



## TECHNICAL DATA

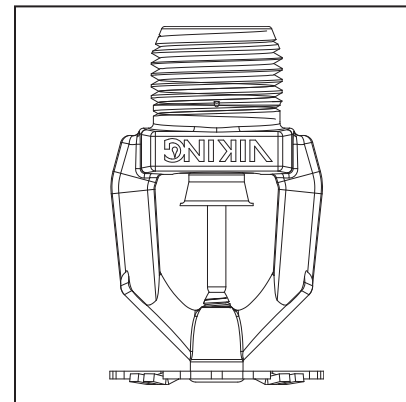
### FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK472 (K5.8)

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 Freedom® Residential Pendent Sprinkler VK472 is a thermosensitive, glass-bulb residential sprinkler available in several different finishes and temperature ratings to meet varying design requirements. The orifice design, with a K-Factor of 5.8 (83.6 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.



#### 2. LISTINGS AND APPROVALS

 **cULus Listed:** Category VKKW

Refer to the Approval Chart and Design Criteria on page 148q for cULus Listing requirements that must be followed.

#### 3. TECHNICAL DATA

##### Specifications:

Available since 2010.

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: 5.8 U.S. (83.6 metric\*)

\* Metric K-factor measurement shown is 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 Teflon Tape

Compression Screw: Brass UNS-C36000

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

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

**Sprinkler:** Base Part No. 16130

Order Sprinkler VK472 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-Enloy® = F, and White Polyester = M-W

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

For example, sprinkler VK472 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 16130AB.

##### 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 Sprinklers: Part No. 16036W/B\*\* (available since 2011)

\*\*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.

#### 4. INSTALLATION

Refer to appropriate NFPA Installation Standards. For NFPA 13D horizontal ceiling criteria and slopes, refer to TIA 1028R for slope ceiling criteria exceptions.

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**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**

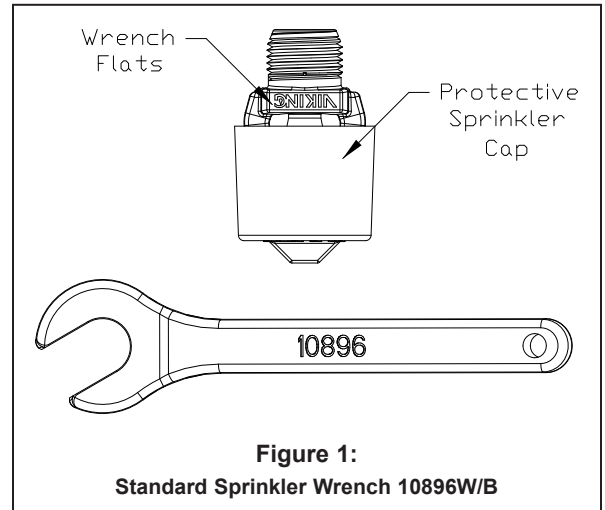
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

The Viking Model VK472 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.



