



## TECHNICAL DATA

### MICROMATIC® STANDARD RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK104 (K5.6)

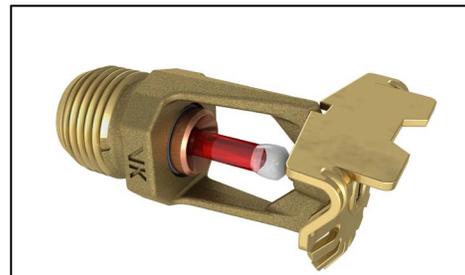
The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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

The Micromatic® Viking Standard Response Horizontal Sidewall Sprinkler VK104 is a small thermosensitive glass bulb spray sprinkler available with various finishes and temperature ratings to meet design requirements. The special Polyester and PTFE coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive atmospheres and are cULus listed as corrosion resistant as indicated in the Approval Chart. (Note: FM Global has no approval classification for PTFE and Polyester coatings as corrosion resistant.)



Horizontal Sidewall

For Light Hazard Occupancies Only

#### 2. LISTINGS AND APPROVALS

 cULus Listed: Category VNIV

 FM Approved: Class Series 2000

 LPCB Approved

 CE Certified: Standard EN 12259-1, EC-certificate of conformity 0832-CPD-2021

 CCCF Approved: Approved by the China Certification Center for Fire Products (CCCF)

**NOTE:** Other international approval certificates are available upon request.

Refer to the approval charts and design criteria for Listing and approval requirements that must be met.

#### 3. TECHNICAL DATA

##### Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)  
Rated to 175 psi (12 bar) water working pressure  
Factory tested hydrostatically to 500 psi (34.5 bar)  
Nominal K-Factor: 5.6 U.S. (80.6 metric\*)

\* 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.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length: 2-1/2" (64 mm)

##### Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Copper UNS-C19500

Bulb: Glass, nominal 5 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape

Screw: Brass UNS-C36000

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400.

For PTFE Coated Sprinklers: Belleville Spring-Exposed, Screw-Nickel Plated, Pip Cap-PTFE Coated

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

Order Standard Response Sidewall Sprinklers by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B, and Black PTFE = N, Wax Coated = C, Wax Over Polyester = V-/W

Temperature Suffix: 135 °F / 57 °C = A, 155 °F / 68 °C = B, 175 °F / 79 °C = D, 200 °F / 93 °C = E, 286 °F / 141 °F = G, 360 °F / 182 °C = H

For example, sprinkler VK104 with a 1/2" thread, Brass finish and a 155 °F / 68 °C temperature rating = Part No. 12995AB

**Available Finishes And Temperature Ratings:** Refer to Table 1.

**Accessories:** (Also refer to the Viking website.)



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#### Sprinkler Wrenches:

- A. Standard Wrench: Part No. 21475M/B (available since 2017).
- B. Standard Wrench for Wax Coated Sprinklers: Part No. 10896W/B (available since 2000)
- C. Wrench for recessed sprinklers with protective shields: Part No. 13655W/B\*\* (available since 2003)
- D. Socket Wrench for wax coated sprinklers: Part No. 13577W/B\*\* (available since 2006)

\*\*A ½" ratchet is required (not available from Viking).

#### Sprinkler Cabinets:

- A. Six-head capacity: Part No. 01724A (available since 1971)
- B. Twelve-head capacity: Part No. 01725A (available since 1971)

