



TECHNICAL DATA

GUARDS AND WATER SHIELDS FOR XT1 SPRINKLERS

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

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

Viking Model XG Sprinkler Guards and XWU Water Shields are used in conjunction with Viking XT1 style sprinklers where allowed by the approvals. (Refer to the Approval Charts) The guards are hard-wire cages designed to encase the sprinklers and protect them from mechanical damage. They are recommended for areas where sprinklers are installed at a low elevation and/or near a high degree of human or mechanical activity.

Water shields protect the sprinkler's heat-sensing element from water discharging at a higher elevation. Viking XT1 style sprinklers with Model XWU or F-1 Water Shields and/or XG Guards are converted to intermediate level/rack storage sprinklers. They may be used in any application where water shielding is required, such as in-rack sprinkler systems, under grating, on pilot sprinklers for deluge systems, and outdoors as a weather shield.

NOTE: Sprinkler water shields and guards are not designed to be used on sprinklers installed in recessed escutcheons.

2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class 2091

XG Guard is approved for use with the following sprinklers:

VK1001, VK1021, VK3001, VK3021, VK2002, VK2022, VK3502, VK3522, VK2001, VK2021, VK3501, and VK3521

XWU Water Shield is approved for use on XT1 Upright sprinklers **with XG Guards**: VK1001, VK3001, VK2002, VK3502, VK2001, and VK3501

F-1 Water Shield is approved for use with XT1 Pendent sprinklers:

VK1021, VK3021, VK2022, VK3521, VK2021, and VK3522

Refer to the Approval Charts for more information.

3. TECHNICAL DATA

Specifications: See Table 2.

Material Standards:

XG Sprinkler Guard: UNS-G10100 Bright Basic Steel Wire or JIS G3141 SPCF

Screw: 6-32 x 3/8 (R.H. Phillips-Slotted Combination Drive): Steel

Screw Finish: Zinc Plated

XWU Water Shield: UNS-G10080 Cold Rolled Steel or JIS G3141 SPCF

Wrench: 65-45-12 Ductile iron or QT 450-12

F-1 Water Shield: UNS-G10080 Cold Rolled Steel

Ordering Information: See Table 1.



XG Sprinkler Guard



XWU Water Shield



XT1 Sprinkler Guard Wrench



F-1 Water Shield



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov



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TABLE 1: ORDERING INFORMATION AND DIMENSIONS

Guards and water shields can be ordered separately or as preassembled units with sprinklers. See below for details.
 Refer to the approval charts in this document as well as the appropriate sprinkler Technical Data Page.

NOTES:

- To order the Model XG Sprinkler Guard factory-installed on the sprinkler, first determine the sprinkler part number according to the appropriate sprinkler technical data sheet, then add the additional suffix "G" to the sprinkler part number. Refer to the approval charts for approved sprinkler models and base part numbers.
- To order the Model XG Sprinkler Guard AND Model XWU Upright Water Shield Pre-assembled onto the sprinkler, first determine the sprinkler part number according to the appropriate sprinkler technical data sheet, then add the additional suffix "GU" to the sprinkler part number.

| Part Number | Description | Size | |
|-------------|--|--------------|---------------|
| | | NPT | BSPT |
| 23930 | Model XG Sprinkler Guard (see Note above for factory-installed option) | 1/2" or 3/4" | 15 mm or 20mm |
| 22937 | Model XWU Upright Water Shield (must be used with Model XG Guard) | -- | -- |
| 23825MR* | XT1 Sprinkler Guard Wrench | 1/2" or 3/4" | 15 mm or 20mm |
| 10323 | Model F-1 Pendent Water Shield | 1/2" | 15 mm |
| 10324 | Model F-1 Pendent Water Shield | 3/4" | 20mm |

* Not for use with XT1 sprinklers NOT equipped with the XG Guards.

