



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 operating element from water spray discharge from sprinklers located 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

FM Approved: Class 2091

cULus Listed: Category VNIV

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

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



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

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
22931	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)	--	--
22927MR*	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.



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TABLE 2: SPECIFICATIONS				
Part Number	Description	Dimensions		
		A	B	C
22931	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)

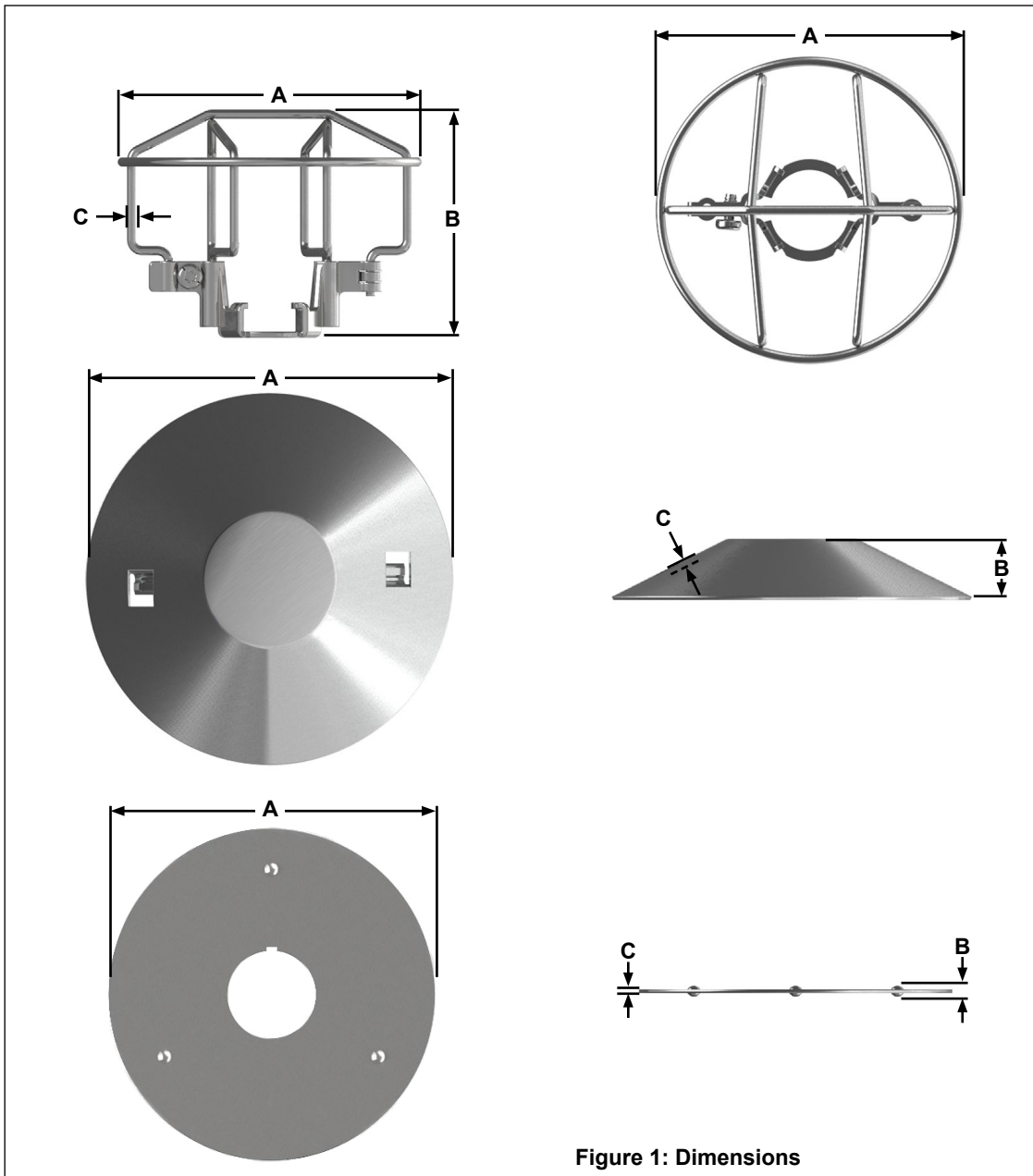


Figure 1: Dimensions



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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:

- T15 Torx screwdriver (not available from Viking.)

