



## TECHNICAL DATA

## FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK458 (K7.4)

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. PRODUCT DESCRIPTION

Viking Freedom® Residential Pendent Sprinkler VK458 is a small, 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 sprinkler orifice design, with a K-Factor of 7.4 (107 metric\*), allows efficient use of available water supplies for the hydraulically designed fire-protection system. The glass bulb operating element and special deflector characteristics meet the challenges of residential sprinkler standards.

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.



### 2. LISTINGS AND APPROVALS



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

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

### 3. TECHNICAL DATA

#### Specifications:

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: 3/4" (20 mm) NPT

Nominal K-Factor: 7.4 U.S. (107 metric\*)

\* Metric K-factor measurement is shown 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: 2-5/16" (59 mm)

#### Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Brass UNS-C26000, 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 PTFE Tape

Compression Screw: Brass UNS-C36000

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNSS30400

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

#### Available Finishes And Temperature Ratings:

Refer to Table 1.

**Ordering Instructions:** (Also refer to the current Viking price list.)

**Sprinkler:** Base Part No. 13230

Order sprinkler VK458 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, and ENT = JN

Temperature Suffix (°F/°C): 155°/68° = B, 175°/79° = D

For example, sprinkler VK458 with a Brass finish and a 155 °F/68 °C temperature rating = Part No. 13230AB.

**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: Part No. 13577W/B\*\* (available since 2006)

\*\*A 1/2" ratchet is required (not available from Viking).

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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**Sprinkler Cabinets:**

- A. Six-head capacity: Part No. 01724A (available since 1971)
- B. Twelve-head capacity: Part No. 01725A (available since 1971)

**NOTE:** Not for use with the Viking Residential Sprinkler Extension.

**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**

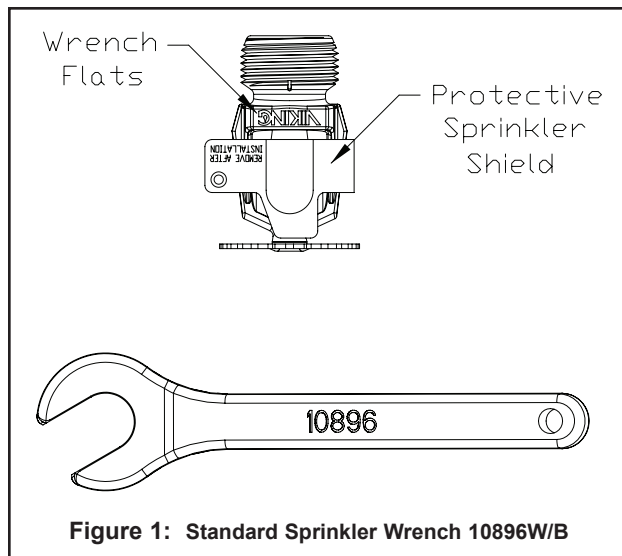
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

The Viking Model VK458 Sprinkler 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>	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow

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

**Corrosion Resistant Coatings<sup>3</sup>:** ENT

**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 ENT coated sprinklers, the waterway is coated. Note that the spring is exposed on sprinklers with ENT coating.



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### Approval Chart Viking VK458, 7.4 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		
13230	VK458	3/4	20	7.4	107	175 psi (12 bar)	2-5/16	59		
Max. Coverage Area <sup>4</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>4</sup> GPM (L/min)	Pressure <sup>4</sup> PSI (bar)	Flow <sup>4</sup> GPM (L/min)	Pressure <sup>4</sup> PSI (bar)			 <sup>5</sup> US EU	NYC <sup>6</sup>	NSF <sup>8</sup>	
12 X 12 (3.7 X 3.7)	20 (75.7)	7.3 (0.5)	20 (75.7)	7.3 (0.5)	1-1/8 to 2 inch	Standard surface-mounted escutcheons, the Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon	See Footnotes 7 and 10.	See Footnote 7.	See Footnote 7.	8 (2.4)
14 X 14 (4.3 X 4.3)	20 (75.7)	7.3 (0.5)	20 (75.7)	7.3 (0.5)						
16 X 16 (4.9 X 4.9)	20 (75.7)	7.3 (0.5)	20 (75.7)	7.3 (0.5)						
18 X 18 (5.5 X 5.5)	22 (83.3)	8.8 (0.61)	22 (83.3)	8.8 (0.61)						
20 X 20 (6.1 X 6.1)	24 (90.8)	10.5 (0.73)	24 (90.8)	10.5 (0.73)						

#### 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> 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>5</sup> Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.