TABLE 2: SPECIFICATIONS

| Part Number | Description | Dimensions | | |
|-------------|---------------------------------|------------------|-----------------|-----------------|
| | | A | B | C |
| 23930 | XG Sprinkler Guard | 2-15/16" (75 mm) | 2-3/16" (56 mm) | 3/32" (2.3 mm) |
| 22937 | XWU Upright Water Shield | 3-3/8" (86 mm) | 9/16" (14 mm) | 1/32" (1 mm) |
| 10323 | F-1 Pendent Water Shield (1/2") | 3" (75 mm) | 0.08" (2 mm) | 0.036" (0.9 mm) |
| 10324 | F-1 Pendent Water Shield (3/4") | 3" (75 mm) | 0.08" (2 mm) | 0.036" (0.9 mm) |

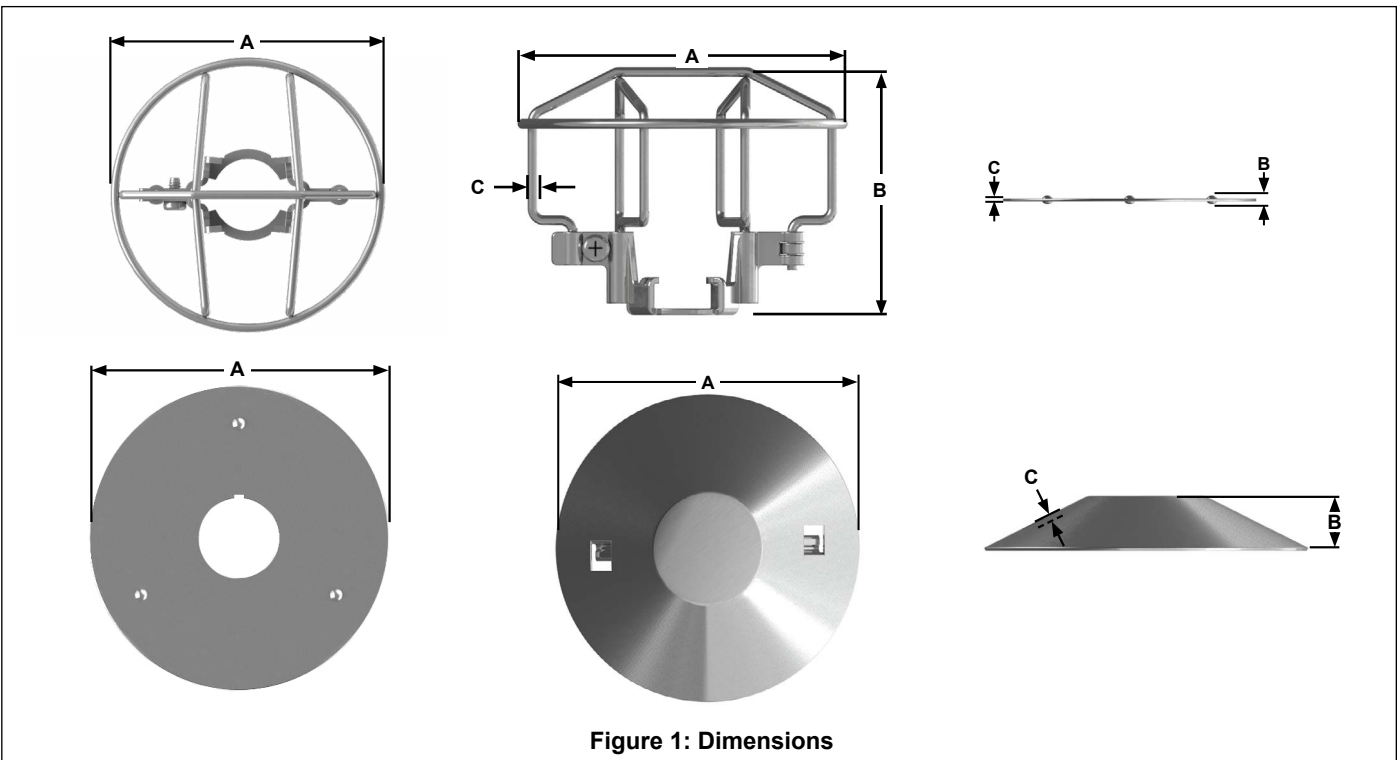


Figure 1: Dimensions



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4. INSTALLATION



DANGER FIRE HAZARD - RISK OF SERIOUS INJURY OR DEATH

Improper installation can impede the sprinkler operation and lead to serious injury or death.
 ► Follow the procedures in this document to properly install the sprinkler guard.

