



## TECHNICAL DATA

## STANDARD RESPONSE FUSIBLE LINK 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 Standard Response Fusible Link Upright and Pendent Sprinklers are small thermosensitive solder link spray sprinklers available with various finishes, temperature ratings, and K-Factors to meet design requirements. The special Polyester and Polytetrafluoroethylene (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 Approval Chart 1. (Note: FM Global has no approval classification for Polyester and PTFE coatings as corrosion resistant.)

### 2. LISTINGS AND APPROVALS



**cULus Listed:** Category VNIV



**FM Approved:** Classes 2001, 2016, and 2017

**NYC Approved:** MEA Number 89-92-E, Vol. 3

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

Refer to Approval Chart 1 and Design Criteria on page 18d for cULus Listing requirements, and Refer to Approval Chart 2 and Design Criteria on page 18e for FM Approval requirements that must be followed.

### 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)  
 Thread size: Refer to the Approval Charts  
 Nominal K-Factor: Refer to the Approval Charts  
 Overall Length: Refer to the Approval Charts

#### Material Standards:

Frame Casting: Brass UNS-C84400  
 Deflector: Brass UNS-C23000 or Copper UNS-C19500 for sprinklers 05506 and 05557. Copper UNS-C19500 for sprinklers 05508, 05514, 05516, 05576, and 05578. Brass UNS-C26000 for all other Part Nos.  
 Fusible Link Assembly: Brass UNS-C40500 and Phosphor Bronze UNS-C51000

**NOTE:** For chrome sprinklers, the fusible link assembly is painted silver for decorative purposes only.

Bushing (for Sprinkler Base Part Nos. 05574 and 05575): Brass UNS-C36000  
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape  
 Screw: Stainless Steel UNS-S30300  
 Seat: Copper UNS-C11000  
 Button: Copper UNS-C19400

Pip Cap Attachment: Brass UNS-C36000 (VK108, VK109, & VK110 only)

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 Fusible Link 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 = F, White Polyester = M-/W, Black Polyester = M-/B, Black PTFE = N, and Wax Coated = C  
 Temperature Suffix: 165 °F (74 °C) = C, 220 °F (104 °C) = F, and 286 °F (141 °C) = G

For example, sprinkler VK108 with a 1/2" thread, Brass finish and a 165 °F (74 °C) temperature rating = Part No. 05557AC

#### Available Finishes And Temperature Ratings:

Refer to Table 1.



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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**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 and/or 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 fusible link disengages, the pip cap and spring are released, and the waterway is opened. 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**

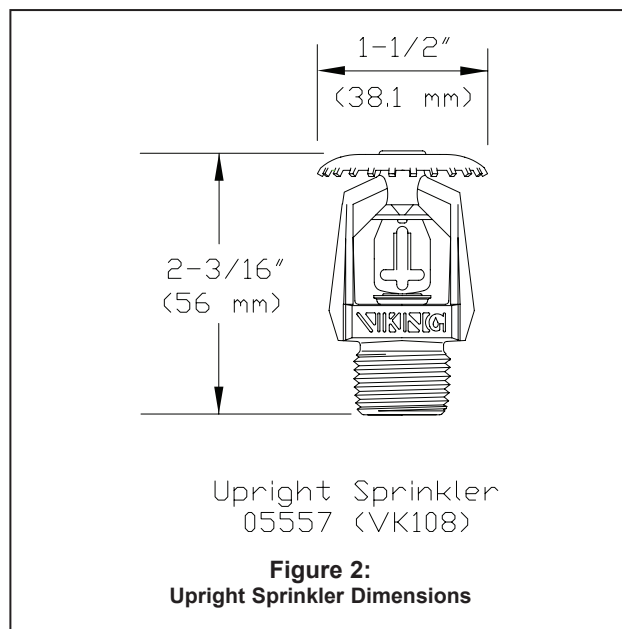
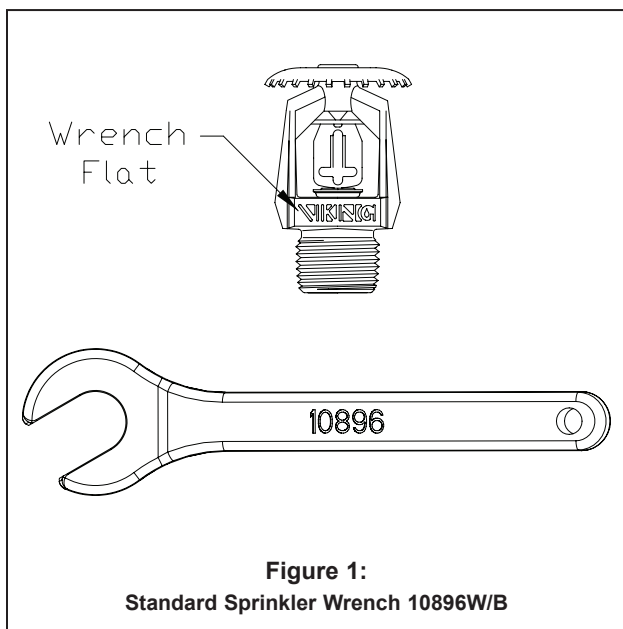
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

