



## TECHNICAL DATA

## QUICK RESPONSE UPRIGHT AND PENDENT 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

### 1. DESCRIPTION

Viking Quick Response Upright and Pendent Sprinklers are small thermosensitive glass bulb spray sprinklers available with various finishes and temperature ratings to meet design requirements. The special Polyester and Teflon® 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 Approval Chart 1. (Note: FM Global has no approval classification for Teflon® and Polyester coatings as corrosion resistant.)

### 2. LISTINGS AND APPROVALS

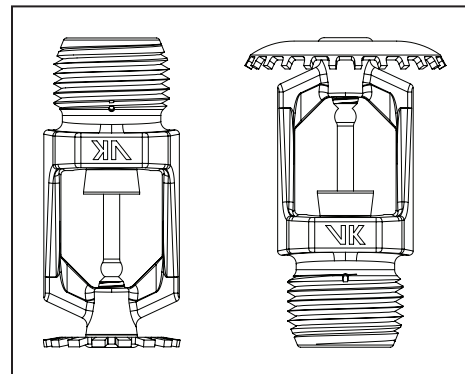


**cULus Listed:** Category VNIV



**FM Approved:** Classes 2002 and 2020

Refer to Approval Chart 1 and Design Criteria on page 41x for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 41y for FM Approval requirements that must be followed.



### 3. TECHNICAL DATA

#### Specifications:

Available since 2004.

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)

Thread size: Refer to the Approval Charts

Nominal K-Factor: Refer to the Approval Charts

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

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

#### Material Standards:

Frame Casting: Brass UNS-C84400 for Sprinkler 17508. Brass UNS-C84400 or QM Brass for all other Sprinklers.

Deflector: Brass UNS-C23000 or Copper UNS-C19500 for Sprinklers 12978 and 12984. Phosphor Bronze UNS-C51000 or Copper UNS-C19500 for Sprinklers 12979 and 17508. Brass UNS-C26000 for all other Sprinklers.

Bushing (for Sprinklers 12981 and 12980): Brass UNS-C36000

Bulb: Glass, nominal 3 mm diameter

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

Screw: Brass UNS-C36000

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

Pip Cap Attachment (for Sprinkler 12980): Brass UNS-C36000

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

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

Order Quick Response 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, Black Polyester = M-/B, and Black Teflon® = N

Temperature Suffix: 135 °F (68 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, 286 °F (141 °C) = G

For example, sprinkler VK300 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 12978AB

**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.

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.

	<b>TECHNICAL DATA</b>	<b>QUICK RESPONSE UPRIGHT AND PENDENT SPRINKLERS</b>
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**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**

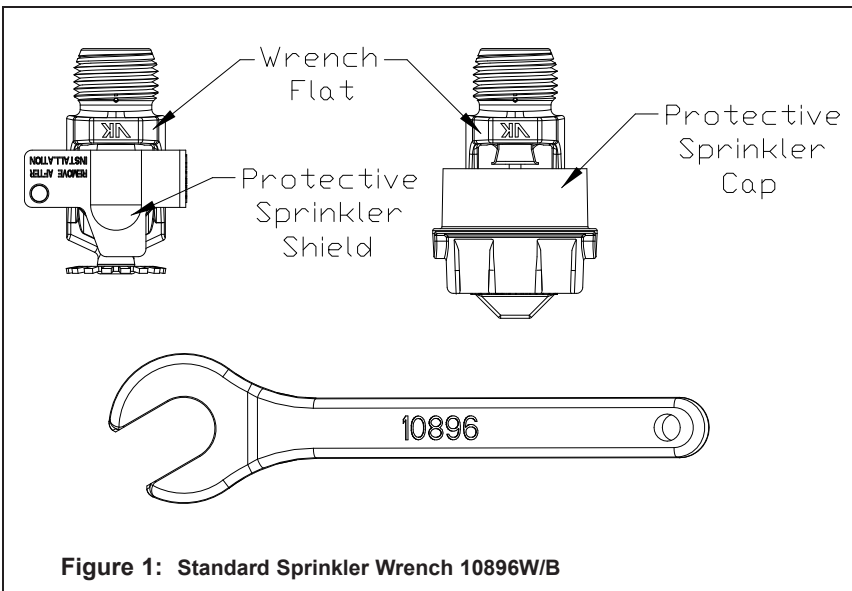
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

