



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 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 coatings as corrosion resistant.)

2. LISTINGS AND APPROVALS

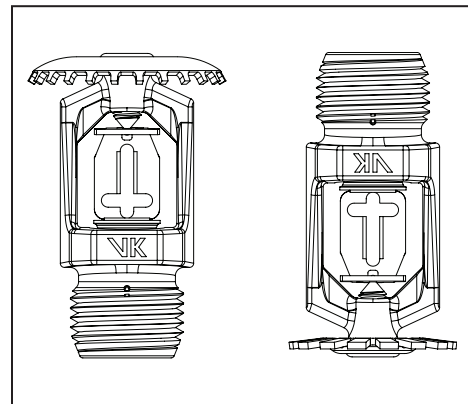


cULus Listed: Category VNIV



FM Approved: Classes 2016 and 2017

Refer to the Approval Chart on page 18x and Design Criteria on page 18y for cULus and 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 Chart

Nominal K-Factor: Refer to the Approval Chart

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

Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass for Sprinkler 12972. Brass UNS-C84400 for all other Sprinklers.

Deflector: Brass UNS-C23000 or Copper UNS-C19500 for Part Nos. 12971 and 12973. Copper UNS-C19500 for Part No. 12972.

Fusible Link Assembly: Brass UNS-C40500 and UNS-C51000

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

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

Screw: Stainless Steel UNS-S30300

Seat: Copper UNS-C11000

Pip Cap Attachment: Brass UNS-C36000

Button: Copper UNS-C19400

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, Wax Coated = C

Temperature Suffix (°F/°C): 165°/74° = C, 220°/104° = F, and 286°/141° = G

For example, sprinkler VK108 with a 1/2" thread, Brass finish and a 165 °F/74 °C temperature rating = Part No. 12973AC

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 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)

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 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

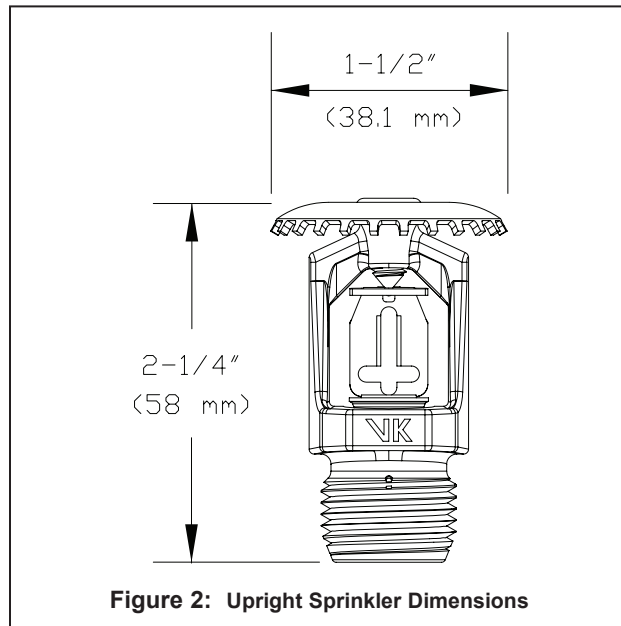
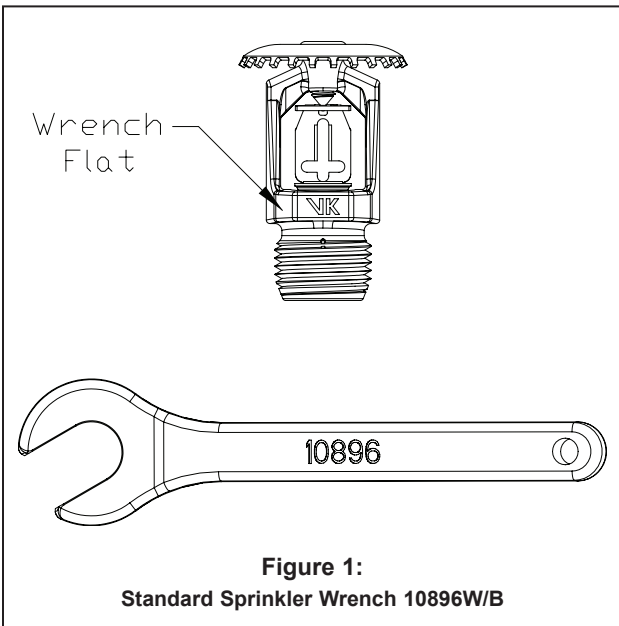
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking Standard Response Upright and Pendent 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 ¹	Maximum Ambient Ceiling Temperature ²	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, Chrome, White Polyester, and Black Polyester

Corrosion-Resistant Coatings³: White Polyester and Black Polyester in all temperature ratings for Part Nos. 12971, 12972, and 12973 only.

Wax-Coated Brass for sprinklers with the following temperature ratings:

165 °F (74 °C) Light Brown Wax 220 °F (104 °C) Dark Brown Wax⁴ 286 °F (141 °C) Dark Brown Wax⁴

Footnotes

¹ Decorative sprinklers may not be color coded. The temperature rating is stamped on the deflector.

² 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.

³ 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 and, therefore, the sprinklers cannot be used as open sprinklers. Note that the spring is exposed on sprinklers with Polyester coatings.

⁴ Wax melting point is 170 °F (76 °C) for 220 °F (104 °C) and 286 °F (141 °C) temperature rated sprinklers.