**Figure 1:**  
Standard Sprinkler Wrench 10896W/B

**TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES**

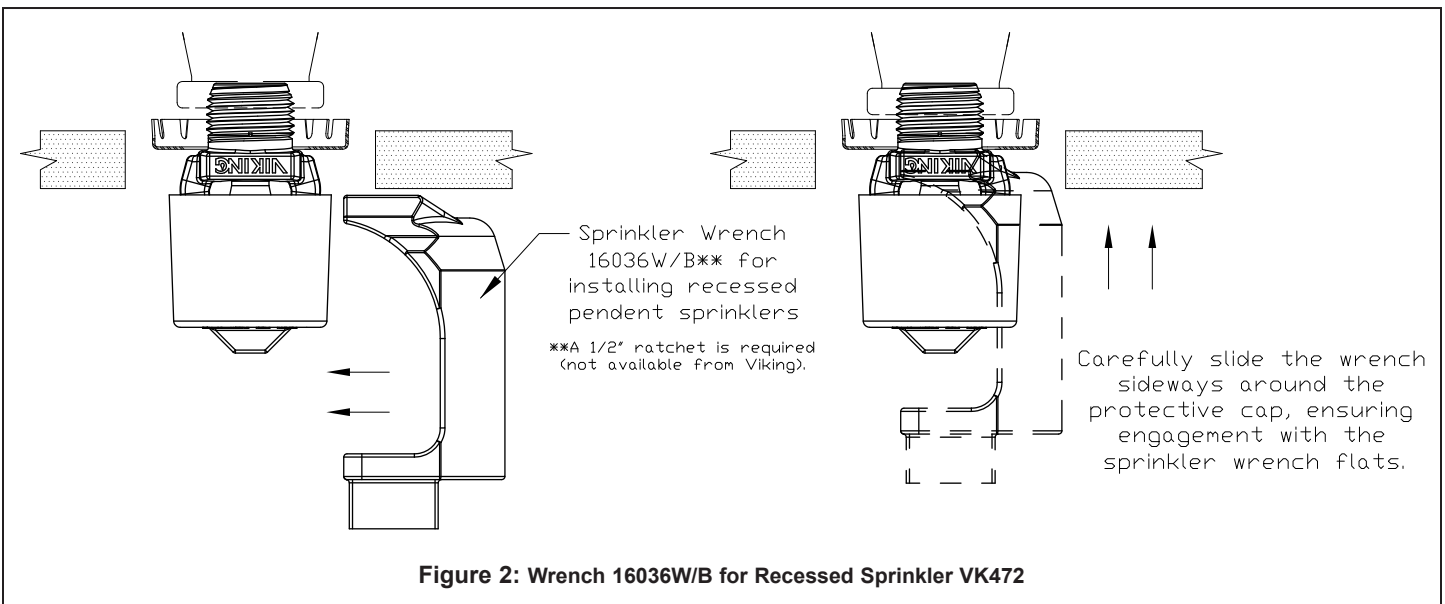
| Sprinkler Temperature Classification | Sprinkler Nominal Temperature Rating <sup>1</sup> | Maximum Ambient Ceiling Temperature <sup>2</sup> | Bulb Color |
|--------------------------------------|---|--|------------|
| Ordinary                             | 155 °F (68 °C)                                    | 100 °F (38 °C)                                   | Red        |
| Intermediate                         | 175 °F (79 °C)                                    | 150 °F (65 °C)                                   | Yellow     |

**Sprinkler Finishes:** Brass, Chrome-Enloy® (patents pending), and White Polyester


**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.

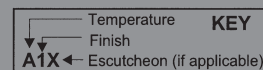


**Figure 2: Wrench 16036W/B for Recessed Sprinkler VK472**

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**Approval Chart**  
 Residential Pendent Sprinkler VK472  
 For systems designed to NFPA 13D<sup>7</sup> or NFPA 13R.  
 For systems designed to NFPA 13, refer to the design criteria below.



| 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 |
| 16130                                   | VK472 | 1/2             | 15 | 5.8              | 83.6                | 175 psi (12 bar)               | 2-1/4          | 58 |

| Maximum Areas of Coverage <sup>6</sup>  | Minimum Water Supply Requirements <sup>6</sup> | Listings and Approvals <sup>3</sup><br>(Refer also to Design Criteria below.) |                 |     |
|---|--|---|-----------------|-----|
|   |  | cULus <sup>4</sup>  | NYC             | NSF |
| <b>Installed below smooth, flat, horizontal ceilings, including ceilings with slopes up to and including 2/12 (9.5°).</b> |  |   |                 |     |
| 16 ft. x 16 ft. (4.9 m x 4.9 m)   | 16 gpm @ 7.6 psi (60.6 L/min @ 0.52 bar)       | B1X   | See Footnote 5. | --  |
| 18 ft. x 18 ft. (5.5 m x 5.5 m)   | 17 gpm @ 8.6 psi (64.4 L/min @ 0.59 bar)       | A1X   | See Footnote 5. | --  |
| 20 ft. x 20 ft. (6.1 m x 6.1 m)   | 21 gpm @ 13.1 psi (79.5 L/min @ 0.90 bar)      | B1X   | See Footnote 5. | --  |

| Approved Temperature Ratings                                | Approved Finishes   | Approved Escutcheons  |
|---|---|---|
| A - 155 °F (68 °C) and 175 °F (79 °C)<br>B - 155 °F (68 °C) | 1 - Brass, Chrome-Enloy®, White Polyester, and Black Polyester <sup>8</sup> | X - Standard surface-mounted escutcheons or the Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1 or E-2 Recessed Escutcheon |

**Footnotes**

<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> Meets New York City requirements, effective July 1, 2008.

<sup>6</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>7</sup> Refer to TIA 1028R slope ceiling criteria exceptions.

<sup>8</sup> Other paint colors are available on request with the same cULus Listings as the standard finish colors.


**DESIGN CRITERIA**  
 (Also refer to the Approval Chart above.)

**cULus Listing Requirements:**  
 When using Viking Residential Pendent Sprinkler VK472 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 above.

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 above 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.**

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