



## TECHNICAL DATA

## MIRAGE® QUICK RESPONSE CONCEALED PENDENT SPRINKLER VK464 (K8.0)

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

Visit the Viking website for the latest edition of this technical data page [www.vikinggroupinc.com](http://www.vikinggroupinc.com).

### 1. DESCRIPTION

Viking Mirage® Quick Response Concealed Pendent Sprinkler VK464 is a thermosensitive glass-bulb spray sprinkler designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired.

The sprinkler is pre-assembled with a threaded adapter for installation with a low-profile cover assembly that provides up to ½" (13 mm) of vertical adjustment. The two-piece design allows installation and testing of the sprinkler prior to installation of the cover plate. The "push-on", "thread-off" design of the concealed cover plate assembly allows easy installation of the cover plate after the system has been tested and the ceiling finish has been applied. The cover assembly can be removed and reinstalled, allowing temporary removal of ceiling panels without taking the sprinkler system out of service or removing the sprinkler.

The Electroless Nickel PTFE (ENT) coating has been investigated for installation in corrosive environments and is listed and approved as indicated in the Approval Charts. The ENT finish is only available for the sprinkler assembly, the cover plate is not plated.

### 2. LISTINGS AND APPROVALS



**cULus Listed:** Category VNIV

**NYC Approved:** MEA 89-92-E, Volume 32

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

### 3. TECHNICAL DATA

#### Specifications:

Available since 2006.

Minimum Operating Pressure: 7 psi (0.5 bar).

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

Thread size: ¾" (20 mm) NPT

Nominal K-Factor: 8.0 U.S. (115.2 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)

Patents Pending

#### Material Standards:

Sprinkler Body: Brass UNS-C84400

Deflector: Phosphor Bronze UNS-C51000

Deflector Pins: Stainless Steel UNS-S30300

Bulb: Glass, nominal 3 mm diameter

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

Button: Brass UNS-C36000

Screws: 18-8 Stainless Steel

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

Yoke: Phosphor Bronze UNS-C51000

Cover Adapter: Cold Rolled Steel UNS-G10080, Finish: Clear Chromate over Zinc Plating

#### Cover Assembly Materials:

Cover: Copper UNS-C11000

Base: Brass UNS-C26000 or UNS-C26800

Springs: Nickel Alloy

Solder: Eutectic

**Ordering Information:** The sprinkler and cover plate must be ordered separately. Refer to Tables 1 and 2.

### 4. INSTALLATION

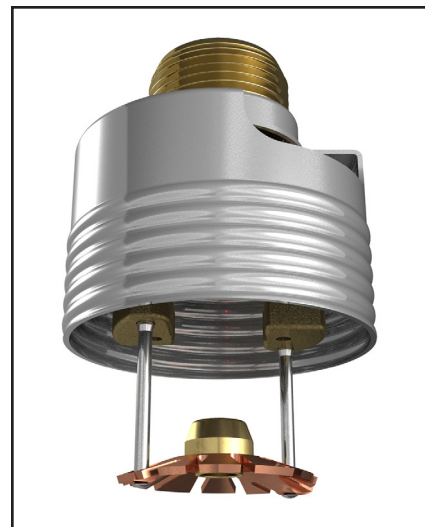
Refer to appropriate NFPA Installation Standards.

### 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 heat-sensitive liquid in the glass bulb to expand and the bulb to shatter, releasing the yoke, 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.



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



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### 7. AVAILABILITY

The Viking Mirage® Quick Response Concealed Pendent Sprinkler VK464 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: SPRINKLER 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.

(3) Select a cover plate (See Table 2)

SIN	Sprinkler Base Part Number	Size		1: Finishes		2: Temperature Ratings				
		NPT Inch	BSPT mm	Description	Suffix <sup>1</sup>	Sprinkler Temperature Classification	Nominal Rating	Bulb Color	Max. Ambient Ceiling Temperature <sup>2</sup>	Suffix
VK464	13614	3/4	--	Brass	A	Ordinary	155 °F (68 °C)	Red	100 °F (38 °C)	B
				ENT <sup>3,4</sup>	JN	Intermediate	175 °F (79 °C)	Yellow	150 °F (65 °C)	D
						Intermediate	200 °F (93 °C)	Green	150 °F (65 °C)	E
						<b>Corrosion Resistant Sprinkler Finish: ENT<sup>3,4</sup></b> <b>Example: 13614AE =</b> <b>200 °F (93 °C) Temperature Rated Sprinkler</b> <b>with a standard Brass finish.</b>				

