



## TECHNICAL DATA

### FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK425 (K4.1)

The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

#### 1. DESCRIPTION

Viking Freedom® Residential Concealed Pendent Sprinkler SIN VK425 is small a high-sensitivity solder link and lever residential sprinkler designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired. The sprinkler has a K-Factor of 4.1 (59.1 metric\*). The fast response operating element and special deflector combine speed of operation and areas of coverage to meet residential sprinkler standards.

The two-piece design of the unit allows installation and testing of the sprinkler prior to installation of the cover plate. After the system has been tested and the ceiling finish applied, the "push-on", "thread-off" design of the cover plate assemblies allows easy installation of the cover plates with up to 1/2" (12.7 mm) adjustment available. This feature also permits temporary removal of ceiling panels without taking the sprinkler system out of service or removing the sprinkler.



#### 2. LISTINGS AND APPROVALS

**cULus Listed:** Category VKKW

**NYC Approved:** MEA 89-92-E, Volume 24

**NSF Certified:** NSF/ANSI Standard 61, Drinking Water System Components

Refer to the Approval Chart on page 147m and Design Criteria on page 147n for cULus Listing requirements that must be followed.

#### 3. TECHNICAL DATA

##### Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar).

Maximum Working Pressure: 175 psi (12 bar). Factory tested pneumatically to 95 psi (6.55 bar).

Spring: U.S.A. Patent No. 4,570,720

Thread size: 1/2" (15 mm) NPT

Nominal K-Factor: 4.1 U.S. (59.1 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 (Sprinkler Body): 2-3/16" (56 mm)

##### Material Standards:

Sprinkler Body: Brass UNS-C84400

Body Cap: Brass UNS-C26000

Deflector: Copper UNS-C19500

Deflector Pins: Stainless Steel UNS-S30300

Button: Brass UNS-C31400

Compression Screw: Brass UNS-C36000

Fusible Link Assembly: Beryllium Nickel

Fusible Link Levers: Stainless Steel UNS-S31600

Lever Bar: Copper Alloy UNS-C72500

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

##### Cover Plate Materials:

Cover Plate Assembly: Brass UNS-C26000 or UNS-C26800

Spring: Beryllium Nickel

Solder: Eutectic

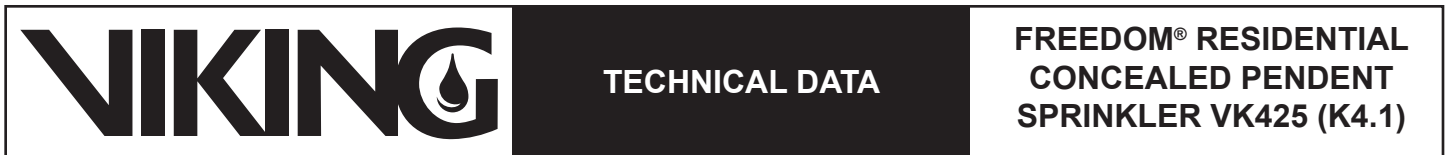
**Ordering Information:** (Also refer to the current [Viking price list](#).)

Viking Freedom® Residential Concealed Pendent Sprinkler VK425 and Cover Plate Assembly must be ordered separately:

**Sprinkler:** Part No. 10784AJ (includes a 140 °F (60 °C) rated sprinkler).

**Cover Plate Assembly:** Base Part No. 10786

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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Specify finish and temperature rating of the cover plate assembly by first adding the appropriate suffix for the finish and then the appropriate suffix for the cover temperature rating to the base part number:

Finish Suffix: Polished Chrome = F, Brushed Chrome = F-/B, Bright Brass = B, Antique Brass = B-/A, Brushed Brass = B-/B, Brushed Copper = E-/B, Painted White = M-/SW1004, Painted Ivory = M-/SW1634, Painted Black = M-/SW1007

Temperature Suffix (°F/°C): 135°/57° = A

For example, cover 10786 with a Polished Chrome finish and a 135 °F/57 °C temperature rating = 10786FA.

