



TECHNICAL DATA

STANDARD RESPONSE CONCEALED PENDENT SPRINKLERS (VK102 & VK202)

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 Standard Response Concealed Pendent Sprinklers are thermosensitive glass bulb spray sprinklers pre-assembled with a threaded adapter for installation with a domed cover that provides up to 1/2" (12.7 mm) of vertical adjustment. The cover plate is available with several decorative finishes to meet design requirements. The Electroless Nickel PTFE (ENT) finish has been investigated for installation in corrosive atmospheres and is listed/approved as corrosion resistant as indicated in the Approval Charts. (Note: **FM Global approves the ENT coating as corrosion resistant.**) The ENT finish is only available for the sprinkler assembly, the cover plate is not plated.

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.



2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Classes 2015

Refer to Approval Chart 1 and Design Criteria on page 33m for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 33n for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available Since: 2013

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: Sprinkler VK102: 1/2" (15 mm) NPT, Sprinkler VK202: 3/4" (20 mm) NPT

Nominal K-Factors: Sprinkler VK102: 5.6 U.S. (80.6 metric*), Sprinkler VK202: 8.0 U.S. (115.2 metric*)

* 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.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length (sprinkler body): Sprinkler VK102: 2-1/4" (57 mm), Sprinkler VK202: 2-5/16" (59 mm)

Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass for Sprinkler VK102. Brass UNS-C84400 for Sprinkler VK202.

Deflector: Phosphor Bronze UNS-C51000 or Copper UNS-C19500

Bulb: Glass, nominal 5 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 UNS-S30400

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

Cover Assembly Materials:

Cover Plate Assembly: Copper UNS-C11000 and Brass UNS-C26800

Spring: Beryllium Nickel

Solder: Eutectic

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

Viking Standard Response Concealed Pendent Sprinklers VK102 and VK202 and Cover Plate Assemblies must be ordered separately:

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: Base Part No. 12987A-X or 18264A-X for brass finish, and 12987JN-X or 18264JN-X for ENT finish (includes sprinkler and adapter pre-assembled, with a protective plastic cap covering the unit)

Specify sprinkler temperature rating by adding the appropriate suffix for the temperature rating to the base part number:

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E

For example, concealed sprinkler VK102, brass finish, with a 155 °F (68 °C) temperature rating = 12987ABX.

Note: When ordering this sprinkler using the SIN, add suffix -D. For example, concealed sprinkler VK102 = VK102-D.

Cover Plate Assembly: Base Part No. 12381

Specify finish and temperature rating of the cover plate assembly by adding the appropriate suffixes for the finish and the cover temperature rating to the base part number:

Finish Suffix: Polished Chrome = F, Painted White = M-W, Painted Ivory = M-I, and Painted Black = M-B

Temperature Suffix: 135 °F (57 °C) = A (for use with 155 °F (68 °C) rated sprinklers only), 165 °F (74 °C) = C (for use with 175 °F (79 °C) or 200 °F (93 °C) rated sprinklers).

For example, cover 12381 with a Polished Chrome finish and a 135 °F (57 °C) temperature rating = 12381FA.

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

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

**A ½" ratchet is required (not available from Viking).

Sprinkler Cabinet: Part No. 01731A (available since 1971)

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 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 Standard Response Concealed Pendent Sprinklers 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.

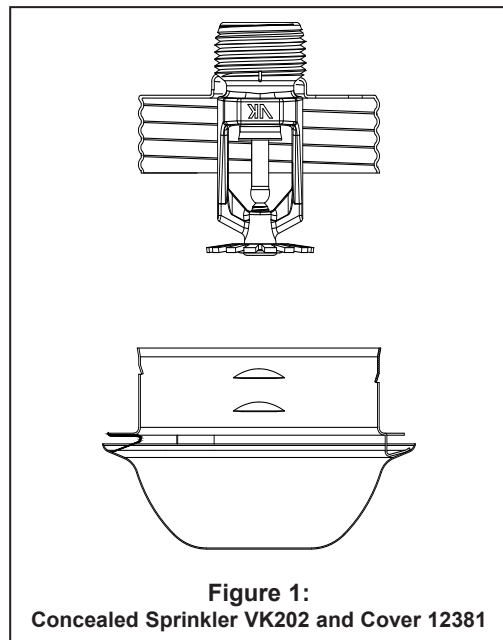


Figure 1:
Concealed Sprinkler VK202 and Cover 12381

	TECHNICAL DATA	STANDARD RESPONSE CONCEALED PENDENT SPRINKLERS (VK102 & VK202)
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TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES			
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green