#### Accessories

##### Sprinkler Wrenches and tools:

- A. Heavy Duty Part Number: 14047W/B<sup>5</sup> (available since 2006)
- B. Head Cabinet Wrench Part Number: 14031<sup>6</sup> (available since 2006)
- C. Optional Concealed Cover Plate Installer Tool Part Number: 14412<sup>6</sup> (available since 2007)
- D. Optional Large Concealed Cover Plate Installer Tool Part No. 14867 (available since 2007)

##### Sprinkler Cabinet:

Holds up to 6 sprinklers: Part number 01731A (available since 1971).

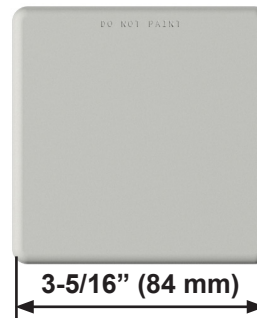
#### Footnotes

1. Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.
2. 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.
3. cULus Listed as corrosion resistant.
4. The corrosion resistant and corrosion proofing 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.
5. Requires a 1/2" ratchet (not available from Viking).
6. Also optional for removal of the protective cap. Ideal for sprinkler cabinets.



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

**Figure 1: Identification of Custom Paint for Concealed Covers**



**Figure 2: Square Cover Assembly 23179**

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**TABLE 2: COVER PLATE ORDERING INFORMATION**  
**Instructions: Using the cover plate base part number,**  
**(1) add the suffix for the desired Finish**  
**(2) add the suffix for the required Cover Plate Nominal Rating.**

Cover Plate Base Part Number <sup>4</sup>	Size Inch (mm)	Style	1: Finishes		Temperature Rating Matrix <sup>1,2</sup>			
			Description	Suffix <sup>5</sup>	Cover Plate Nominal Rating (Required)	Sprinkler Nominal Rating / Temperature Classification	Sprinkler Max. Ambient Ceiling Temperature <sup>2,3</sup>	Suffix
23190	2-3/4 (70)	Round	Polished Chrome	F	135 °F (57 °C)	155 °F (68 °C) / ORD	100 °F (38 °C)	A
23174	3-5/16 (84)	Round	Brushed Chrome	F-/B	165 °F (74 °C)	175 °F (79 °C) / INT	150 °F (65 °C)	C
23179	3-5/16 (84)	Square	Bright Brass	B	165 °F (74 °C)	200 °F (93 °C) / INT	150 °F (65 °C)	C
			Antique Brass	B-/A				
			Brushed Brass	B-/B				
			Brushed Copper	E-/B				
			Painted White	M-/W				
			Painted Ivory	M-/I				
			Painted Black	M-/B				

**Example: 23190MC/W =**  
**165 °F (74 °C) Temperature Rated 2-3/4" (70 mm) Diameter**  
**Round Cover Plate with a Painted White finish.**

**Footnotes**

1. The sprinkler temperature rating is stamped on the deflector.
2. 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.
3. Maximum ambient temperature for cover assembly is 150 °F (65 °C)
4. Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
5. Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.
6. Square cover plate 23179 cULus Listing is for the 135 °F (57 °C) temperature rated cover plate only. Refer to the Approval Chart.

**Approval Chart**  
**Mirage® Quick Response Concealed Pendent Sprinkler VK464**  
**Maximum 175 PSI (12 bar) WWP**



Sprinkler Base Part Number <sup>1</sup>	SIN	NPT Thread Size		Nominal K-Factor		Listings and Approvals <sup>3</sup> (Refer also to Design Criteria)	
		Inch	mm	U.S.	metric <sup>2</sup>	cULus <sup>4</sup>	NYC <sup>5</sup>
13614A	VK464	3/4"	20	8.0	115.2	AW1, BX1	AW1, BX1
13614JN <sup>8</sup>	VK464	3/4"	20	8.0	115.2	AW1, BX1	AW1, BX1