**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. Heavy Duty Part Number 08336W/B (available since 1993), or

B. Light Duty Part Number 10366W/B\*\* (available since 1998)

\*Requires a ½” ratchet (not available from Viking).

\*\*Ideal for sprinkler cabinets.

**Sprinkler Cabinet:** Part No. 01731A, Capacity: six (6) sprinklers (available since 1971)

**4. INSTALLATION**

Refer to appropriate NFPA Installation Standards.

**5. OPERATION**

During fire conditions, when the temperature around the sprinkler approaches its operating temperature, the cover plate detaches. Continued heating of the exposed sprinkler causes the fusible link to disengage, releasing the deflector and sealing assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern over a specific area of coverage determined by the water supply pressure at the sprinkler to extinguish or control the fire.

**6. INSPECTIONS, TESTS AND MAINTENANCE**

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

**7. AVAILABILITY**

Viking Sprinkler SIN VK425 is 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.

**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>	Temperature Rating of the Cover Assembly (Required)	Cover Plate Base Part Number <sup>3</sup>
Ordinary	140 °F (60 °C)	100 °F (38 °C)	135 °F (57 °C)	10786


**Cover Plate Finishes:** Bright Brass, Brushed Brass, Antique Brass, Polished Chrome, Brushed Chrome, Brushed Copper, Painted White, Painted Ivory, and Painted Black

**Footnotes**

<sup>1</sup> The sprinkler temperature rating is stamped on the sprinkler.

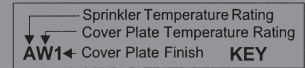
<sup>2</sup> Based on NFPA-13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

<sup>3</sup> Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.

	<b>TECHNICAL DATA</b>	<b>FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK425 (K4.1)</b>
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<b>Approval Chart</b> Residential Concealed Pendent Sprinkler SIN VK425 For systems designed to NFPA 13D or NFPA 13R.									
Sprinkler Base Part Number <sup>1</sup>	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length (Sprinkler Body)		
		Inches	mm	U.S.	metric <sup>2</sup>		Inches	mm	
10784A	VK425	1/2	15	4.1	59.1	175 psi (12 bar)	2-3/16	56	
Maximum Areas of Coverage <sup>7</sup>		Minimum Water Supply Requirements <sup>7</sup>				Listings and Approvals <sup>3</sup> (Refer also to Design Criteria on page 147n.)			
						cULus <sup>4</sup>	NYC <sup>5</sup>	FM	NSF <sup>6</sup>
Installed below smooth, flat, horizontal ceilings, including ceilings with slopes up to and including 2/12 (9.5°).									
12 ft. x 12 ft. (3.7 m x 3.7 m)		15 gpm @ 13.4 psi (56.8 L/min @ 0.92 bar)				AX1	AX1	--	AX1
14 ft. x 14 ft. (4.3 m x 4.3 m)		16 gpm @ 15.2psi (60.6 L/min @ 1.05 bar)				AX1	AX1	--	AX1
16 ft. x 16 ft. (4.9 m x 4.9 m)		20 gpm @ 23.8 psi (75.7 L/min @ 1.64 bar)				AX1	AX1	--	AX1
<b>Sprinkler Temperature Ratings</b> A - 140 °F (60 °C)		<b>Cover Temperature Rating</b> X - 135 °F (57 °C)			<b>Cover Plate Finishes</b> 1 - Bright Brass, Brushed Brass, Antique Brass, Polished Chrome, Brushed Chrome, Brushed Copper, Painted White, Painted Ivory, and Painted Black <sup>8</sup>				
<b>Footnotes</b>									
<sup>1</sup> Part number shown is the base part number. For complete part number, refer to current Viking price list 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 chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.									
<sup>4</sup> Listed by Underwriter's Laboratories 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. 24.									
<sup>6</sup> Tested and Certified by NSF to NSF/ANSI Standard 61, Drinking Water System Components.									
<sup>7</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" for the next larger area listed. Flows and pressures listed are per sprinkler. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the minimum Water Supply Requirement" used.									
<sup>8</sup> Other paint colors are available on request with the same listings as the standard finish colors. Listings and approvals apply for any paint manufacturer. Contact Viking for additional information. Custom colors are indicated on a label inside the cover assembly. Refer to Figure 4.									