Procedure:

1. Loosen the torx screw and open the guard.

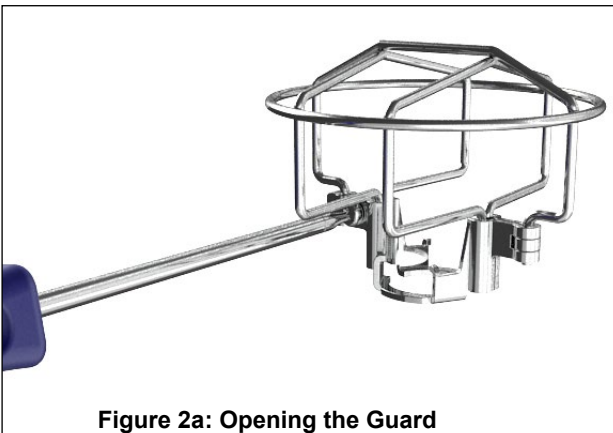


Figure 2a: Opening the Guard

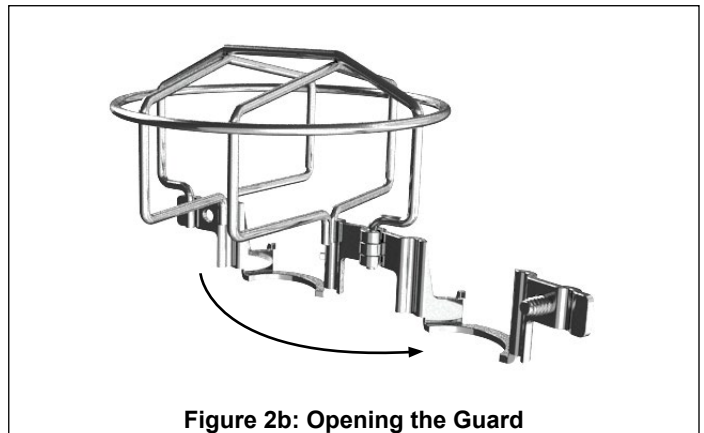


Figure 2b: Opening the Guard

2. With the sprinkler frame arms parallel to the vertical guard members, maneuver the sprinkler into the guard.

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

3. Once the sprinkler is inside the frame and vertically oriented, rotate it 90 degrees in either direction so the activation element T-hinge is not blocked. See Figures 4 and 5.

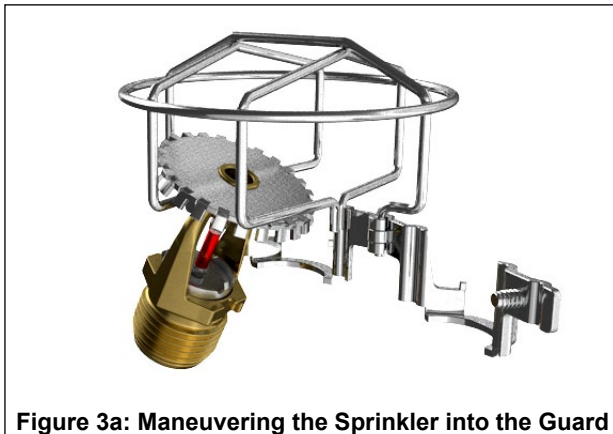


Figure 3a: Maneuvering the Sprinkler into the Guard

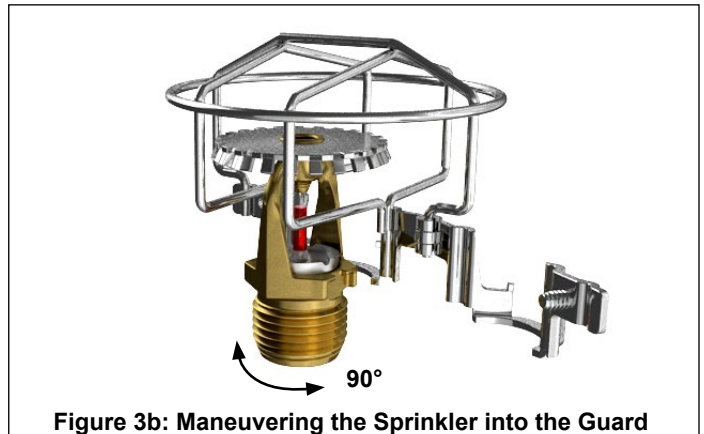


Figure 3b: Maneuvering the Sprinkler into the Guard



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4. Close the guard and tighten the torx screw.

