



## TECHNICAL DATA

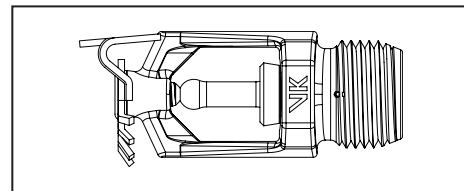
## STANDARD RESPONSE SIDEWALL SPRINKLERS

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 Standard Response Vertical and Horizontal Sidewall 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 the Approval Chart. (Note: FM Global has no approval classification for Teflon® and Polyester coatings as corrosion resistant.) The vertical sidewall sprinklers are designed for installation in either the upright or pendent position.



Horizontal Sidewall

### 2. LISTINGS AND APPROVALS



**cULus Listed:** Category VNIV



**FM Approved:** Classes 2012 and 2015

Refer to Approval Chart 1 and Design Criteria on page 14x for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 14y 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)

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: Refer to the Approval Chart

#### Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Copper UNS-C19500 for horizontal sidewall sprinklers. Brass UNS-C23000 for vertical sidewall sprinklers.

Bulb: Glass, nominal 5 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.

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 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-Enloy® = F, White Polyester = M-/W, Black Polyester = M-/B, and Black Teflon® = N, Wax Coated = C, Wax Over Polyester = V-/W

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 °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

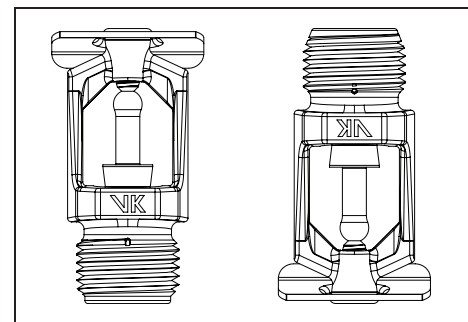
**Available Finishes And Temperature Ratings:** Refer to Table 1.

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

#### Sprinkler Wrenches:

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

B. Wrench for recessed sprinklers with protective shields: Part No. 13655W/B\*\* (available since 2003)



Vertical Sidewall U/P

For Light Hazard Occupancies Only

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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C. Wrench for wax coated sprinklers: Part No. 13577W/B\*\* (available since 2006)

\*\*A 1/2" 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**

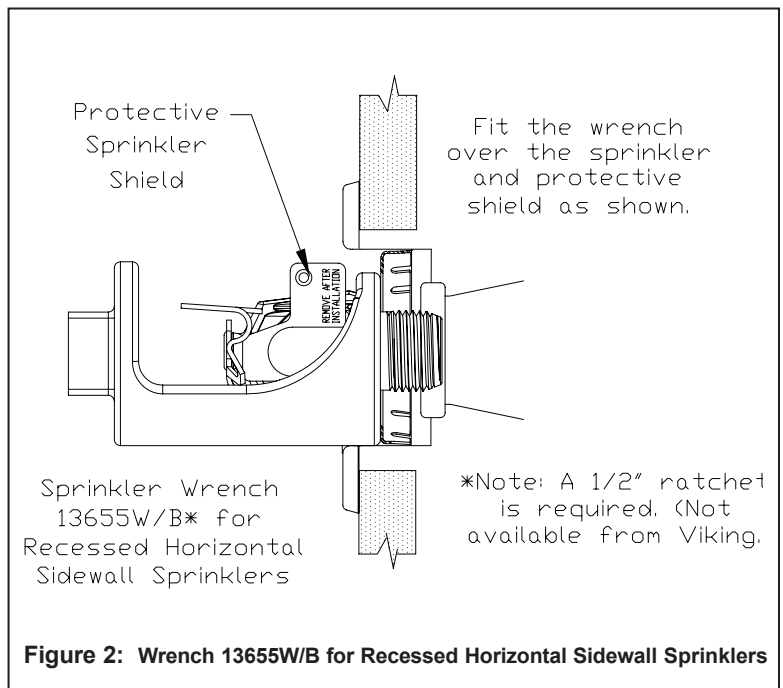
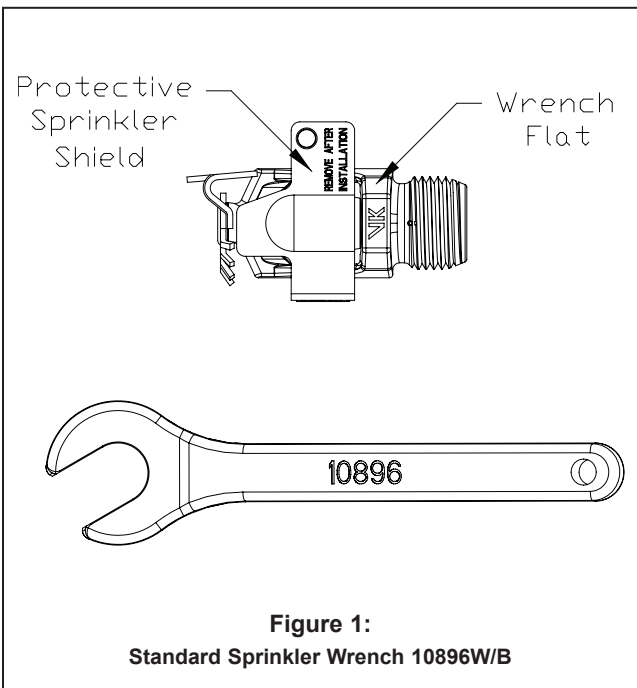
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

