblies (White Polyester or Chrome sprinkler with a 155 °F (68 °C) or 175 °F (79 °C) temperature rating). Also included in the package are a special shoulder nipple (inlet), bracket and clip assembly, cross bar assembly, slip nuts, and ceiling grid clamps.

Currently, the following sprinklers are available pre-packaged with the Flexible Sprinkler Connection: Concealed sprinkler VK462 and frame style sprinklers

VK302 and VK608.

Refer to the appropriate sprinkler technical data pages for information on available/ listed sprinkler temperature ratings and finishes.



Flexible Sprinkler Connection
(Shown with Viking VK462 and Cover)

2. LISTINGS AND APPROVALS

cUL_{us} **cULus Listed:** Category VENF, UL File Ex5290, Paradise Industry Co., Ltd. Flexible Sprinkler Connection FPSJ-4/1000

Refer to the specific sprinkler technical data pages for sprinkler listings and other technical information.

3. TECHNICAL DATA

Specifications:

(NOTE: The Flexible Sprinkler Connection is manufactured for Viking by Paradise Industry Co., Ltd. Reference Flexible Sprinkler Connection Model FPSJ-4/1000)

Maximum Working Pressure of Flexible Connection: 200 PSI (13.8 bar)

* Metric K-factor measurement is shown in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Test Pressure of Flexible Connection: 400 PSI (28 bar)

Maximum Temperature Rating of Flexible Connection: 300 °F (149 °C)

WARNING: Refer to the sprinkler technical data page, as the temperature rating and maximum pressure rating of the sprinkler may be different than the flexible sprinkler connection.

Connection to Branch Line: 1" NPT Male Thread

Minimum Bend Radius: 3" (76 mm), measured to the inside surface of the bent hose

Maximum Number of Bends per Hose: 3

Tube Length: 38" (965 mm)

Friction Loss Data:

Equivalent Length of 1" Steel Pipe (including 3 bends)

With 38" (965) Tube = 34 ft. (10.4 m)

NOTE: For Flexible Sprinkler Connections pre-packaged with sprinklers, the sprinklers are pre-installed onto the special reducer fittings using Loctite® thread sealant (UL Classified; Tested and Certified by NSF to NSF/ANSI Standard 61, Drinking Water System Components).

Material Standards:

Flexible Hose: Corrugated Stainless Steel AISI 304

Slip Nuts: Brass C3771BC

Reducer Fitting: Yellow Zinc/Steel SPPS

Special Shoulder Nipple (Inlet): Yellow Zinc/Steel SPPS

Reducing Nipple Clamp & Bolt: Galvanized Steel SS41

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.

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Bracket & Clip Assemblies: Galvanized Steel SS41
 Sprinkler Support and Cross Bar Assembly: Galvanized Steel SS41

Ordering Information: (Also refer to the current Viking price list.)

Refer to Viking's current price list to determine sprinklers available pre-packaged with the Flexible Sprinkler Connection.

For concealed sprinklers add the suffix "FLX38" to the sprinkler base part number after the appropriate sprinkler finish suffix (if applicable) and temperature suffix. They are packaged 10/box.

For example, Flexible Sprinkler Connection Assembly with concealed sprinkler VK462, with a 155 °F (68 °C) temperature rating = Part No. 13503ABC-FLX38.