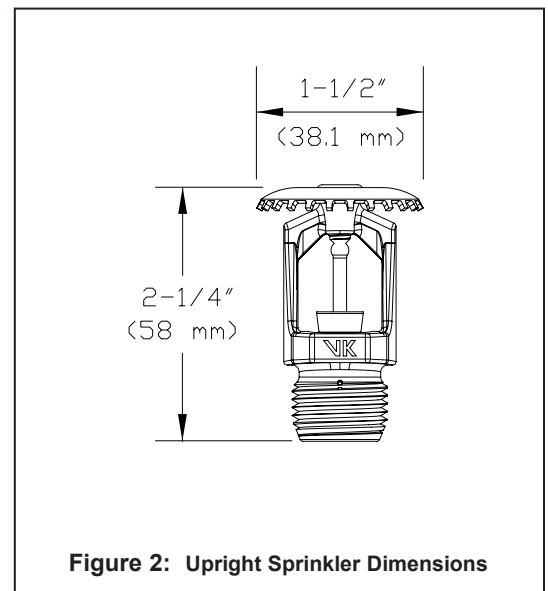
Viking Quick Response Upright and Pendent Sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

**8. GUARANTEE**

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



**Figure 1: Standard Sprinkler Wrench 10896WB**



**Figure 2: Upright Sprinkler Dimensions**



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QUICK RESPONSE  
UPRIGHT AND PENDENT  
SPRINKLERS

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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

**Sprinkler Finishes:** Brass, Chrome-Enloy®, White Polyester, Black Polyester, and Black Teflon®

**Corrosion-Resistant Coatings<sup>3</sup>:** White Polyester, Black Polyester, and Black Teflon®

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 Charts. 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 Teflon® coatings.

