



## TECHNICAL DATA

### QUICK RESPONSE FUSIBLE ELEMENT UPRIGHT AND PENDENT SPRINKLERS VK301 AND VK303

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 Quick Response Fusible Element Upright and Pendent Sprinklers are small thermosensitive solder link spray sprinklers available with various finishes and temperature ratings to meet design requirements. The special Polyester coatings can be used in decorative applications where colors are desired.

#### 2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class 2020

Refer to Approval Chart 1 and Design Criteria on page 47d for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 47e for FM Approval requirements that must be followed.

#### 3. TECHNICAL DATA

##### Specifications:

Available since 2003.

Minimum Operating Pressure: 7 psi (0.5 bar)

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar)

Thread Size: Refer to the Approval Chart

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.

Overall Length: 2-1/4" (58 mm)

##### Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Brass UNS-C23000, Phosphor Bronze UNS-C51000, or Copper

UNS-C19500 for Sprinkler VK301. Phosphor Bronze UNS-C51000 or

Copper UNS-C19500 for Sprinkler VK303.

Fusible Element Assembly: Nickel Alloy

Trigger and Support: Stainless Steel UNS-S31600

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

Screw: Brass UNS-C36000

Seat and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

Order Quick Response Fusible Element Upright and Pendent 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-Enloy® = F, White Polyester = M-/W, and Black Polyester = M-/B

Temperature Suffix: 165 °F (74 °C) = C, 205 °F (96 °C) = E, 280 °F (138 °C) = G

For example, sprinkler VK301 with a Brass finish and a 165 °F (74 °C) temperature rating = Part No. 12279AC

##### Available Finishes And Temperature Ratings:

Refer to Table 1.

**Accessories:** (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

##### Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000).

B. Wrench for Recessed Pendent Sprinklers: Part No. 16036W/B\* (available since 2011)

C. Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool\*\* Part No. 15915 (available since 2010)

\*A 1/2" ratchet is required (not available from Viking).

\*\*Allows use from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F\_051808.

##### Sprinkler Cabinets:

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

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



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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**4. INSTALLATION**

Refer to appropriate NFPA Installation Standards.

**5. OPERATION**

During fire conditions, the heat-sensitive fusible element assembly disengages, releasing the seat and spring assemblies to open the waterway. 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**

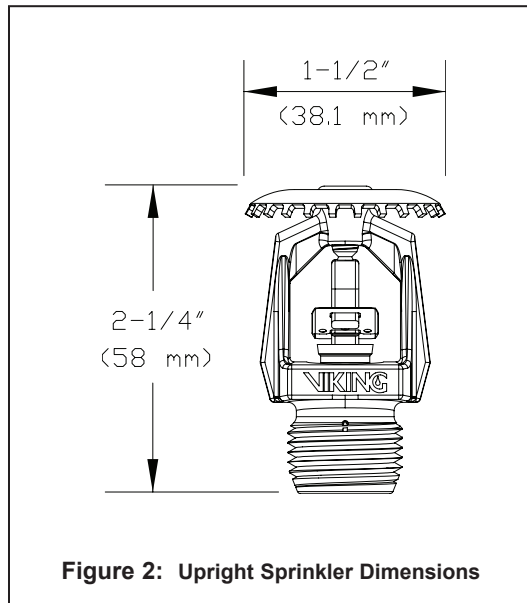
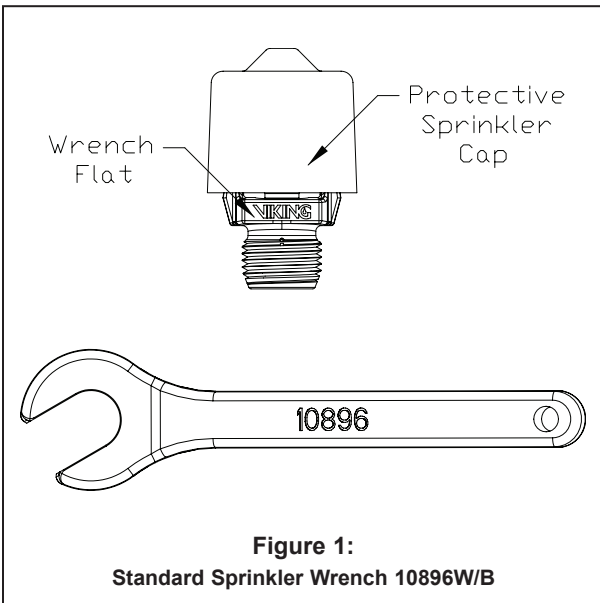
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