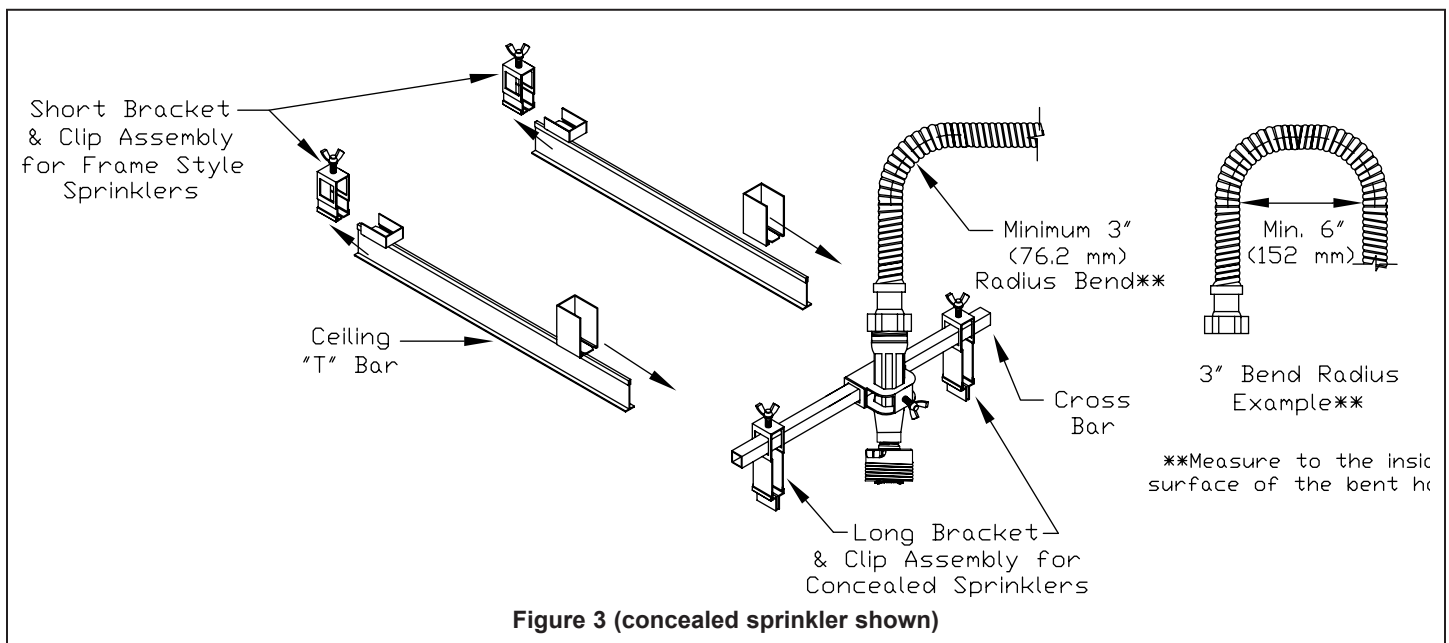
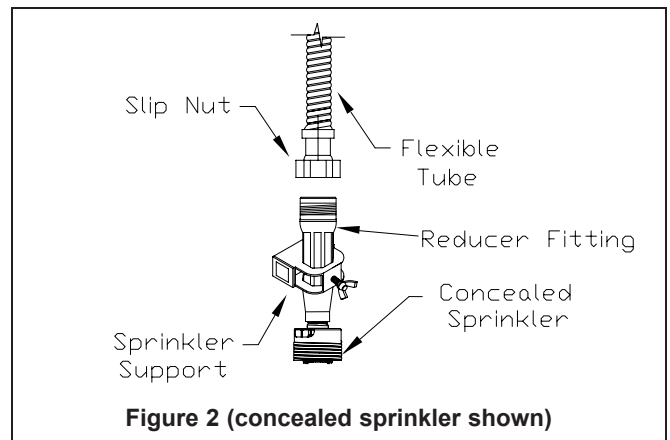
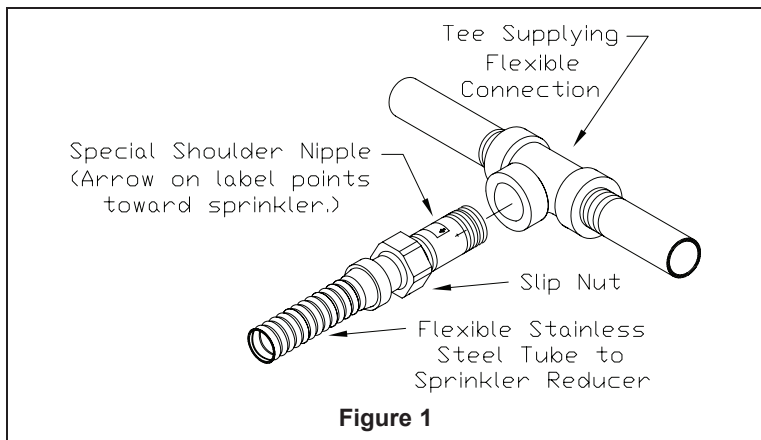
NOTE: For concealed sprinklers, the cover plate assembly must be ordered separately (refer to the sprinkler technical data page and Viking's current price list).