Viking Standard Response Sidewall 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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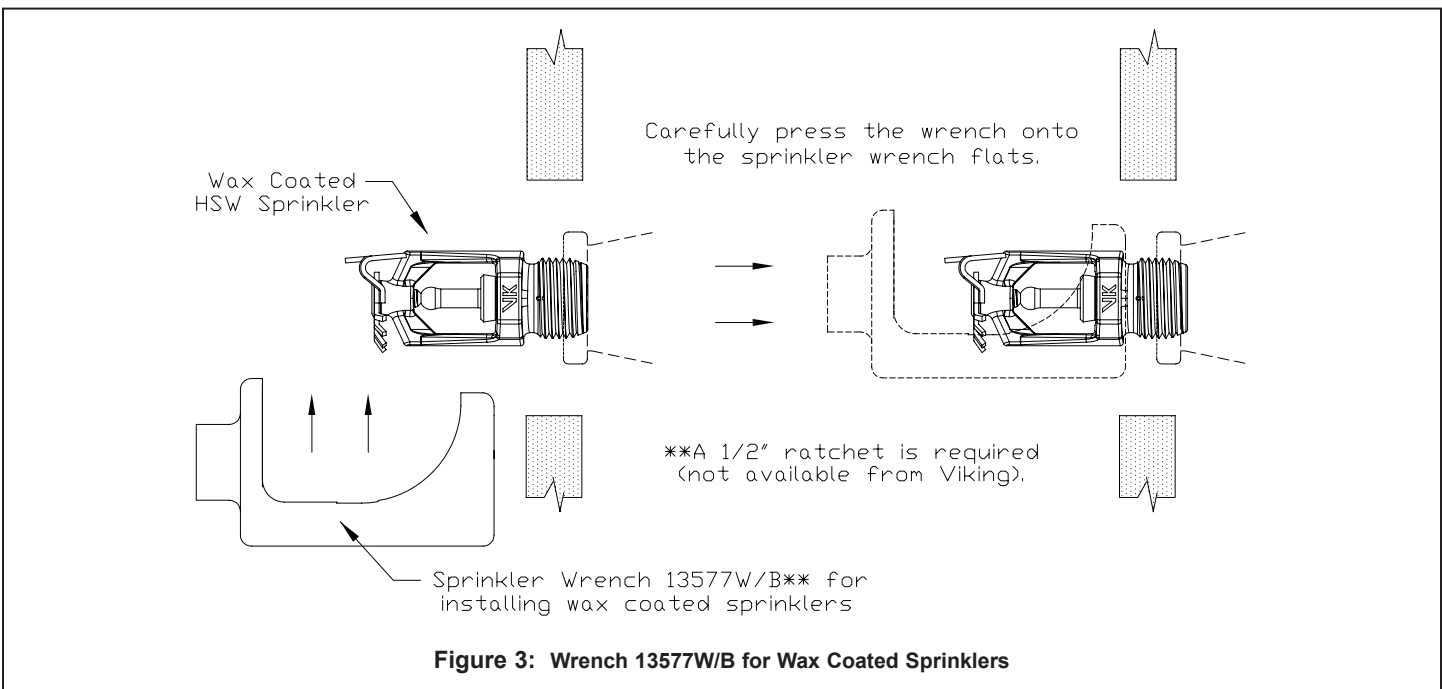
**TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES**

