



## 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](http://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 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 can be converted to intermediate level in-rack storage sprinklers. They may be used in any application where a water shield 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 with 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, VK1003, VK1021, VK1023, VK2001, VK2002, VK2003, VK2021, VK2022, VK2023, VK3001, VK3003, VK3021, VK3023, VK3501, VK3502, VK3503, VK3521, VK3522, VK3523, VK850, VK851, VK852, and VK853

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

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

VK1021, VK3021, VK2022, VK3521, VK2021, VK3522, VK850, VK851, VK852, and VK853

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



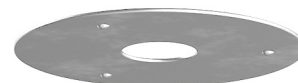
XWU Water Shield



XT1 Sprinkler Guard Wrench



XT1 Sprinkler Guard Wrench



F-1 Water Shield



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://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", 3/4", or 1"	15 mm, 20mm, or 25 mm
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
29271MR*	XT1 Sprinkler Guard Wrench	1"	25 mm
10323	Model F-1 Pendent Water Shield	1/2"	15 mm
10324	Model F-1 Pendent Water Shield	3/4"	20mm

\*ONLY for use with XT1 sprinklers equipped with the XG Guards.



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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)

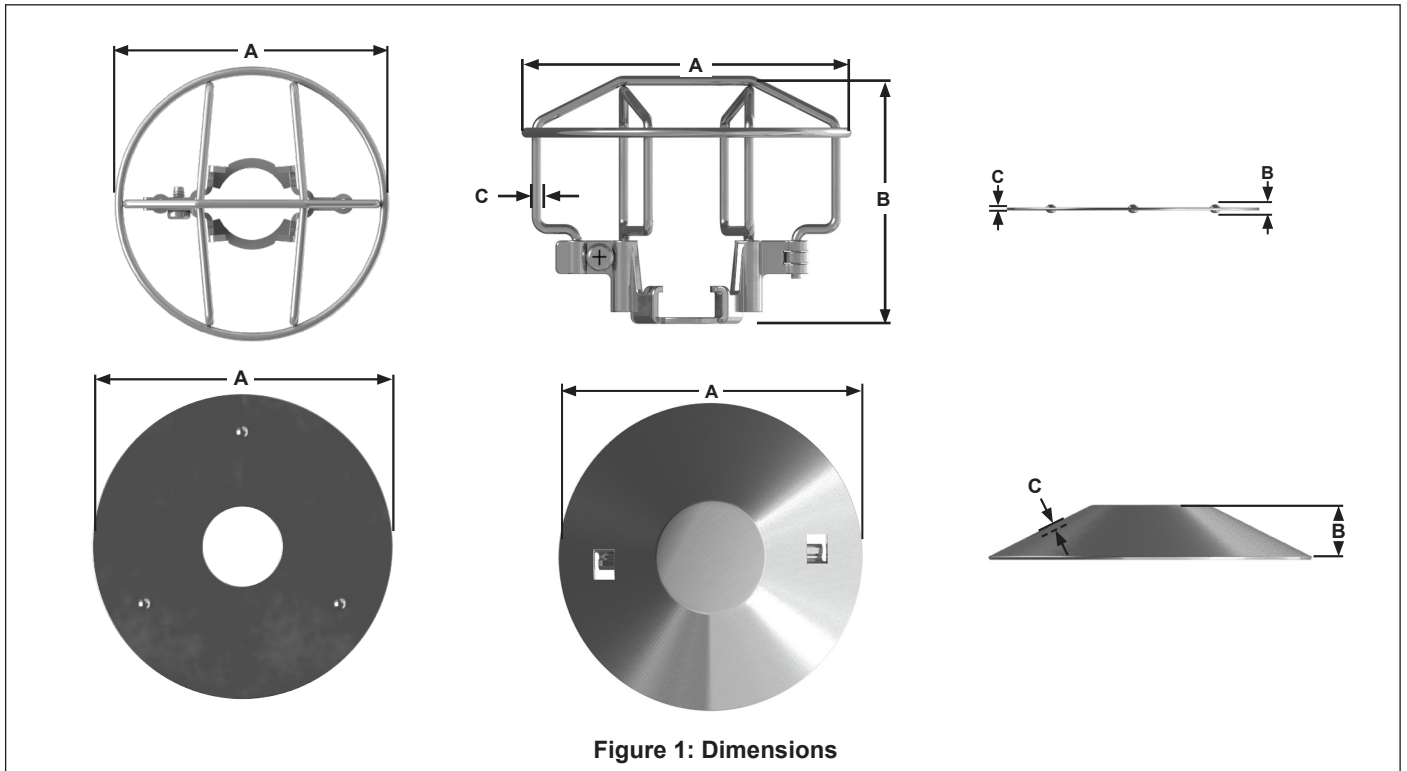


Figure 1: Dimensions



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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.