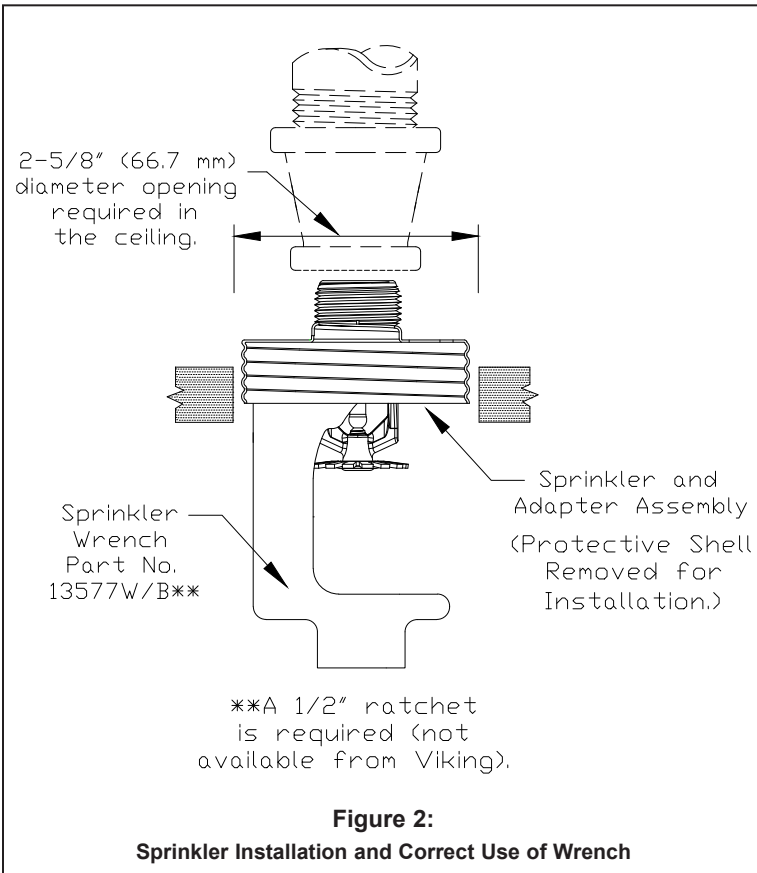
Cover Plate Finishes: Polished Chrome, Painted White, Painted Ivory, and Painted Black

Sprinkler Finishes: Brass or ENT (See Ordering Information section page 33K)

Corrosion-Resistant Coatings³: ENT

Footnotes

- ¹ The sprinkler temperature rating is stamped on the deflector.
- ² 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.
- ³ The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. 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. For ENT coated sprinklers the bellville spring is exposed.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">STANDARD RESPONSE CONCEALED PENDENT SPRINKLERS (VK102 & VK202)</h3>
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<h3 style="margin: 0;">Approval Chart 1 (UL)</h3> <p style="margin: 0;">Standard Response Concealed Pendent Sprinklers Maximum 175 PSI (12 bar) WWP</p>	<table border="1" style="border-collapse: collapse; width: 100%;"> <tr> <td style="font-size: 8px;"> Sprinkler Temperature Rating Cover Plate Temperature Rating Cover Plate Finish KEY </td> </tr> <tr> <td style="font-size: 8px;"> AW1 ← </td> </tr> </table>	Sprinkler Temperature Rating Cover Plate Temperature Rating Cover Plate Finish KEY	AW1 ←
Sprinkler Temperature Rating Cover Plate Temperature Rating Cover Plate Finish KEY			
AW1 ←			

