



TECHNICAL DATA

STANDARD/QUICK RESPONSE CONCEALED FUSIBLE ELEMENT PENDENT SPRINKLER VK353

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/Quick Response Concealed Fusible Element Pendent Sprinkler VK353 is a thermosensitive solder link spray sprinkler pre-assembled with a threaded adapter for installation with a domed cover that provides up to ½" (12.7 mm) of vertical adjustment. The cover plate is available with several decorative finishes to meet design requirements.

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: Class 2015

Refer to Approval Chart 1 and Design Criteria on pages 42q-r for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 42s for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 2008.

Minimum Operating Pressure: 7 psi (0.5 bar)

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

Testing: U.S.A. Patent No. 4,831,870

Thread size: 3/4" (20 mm) NPT

Nominal K-Factor: 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.

Spring: U.S.A. Patent No. 4,167,974

Overall Length (sprinkler body): 2-5/16" (59 mm)

Material Standards:

Frame Casting: Brass UNS-C84400

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

Seat (pip cap) and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

Fusible Element Assembly: Nickel Alloy

Trigger and Support: Stainless Steel UNS-S31600

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

Compression Screw: Brass UNS-C36000

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/Quick Response Concealed Fusible Element Pendent Sprinkler VK353 and Cover Plate Assembly must be ordered separately:

Sprinkler: Base Part No. 13975A-X (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 (°F/°C): 165°/74° = C, 205°/96° = E

For example, concealed sprinkler VK353 with a 165°F/74°C temperature rating = 13975ACX.

Cover Plate Assembly: Base Part No. 12381

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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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, Painted Black = M-B

Temperature Suffix (°F/°C): 135°/57° = A (for use with 165°/74° rated sprinklers only), 165°/74° = C (for use with 205°/96° 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 fusible element assembly to disengage, releasing the seat and spring assemblies to open the waterway. 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/Quick 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.

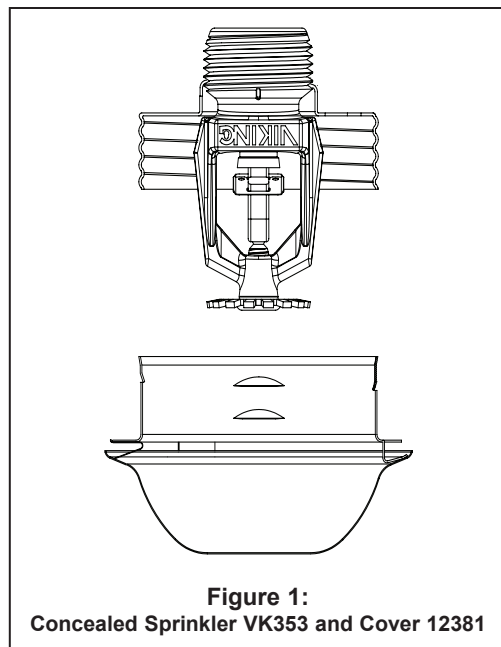



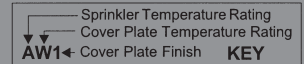
Figure 1:
Concealed Sprinkler VK353 and Cover 12381

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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	Frame Paint Color
Ordinary	165°F (74°C)	100°F (38°C)	None
Intermediate	205°F (96°C)	150°F (65°C)	White
Cover Plate Finishes: Polished Chrome, Painted White, Painted Ivory, or Painted Black			
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.			

Approval Chart 1 (UL) Quick Response Concealed Fusible Element Pendent Sprinkler VK353 Maximum 175 PSI (12 bar) WWP												
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 on page 42r.)				
		Inch	mm	U.S.	metric ²	Inches	mm	cULus ⁴	FM	NYC	VdS	LPCB
13975A-X	VK353	3/4"	20	8.0	115.2	2-5/16"	59	AW1, BX1	--	See Footnote 5.	--	--
Sprinkler Temperature Ratings		Cover Plate Assembly Temp. Ratings⁶		Finishes of the Cover Plate Assembly⁷								
A - 165°F (74°C) B - 205°F (96°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 Meets New York City requirements, effective July 1, 2008. 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. NOTE: Custom colors are indicated on a label inside the cover assembly. Refer to Figure 3.												