A. Installing the XG Sprinkler Guard on the Sprinkler

Tools needed:

- R.H. Phillips or Flat Head screwdriver (not available from Viking.)

Procedure:

1. Install the sprinkler into the piping according to the sprinkler's Technical Data sheet.
2. Loosen the screw and open the guard.
3. With the sprinkler frame arms parallel to the vertical guard members, maneuver the guard onto the sprinkler.

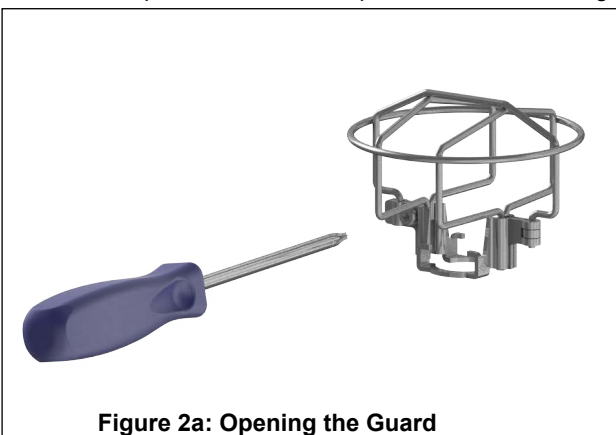


Figure 2a: Opening the Guard

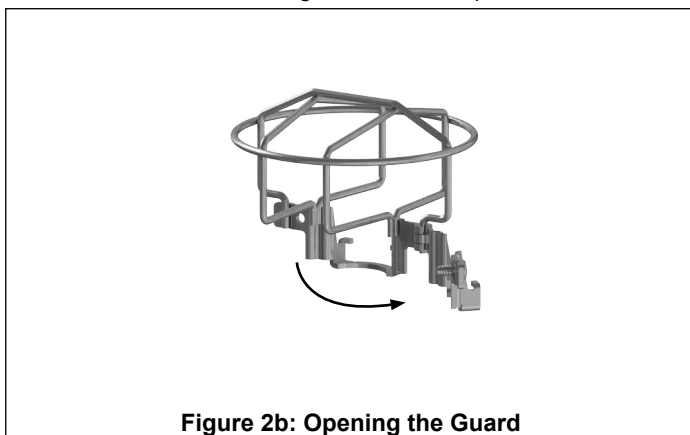


Figure 2b: Opening the Guard

NOTE: For Upright sprinklers, the guard must be oriented and angled as shown (Figure 3a) in order to get the deflector inside the frame.