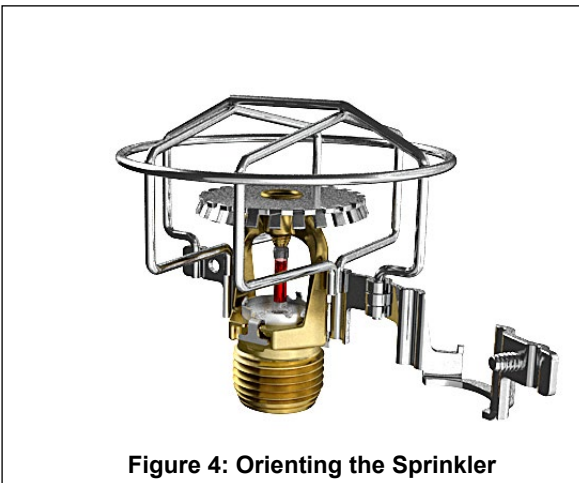


Figure 4: Orienting the Sprinkler

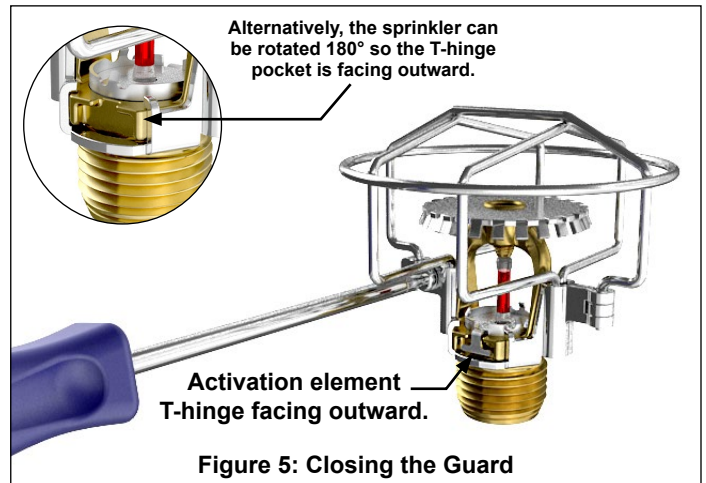


Figure 5: Closing the Guard

5. VERIFY THAT THE SPRINKLER IS PROPERLY ORIENTED WITHIN THE GUARD. SEE FIGURE 7 BELOW.

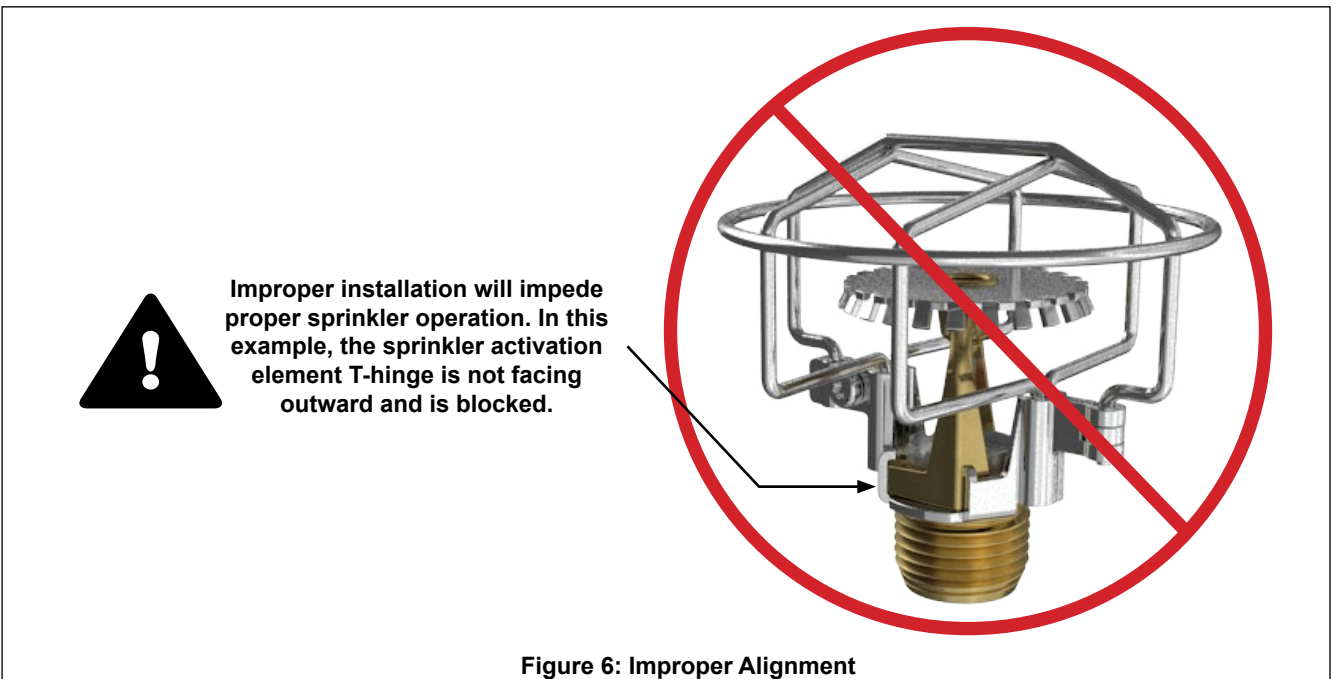


Figure 6: Improper Alignment



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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 above.

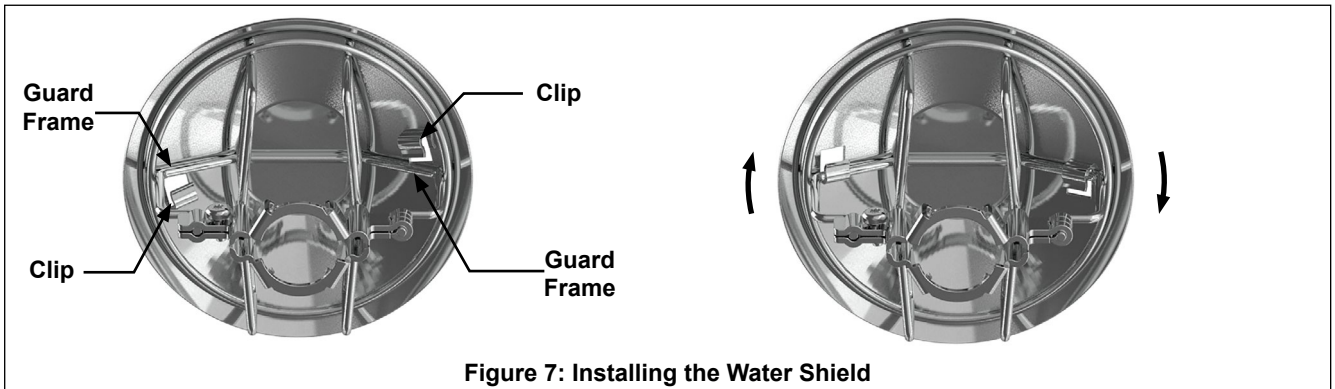


Figure 7: Installing the Water Shield