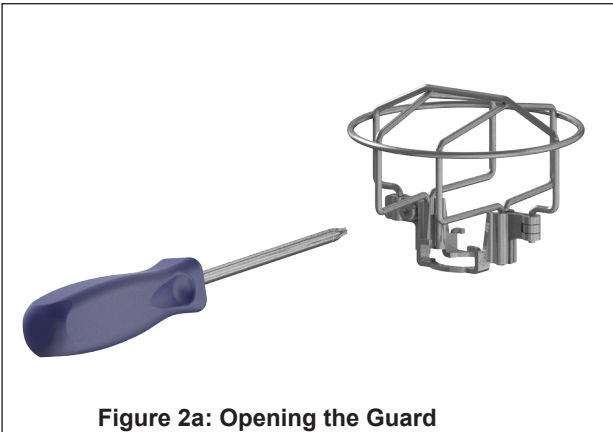


Figure 2a: Opening the Guard

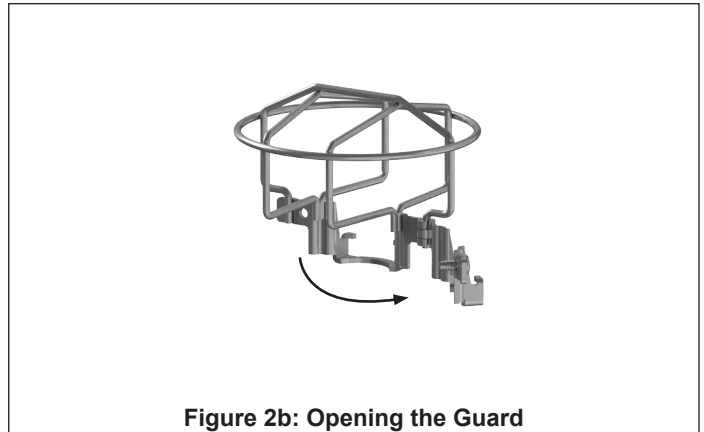


Figure 2b: Opening the Guard

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

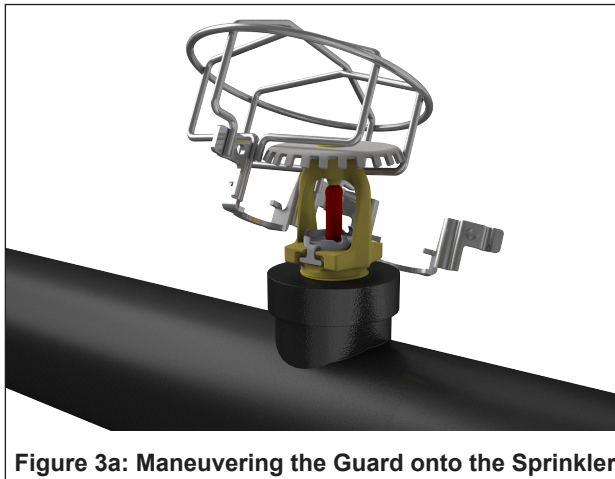


Figure 3a: Maneuvering the Guard onto the Sprinkler

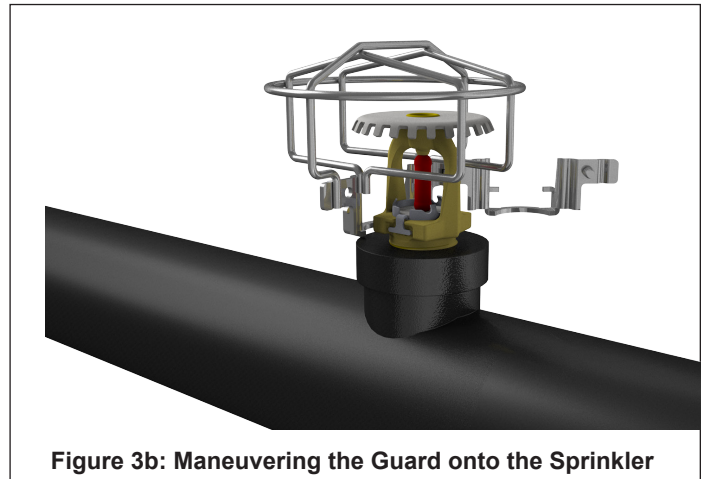


Figure 3b: Maneuvering the Guard onto the Sprinkler



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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.