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DESIGN CRITERIA - UL
 (Also refer to Approval Chart 1 on page 42q.)

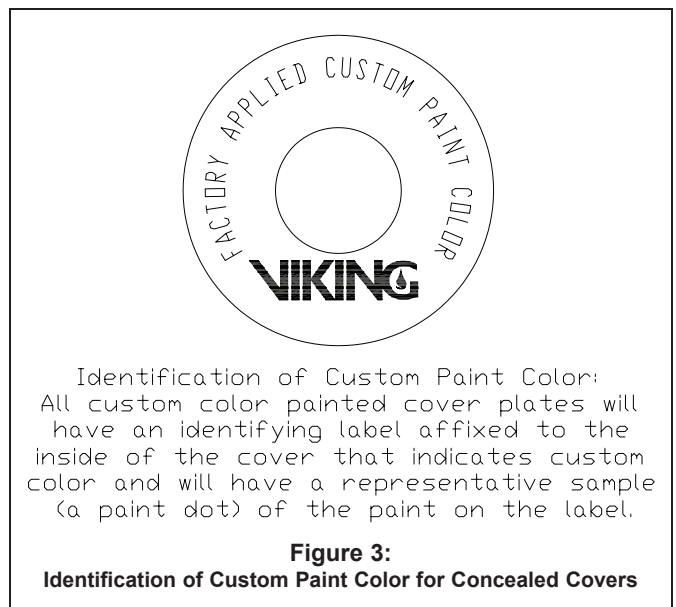
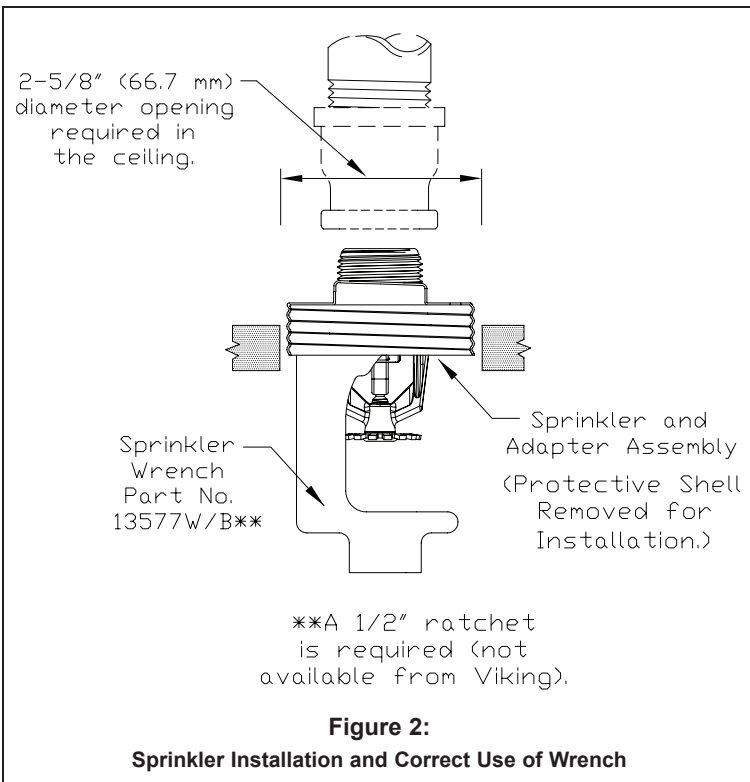
cULus Listing Requirements:

Viking Quick Response Concealed Fusible Element Pendent Sprinkler VK353 is cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- 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 installation and obstruction rules contained in NFPA 13 for standard coverage pendent spray sprinklers must be followed.
- **DEFLECTOR POSITION:** Install Concealed Pendent Sprinkler VK353 with the deflector 3/8" (9.5 mm) to 7/8" (22.2 mm) below the ceiling. Refer to Figure 4.