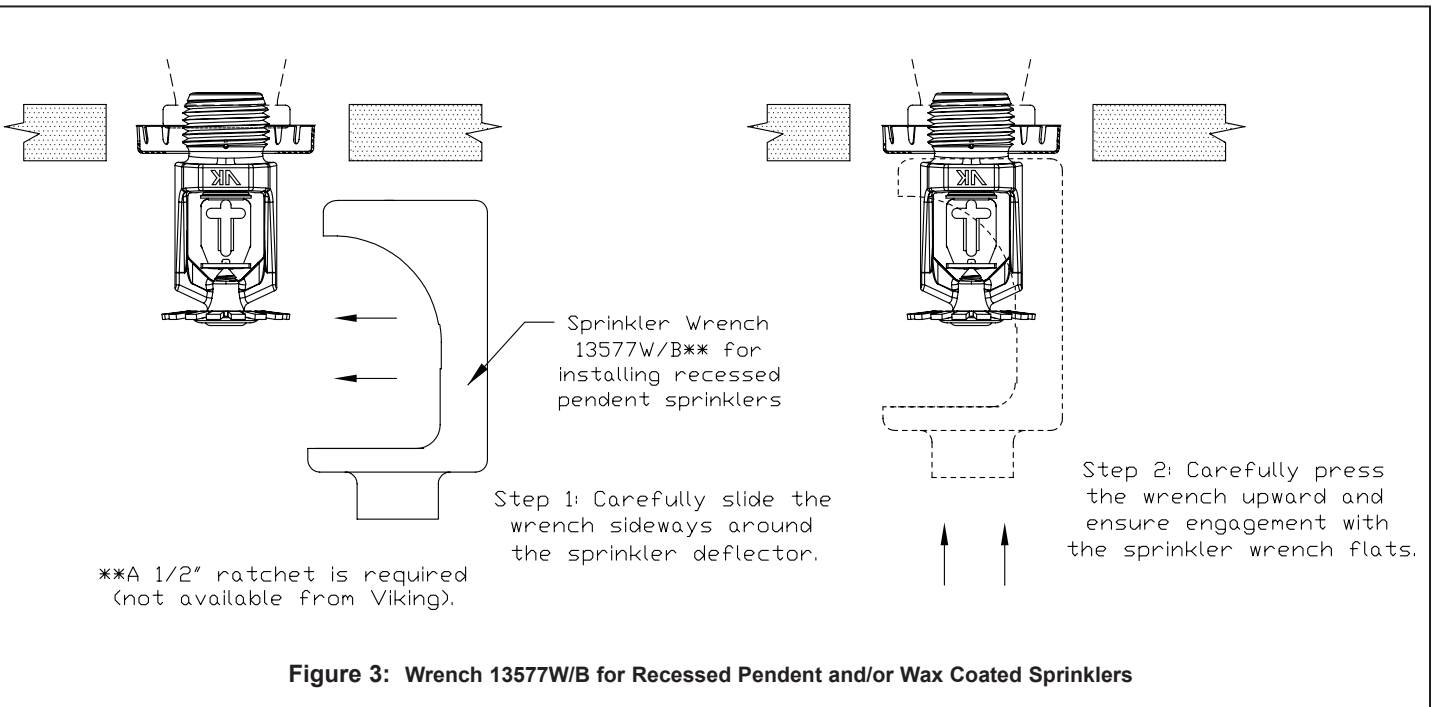
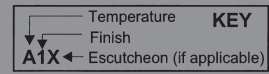


Figure 3: Wrench 13577W/B for Recessed Pendent and/or Wax Coated Sprinklers

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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 ¹	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to Design Criteria below)			
			NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴	NYC	VdS	LPCB
Standard Orifice												
12973	VK108	Upright	1/2"	15 mm	5.6	80.6	2-1/4	58	A2, B1	--	--	--
12972	VK110	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A2, B1, B2X	--	--	--
12971	VK109	Upright	--	15 mm	5.6	80.6	2-1/4	58	A2, B1	--	--	--
Approved Temperature Ratings A - 165 °F (74 °C), 220 °F (104 °C), and 286 °F (141 °C) B - 165 °F (74 °C) and 220 °F (104 °C)				Approved Finishes 1 - Wax-Coated Brass (corrosion resistant) 2 - Brass, Chrome, White Poly-ester ⁵ , and Black Polyester ⁵				Approved Escutcheons X - 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.				
Footnotes												
¹ Base part number shown. For complete part number, refer to Viking's current price schedule. ² 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. ³ This table shows the listings and approvals available at the time of printing. Other approvals may be in process. ⁴ Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada. ⁵ cULus Listed as corrosion-resistant.												



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.
- 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) unless baffles are installed in accordance with NFPA 13.
- Minimum distance from walls is 4 in. (102 mm).
- 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.
- The sprinkler installation and obstruction 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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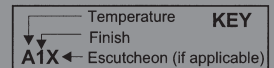
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Approval Chart 2 (FM)

Standard Response Fusible Link Upright and Pendent Sprinklers
Maximum 175 PSI (12 Bar) WWP



Base Part Number ¹	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		FM Approvals ³ (Refer also to Design Criteria below.)
			NPT	BSP	U.S.	metric ²	Inches	mm	
Standard Orifice									
12973	VK108	Upright	1/2"	15 mm	5.6	80.6	2-1/4	58	A1
12972	VK110	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1
12971	VK109	Upright	--	15 mm	5.6	80.6	2-1/4	58	A1
Approved Temperature Ratings					Approved Finishes				
A - 165 °F (74 °C), 220 °F (104 °C), and 286 °F (141 °C)					1 - Brass and White Polyester				

Footnotes

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

² 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.

³ 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:

Sprinklers VK108, VK109, and VK110 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.



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