Sprinkler Base Part Number ¹	SIN	NPT Thread Size		Nominal K-Factor		Overall Length (Sprinkler Body)		Listings and Approvals ³ (Refer also to Design Criteria below.)
		Inch	mm	U.S.	metric ²	Inches	mm	cULus ⁴
12987A-X	VK102	1/2"	15	5.6	80.6	2-1/4"	57	AW1, BX1
12987JN-X ⁶	VK102	1/2"	15	5.6	80.6	2-1/4"	57	AW1, BX1
18264A-X	VK202	3/4"	20	8.0	115.2	2-5/16"	59	AW1, BX1
18264JN-X ⁶	VK202	3/4"	20	8.0	115.2	2-5/16"	59	AW1, BX1
Sprinkler Temperature Ratings				Cover Plate Assembly Temp. Ratings⁵				Finishes of the Cover Plate Assembly⁷
A - 155 °F (68 °C) B - 175 °F (79 °C) and 200 °F (93 °C)				W - 135 °F (57 °C) cover 12381 ¹ X - 165 °F (74 °C) cover 12381 ¹				1 - Polished Chrome, Painted White, Painted Ivory, or Painted Black

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 The 135 °F (57 °C) cover has an orange label. The 165 °F (74 °C) cover has a white label.
 - ⁶ cULus Listed as corrosion-resistant.
 - 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.
- NOTE:** Custom colors are indicated on a label inside the cover assembly. Refer to Figure 3.

<h3 style="margin: 0;">DESIGN CRITERIA - UL</h3> <p style="margin: 0;">(Also refer to Approval Chart 1 above.)</p>
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cULus Listing Requirements:

Viking Standard Response Concealed Pendent Sprinklers are cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

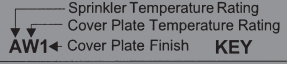
- Designed for use in Light, Ordinary, and Extra Hazard occupancies.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13.
- Minimum spacing allowed is 6 ft. (1.8 m) unless baffles are installed in accordance with NFPA 13.
- Minimum distance from walls is 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 installation rules contained in NFPA 13 for standard spray pendent sprinklers must be followed.
- **DEFLECTOR POSITION:** Install Concealed Pendent Sprinklers VK102 and VK202 with the deflector 3/8" (9.5 mm) to 7/8" (22.2 mm) below the ceiling. Refer to Figures 3 and 4.

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 page SR1-3 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, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

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Approval Chart 2 (FM)											
Standard Response Concealed Pendent Sprinklers											
Maximum 175 PSI (12 bar) WWP											
Sprinkler Base Part Number ¹	SIN	NPT Thread Size		Nominal K-Factor		Overall Length (Sprinkler Body)		FM Approvals ³ (Refer also to Design Criteria below.)			
		Inch	mm	U.S.	metric ²	Inches	mm				
12987A-X	VK102	1/2"	15	5.6	80.6	2-1/4"	57	AW1, BX1			
12987JN-X ⁶	VK102	1/2"	15	5.6	80.6	2-1/4"	57	AW1, BX1			
18264A-X	VK202	3/4"	20	8.0	115.2	2-5/16"	59	AW1, BX1			
18264JN-X ⁶	VK202	3/4"	20	8.0	115.2	2-5/16"	59	AW1, BX1			
Sprinkler Temperature Ratings A - 155 °F (68 °C) B - 175 °F (79 °C) and 200 °F (93 °C)				Cover Plate Assembly Temp. Ratings⁴ W - 135 °F (57 °C) cover 12381 ¹ X - 165 °F (74 °C) cover 12381 ¹				Finishes of the Cover Plate Assembly⁵ 1 - Polished Chrome, Painted White, Painted Ivory, or Painted Black			
Footnotes											
<p>¹ Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.</p> <p>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.</p> <p>³ This chart shows the FM Approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.</p> <p>⁴ The 135 °F (57 °C) cover has an orange label. The 165 °F (74 °C) cover has a white label.</p> <p>⁵ Standard painted finishes consist of Polyester Baked Enamel. Other paint colors are available on request with the same listings as the standard paint colors. Approvals apply for any paint manufacturer. Contact Viking for additional information.</p> <p>⁶ FM approved as corrosion resistant.</p> <p>NOTE: Custom colors are indicated on a label inside the cover assembly. Refer to Figure 3.</p>											

DESIGN CRITERIA - FM
(Also refer to Approval Chart 2 above.)
<p>FM Approval Requirements:</p> <p>The sprinklers indicated in Approval Chart 2 are FM Approved as standard response Non-Storage concealed pendent sprinklers as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.</p> <ul style="list-style-type: none"> • DEFLECTOR POSITION: Install Concealed Pendent Sprinklers VK102 and VK202 with the deflector 3/8" (9.5 mm) to 7/8" (22.2 mm) below the ceiling. Refer to Figures 3 and 4. <p>NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.</p>
<p>IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page SR1-3 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.</p>