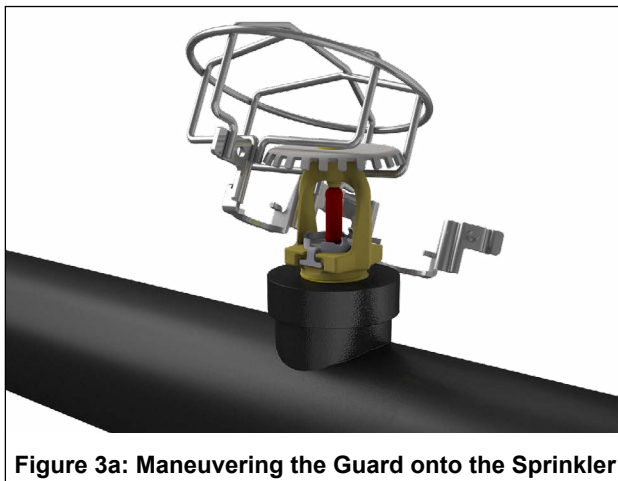


Figure 3a: Maneuvering the Guard onto the Sprinkler

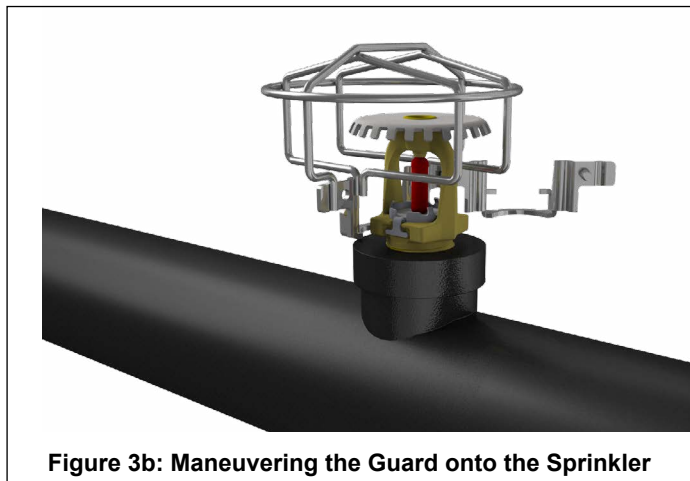


Figure 3b: Maneuvering the Guard onto the Sprinkler



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4. Once the sprinkler is inside the frame and the guard is properly oriented, rotate the guard 90 degrees in either direction so the activation element T-hinge is not blocked. See Figures 4 and 5.
5. Verify that the guard is properly oriented on the sprinkler (see Figure 6) then, close the guard and tighten the screw.