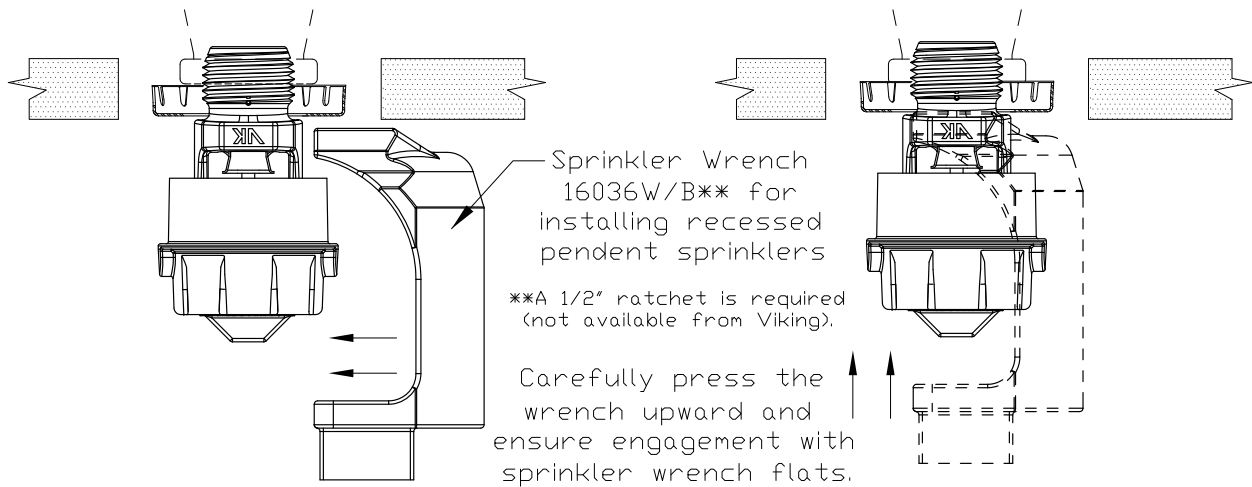




Figure 3: Wrench 16036W/B for Recessed Pendent Sprinklers

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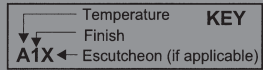
Approval Chart 1 (UL)														
Quick Response Upright and Pendent Sprinklers Maximum 175 PSI (12 Bar) WWP														
Base Part Number <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals <sup>3</sup> (Refer also to Design Criteria below.)					
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	cULus <sup>4</sup>	NYC	VdS	LPCB	CE	⚙️
<b>Standard Orifice</b>														
12978	VK300	Upright	1/2"	15 mm	5.6	80.6	2-1/4	58	A1	--	--	--	--	--
12984	VK345	Upright	--	15 mm	5.6	80.6	2-1/4	58	--	--	--	--	--	--
12979	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z, B1Y	--	--	--	--	--
<b>Small Orifice<sup>5</sup></b>														
12980 <sup>5</sup>	VK325	Upright	1/2"	15 mm	2.8	40.3	2-1/4	58	A1	--	--	--	--	--
12981 <sup>5</sup>	VK329	Pendent	1/2"	15 mm	2.8	40.3	2-1/4	58	A1Z, B1Y	--	--	--	--	--
<b>Approved Temperature Ratings</b> A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 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, Chrome-Enloy®, White Polyester <sup>7</sup> , Black Polyester <sup>7</sup> , and Black Teflon®				<b>Approved Escutcheons</b> Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Viking Micromatic® Model E-1 or E-2 Recessed Escutcheon Z - Standard surface-mounted escutcheon 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 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> The sprinkler orifice is bushed. <sup>6</sup> Listings and Approvals limited to Light Hazard Occupancies where allowed by the installation standards being applied, with hydraulically calculated wet systems only. <sup>7</sup> cULus Listed as corrosion-resistant.														

<h3 style="margin: 0;">DESIGN CRITERIA - UL</h3> <p style="margin: 0;">(Also refer to Approval Chart 1 above.)</p>
<p><b>cULus Listing Requirements:</b></p> <p>Standard 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, Ordinary, and Extra Hazard occupancies (<i>exception: small orifice sprinklers are limited to Light Hazard where allowed by the installation standards being applied, with hydraulically calculated wet systems only</i>).</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>

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<b>Approval Chart 2 (FM)</b> Quick Response 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		FM Approvals <sup>3</sup> (Refer also to Design Criteria below.)
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	
<b>Standard Orifice</b>									
12978	VK300	Upright	1/2"	15 mm	5.6	80.6	2-1/4	58	A1
12984	VK345	Upright	--	15 mm	5.6	80.6	2-1/4	58	A1
12979	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z, B1Y
<b>Large Orifice</b>									
17508	VK352	Pendent	1/2"	15 mm	8.0	115.2	2-1/4	58	A2Z, B2Y
<b>Small Orifice<sup>4</sup></b>									
12980 <sup>6</sup>	VK325	Upright	1/2"	15 mm	2.8	40.3	2-1/4	58	A2
12981 <sup>6</sup>	VK329	Pendent	1/2"	15 mm	2.8	40.3	2-1/4	58	A2Z
<b>Approved Temperature Ratings</b> A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 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, Chrome-Enloy <sup>®</sup> , White Polyester <sup>5</sup> , and Black Polyester <sup>5</sup> 2 - Brass and Chrome-Enloy <sup>®</sup>			<b>Approved Escutcheons</b> Y - Standard surface-mounted escutcheon or the Viking Microfast <sup>®</sup> Model F-1 Adjustable Escutcheon, or recessed with the Viking Micromatic <sup>®</sup> Model E-1 or E-2 Recessed Escutcheon Z - Standard surface-mounted escutcheon or the Viking Microfast <sup>®</sup> 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. <sup>4</sup> FM Approved as quick response <b>Non-storage</b> upright and pendent sprinklers. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). <sup>5</sup> Other colors are available on request with the same Approvals as the standard colors. <sup>6</sup> The sprinkler orifice is bushed.									



### DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

**FM Approval Requirements:**  
 The sprinklers in Approval Chart 2 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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