



TECHNICAL DATA

MIRAGE® QUICK RESPONSE EXTENDED COVERAGE CONCEALED PENDENT SPRINKLERS (VK632 AND VK634)

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

1. DESCRIPTION

Viking Mirage® Quick Response Extended Coverage Concealed Pendent Sprinkler VK632 and VK634 are thermosensitive glass-bulb spray sprinkler designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired. The glass bulb operating element and special deflector characteristics meet the challenges of quick response extended coverage standards.

The sprinkler is pre-assembled with a threaded adapter for installation with a low-profile cover assembly that provides up to ½" (12.7 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

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

3. TECHNICAL DATA

Specifications:

Available since 2007.

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 sizes: VK632: 1/2" (15 mm) NPT; VK634: 3/4" (20 mm) NPT

Nominal K-Factors: VK632: 5.6 U.S. (80.6 metric*); VK634: 8.0 U.S. (115.2 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)

Patents Pending

Material Standards:

Sprinkler Body: Brass UNS-C84400

Deflector: Copper UNS-C19500

Deflector Pins: Stainless Steel Alloy

Bulb: Glass, nominal 3 mm diameter

Pip Cap: Leaded Bronze UNS-C31400 or UNS-C31600, or 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 PTFE 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

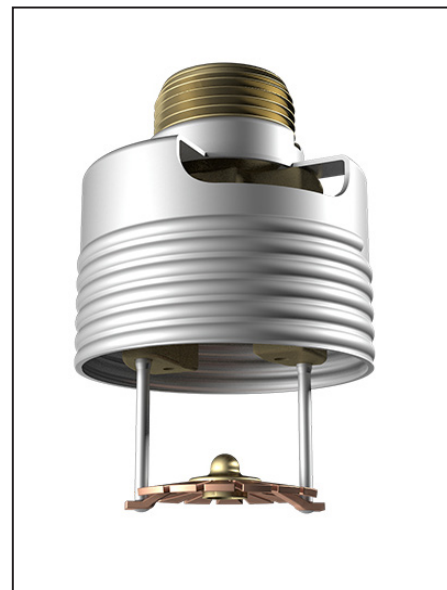
Springs: Nickel Alloy

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.



For Light Hazard Occupancies Only



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov



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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.

7. AVAILABILITY

Viking Sprinklers VK632 and VK634 are 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	Sprinkler Temperature Classification	Nominal Rating	Max. Ambient Ceiling Temperature ¹	Suffix
VK632	14613	1/2	--	Brass	A	Ordinary	135 °F (57 °C)	100 °F (38 °C)	A
VK634	14535 ⁷	3/4	--	ENT ^{2,3,6}	JN	Ordinary	155 °F (68 °C)	100 °F (38 °C)	B
						Intermediate	175 °F (79 °C)	150 °F (65 °C)	D
						Intermediate	200 °F (93 °C)	150 °F (65 °C)	E
						Corrosion Resistant Sprinkler Finish: ENT^{2,3,6}			
						Example: 14613JNE = VK632 1/2" NPT, 200 °F (93 °C) Temperature Rated Sprinkler with an Electroless Nickel PTFE (ENT^{2,3,6}) finish.			

Accessories

Sprinkler Wrenches and tools:

- A. Heavy Duty Part Number: 14047W/B⁴
- B. Head Cabinet Wrench Part Number: 14031⁵
- C. Optional Small Concealed Cover Plate Installer Tool Part No. 14412
- D. Optional Large Concealed Cover Plate Installer Tool Part No. 14867

Sprinkler Cabinet:

Holds up to 6 sprinklers: Part number 01731A.

Footnotes

1. 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.
2. cULus Listed as corrosion resistant.
3. 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.
4. Requires a 1/2" ratchet (not available from Viking).
5. Also optional for removal of the protective cap. Ideal for sprinkler cabinets.
6. The ENT finish is NOT available and NOT cULus Listed for 135 °F (57 °C) temperature-rated sprinklers.
7. Part number 14535 (VK634) is not available with ENT finish.



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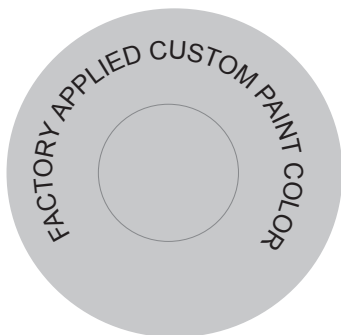
TABLE 2: COVER PLATE ORDERING INFORMATION