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 with XT1 sprinklers NOT equipped with the Model XG Sprinkler Guard.

Tools needed: Sprinkler Guard Wrench. Part Number: 22927MR

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.

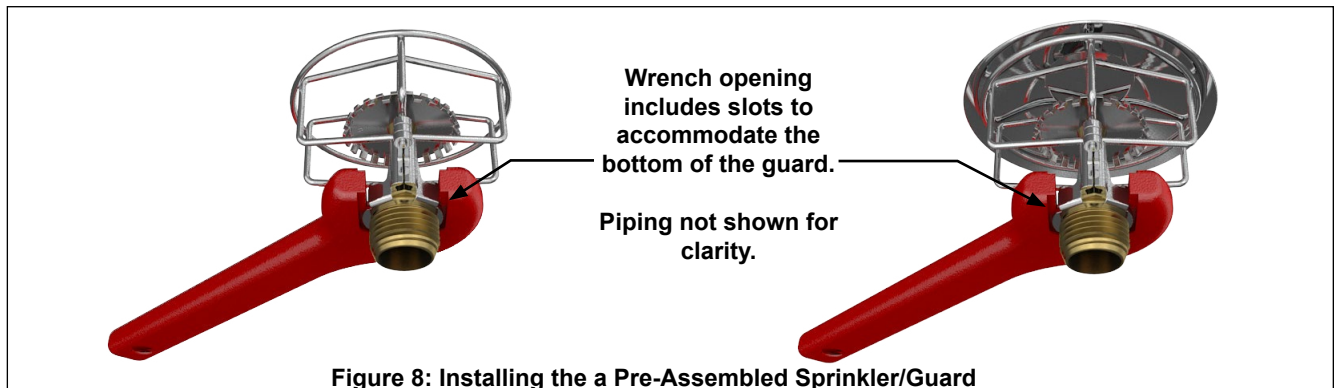


Figure 8: Installing a Pre-Assembled Sprinkler/Guard



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D. Installing the F-1 Water Shield (shown with XG Sprinkler Guard-can be used without guard if desired).