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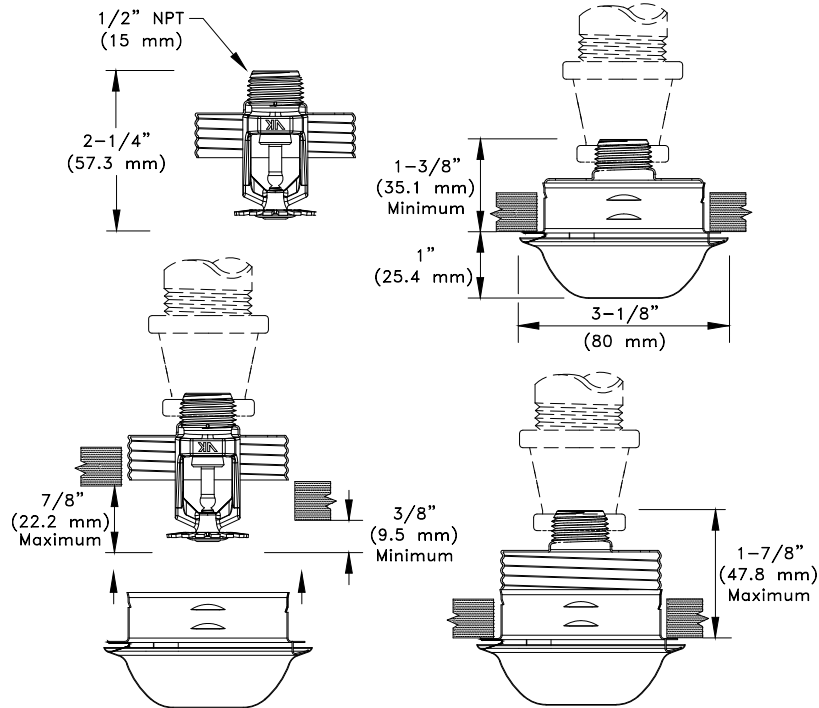


Figure 4: Concealed Sprinkler VK102 Dimensions and Cover Installation

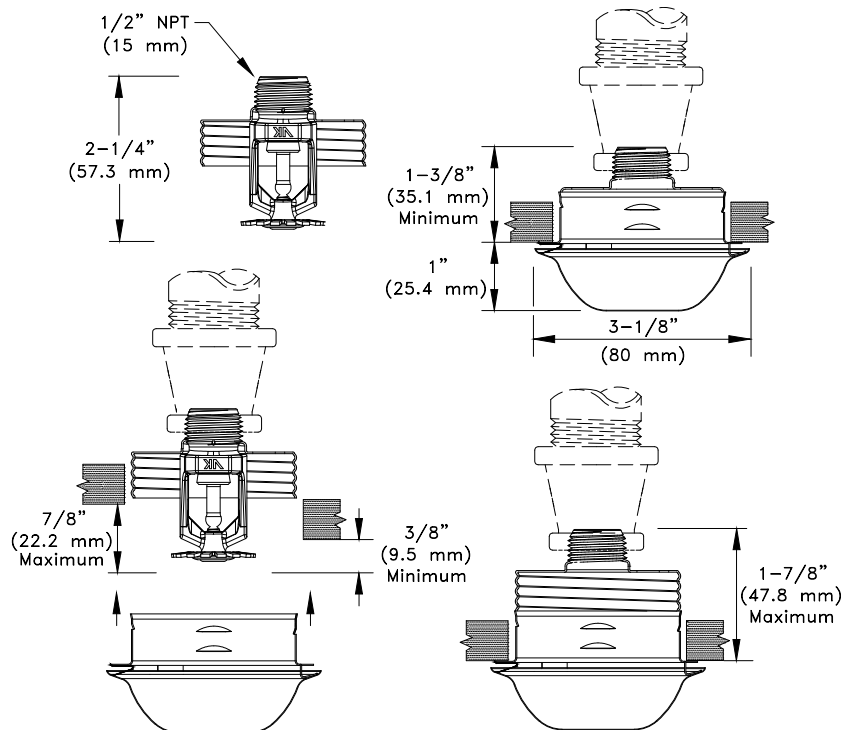


Figure 5: Concealed Sprinkler VK202 Dimensions and Cover Installation