



## TECHNICAL DATA

### QUICK RESPONSE ELO PENDENT SPRINKLER VK377 (STORAGE-DENSITY/AREA)

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

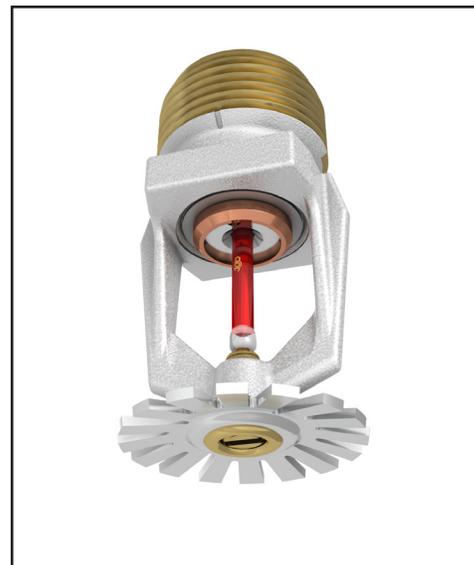
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## 1. DESCRIPTION

Viking Quick Response Extra-Large Orifice Pendent Sprinkler VK377 is a thermosensitive glass bulb spray sprinkler available in several different finishes and temperature ratings to meet design requirements. The special Polyester, and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive environments and are listed/approved as indicated in the Approval Charts.

The extra-large orifice provides greater flows at lower pressures than standard orifice or large orifice sprinklers. This feature allows reduced pipe sizing for hydraulically calculated sprinkler systems, which require high densities of water. Viking Quick Response Extra-Large Orifice Sprinklers may eliminate the need for a fire pump or reduce the size of the pump if it is required. On existing systems, replacing large orifice sprinklers with extra-large orifice sprinklers may provide the higher densities required to allow an increase in the hazard classification of an occupancy.

Viking quick response sprinklers may be ordered and/or used as open sprinklers (glass bulb and pip cap assembly removed) on deluge systems. Refer to Ordering Instructions below.



## 2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class 2009



VdS Approved: Certificate G413049, G413051



LPCB Approved: Certificate 096e/14

Refer to the Approval Charts and Design Criteria for requirements that must be followed.

## 3. TECHNICAL DATA

### Specifications:

Available since 1993.

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

Thread size: See Approval Charts

Nominal K-factor: 11.2 U.S. (161.3 metric\*)

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

Overall Length: 2-5/16" (58.7 mm)

\* 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.

### Material Standards:

Sprinkler Frame: Brass UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter

Pip Cap and Insert Assembly: Copper UNS-C11000, or Leaded Bronze (UNS-C31600 or UNS-C31400) and Stainless Steel UNS-S30400

Compression Screw: Brass UNS-C36000

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

For PTFE Coated Sprinklers: Belleville Spring-Exposed, Screw-Nickel Plated, Pip Cap-PTFE Coated

For Polyester Coated Sprinklers: Belleville Spring-Exposed

For ENT Coated Sprinklers: Belleville Spring-Exposed, Screw and Pipcap-ENT plated

### Finishes and temperatures:

Finish:	Brass	Chrome	White Polyester	Black Polyester	ENT
Suffix:	A	F	M-/W	M-/B	JN
Temperature:	155 °F (68 °C)	175 °F (79 °C)	200 °F (93 °C)	286 °F (141 °C)	--
Suffix:	B	D	E	G	--

Ordering Information: (Refer to Table 1 and the current Viking List Price Book.)



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#### 4. INSTALLATION

Refer to appropriate NFPA, FM Global, and/or any other applicable installation standards.

#### 5. OPERATION

During fire conditions, when the temperature around the sprinkler reaches its operating temperature, the heat-sensitive liquid in the glass bulb expands, causing the bulb to shatter, releasing the pip cap 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 Sprinkler Model VK377 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: 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.