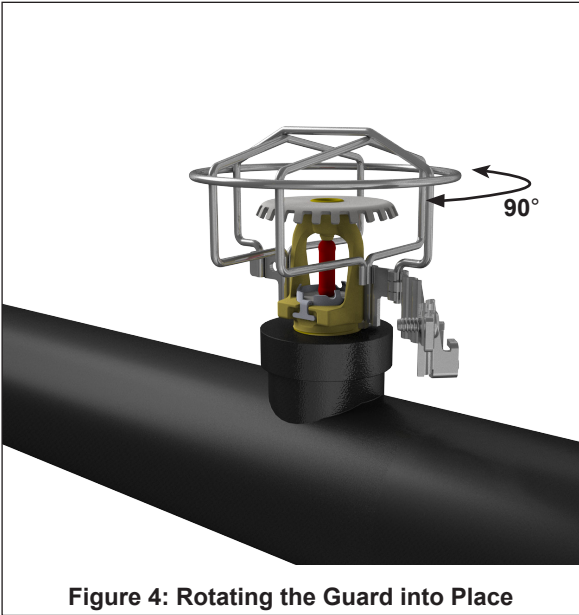


Figure 4: Rotating the Guard into Place

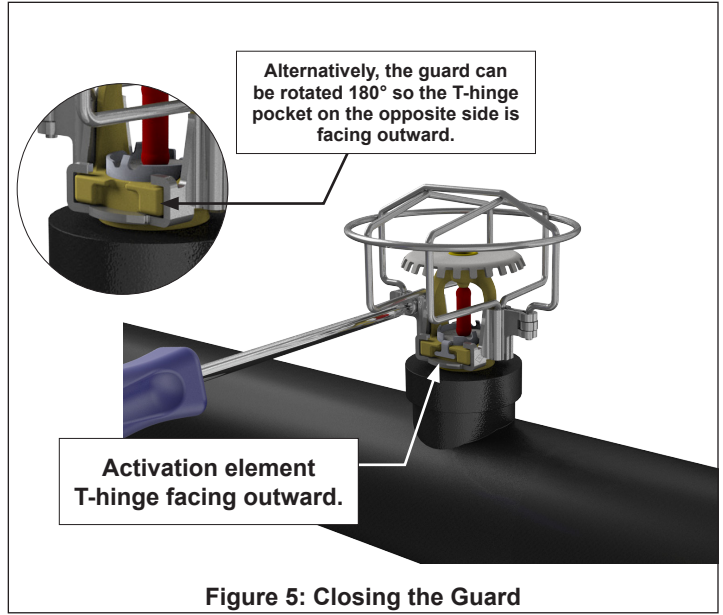


Figure 5: Closing the Guard

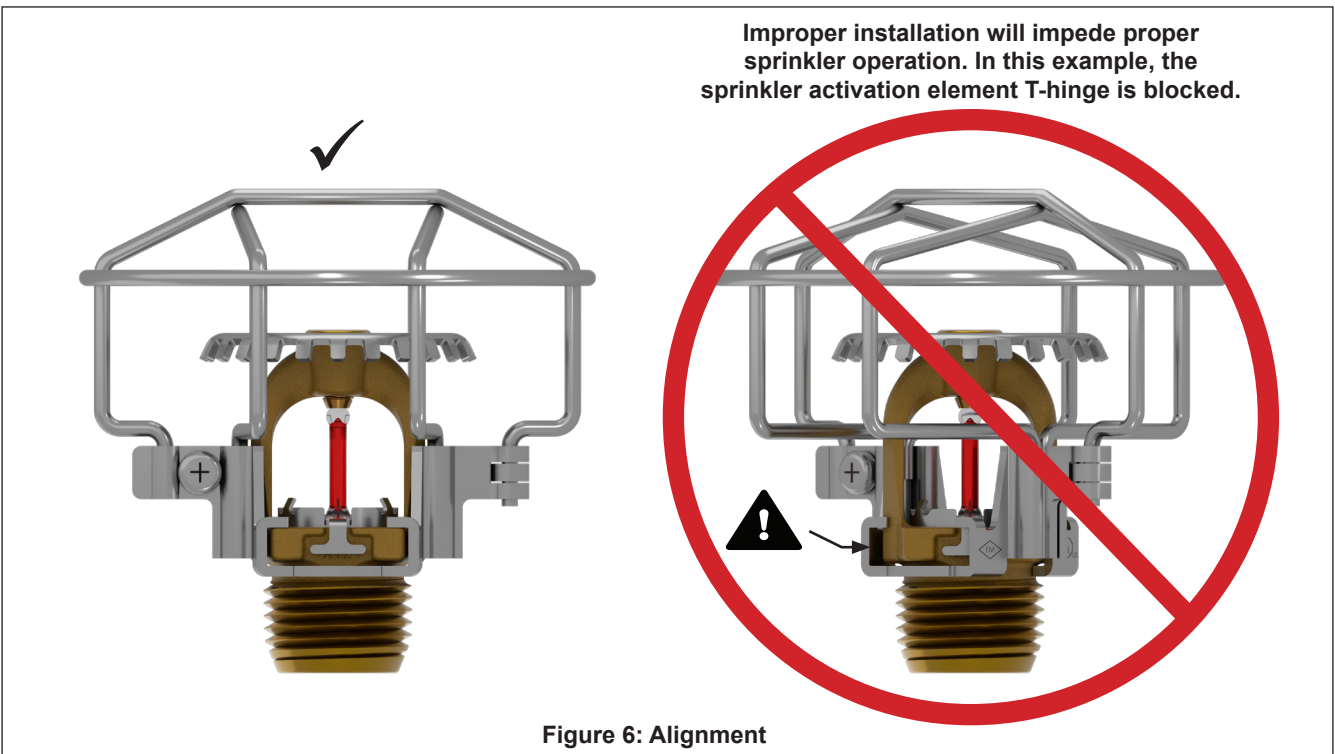


Figure 6: Alignment