Viking Quick Response Fusible Element Upright and Pendent Sprinklers 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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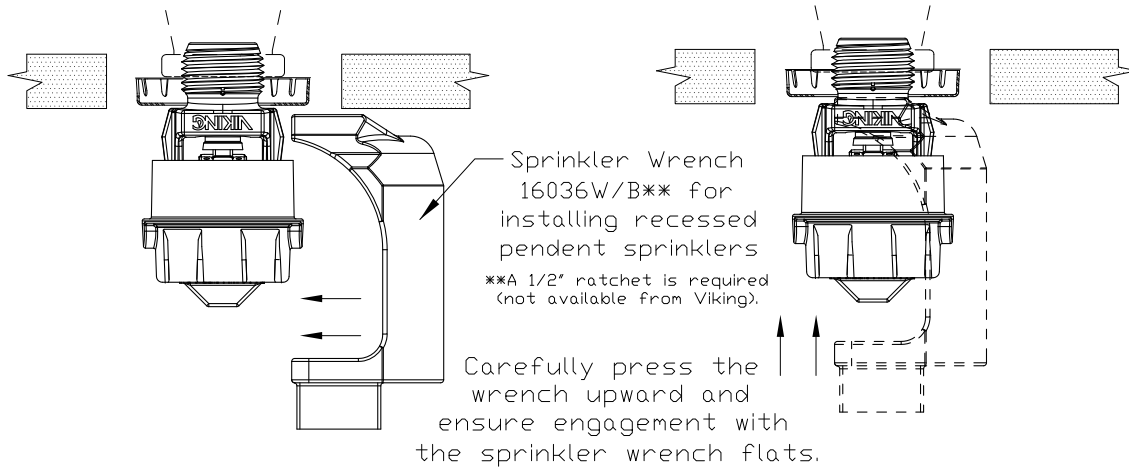
**TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES**

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	Frame Paint Color
Ordinary	165 °F (74 °C)	100 °F (38 °C)	None
Intermediate	205 °F (96 °C)	150 °F (65 °C)	White
High	280 °F (138 °C)	225 °F (107 °C)	Blue


**Sprinkler Finishes:** Brass, Chrome-Enloy®, White Polyester<sup>3</sup>, and Black Polyester<sup>3</sup>

**Footnotes**

- <sup>1</sup> Decorative sprinklers may not be color coded. The 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> 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.

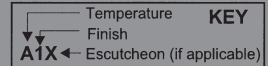


**Figure 3: Wrench 16036W/B for Recessed Pendent Sprinklers**

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">QUICK RESPONSE FUSIBLE ELEMENT UPRIGHT AND PENDENT SPRINKLERS VK301 AND VK303</h3>
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Approval Chart 1 (UL)											
Quick Response Fusible Element Upright and Pendent Sprinklers Maximum 175 PSI (12 Bar) WWP											
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 below.)		
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	cULus <sup>4</sup>	NYC	VdS
12279	VK301	Upright	1/2"	15 mm	5.6	80.6	2-1/4	58	A1	See Footnote 5.	--
12275	VK303	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	B1Y, A1Z	See Footnote 5.	--
<b>Approved Temperature Ratings</b> A - 165 °F (74 °C), 205 °F (96 °C), 280 °F (138 °C) B - 165 °F (74 °C) and 205 °F (96 °C)				<b>Approved Finishes</b> 1 - Brass, Chrome-Enloy®, White Polyester®, and Black Polyester®				<b>Approved Escutcheons</b> Y - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Viking Micromatic® Model E-1 or E-2 Recessed Escutcheon Z - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon			
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> Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada. <sup>5</sup> Meets New York City requirements, effective July 1, 2008. <sup>6</sup> Other colors are available on request with the same Listings and Approvals as the standard colors.											



DESIGN CRITERIA - UL
(Also refer to Approval Chart 1 above.)
<p><b>cULus Listing Requirements:</b></p> <p>Quick Response Fusible Element Upright and Pendent Sprinklers are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.</p> <ul style="list-style-type: none"> <li>Designed for use in Light and Ordinary Hazard occupancies.</li> <li>Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13. Maximum spacing allowed is 15 ft. (4.6 m).</li> <li>Minimum spacing allowed is 6 ft. (1.8 m) unless baffles are installed in accordance with NFPA 13.</li> <li>Minimum distance from walls is 4 in. (102 mm).</li> <li>Maximum distance from walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.</li> <li>The sprinkler installation rules contained in NFPA 13 for standard spray upright and pendent sprinklers must be followed.</li> </ul>
<p><b>IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 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.</b></p>

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">QUICK RESPONSE FUSIBLE ELEMENT UPRIGHT AND PENDENT SPRINKLERS VK301 AND VK303</h3>
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<h3 style="margin: 0;">Approval Chart 2 (FM)</h3> <p style="margin: 0;">Quick Response Fusible Element Upright and Pendent Sprinklers 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;">Escutcheon (if applicable)</td> </tr> </table>	Temperature	<b>KEY</b>	Finish	Escutcheon (if applicable)
Temperature	<b>KEY</b>				
Finish					
Escutcheon (if applicable)					

Base Part Number <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		FM Approvals <sup>3</sup> (Refer also to Design Criteria below.)
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	
12279	VK301	Upright	1/2"	15 mm	5.6	80.6	2-1/4	58	A1
12275	VK303	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1X

<b>Approved Temperature Ratings</b> A - 165 °F (74 °C), 205 °F (96 °C), and 280 °F (138 °C)	<b>Approved Finishes</b> 1 - Brass, Chrome-Enloy <sup>®</sup> , White Polyester <sup>4</sup> , and Black Polyester <sup>4</sup>	<b>Approved Escutcheons</b> X - Installed with standard surface-mounted escutcheons or recessed with the Viking Micromatic <sup>®</sup> Model E-1 or E-2 Recessed Escutcheon
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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 FM Approvals available at the time of printing. Other approvals may be in process.

<sup>4</sup> Other colors are available on request with the same Approvals as the standard colors.

### DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

**FM Approval Requirements:**  
 Sprinklers VK301 and VK303 are FM Approved as quick response **Non-Storage** upright and pendent sprinklers as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets 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.

**NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.**

**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 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.**

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