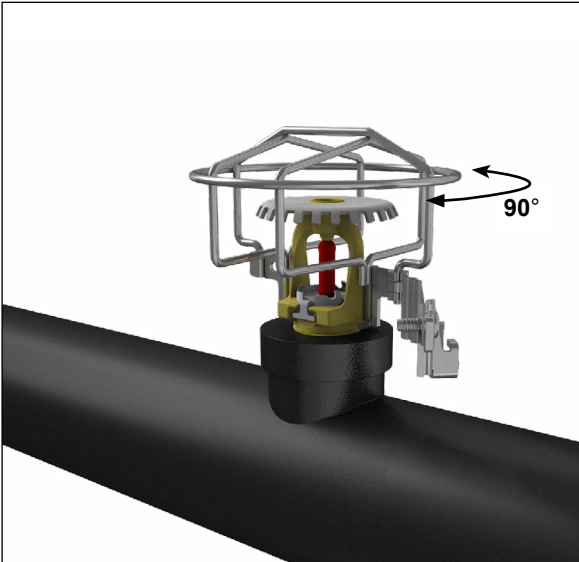


Figure 4: Rotating the Guard into Place

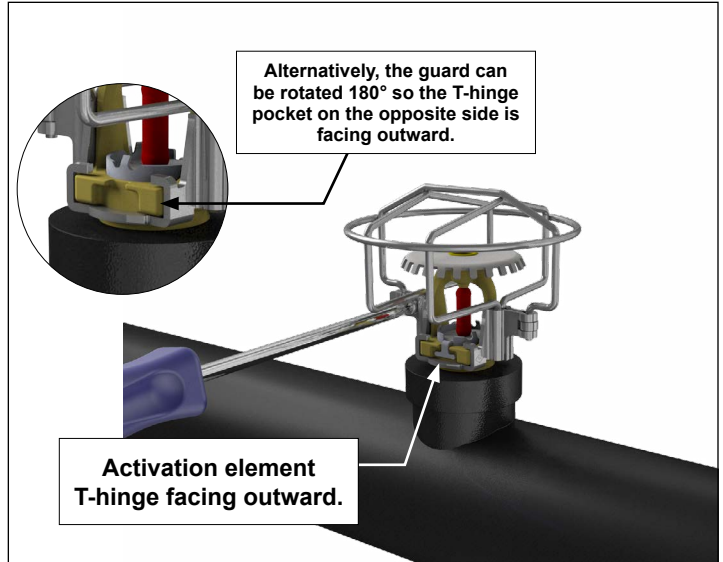


Figure 5: Closing the Guard

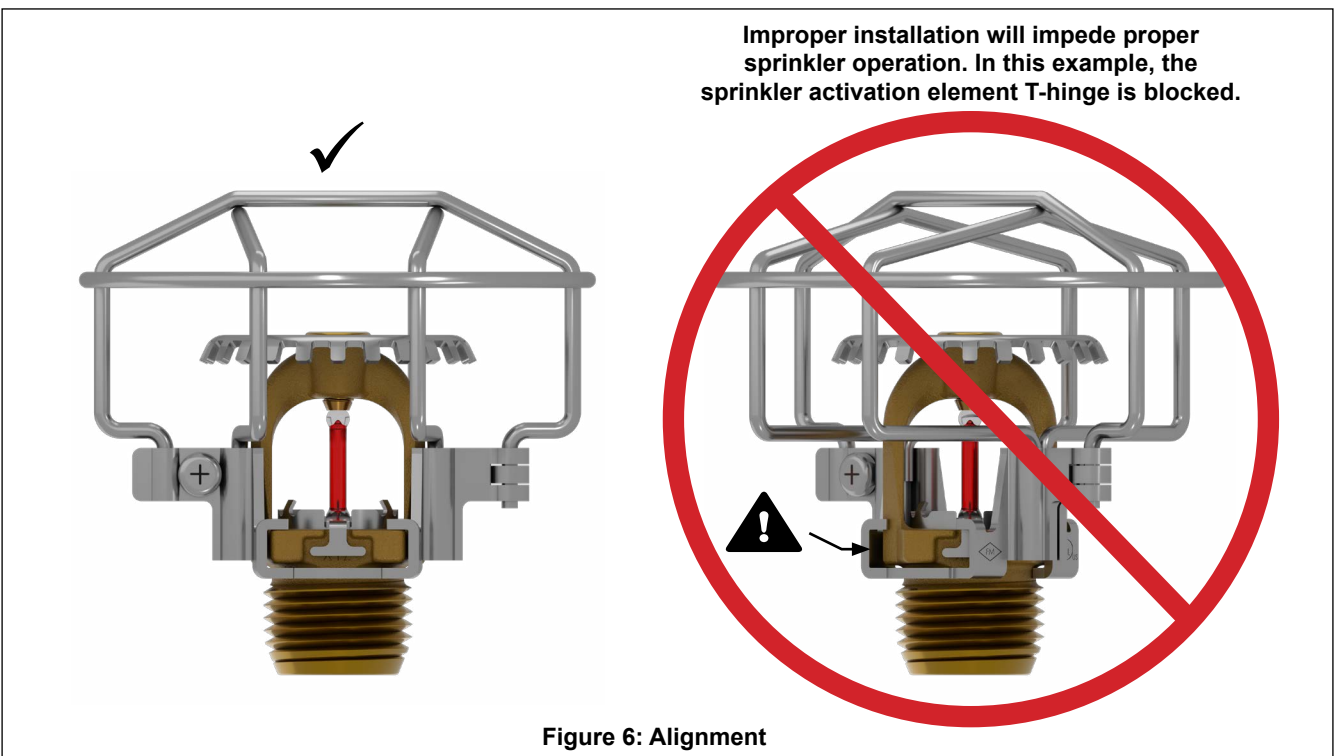


Figure 6: Alignment

| | | |
|---|-----------------------|--|
|  | TECHNICAL DATA | GUARDS AND WATER SHIELDS FOR XT1 SPRINKLERS |
|---|-----------------------|--|

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B. Installing the XWU Water Shield onto the XG Sprinkler Guard

CAUTION CUTTING HAZARD

The outer edge of the water shield is sharp and can cause cuts.
 ► Avoid sharp edges.

Tools needed: None

Procedure:

1. Line up the clips to be installed onto the guard frame as shown below.
2. Rotate the water shield a few degrees clockwise to snap the clips onto the guard wires as shown.