<b>Sprinkler Temperature Ratings</b> A - 155°F (68°C) B - 175°F (79°C) and 200°F (93°C)	<b>Cover Plate Assembly Temp. Ratings<sup>6</sup></b> W - 135°F (57°C) cover, 23190 <sup>1</sup> , 23174 <sup>1</sup> (large diameter), or 23179 <sup>1</sup> (square cover plate) X - 165°F (74°C) cover 23190 <sup>1</sup> , or 23174 <sup>1</sup> (large diameter)	<b>Finishes of the Cover Plate Assembly<sup>7</sup></b> 1 - Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, or Painted Black
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**Footnotes**

1. Part number shown is the base part number. For complete part number, refer to current Viking price list 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 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.
4. Listed by Underwriter's Laboratories for use in the U.S. and Canada.
5. Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 32.
6. The 135°F cover has an orange label. The 165°F cover has a white label.
7. Standard painted finishes consist of Polyester Baked Enamel. Other paint colors are available on request with the same listings as the standard paint colors. Listings and approvals apply for any paint manufacturer. Contact Viking for additional information.
8. cULus Listed as corrosion resistant.

**NOTE: Custom colors are indicated on a label inside the cover assembly. Refer to Figure 1.**



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**DESIGN CRITERIA**

(Also refer to the Approval Chart.)

**cULus Listing Requirements:**

Mirage® Quick Response Concealed Pendent Sprinkler VK464 is cULus Listed for installation in accordance with the latest edition of NFPA 13 for standard coverage pendent spray sprinklers as indicated below:

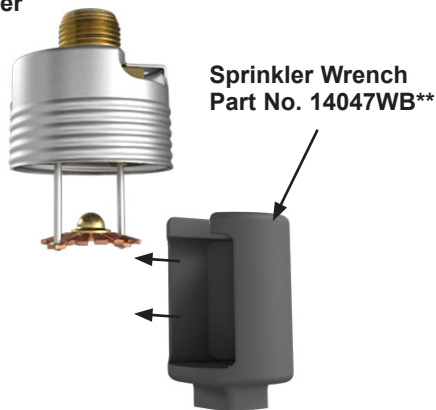
- For hazard occupancies up to and including Ordinary Hazard, Group II.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13. Maximum spacing allowed is 15 ft. (4.6 m).
- Minimum spacing allowed is 6 ft. (1.8 m) unless baffles are installed in accordance with 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 obstruction rules contained in NFPA 13 for standard coverage pendent spray sprinklers must be followed.

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

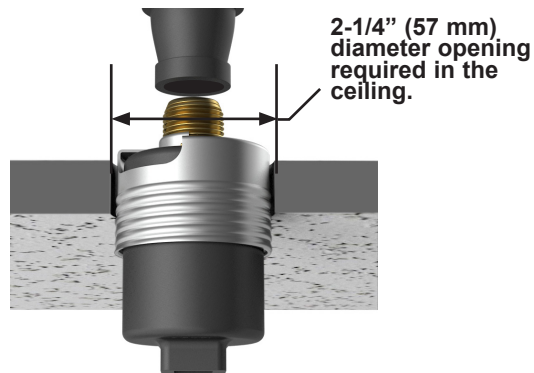
**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to Form No. F\_080416 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, Assemblée Plenièrre, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.**

**Sprinkler and Adapter Assembly**

- Protective cap removed
- Use wrench 14031\*\*

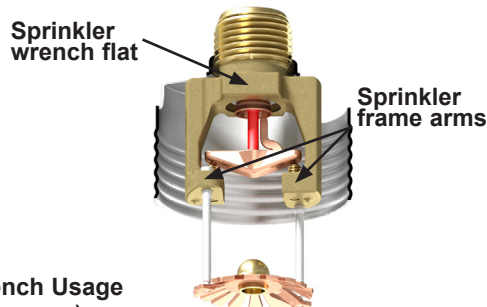


**Step 1:**  
Carefully slide the wrench sideways around the deflector and pins



**Step 2:**  
Carefully press the wrench upward and turn slightly to ensure engagement with the sprinkler wrench flats.

**NEVER** install the sprinkler by applying the installation wrench across the frame arms. **DO NOT** overtighten. Use only the designated sprinkler wrenches, Part Numbers 14047WB\*\* or 14031\*\*. A leak-tight seal should be achieved by turning the sprinkler clockwise 1 to 1-1/2 turns beyond finger tight.



**Figure 3: Sprinkler Installation and Proper Wrench Usage**  
 \*\* A 1/2" ratchet is required (Not available from us.)



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