## 4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

## 5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

## 6. INSPECTIONS, TESTS AND MAINTENANCE

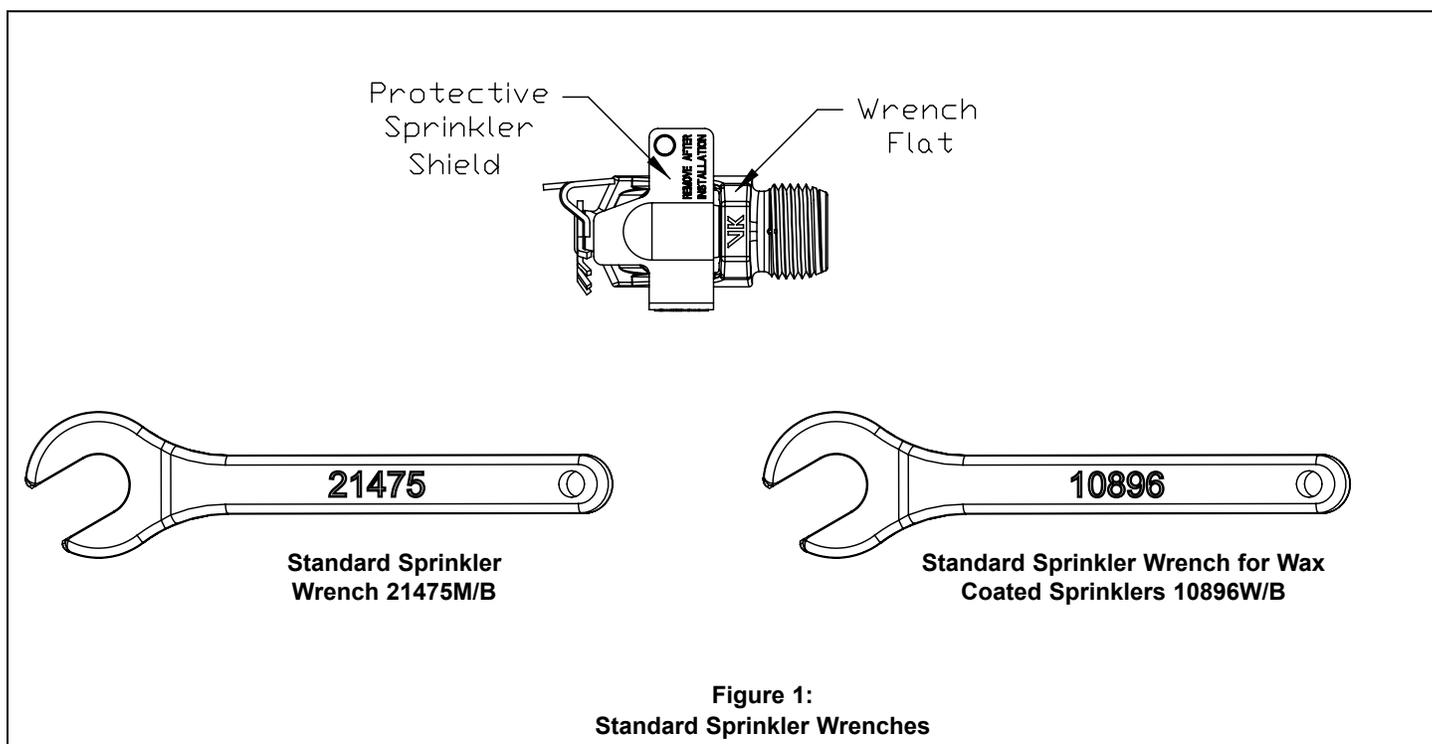
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

## 7. AVAILABILITY

The Micromatic® Viking Standard Response Horizontal Sidewall Sprinkler VK104 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.





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**TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES**

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue
Extra High	360 °F (182 °C)	300 °F (149 °C)	Mauve

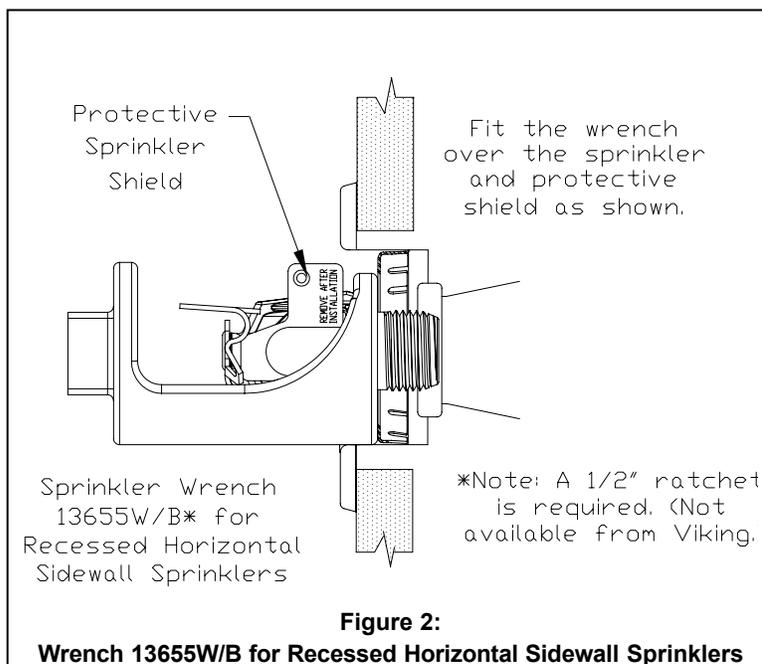
**Sprinkler Finishes:** Brass, Chrome, White Polyester, Black Polyester, and Black PTFE

**Corrosion-Resistant Coatings<sup>3</sup>:** White Polyester, Black Polyester, and Black PTFE in all temperature ratings. Wax-Coated Brass and Wax over Polyester for sprinklers with the following temperature ratings:

- 155 °F (68 °C) Lt. Brown Wax
- 175 °F (79 °C) Brown Wax
- 200 °F (93 °C) Brown Wax
- 286 °F (141 °C) Dk. Brown Wax<sup>4</sup>

**Footnotes**

- <sup>1</sup> The sprinkler temperature rating is stamped on the deflector.
- <sup>2</sup> Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
- <sup>3</sup> The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and PTFE coatings. For PTFE coated open sprinklers only, the waterway is coated.
- <sup>4</sup> Wax melting point is 170 °F (76 °C) for 286 °F (141 °C) temperature rated sprinklers.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">MICROMATIC® STANDARD RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK104 (K5.6)</h3>
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<h3 style="margin: 0;">Approval Chart 1 (UL)</h3> <p style="margin: 0;">Micromatic® Viking Standard Response Horizontal Sidewall Sprinkler VK104 For Light Hazard Occupancies Only Maximum 175 PSI (12 Bar) WWP</p>	<table border="1" style="border-collapse: collapse;"> <tr> <td style="padding: 2px;">Temperature</td> <td rowspan="3" style="text-align: center; vertical-align: middle;"><b>KEY</b></td> </tr> <tr> <td style="padding: 2px;">Finish</td> </tr> <tr> <td style="padding: 2px;">A1X ← Escutcheon (if applicable)</td> </tr> </table>	Temperature	<b>KEY</b>	Finish	A1X ← Escutcheon (if applicable)
Temperature	<b>KEY</b>				
Finish					
A1X ← Escutcheon (if applicable)					

Base Part Number <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals <sup>3</sup> (Refer also to Design Criteria.)					
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	cULus <sup>4,5</sup>	VdS	LPCB	CE	CCC <sup>6</sup>	
<b>Horizontal Sidewall</b>														
12995	VK104	HSW	1/2"	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X, B2X	--	A3Z, B2Z	C3Z <sup>8</sup>	--	
12988	VK104	HSW	--	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X, B2X	--	A3Z, B2Z	C3Z <sup>8</sup>	--	
19777	VK104	HSW	1/2"	--	5.6	80.6	2-1/2	64	--	--	--	--	D4	
20230	VK104	HSW	--	15 mm	5.6	80.6	2-1/2	64	--	--	--	--	D4	

<b>NOTICE - Product Below - Limited Availability (Contact Local Viking Office)</b>														
10224	VK104	HSW	1/2"	15 mm	5.6	80.6	2-1/2	64	B2W, B1W, A1X	--	A3Z	C3Z <sup>8</sup>	C3Z <sup>9</sup>	
10171	VK104	HSW	--	15 mm	5.6	80.6	2-1/2	64	B2W, B1W, A1X	--	A3Z	C3Z <sup>8</sup>	C3Z <sup>9</sup>	

<p><b>Approved Temperature Ratings</b></p> <p>A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)</p> <p>B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)</p> <p>C - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)</p> <p>D - 155 °F (68 °C)</p>	<p><b>Approved Finishes</b></p> <p>1 - Brass, Chrome, White Polyester<sup>6,7</sup>, Black Polyester<sup>6,7</sup>, and Black PTFE<sup>6</sup></p> <p>2 - Wax-Coated Brass and Wax Over Polyester (corrosion resistant)</p> <p>3 - Brass, Chrome, White Polyester<sup>6</sup>, and Black Polyester<sup>6</sup></p> <p>4 - Chrome</p>	<p><b>Approved Escutcheons</b></p> <p>W - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon, <b>or</b> recessed with the Viking Micromatic® Model E-1, E-2, E-3, or Model G-1 Recessed Escutcheon</p> <p>X - Installed with standard surface-mounted escutcheons, the Viking Microfast® Model F-1 Adjustable Escutcheon, <b>or</b> recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon</p> <p>Y - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon</p> <p>Z - Installed with standard surface-mounted escutcheons only.</p>
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**Footnotes**

<sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule.

<sup>2</sup> 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.

<sup>3</sup> This table shows the listings and approvals available at the time of printing. Other approvals may be in process.

<sup>4</sup> Listings and Approvals are limited to Light Hazard Occupancies where allowed by the installation standards being applied.

<sup>5</sup> Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.

<sup>6</sup> cULus Listed as corrosion-resistant.

<sup>7</sup> Other colors are available on request with the same Listings and Approvals as the standard colors.

<sup>8</sup> Certified, Standard EN 12259-1, EC-certificate of conformity 0832-CPD-0021 and 0832-CPD-2003.