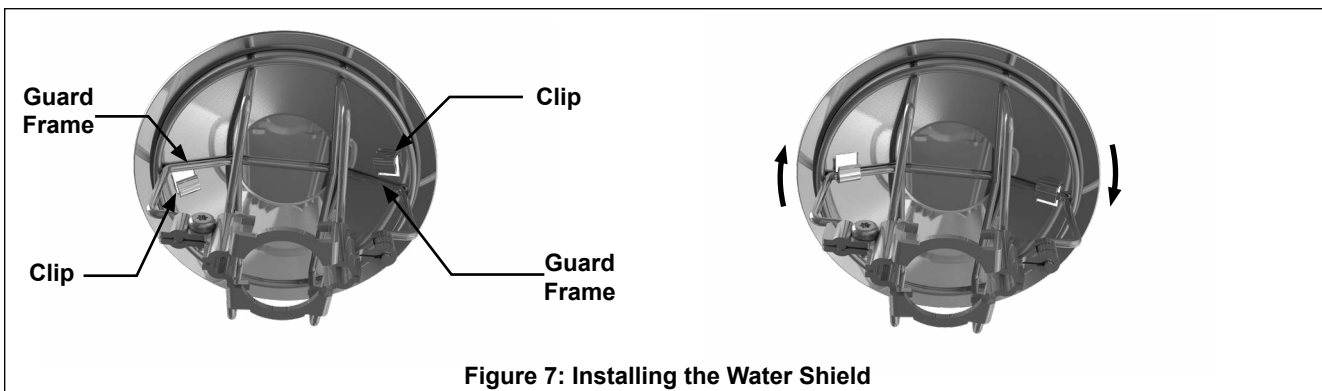


Figure 7: Installing the Water Shield

C. Installing a Pre-Assembled Unit (Assembled unit includes sprinkler, guard and watershield).

NOTICE

Using the wrong wrench can damage the sprinkler and/or guard.
 ► Use only the designated Sprinkler Wrench. DO NOT use the Sprinkler Guard Wrench on XT1 sprinklers NOT equipped with the Model XG Sprinkler Guard.

Tools needed: Sprinkler Guard Wrench. Part Number: 23825MR

Procedure:

1. Install the entire assembly (sprinkler with guard and/or water shield) into the sprinkler piping by hand first.
2. Carefully slide the sprinkler guard wrench around the sprinkler/guard assembly as shown and tighten the sprinkler as necessary.

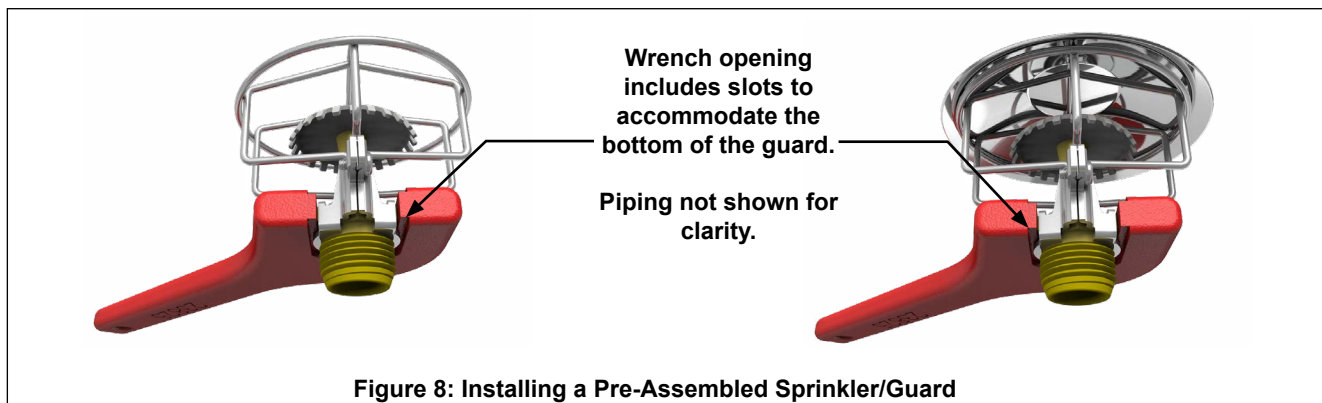


Figure 8: Installing a Pre-Assembled Sprinkler/Guard



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D. Installing the F-1 Water Shield (and XG Guard, if desired - not shown below)

NOTICE

Use only the designated sprinkler wrench. Refer the appropriate sprinkler's Technical Data sheet.