Viking Standard Response Upright and Pendent Fusible Link 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	220 °F (104 °C)	150 °F (65 °C)	White
High	286 °F (141 °C)	225 °F (107 °C)	Blue

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

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

165 °F (74 °C) Light Brown Wax                      220 °F (104 °C) Dark Brown Wax                      286 °F (141 °C) Dark Brown Wax

Footnotes

- <sup>1</sup> Decorative sprinklers may not be color coded. 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. The coatings indicated are applied to the exposed exterior surfaces only and, therefore, the sprinklers cannot be used as open sprinklers. Note that the spring is exposed on sprinklers with Polyester and PTFE coatings.

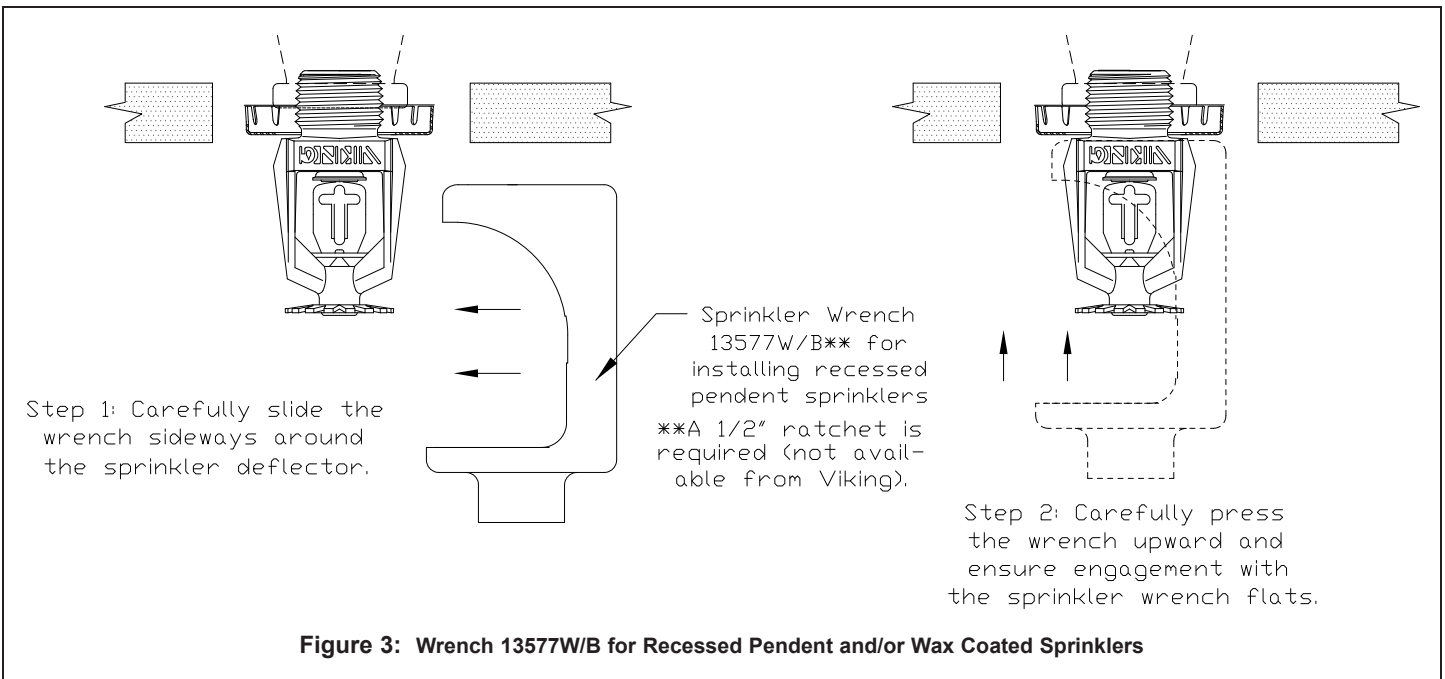

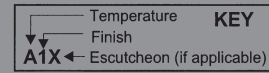


Figure 3: Wrench 13577W/B for Recessed Pendent and/or Wax Coated Sprinklers

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Approval Chart 1 (UL)												
Standard Response Fusible Link 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 <sup>5</sup>	VdS	LPCB
<b>Standard Orifice</b>												
05557	VK108	Upright	1/2"	15 mm	5.6	80.6	2-3/16	56	A3, B2	A3, B2	--	--
05508	VK110	Pendent	1/2"	15 mm	5.6	80.6	2-3/16	56	A3, B2, B3X	A3, B2, B3X	--	--
05506	VK109	Upright	--	15 mm	5.6	80.6	2-1/4	58	--	--	--	--
<b>Large Orifice</b>												
05514	VK204	Upright	3/4"	20 mm	8.0	115.2	2-5/16	59	A4, B2	A1, B2	--	--
05516	VK206	Pendent	3/4"	20 mm	8.0	115.2	2-5/16	59	A4, B2, B1X	A1, B2, B1X	--	--
05578 <sup>9</sup>	VK206	Pendent	1/2"	15 mm	8.0	115.2	2-5/16	59	A4, B2, B1X	A1, B2, B1X	--	--
05576 <sup>9</sup>	VK204	Upright	1/2"	15 mm	8.0	115.2	2-5/16	59	A4, B2	A1, B2	--	--
<b>Small Orifice<sup>6</sup></b>												
05574 <sup>7</sup>	VK006	Upright	1/2"	15 mm	4.2	57	2-1/4	58	A4, B2	A1, B2	--	--
05575 <sup>7</sup>	VK008	Pendent	1/2"	15 mm	4.2	57	2-5/16	59	A4, B2, B1X	A1, B2, B1X	--	--
<b>Approved Temperature Ratings</b> A - 165 °F (74 °C), 220 °F (104 °C), and 286 °F (141 °C) B - 165 °F (74 °C) and 220 °F (104 °C)					<b>Approved Finishes</b> 1 - Brass and Chrome 2 - Wax-Coated Brass (corrosion resistant) 3 - Brass, Chrome, White Polyester <sup>8</sup> , and Black Polyester <sup>8</sup> 4 - Brass, Chrome, White Polyester <sup>8</sup> , Black Polyester <sup>8</sup> , and Black PTFE <sup>8</sup>					<b>Approved Escutcheons</b> X - Installed with standard surface-mounted escutcheons 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.		