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**DESIGN CRITERIA**  
 (Also refer to the Approval Chart on page 147m.)

**cULus Listing Requirements:**

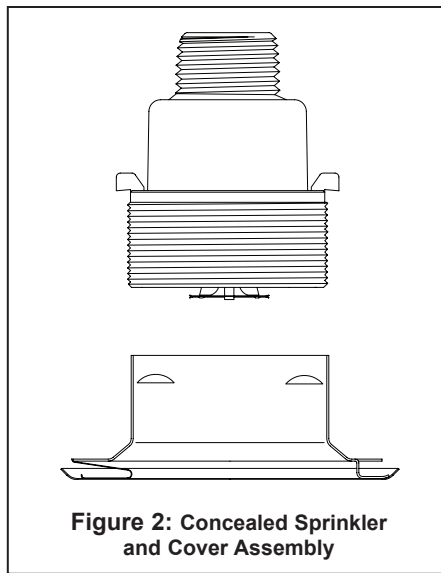
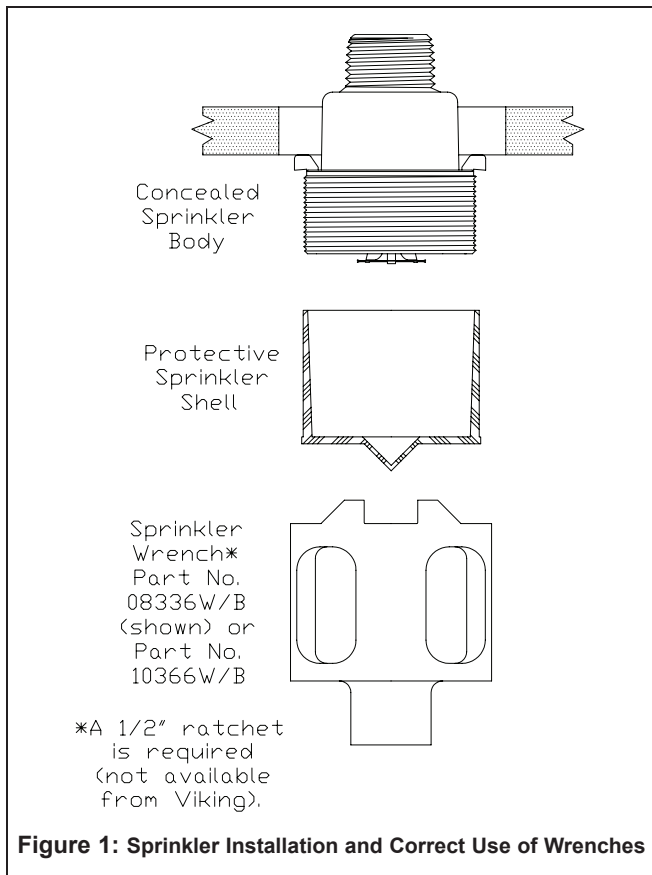
When using Viking Residential Sprinkler SIN VK425 for systems designed to NFPA 13D or NFPA 13R, apply the listed areas of coverage and minimum water supply requirements shown in the Approval Chart on page 147m.