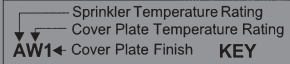
NOTE: Concealed sprinklers must be installed in neutral or negative pressure plenums only.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 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.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p>STANDARD/QUICK RESPONSE CONCEALED FUSIBLE ELEMENT PENDENT SPRINKLER VK353</p>
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Approval Chart 2 (FM) Standard Response Concealed Fusible Element Pendent Sprinkler VK353 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	
13975A-X	VK353	3/4"	20	8.0	115.2	2-5/16"	59	AW1, BX1
Sprinkler Temperature Ratings A - 165°F (74°C) B - 205°F (96°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 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 FM Approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. ⁴ The 135°F cover has an orange label. The 165°F cover has a white label. 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. 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.								

DESIGN CRITERIA - FM (Also refer to Approval Chart 2 above.)
<p>FM Approval Requirements:</p> <p>Viking Concealed Fusible Element Pendent Sprinkler VK353 is FM Approved as standard response Non-Storage concealed pendent sprinkler 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> <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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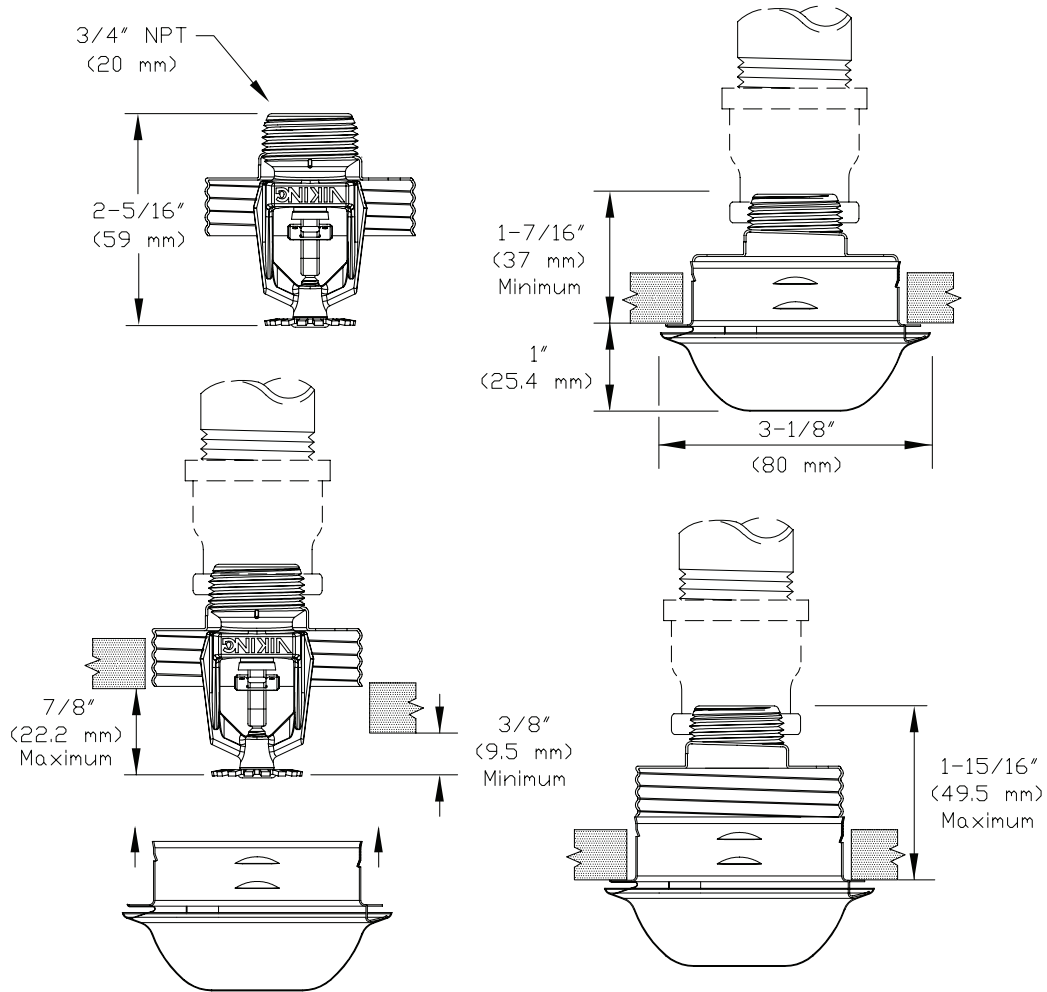


Figure 4:

Concealed Sprinkler VK353 Dimensions and Cover Installation