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

Footnotes

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



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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Approval Chart Mirage® QR Extended Coverage Concealed Pendent Sprinklers For Light Hazard Occupancies Only. Maximum 175 PSI (12 Bar) WWP										
Sprinkler Base Part Number ¹	SIN	Thread Size		Nominal K-Factor		Maximum Areas of Coverage ⁴	Minimum Water Supply Requirements ⁴ Flow/Pressure	Listings and Approvals ³ (Refer also to Design Criteria)		
		NPT Inches	BSPT mm	U.S.	metric ²			cULus ⁵	FM	NYC
Standard Orifice										
14613	VK632	1/2	15	5.6	80.6	16' x 16' (4.9 m x 4.9 m)	26 gpm @ 21.6 psi (98.4 L/min @ 1.49 Bar)	AW1, BX1	--	See Footnote 6.
14613	VK632	1/2	15	5.6	80.6	18' x 18' (5.5 m x 5.5 m)	33 gpm @ 34.7 psi (124.9 L/min @ 2.39 Bar)	AW1, BX1	--	See Footnote 6.
14613	VK632	1/2	15	5.6	80.6	20' x 20' (6.1 m x 6.1 m)	40 gpm @ 51.0 psi (151.4 L/min @ 3.52 Bar)	CW1, DX1	--	See Footnote 6.
Large Orifice										
14535 ¹⁰	VK634	3/4	20	8.0	115.2	16' x 16' (4.9 m x 4.9 m)	26 gpm @ 10.6 psi (98.4 L/min @ 0.73 Bar)	AW1, BX1	--	See Footnote 6.
14535 ¹⁰	VK634	3/4	20	8.0	115.2	18' x 18' (5.5 m x 5.5 m)	33 gpm @ 17.0 psi (124.9 L/min @ 1.17 Bar)	AW1, BX1	--	See Footnote 6.
14535 ¹⁰	VK634	3/4	20	8.0	115.2	20' x 20' (6.1 m x 6.1 m)	40 gpm @ 25.0 psi (151.4 L/min @ 1.72 Bar)	CW1, DX1	--	See Footnote 6.
Sprinkler Temperature Ratings A - 135 °F (57 °C) ⁹ and 155 °F (68 °C) B - 175 °F (79 °C) and 200 °F (93 °C) C - 135 °F (57 °C) ⁹ D - 175 °F (79 °C)				Cover Plate Temperature Ratings⁷ W - 135°F (57°C) cover 23190 ¹ , or 23174 ¹ (large diameter) X - 165°F (74°C) cover 23190 ¹ , or 23174 ¹ (large diameter)				Cover Plate Finishes⁸ 1 - Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, and Painted Black		
Footnotes										
<ol style="list-style-type: none"> 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. 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. 5. Listed by Underwriter's Laboratories, Inc. for use in the U.S. and Canada for Light Hazard occupancies with smooth, flat, horizontal ceilings only. 6. Meets New York City requirements, effective July 1, 2008. 7. The 135 °F (57 °C) cover has an orange label. The 165 °F (74 °C) cover has a white label. 8. Painted finish consists 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. 9. The ENT finish is NOT available and NOT cULus Listed for 135 °F (57 °C) temperature-rated sprinklers. 10. Part number 14535 (VK634) is not available with ENT finish. <p>NOTE: Custom colors are indicated on a label inside the cover assembly. Refer to Figure 1.</p>										



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DESIGN CRITERIA

(Also refer to the Approval Chart)

cULus Listing Requirements: Mirage® Quick Response Extended Coverage Concealed Pendent Sprinklers VK632 and VK634 are cULus Listed for installation in accordance with the latest edition of NFPA 13 for extended coverage pendent spray sprinklers:

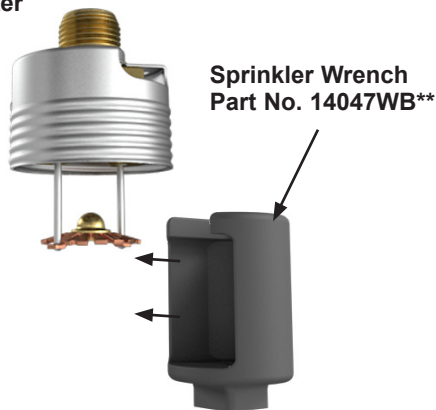
- Limited to Light Hazard occupancies, with smooth, flat, horizontal ceilings only.
- Minimum spacing allowed is 8 ft. (2.4 m) unless baffles are installed in accordance with NFPA 13.
- Minimum distance from walls is 4 in. (102 mm).
- Maximum distance from walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.
- The sprinkler installation and obstruction rules contained in NFPA 13 for extended coverage pendent spray sprinklers must be followed.

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

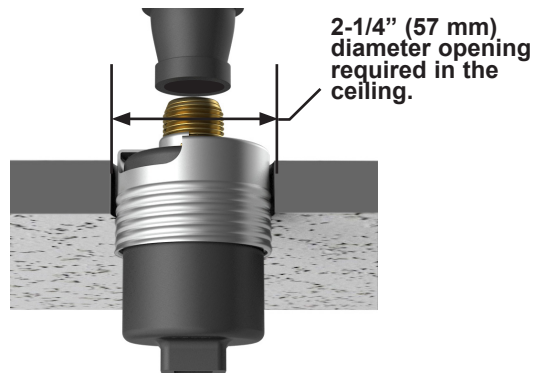
IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer Bulletin Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, 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.

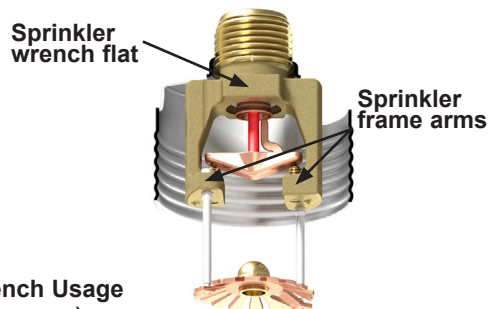


Figure 3: Sprinkler Installation and Proper Wrench Usage
 ** A 1/2" ratchet is required (Not available from us.)



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