For systems designed to NFPA 13: The number of design sprinklers is to be the four contiguous most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in the Approval Chart on data page 147m for NFPA 13D and NFPA 13R applications for each listed area of coverage, **or**
- A minimum discharge of 0.1 gpm/ft<sup>2</sup> (4.07 mm/min) over the "design area" consisting of the four contiguous most hydraulically demanding sprinklers for the coverage areas being protected by the four sprinklers. **NOTE:** The  $A_s = S \times L$  method must be used to determine the sprinkler protection area of coverage per NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

**NOTE: Concealed sprinklers must be installed in neutral or negative pressure plenums only.**

**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to pages RES1-17 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 and any other similar Authorities Having Jurisdiction, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. Final approval and acceptance of all residential sprinkler installations must be obtained from the Authorities Having Jurisdiction.**



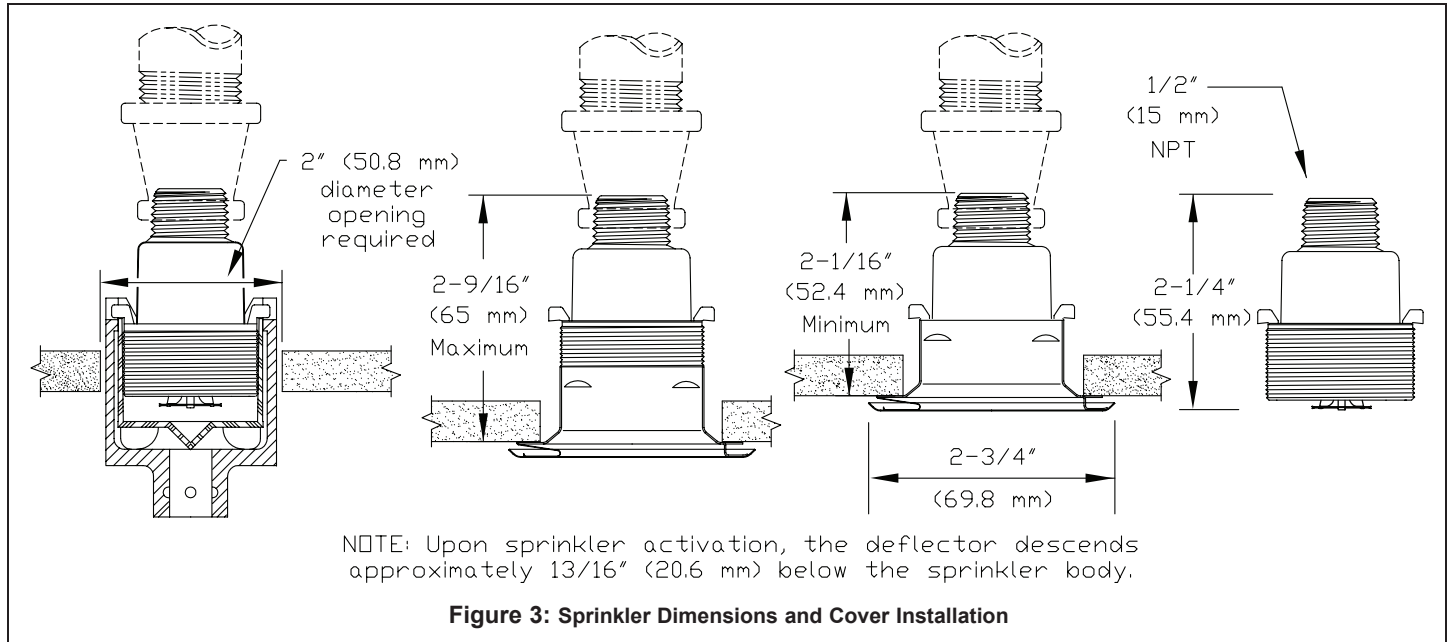


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CONCEALED PENDENT  
SPRINKLER VK425 (K4.1)**

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**Identification of Custom Paint Color:**  
All custom color painted cover plates will have an identifying label affixed to the inside of the cover that indicates custom color and will have a representative sample (a paint dot) of the paint on the label.

**Figure 4: Identification of Custom Paint Color for Concealed Covers**

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