Tools needed:

- Sprinkler wrench (see Notice above).

Procedure:

1. Install the F-1 Water Shield onto the sprinkler threads as shown below.
2. Install the sprinkler/water shield assembly into the piping according to the sprinkler's Technical Data sheet.
3. After installing the sprinkler/water shield into the pipe, install the XG guard (if applicable) onto the sprinkler as shown in Section 4A.

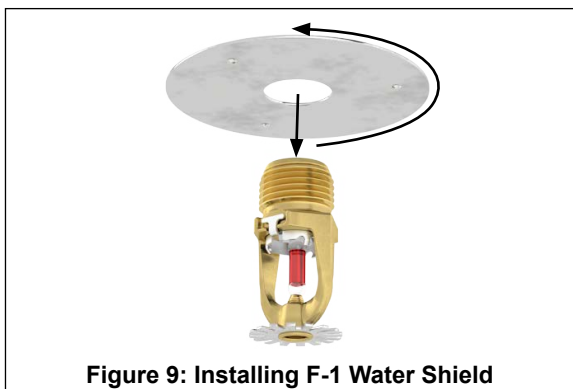


Figure 9: Installing F-1 Water Shield



Figure 10: Sprinkler/Water Shield Installed in Pipe

5. OPERATION

NOTICE

Always refer to Bulletin Form Number F_091699 - Care and Handling of Sprinklers. Also refer to the appropriate sprinkler data page. Viking sprinklers are designed to be installed in accordance with the latest edition of Viking technical data, the latest standards of NFPA, FM Global 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..

Refer to the sprinkler technical data page for the sprinkler model used. Water shields protect the sprinkler's heat-sensing operating element from water spray discharge from sprinklers located at a higher elevation. The Sprinkler Guard is a hard-wire cage designed to encase the sprinkler and protect it from mechanical damage.

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking sprinkler guards and water shields are available through a network of domestic and international distributors. See the Viking website for the closest distributor or contact Viking.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.



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The upright sprinklers shown in the Approval Chart below may be ordered with sprinkler guards factory-installed. See Table 1 in this document and refer to the appropriate sprinkler technical data page for available temperatures and finishes.

For Upright Intermediate Level installation, See NOTE below.

NOTE: When Upright XT1 Sprinklers listed on the chart below are equipped with the XG Guard and XWU Water Shield they can be used in intermediate level installation.

| Approval Chart 1 Upright XT1 Sprinklers | | | | | | | | | | | | |
|--|--------|-----------------|-------------|-------|--------------|------------------|---------------------|-------------------------|----------------|----|-------------------------------------|-----------------|
| Sprinkler Base Part No. ¹ | SIN | Sprinkler Style | Thread Size | | Orifice Size | Nominal K-Factor | | Maximum Pressure | Overall Length | | Listings and Approvals ³ | |
| | | | NPT | BSPT | | U.S. | metric ² | | Inches | mm | cULus ⁴ | FM ⁵ |
| Standard Response, Glass Bulb Type | | | | | | | | | | | | |
| 23867 | VK1001 | Upright | 1/2" | -- | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23879 | VK1001 | Upright | -- | 15 mm | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23875 | VK2001 | Upright | 3/4" | -- | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23887 | VK2001 | Upright | -- | 20 mm | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23871 ⁶ | VK2002 | Upright | 1/2" | -- | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23883 | VK2002 | Upright | -- | 15 mm | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| Quick Response, Glass Bulb Type | | | | | | | | | | | | |
| 23869 | VK3001 | Upright | 1/2" | -- | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23881 | VK3001 | Upright | -- | 15 mm | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23877 | VK3501 | Upright | 3/4" | -- | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23889 | VK3501 | Upright | -- | 20 mm | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23873 ⁶ | VK3502 | Upright | 1/2" | -- | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23885 | VK3502 | Upright | -- | 15 mm | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| Approved Temperature Ratings and Finishes Refer to the sprinkler technical data sheet. | | | | | | | | | | | | |
| Footnotes | | | | | | | | | | | | |
| 1. Base part number is shown. For complete part number, refer to Viking's current price list. | | | | | | | | | | | | |
| 2. Metric K-factor measurement shown is when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0. | | | | | | | | | | | | |
| 3. This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. | | | | | | | | | | | | |
| 4. Listed by Underwriters Laboratories, Inc. for use in the U.S. and Canada. | | | | | | | | | | | | |
| 5. FM Approved for protection of occupancies described in the FM Global Loss Prevention Data Sheets (including 2-0 and 8-9) and Technical Advisory Bulletins. | | | | | | | | | | | | |
| 6. The 1/2" NPT Large Orifice Sprinkler is listed and approved for retrofit only when installed in accordance with NFPA 13. | | | | | | | | | | | | |