<sup>6</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 36.

<sup>7</sup> Approved Finishes are: Brass, Chrome, White Polyester, and Black Polyester<sup>9</sup>

<sup>8</sup> UL Classified to: NSF/ANSI Standard 61, Drinking Water System Components (MH48034).

<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.

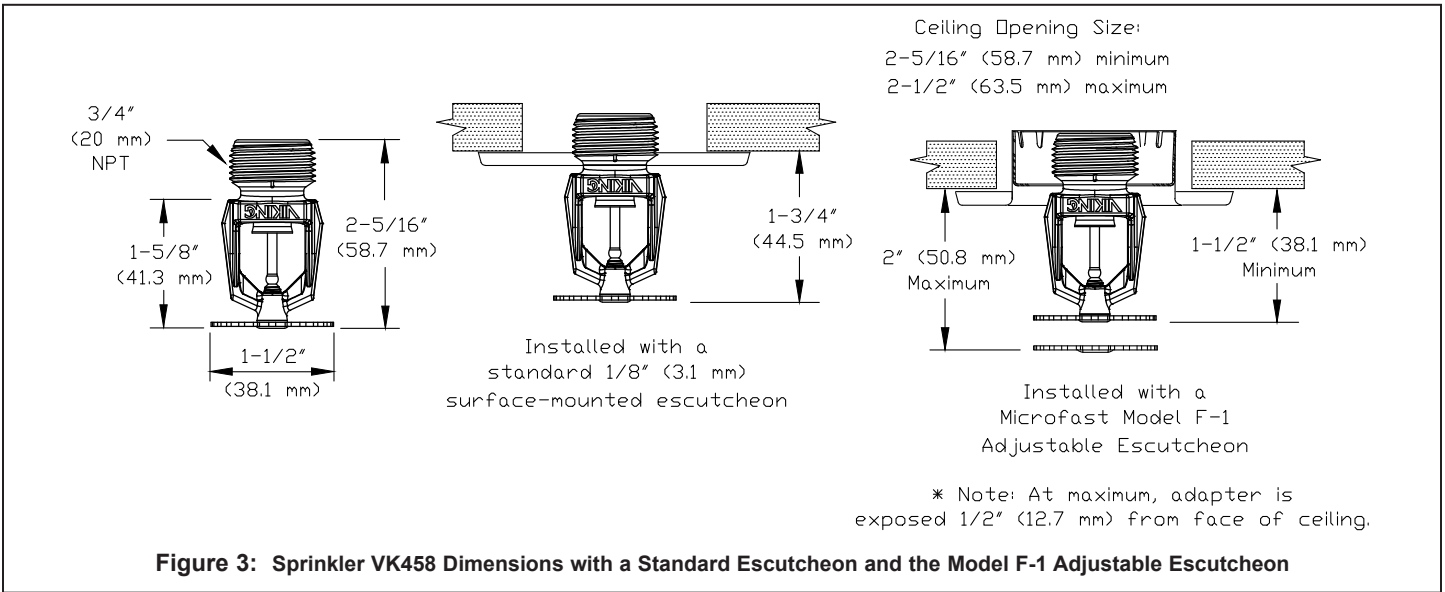
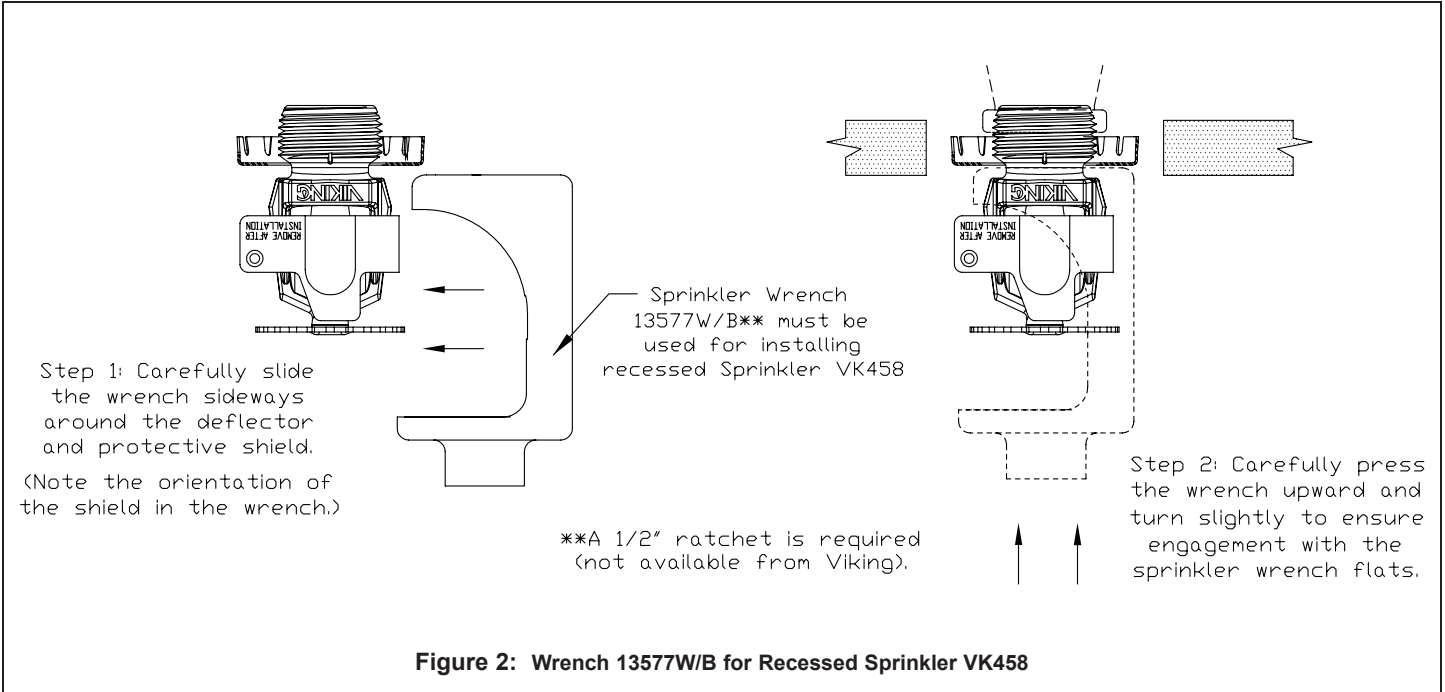