NOTICE

Use only the designated sprinkler wrench if the guard is not installed. Refer the appropriate sprinkler's technical data sheet.

Tools needed:

- Sprinkler wrench (see Notice above).

Procedure:

1. Install the XG Sprinkler Guard onto the sprinkler as shown in this document.
2. Install the F-1 Water Shield onto the sprinkler threads as shown.

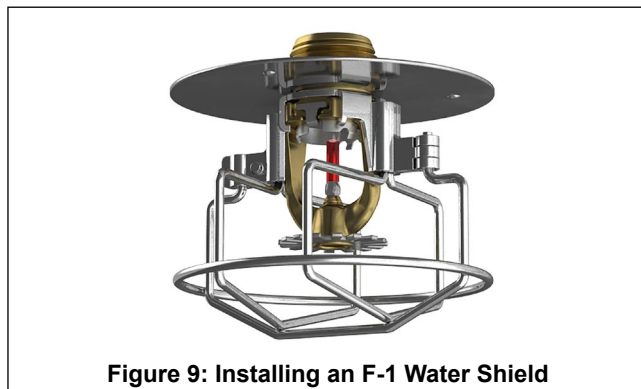


Figure 9: Installing an F-1 Water Shield

5. OPERATION

NOTICE

Always refer to Bulletin Form No. 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 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.



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Approval Chart 1

Upright XT1 Sprinklers

The following upright sprinklers 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.

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												
19914	VK1001	Upright	1/2"	--	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19926	VK1001	Upright	--	15 mm	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19922	VK2001	Upright	3/4"	--	Large	8.0	115.2	175 psi	2	51	✓	✓
19934	VK2001	Upright	--	20 mm	Large	8.0	115.2	175 psi	2	51	✓	✓
19918 ⁶	VK2002	Upright	1/2"	--	Large	8.0	115.2	175 psi	1-5/16	49	✓	✓
19930	VK2002	Upright	--	15 mm	Large	8.0	115.2	175 psi	1-5/16	49	✓	✓
Quick Response, Glass Bulb Type												
19916	VK3001	Upright	1/2"	--	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19928	VK3001	Upright	--	15 mm	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19924	VK3501	Upright	3/4"	--	Large	8.0	115.2	175 psi	2	51	✓	✓
19936	VK3501	Upright	--	20 mm	Large	8.0	115.2	175 psi	2	51	✓	✓
19920 ⁶	VK3502	Upright	1/2"	--	Large	8.0	115.2	175 psi	1-5/16	49	✓	✓
19932	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

- Base part number is shown. For complete part number, refer to Viking's current price list.
- 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.
- 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.
- Listed by Underwriters Laboratories, Inc. for use in the U.S. and Canada.
- 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.
- 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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Approval Chart 2

Pendent Intermediate Level XT1 Sprinklers

The following pendent sprinklers 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.

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												
19915	VK1021	Pendent	1/2"	--	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19927	VK1021	Pendent	--	15 mm	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19923	VK2021	Pendent	3/4"	--	Large	8.0	115.2	175 psi	2	51	✓	✓
19935	VK2021	Pendent	--	20 mm	Large	8.0	115.2	175 psi	2	51	✓	✓
19919 ⁶	VK2022	Pendent	1/2"	--	Large	8.0	115.2	175 psi	1-5/16	49	✓	✓
19931	VK2022	Pendent	--	15 mm	Large	8.0	115.2	175 psi	1-5/16	49	✓	✓
Quick Response, Glass Bulb Type												
19917	VK3021	Pendent	1/2"	--	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19929	VK3021	Pendent	--	15 mm	Standard	5.6	80.6	175 psi	1-5/16	49	✓	✓
19925	VK3521	Pendent	3/4"	--	Large	8.0	115.2	175 psi	2	51	✓	✓
19937	VK3521	Pendent	--	20 mm	Large	8.0	115.2	175 psi	2	51	✓	✓
19921 ⁶	VK3522	Pendent	1/2"	--	Large	8.0	115.2	175 psi	1-5/16	49	✓	✓
19933	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.