



## TECHNICAL DATA

## FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK466 (K5.2)

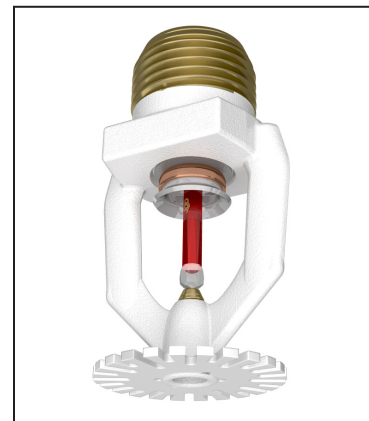
The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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### 1. DESCRIPTION

Viking Freedom® Residential Pendent Sprinkler VK466 is a thermosensitive, glass-bulb residential sprinkler available in several different finishes and temperature ratings to meet varying design requirements. The Electroless Nickel PTFE (ENT) coating has been investigated for installation in corrosive atmospheres and is C-UL-US-EU Listed as corrosion resistant as indicated in the Approval Chart. The orifice design, with a K-Factor of 5.2 (74.9 metric\*), allows efficient use of available water supplies for the hydraulically designed fire-protection system. The fast response type glass bulb and special deflector combine speed of operation and area of coverage to meet residential sprinkler standards while being aesthetically pleasing.



### 2. LISTINGS AND APPROVALS



**UL Listed (C-UL-US-EU):** Category VKKW

**UL Classified to:** NSF/ANSI Standard 61, Drinking Water System Components (MH48034)

Refer to the Approval Chart and Design Criteria for C-UL-US-EU Listing requirements that must be followed.



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### 3. TECHNICAL DATA

#### Specifications:

Available since 2006.

Minimum Operating Pressure: Refer to the Approval Chart.

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar).

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

Nominal K-Factor: 5.2 U.S. (74.9 metric\*)

\* Metric K-factor measurement shown is for 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: 2-1/4" (58 mm)

#### Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Brass UNS-C23000 or Phosphor Bronze UNS-C51000

Bulb: Glass, nominal 3 mm diameter

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

Compression Screw: Brass UNS-C36000

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

For ENT coated sprinklers: Belleville spring - Exposed, Screw and Pipcap - ENT plated.

#### Available Finishes and Temperature Ratings:

Finish	Brass	Chrome	White Polyester	Black Polyester	ENT
Suffix	A	F	M-/W	M-/B	JN
Temperature	155 °F (68 °C)	175 °F (79 °C)	--	--	--
Suffix	B	D	--	--	--

Ordering Information: (Refer to Table 1 and the current Viking price list.)

### 4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

### 5. OPERATION



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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

**TABLE 1: ORDERING INFORMATION**

Instructions: Using the sprinkler base part number,  
(1) add the suffix for the desired Finish  
(2) add the suffix for the desired Temperature Rating.

Sprinkler Base Part No.	Size		1: Finishes		2: Temperature Ratings			
	NPT Inch	BSP mm	Description	Suffix <sup>1</sup>	Nominal Rating	Bulb Color	Max. Ambient Ceiling Temperature <sup>3</sup>	Suffix
13781	1/2	--	Brass	A	155 °F (68 °C)	Red	100 °F (38 °C)	B
			Chrome	F	175 °F (79 °C)	Yellow	150 °F (65 °C)	D
			White Polyester <sup>4,5</sup>	M-/W				
			Black Polyester <sup>4,5</sup>	M-/B				
			ENT <sup>4,5</sup>	JN				

**Example:** 13781AB = VK466 with Brass Finish and 155 °F (68 °C) Nominal temperature rating. This sprinkler is to be installed into an area with a maximum ambient temperature of 100 °F (38 °C) meaning if the area will experience temperatures above the maximum ambient rating, you shall use a higher temperature-rated sprinkler.

#### Accessories

##### Sprinkler Wrenches (see Figure 1):

- A. Standard Wrench: Part No. 21475M/B (available since 2017).
- B. Recessed Socket Wrench: Part No. 13655W/B<sup>2</sup> (available since 2006).
- C. Protective Sprinkler Cap/Escutcheon installation tool<sup>7</sup> 15915 (available since 2010).

##### Sprinkler Cabinet:

- A. Up to 6 sprinklers: Part number 01724A (available since 1971).
- B. 6-12 Sprinklers: Part number 01725A (available since 1971).

#### Footnotes

1. Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.
2. Requires a 1/2" ratchet which is not available from Viking.
3. 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.
4. UL Listed as corrosion resistant.
5. 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 ENT coating is applied to all exposed exterior surfaces, including the waterway.
6. Allows installation from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F\_051808.