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	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-Enloy®, White Polyester, Black Polyester, and Black Teflon®  
**Corrosion-Resistant Coatings<sup>3</sup>:** White Polyester, Black Polyester, and Black Teflon® in all temperature ratings. Wax-Coated Brass and Wax over Polyester for sprinklers with the following temperature ratings:  
 135 °F (57 °C) Off-White Wax    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 Teflon® coatings. For Teflon® 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.



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

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<h3 style="margin: 0;">Approval Chart 1 (UL)</h3> <p style="margin: 0;">Standard Response Sidewall Sprinklers 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>3,4</sup> (Refer also to Design Criteria on pg 14y.)				
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	cULus <sup>5</sup>	NYC	LPCB	CE	⚙
<b>Horizontal Sidewall</b>													
12995	VK104	HSW	1/2"	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X, B2X, C3Y	--	--	--	--
12988	VK104	HSW	--	15 mm	5.6	80.6	2-1/2	64	A1Y, B1X, B2X, C3Y	--	--	--	--
<b>Vertical Sidewall</b>													
12996	VK106	VSW U/P	1/2"	15 mm	5.6	80.6	2-1/4	58	--	--	--	--	--
12991 <sup>6</sup>	VK106	VSW U/P	--	15 mm	5.6	80.6	2-1/4	58	--	--	--	--	--

<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 - 286 °F (141 °C)</p>	<p><b>Approved Finishes</b></p> <p>1 - Brass, Chrome-Enloy<sup>®</sup>, White Polyester<sup>7</sup>, Black Polyester<sup>7</sup>, and Black Teflon<sup>®7</sup></p> <p>2 - Wax-Coated Brass and Wax Over Polyester (corrosion resistant)</p> <p>3 - High Temperature 200 °F (93 °C) Wax Coating (corrosion resistant); maximum ambient temperature allowed at ceiling = 150 °F (65 °C)</p>	<p><b>Approved Escutcheons</b></p> <p>X - Installed with standard surface-mounted escutcheons, the Viking Microfast<sup>®</sup> Model F-1 Adjustable Escutcheon, <b>or</b> recessed with the Viking Micromatic<sup>®</sup> Model E-1, E-2, or E-3 Recessed Escutcheon</p> <p>Y - Installed with standard surface-mounted escutcheons or the Viking Microfast<sup>®</sup> Model F-1 Adjustable Escutcheon</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> Sprinkler 12991 is available on special order.

<sup>7</sup> cULus Listed as corrosion-resistant.


**DESIGN CRITERIA - UL**  
(Also refer to Approval Chart 1 above.)

**cULus Listing Requirements:**

Standard Horizontal Sidewall Sprinklers are 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 page SR1-3 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.**

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<b>Approval Chart 2 (FM)</b> Standard Response Sidewall 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>3,4</sup> (Refer also to Design Criteria below.)
			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>Vertical Sidewall<sup>4</sup></b>									
12996	VK106	VSW U/P	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z
12991 <sup>5</sup>	VK106	VSW U/P	--	15 mm	5.6	80.6	2-1/4	58	A1Z
<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-Enloy®			<b>Approved Escutcheons</b> 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, E-3, or G-1 Recessed Escutcheon Y - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon Z - Installed with standard surface-mounted escutcheons			
<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> Viking vertical sidewall sprinklers may be installed pendent or upright. <sup>5</sup> Sprinkler 12991 is available on special order.									

<b>DESIGN CRITERIA - FM</b> (Also refer to Approval Chart 2 above.)
<p><b>FM Approval Requirements:</b></p> <p>The sidewall sprinklers in Approval Chart 2 above are 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.</p> <p><b>NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.</b></p> <p><b>IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page SR1-3 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.</b></p>



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SIDEWALL SPRINKLERS

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