For frame style sprinklers with the Model E-1 Escutcheon, add the suffix "FLX381".

For frame style sprinklers with the Model E-2 Escutcheon, add the suffix "FLX382".

4. INSTALLATION

Viking Flexible Sprinkler Connections are manufactured and tested to meet the rigid requirements of the approving agency. Flexible Sprinkler Connections are designed to be installed in accordance with recognized installation standards. Deviation from the standards or any alteration to the sprinklers or flexible connections after they leave the factory including, but not limited to: painting,





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DESIGN CRITERIA

cULus Listing Requirements:

Refer to the specific sprinkler data page for the sprinkler model used with the Flexible Sprinkler Connection. The Flexible Sprinkler Assembly is cULus Listed for installation in accordance with the latest edition of NFPA 13.

CAUTIONS:

- **Minimum Bend Radius: 3" (76 mm), measured to the inside surface of the bent hose.**
- **Maximum Number of Bends per Hose: 3**
- **Repeated bending of one portion of the flexible tube before installation may cause breakage or loss of resisting pressure.**
- **The slip nut must only be tightened by hand! Excessive force can damage the Silicone O-rings.**
- **The special shoulder nipple is composed of stainless hose and must not be used as a ground for welding.**
- **When connecting the nipple and joint, connect the nipple to the O-ring first and then connect it to the sprinkler reducer.**
- **For use in heated areas only, including heated areas of dry systems.**
- **Concealed sprinklers must be installed in neutral or negative pressure plenums only.**

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to the appropriate sprinkler data page. Viking sprinklers and flexible connections are designed to be installed in accordance with the latest edition of Viking technical data, the latest standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards whenever applicable. The use of certain types of sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction prior to installation.

plating, coating, or modification, may render the sprinkler inoperative and would automatically nullify the approval and any guarantee made by The Viking Corporation. The use of certain types of sprinklers may be limited due to occupancy and hazard.

Refer to the Authority Having Jurisdiction prior to installation.

Before installation, be sure to have the appropriate sprinkler model and style, with the proper orifice size, temperature rating, and response characteristics. Sprinklers must be installed after the piping is in place to prevent mechanical damage. Keep sprinklers with protective shields or caps contained within the shields or caps during installation and testing, and any time the sprinkler is shipped or handled.

Step 1: Insure the proper size opening has been cut into the ceiling tile at the specified location. Install the special Shoulder Nipple into the line tee using the NPT threaded end. Make sure that the arrow and shoulder of the nipple both point toward the direction of the sprinkler. Apply a non-hardening thread compound or Polytetrafluoroethylene (PTFE) tape to the male threads of the nipple. See Figure 1. Make up the nipple to the line Tee with a pipe wrench for a leak-tight connection.

The flexible connection is attached to the shoulder nipple with the slip nut. See Figure 1. The nipple and flexible connection are designed to seal in this fashion. Do not use any joint compound or thread compound on the fine threads of the shoulder nipple. Insure that the slip nut on the flexible tube is tightened onto the shoulder nipple (this can only be done by hand-see cautions).

Step 2: Slide the cross bar assembly through the sprinkler support. Attach the bracket and clip assembly, along with the sprinkler and cross bar assembly, to the ceiling grid by hand using the wing bolts provided. **Note: The long bracket and clip assembly is intended for use with concealed style sprinklers. The short bracket and clip assembly is intended for use with pendent and recessed pendent frame style sprinklers.** See Figure 3. DO NOT fully tighten the wing bolts on the bracket and clip assembly until the sprinkler support is centered over the opening in the ceiling tile.

Step 3: Adjust the assembly until the proper sprinkler location below the ceiling is obtained. Tighten the wing bolt in the sprinkler support and re-check wing bolts on the bracket and clip assembly for tightness.

Step 4: Connect the flexible tube to the special reducer fitting by hand using the slip nut. (This is done in the same manner as the sprinkler tube was connected to the shoulder nipple.) See Figure 2. **DO NOT OVER-TIGHTEN!** Ensure there are no more than 3 bends per hose and the minimum bend radius is 3" (76 mm), measured to the inside surface of the bent hose. See Figure 3.

Step 5: After installation, the entire sprinkler system must be tested. The test must be conducted to comply with the installation standards.