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### Approval Chart Viking VK466, 5.2 K-Factor Residential Pendent Sprinkler

For systems designed to NFPA 13D or NFPA 13R. For systems designed to NFPA 13, refer to the design criteria. For Ceiling types refer to NFPA 13, 13R or 13D 2013 Editions

Sprinkler Base Part Number <sup>1</sup>	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length			
		Inches	mm	U.S.	metric <sup>2</sup>		Inches	mm		
13781	VK466	1/2	15	5.2	74.9	175 psi (12 bar)	2-1/4	58		
Max. Coverage Area <sup>6</sup> Ft.X Ft. (m X m)	Ordinary Temp Rating (155 °F/68 °C)		Intermediate Temp Rating (175 °F/79 °C)		Deflector to Ceiling	Installation Type	Listings and Approvals <sup>3</sup>			Minimum Spacing Ft. (m)
	Flow <sup>6</sup> GPM (L/min)	Pressure <sup>6</sup> PSI (bar)	Flow <sup>6</sup> GPM (L/min)	Pressure <sup>6</sup> PSI (bar)			 <sup>4</sup>	NYC	NSF <sup>7</sup>	
12 X 12 (3.7 X 3.7)	14 (53.0)	7.2 (0.50)	14 (53.0)	7.2 (0.50)	1-1/8 to 2 inch	Standard surface-mounted escutcheons, or recessed with the Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon	See Footnotes 8 and 10	See Footnote 5	See Footnote 8	8 (2.4)
14 X 14 (4.3 X 4.3)	14 (53.0)	7.2 (0.50)	14 (53.0)	7.2 (0.50)						
16 X 16 (4.9 X 4.9)	14 (53.0)	7.2 (0.50)	14 (53.0)	7.2 (0.50)						
18 X 18 (5.5 X 5.5)	17 (64.4)	10.7 (0.74)	17 (64.4)	10.7 (0.74)						
20 X 20 (6.1 X 6.1)	20 (75.7)	14.8 (1.02)	20 (75.7)	14.8 (1.02)						

#### Footnotes

- <sup>1</sup> Part number shown is the base part number. 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 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. Refer also to Design Criteria.
- <sup>4</sup> Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.
- <sup>5</sup> Meets New York City requirements, effective July 1, 2008.
- <sup>6</sup> For areas of coverage smaller than shown, use the "Flow" and "Pressure" 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 "Flow" and "Pressure" used.
- <sup>7</sup> UL Classified to: NSF/ANSI Standard 61, Drinking Water System Components (MH48034).
- <sup>8</sup> Approved Finishes are: Brass, Chrome, White Polyester, and Black Polyester<sup>9</sup>.
- <sup>9</sup> Other paint colors are available on request with the same C-UL-US-EU listings as the standard finish colors.
- <sup>10</sup> Approved finish is Electroless Nickel PTFE (ENT). ENT is C-UL-US-EU Listed as corrosion resistant. ENT is available with standard surface-mounted escutcheons or the Micromatic Model E-1 Recessed Escutcheon.



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**DESIGN CRITERIA**

(Also refer to the Approval Chart.)

**UL Listing Requirements (C-UL-US-EU):**

When using Viking Residential Sprinkler VK466 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.

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 for NFPA 13D and NFPA13R applications for each listed area of coverage, **or**
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the “design area” in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to Form No. F\_080190, F\_080814, and F\_080415 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.**