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

**CAUTION CUTTING HAZARD**

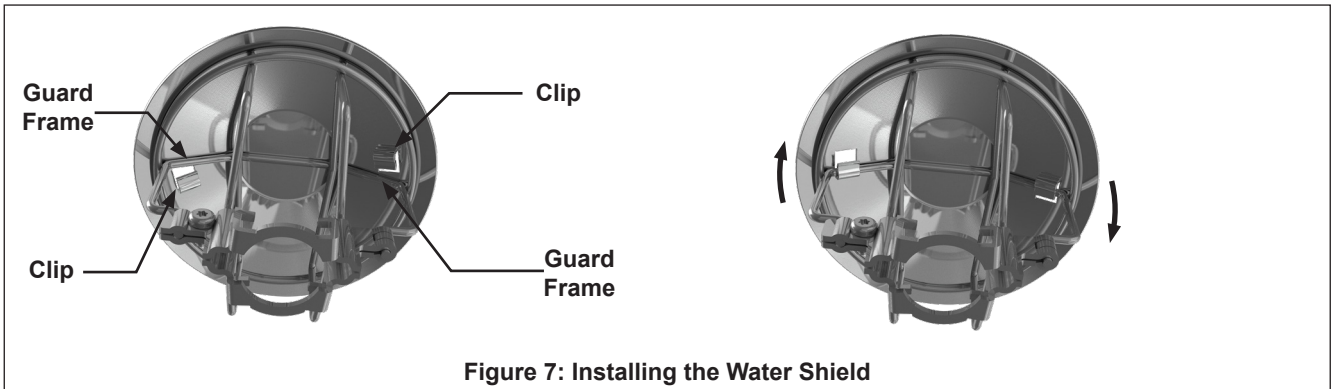
The outer edge of the water shield is sharp and can cause cuts.  
 ► Avoid sharp edges.