NOTE: For Flexible Sprinkler Connections pre-packaged with Viking sprinklers, the sprinklers are pre-installed onto the special reducer fittings using Loctite® thread sealant.

1. Make sure the sprinkler has been properly tightened. If a thread leak occurs, normally the sprinkler must be removed, new pipe-joint compound or tape applied, and then reinstalled. This is due to the fact that when the joint seal is damaged, the sealing compound or tape is washed out of the joint.
2. Air testing [DO NOT exceed 40 PSI (2.76 bar)] the sprinkler piping prior to testing with water may be considered in areas where leakage during testing must be prevented. Refer to the installation standards and the Authority Having Jurisdiction.



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Step 6: Remove plastic protective sprinkler caps or bulb shields AFTER the ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements. To remove the bulb shields, simply pull the ends of the shields apart where they are snapped together. To remove caps from frame style sprinklers, turn the caps slightly and pull them off the sprinklers. **SPRINKLER CAPS OR BULB SHIELDS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!** Retain a protective cap or shield in the spare sprinkler cabinet.

Step 7a: For concealed style sprinklers, the cover plate assembly can now be installed onto the sprinkler.

- a. Remove the cover from the protective box, taking care not to damage the cover plate assembly.
- b. From below the ceiling, gently place the base of the cover plate assembly over the sprinkler protruding through the ceiling opening.
- c. Push the cover plate assembly onto the sprinkler until the unfinished brass flange of the cover plate base touches the ceiling.
- d. Available cover plate adjustment is ½" (12.7 mm) +/- 1/4" (6.4 mm).

Step 7b: For frame style sprinklers with the Model E-1 or E-2 Escutcheon, press on or thread on the outer escutcheon cup until the flanges touch the surface of the ceiling.

- a. The maximum recess is ½" (12.7 mm). Note: The face of the escutcheon adapter may extend up to 11/32" (8.7 mm) beyond edge of escutcheon cup, resulting in 27/32" (21.4 mm) total adjustment range.

If it is necessary to remove the entire sprinkler unit, the system must be taken out of service. See section 6. INSPECTIONS, TESTS AND MAINTENANCE and follow all warnings and instructions.

5. OPERATION

Refer to the sprinkler technical data page for the sprinkler model used with the Flexible Sprinkler Connection.

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 the latest edition of Viking technical data and the NFPA standard that describes care and maintenance of sprinkler systems. The Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

- A. Sprinklers must be inspected on a regular basis for corrosion, mechanical damage, obstructions, paint, etc. The frequency of inspections may vary due to corrosive atmospheres, water supplies, and activity around the device.
- B. Sprinklers that have been field painted or mechanically damaged must be replaced immediately. Sprinklers showing signs of corrosion shall be tested and/or replaced immediately as required. Installation standards require sprinklers to be tested and, if necessary, replaced after a specified term of service. Refer to the installation standards (e.g., NFPA 25) and the Authority Having Jurisdiction for the specified period of time after which testing and/or replacement is required. Sprinklers that have operated cannot be reassembled or re-used, but must be replaced. When replacement is necessary, use only new sprinklers.
- C. The sprinkler discharge pattern is critical for proper fire protection. Therefore, nothing should be hung from, attached to, or otherwise obstruct the discharge pattern. All obstructions must be immediately removed or, if necessary, additional sprinklers installed.
- D. When replacing existing sprinklers, the system must be removed from service. Refer to the appropriate system description and/or valve instructions. Prior to removing the system from service, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.
 1. Remove the system from service, drain all water, and relieve all pressure on the piping.
 2. Using the special sprinkler wrench, remove the old sprinkler and install the new unit. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the appropriate orifice size, temperature rating, and response characteristics. A fully stocked spare sprinkler cabinet should be provided for this purpose.
 3. Place the system back in service and secure all valves. Check for and repair all leaks.
- E. Sprinkler systems that have been subjected to a fire must be returned to service as soon as possible. The entire system must be inspected for damage, and repaired or replaced as necessary. Sprinklers that have been exposed to corrosive products of combustion or high ambient temperatures, but have not operated, should be replaced. Refer to the Authority Having Jurisdiction for minimum replacement requirements.

7. AVAILABILITY

The Viking Flexible Sprinkler Connection is available through a network of domestic and international distributors. See The Viking Corporation web site for the 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.