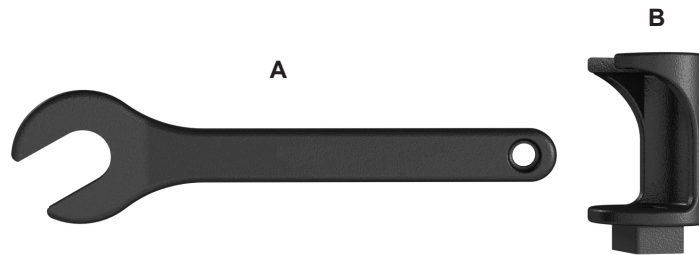


Figure 1: Sprinkler Wrenches

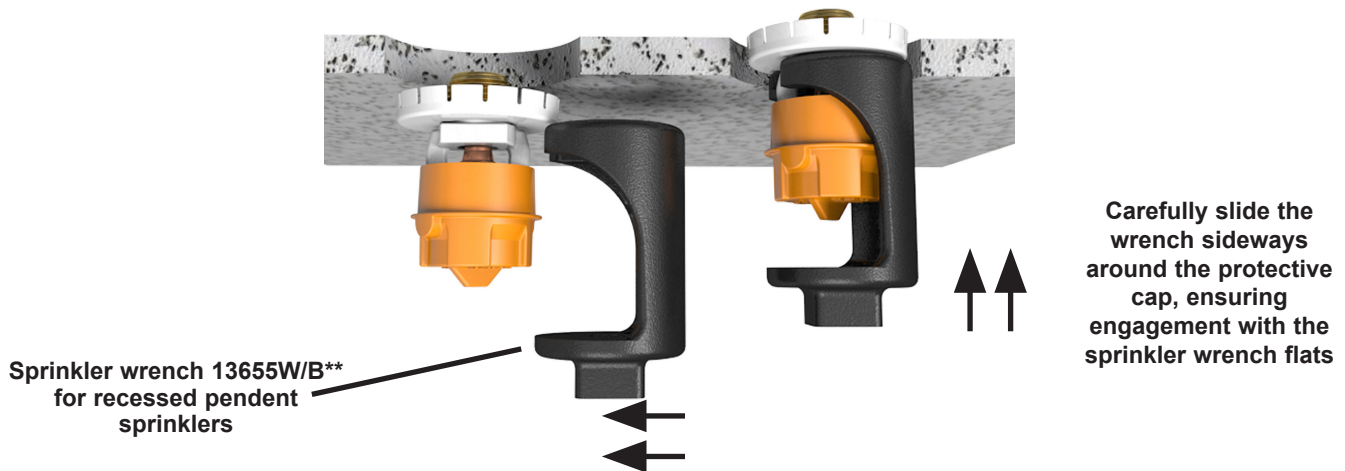


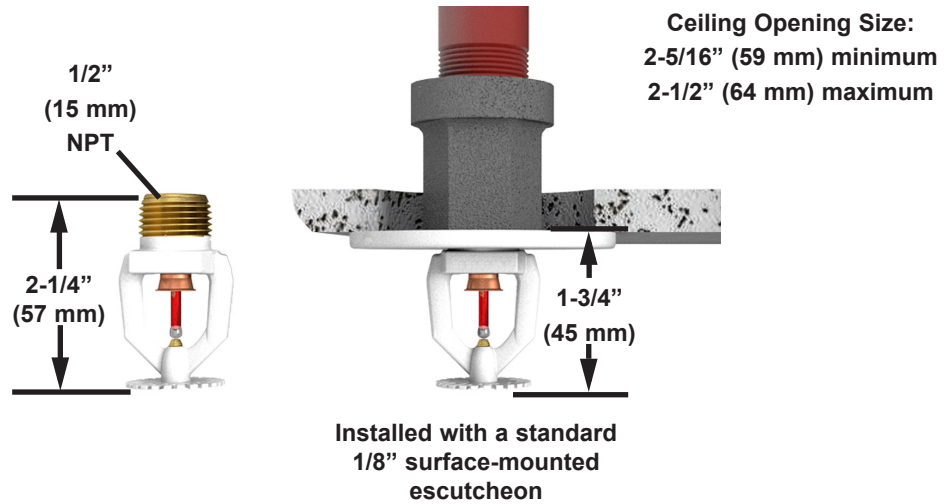
Figure 2: Installing Recessed Pendant Sprinklers  
 \*\* A 1/2" ratchet is required (not available from Viking)



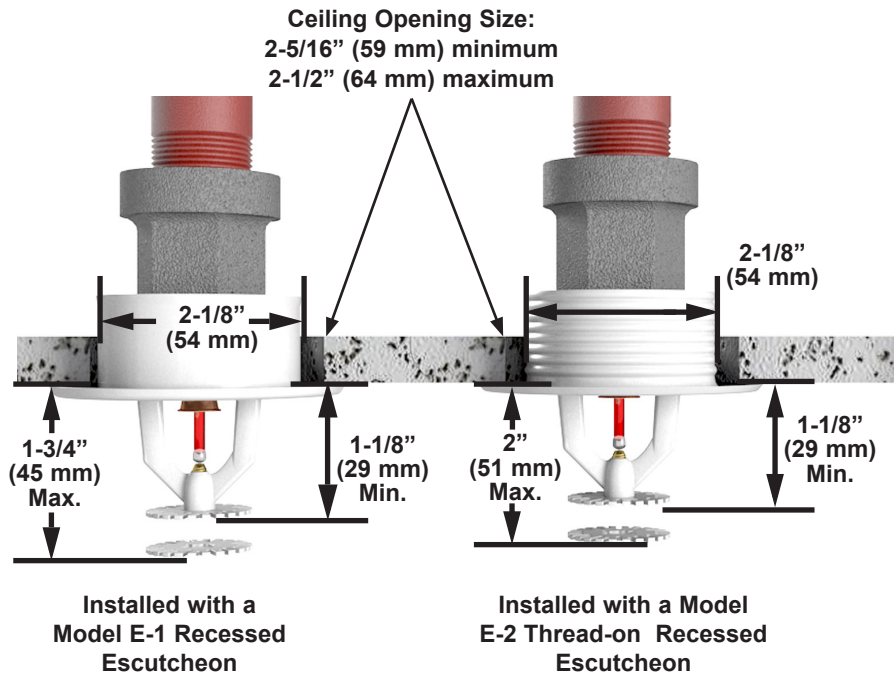
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**Figure 3: Sprinkler Dimensions with a Standard Escutcheon**



**Figure 4: Sprinkler Dimensions with the Model E-1 and E-2 Recessed Escutcheons**