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.

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



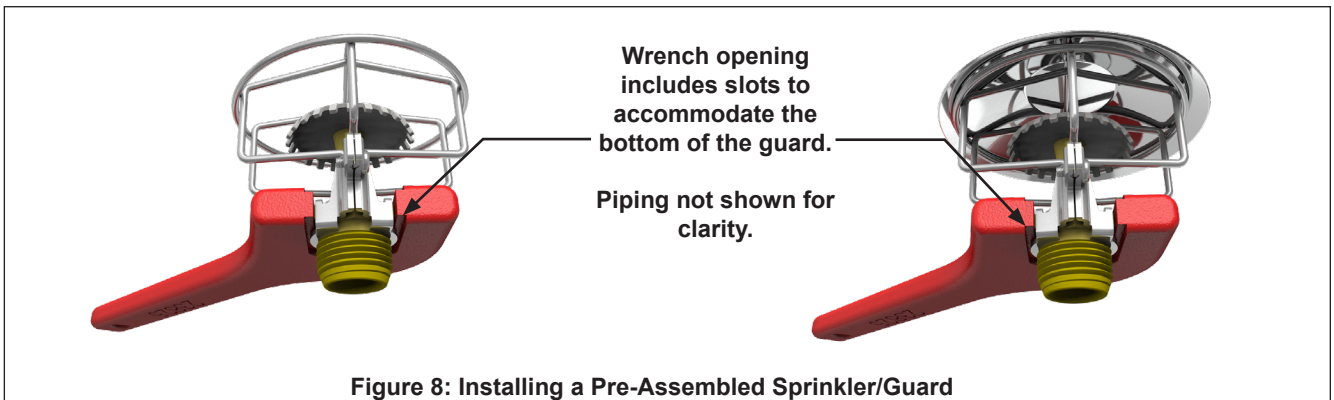
**NOTICE**

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 or 29271MR.

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.





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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.

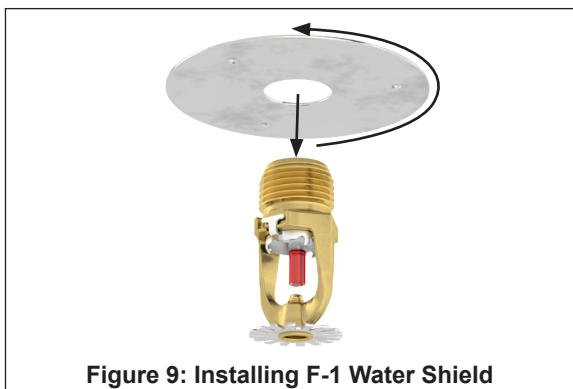


Figure 9: Installing F-1 Water Shield



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 (above) in this document and refer to the appropriate sprinkler technical data page for available temperatures and finishes.

**NOTE:** 1/2" and 3/4" upright XT1 sprinklers shown on the chart below can be used in intermediate level installation when equipped with the XG Guard and XWU water shield. 1" XT1 sprinklers are NOT listed/approved for intermediate level installation.