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The pendent sprinklers shown in the Approval Chart below may be ordered with sprinkler guards factory-installed. Pendent sprinklers (with or without the sprinkler guards) and water shields must be ordered separately. Water Shield assembly is required. See Table 1 in this document and refer to the appropriate sprinkler technical data page for available temperatures and finishes.

Approval Chart 2

Pendent Intermediate Level XT1 Sprinklers

| Sprinkler Base Part No. ¹ | SIN | Sprinkler Style | Thread Size | | Orifice Size | Nominal K-Factor | | Maximum Pressure | Overall Length (Sprinkler) | | Listings and Approvals ³ | |
|---|--------|-----------------|-------------|-------|--------------|------------------|---------------------|---------------------|----------------------------|----|-------------------------------------|-----------------|
| | | | NPT | BSPT | | U.S. | metric ² | | Inches | mm | cULus ⁴ | FM ⁵ |
| Standard Response, Glass Bulb Type | | | | | | | | | | | | |
| 23868 | VK1021 | Pendent | 1/2" | -- | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 | 1-5/16 | 49 | ✓ | ✓ |
| 23880 | VK1021 | Pendent | -- | 15 mm | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 | 1-5/16 | 49 | ✓ | ✓ |
| 23876 | VK2021 | Pendent | 3/4" | -- | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23888 | VK2021 | Pendent | -- | 20 mm | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23872 ⁶ | VK2022 | Pendent | 1/2" | -- | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23884 | VK2022 | Pendent | -- | 15 mm | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| Quick Response, Glass Bulb Type | | | | | | | | | | | | |
| 23870 | VK3021 | Pendent | -- | 15 mm | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 | 1-5/16 | 49 | ✓ | ✓ |
| 23882 | VK3021 | Pendent | -- | 15 mm | Standard | 5.6 | 80.6 | UL-250 PSI / FM-175 | 1-5/16 | 49 | ✓ | ✓ |
| 23878 | VK3521 | Pendent | 3/4" | -- | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23890 | VK3521 | Pendent | -- | 20 mm | Large | 8.0 | 115.2 | 175 PSI | 2 | 51 | ✓ | ✓ |
| 23874 ⁶ | VK3522 | Pendent | 1/2" | -- | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |
| 23886 | VK3522 | Pendent | -- | 15 mm | Large | 8.0 | 115.2 | 175 PSI | 1-5/16 | 49 | ✓ | ✓ |

Approved Temperature Ratings and Finishes

Refer to the sprinkler technical data sheet.

Footnotes

1. Base part number is shown. For complete part number, refer to Viking's current price list.
2. Metric K-factor measurement shown is when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
3. This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
4. Listed by Underwriters Laboratories, Inc. for use in the U.S. and Canada.
5. FM Approved for protection of occupancies described in the FM Global Loss Prevention Data Sheets (including 2-0 and 8-9) and Technical Advisory Bulletins.
6. The 1/2" NPT Large Orifice Sprinkler is listed and approved for retrofit only when installed in accordance with NFPA 13.