<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> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 3. <sup>6</sup> Listings and Approvals limited to Light Hazard Occupancies where allowed by the installation standards being applied, with hydraulically calculated wet systems. <i>Exception:</i> May be installed on hydraulically calculated dry pipe systems where piping is corrosion resistant or internally galvanized. <sup>7</sup> The sprinkler orifice is bushed. <sup>8</sup> cULus Listed as corrosion-resistant. <sup>9</sup> The 1/2" NPT Large Orifice Sprinkler is Listed and Approved for retrofit only.												



### DESIGN CRITERIA - UL


(Also refer to Approval Chart 1 above.)

**cULus Listing Requirements:**

Standard Upright and Pendent Sprinklers are cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

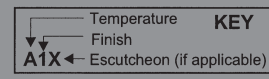
- Designed for use in Light, Ordinary, and Extra Hazard occupancies. (*Small orifice 4.2K sprinklers are limited to Light Hazard where allowed by the installation standards being applied, with hydraulically calculated wet systems. Exception: May be installed on hydraulically calculated dry pipe systems where piping is corrosion resistant or internally galvanized.*)
- The sprinkler installation rules contained in NFPA 13 for standard spray upright and pendent 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 Fusible Link 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>									
05557	VK108	Upright	1/2"	15 mm	5.6	80.6	2-3/16	56	A2
05508	VK110	Pendent	1/2"	15 mm	5.6	80.6	2-3/16	56	A1
05506	VK109	Upright	--	15 mm	5.6	80.6	2-1/4	58	A2
<b>Large Orifice</b>									
05514	VK204	Upright	3/4"	20 mm	8.0	115.2	2-5/16	59	A2
05516	VK206	Pendent	3/4"	20 mm	8.0	115.2	2-5/16	59	A1
<b>Approved Temperature Ratings</b> A - 165 °F (74 °C), 220 °F (104 °C), and 286 °F (141 °C)					<b>Approved Finishes</b> 1 - Brass 2 - Brass and White Polyester				
<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.									



### DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

**FM Approval Requirements:**

The sprinklers indicated in Approval Chart 2 are FM Approved as standard 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 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.**

**VIKING®** TECHNICAL DATA **STANDARD RESPONSE FUSIBLE LINK UPRIGHT AND PENDENT SPRINKLERS**

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