Approval Chart 1 Upright XT1 Sprinklers												
Sprinkler Base Part No. <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Orifice Size	Nominal K-Factor		Maximum Pressure	Overall Length		Listings and Approvals <sup>3</sup>	
			NPT	BSPT		U.S.	metric <sup>2</sup>		Inches	mm	cULus <sup>4</sup>	FM <sup>5</sup>
<b>Standard Response, Glass Bulb Type</b>												
23867	VK1001	Upright	1/2"	--	Standard	5.6	80.6	UL-250 PSI / FM-175 PSI	1-15/16	49	✓	✓
23879	VK1001	Upright	--	15 mm	Standard	5.6	80.6	UL-250 PSI / FM-175 PSI	1-15/16	49	✓	✓
27205	VK1003	Upright	1"	--	Standard	5.6	80.6	UL-250 PSI / FM-175 PSI	2	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 <sup>6</sup>	VK2002	Upright	1/2"	--	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
23883	VK2002	Upright	--	15 mm	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
27203	VK2003	Upright	1"	--	Large	8.0	115.2	175 PSI	2	51	✓	✓
<b>Quick Response, Glass Bulb Type</b>												
23869	VK3001	Upright	1/2"	--	Standard	5.6	80.6	UL-250 PSI / FM-175 PSI	1-15/16	49	✓	✓
23881	VK3001	Upright	--	15 mm	Standard	5.6	80.6	UL-250 PSI / FM-175 PSI	1-15/16	49	✓	✓
27109	VK3003	Upright	1"	--	Standard	5.6	80.6	UL-250 PSI / FM-175 PSI	2	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 <sup>6</sup>	VK3502	Upright	1/2"	--	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
23885	VK3502	Upright	--	15 mm	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
27107	VK3503	Upright	1"	--	Large	8.0	115.2	175 PSI	2	49	✓	✓
<b>Approved Temperature Ratings and Finishes</b> Refer to the sprinkler technical data sheet.												
<b>Footnotes</b>												
<ol style="list-style-type: none"> <li>1. Base part number is shown. For complete part number, refer to Viking's current price list.</li> <li>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.</li> <li>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.</li> <li>4. Listed by Underwriters Laboratories, Inc. for use in the U.S. and Canada.</li> <li>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.</li> <li>6. The 1/2" NPT Large Orifice Sprinkler is listed and approved for retrofit only when installed in accordance with NFPA 13.</li> </ol>												



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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 shields are NOT factory-installed on a sprinkler.)

See Table 1 (above) in this document and/or the appropriate sprinkler technical data page for available temperatures and finishes.

NOTE: 1/2" and 3/4" pendent XT1 sprinklers shown in the chart below can be used in intermediate level installation when equipped with the XG guard and F-1 water shield. 1" XT1 sprinklers are NOT listed/approved for intermediate level installation.

### Approval Chart 2

#### Pendent XT1 Sprinklers

Sprinkler Base Part No. <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Orifice Size	Nominal K-Factor		Maximum Pressure	Overall Length (Sprinkler)		Listings and Approvals <sup>3</sup>	
			NPT	BSPT		U.S.	metric <sup>2</sup>		Inches	mm	cULus <sup>4</sup>	FM <sup>5</sup>
<b>Standard Response, Glass Bulb Type</b>												
23868	VK1021	Pendent	1/2"	--	Standard	5.6	80.6	UL-250 PSI / FM-175	1-15/16	49	✓	✓
23880	VK1021	Pendent	--	15 mm	Standard	5.6	80.6	UL-250 PSI / FM-175	1-15/16	49	✓	✓
27204	VK1023	Pendent	1"	--	Standard	5.6	80.6	UL-250 PSI / FM-175	2	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 <sup>6</sup>	VK2022	Pendent	1/2"	--	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
23884	VK2022	Pendent	--	15 mm	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
27202	VK2023	Pendent	1"	--	Large	8.0	115.2	175 PSI	2	51	✓	✓
24583	VK850	Pendent	1/2"	--	Standard	5.6	80.6	UL-250 PSI / FM-175	1-15/16	49	✓	✓
24584 <sup>6</sup>	VK851	Pendent	1/2"	--	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
<b>Quick Response, Glass Bulb Type</b>												
23870	VK3021	Pendent	1/2"	--	Standard	5.6	80.6	UL-250 PSI / FM-175	1-15/16	49	✓	✓
23882	VK3021	Pendent	--	15 mm	Standard	5.6	80.6	UL-250 PSI / FM-175	1-15/16	49	✓	✓
27108	VK3023	Pendent	1"	--	Standard	5.6	80.6	UL-250 PSI / FM-175	2	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 <sup>6</sup>	VK3522	Pendent	1/2"	--	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
23886	VK3522	Pendent	--	15 mm	Large	8.0	115.2	175 PSI	1-15/16	49	✓	✓
27106	VK3523	Pendent	1"	--	Large	8.0	115.2	175 PSI	2	51	✓	✓
24321	VK852	Pendent	--	15 mm	Standard	5.6	80.6	UL-250 PSI / FM-175	1-15/16	49	✓	✓
24580 <sup>6</sup>	VK853	Pendent	1/2"	--	Large	8.0	115.2	175 PSI	1-15/16	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.