<sup>9</sup> MED Certified, Standard EN 12259-1, EC-certificate of conformity 0832-MED-1003 and 0832-MED-1008.



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**DESIGN CRITERIA - UL**

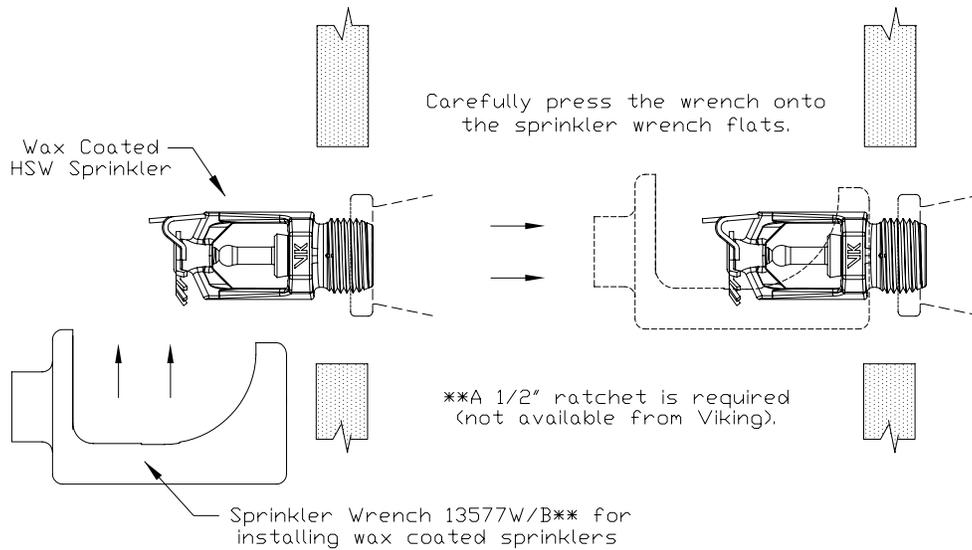
(Also refer to Approval Chart 1 above.)

**cULus Listing Requirements:**

The Micromatic® Viking Standard Response Horizontal Sidewall Sprinkler VK104 is cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for sidewall standard spray sprinklers.

- For use in Light Hazard occupancies only where allowed by the installation standards being applied.
- Locate the deflector 4" to 12" (102 mm to 305 mm) below the ceiling.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13.
- Minimum spacing allowed is 6 ft. (1.8 m).
- Align the top of the deflector parallel with the ceiling.
- Locate no less than 4" (102 mm) from end walls.
- Maximum distance from end walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.
- The sprinkler installation and obstruction rules contained in NFPA 13 for sidewall standard spray sprinklers must be followed.

**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to Bulletin Form No. F\_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.**



**Figure 3: Socket Wrench for Wax Coated Sprinklers 13577W/B**

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<b>Approval Chart 2 (FM)</b> Micromatic® Viking Standard Response Horizontal Sidewall Sprinkler VK104 Maximum 175 PSI (12 Bar) WWP										
Base Part Number <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		FM Approvals <sup>3,4</sup> (Refer also to Design Criteria.)	
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm		
<b>Horizontal Sidewall</b>										
12995	VK104	HSW	1/2"	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X	
12988	VK104	HSW	--	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X	
<b>NOTICE - Product Below - Limited Availability (Contact Local Viking Office)</b>										
10224	VK104	HSW	1/2"	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X	
10171	VK104	HSW	--	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X	
<b>Approved Temperature Ratings</b> A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)				<b>Approved Finishes</b> 1 - Brass and Chrome			<b>Approved Escutcheons</b> X - Installed with standard surface-mounted escutcheons, the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Viking Micromatic® Model E-1, E-2, E-3, or G-1 Recessed Escutcheon Y - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon			
<b>Footnotes</b>										
<sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule. <sup>2</sup> 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. <sup>3</sup> This table shows the FM Approvals available at the time of printing. Other approvals may be in process.										

Temperature	<b>KEY</b>
Finish	
A1X ← Escutcheon (if applicable)	

<b>DESIGN CRITERIA - FM</b> (Also refer to Approval Chart 2 above.)
<b>FM Approval Requirements:</b> The Micromatic® Viking Standard Response Horizontal Sidewall Sprinkler VK104 is FM Approved as standard response sidewall <b>Non-Storage</b> sprinklers, as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including 2-0) and Technical Advisory Bulletins. FM Global Loss Prevention Data Sheets and Technical Advisory Bulletins contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling. <b>NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.</b>
<b>IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Bulletin Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate 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.</b>



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