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**DESIGN CRITERIA**

(Also refer to the Approval Chart.)

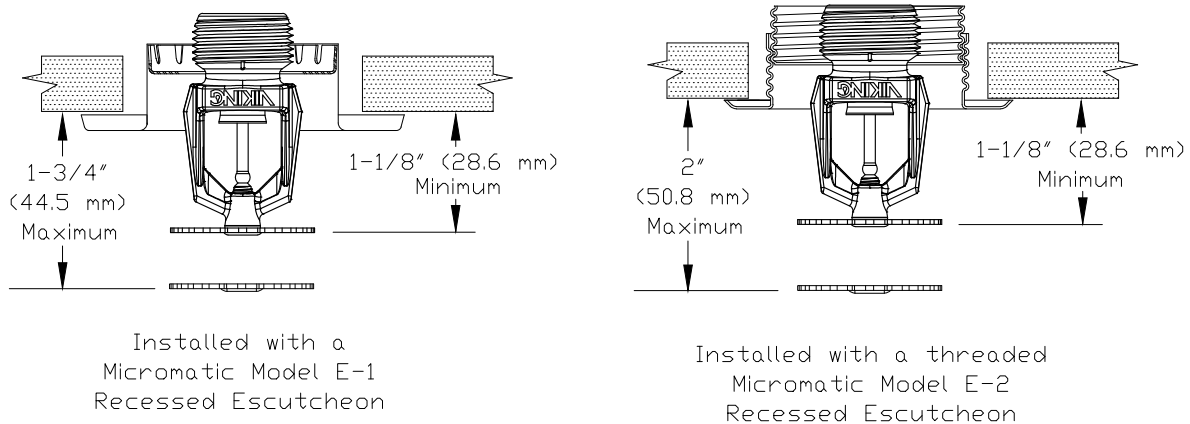
**UL Listing Requirements (C-UL-US-EU):**

When using Viking Residential Pendent Sprinkler VK458 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 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.**



**Figure 4: Sprinkler VK458 Dimensions with the Model E-1 and E-2 Recessed Escutcheons**