Sprinkler Base Part No.	Size		1: Finishes		2: Classifications and Temperature Ratings				
	NPT Inch	BSP mm	Description	Suffix <sup>1</sup>	Classification	Nominal Rating	Bulb Color	Max. Ambient Ceiling Temperature <sup>3</sup>	Suffix
08337	3/4	20	Brass	A	Ordinary	155 °F (68 °C)	Red	100 °F (38 °C)	B
17489	1/2	15	Chrome	F	Intermediate	175 °F (79 °C)	Yellow	150 °F (65 °C)	D
			White Polyester <sup>4,5,6</sup>	M-/W	Intermediate	200 °F (93 °C)	Green	150 °F (65 °C)	E
			Black Polyester <sup>4,5,6</sup>	M-/B	High	286 °F (141 °C)	Blue	225 °F (107 °C)	G
			ENT <sup>4,5,6</sup>	JN					

**Example:** 08337MB/W = VK377 with White Polyester Finish and 155 °F (79 °C) Nominal temperature rating. This sprinkler is to be installed into an area with a maximum ambient temperature of 100 °F (38 °C) meaning if the area will experience temperatures above the maximum ambient rating, you shall use a higher temperature-rated sprinkler.

#### Accessories

##### Sprinkler Wrenches (see Figure 1):

- A. Standard Wrench: Part No. 05118CWB (available since 1981).
- B. Socket Wrench (for recessed or coated sprinklers): Part No. 11663WB<sup>2</sup> (available since 2001).

##### Sprinkler Cabinet:

- A. Up to 6 sprinklers: Part number 01724A (available since 1971).
- B. 6-12 Sprinklers: Part number 01725A (available since 1971).

#### Footnotes

1. Where "-" is shown, insert the desired Temperature Rating suffix.
2. Requires a 1/2" ratchet which is not available from Viking.
3. 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.
4. UL Listed as corrosion resistant.
5. FM Approved as a corrosion proofing coating for installation in corrosive environments.
6. The corrosion resistant and corrosion proofing 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.



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### Approval Chart 1 - UL

Quick Response Extra-Large Orifice Pendent Sprinkler VK377  
Maximum 175 PSI (12 Bar) WWP

KEY	
Temperature	↓
Finish	←
Escutcheon (if applicable)	A1X

Base Part Number <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals <sup>3</sup> (Refer also to Design Criteria below.)			
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	cULus <sup>4,5</sup>	NYC	VdS	LPCB
08337	VK377	Pendent	3/4"	20 mm	11.2	161.3	2-5/16	58.7	A1Y, B1Z, B2X, A2W	See Footnote 6.	A1	A1
17489	VK377	Pendent	1/2"	15 mm	11.2	161.3	2-5/16	58.7	--	--	A1	A1

Approved Temperature Ratings		Approved Finishes		Escutcheons			
A - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C) B - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)		1 - Brass, Chrome, White Polyester <sup>7</sup> , Black Polyester <sup>7</sup> , and Black PTFE <sup>7</sup> 2 - ENT <sup>7</sup>		W - Standard surface-mounted escutcheons only X - Standard surface-mounted escutcheons or recessed with the Micromatic Model E-1 Escutcheon. Y - Standard surface-mounted escutcheons or the Microfast <sup>®</sup> Model F-1 Adjustable Escutcheon Z - Standard surface-mounted escutcheon or the Viking Microfast <sup>®</sup> Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic <sup>®</sup> Model E-1, E-2, or E-3 Recessed Escutcheon			

#### Footnotes

1. Base part number shown. For complete part number, refer to Viking's current price 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 table shows the listings and approvals available at the time of printing. Other approvals may be in process.
4. Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.
5. cULus-Listed only for use in wet pipe sprinkler systems (or preaction systems qualifying as wet systems).
6. Meets New York City requirements, effective July 1, 2008.
7. cULus Listed as corrosion-resistant.

### DESIGN CRITERIA - UL

Also refer to the Approval Chart above.

#### cULus Listing Requirements:

Quick Response Extra-Large Orifice Pendent Sprinkler VK377 is cULus Listed for installation in accordance with the latest edition of NFPA 13 for standard pendent spray sprinklers:

- Designed for use in hazard occupancies up to and including Ordinary Hazard Group II with a minimum operating pressure of 7 psi (0.5 bar).
- Also cULus Listed for use in High-Piled Storage Occupancies as defined in NFPA 13 with a minimum operating pressure of 7 psi (0.5 bar).
- Listed only for use in wet pipe sprinkler systems (or preaction systems qualifying as wet systems).
- The sprinkler installation and obstruction rules contained in NFPA 13 for standard spray pendent sprinklers must be followed.

**IMPORTANT: Always refer to Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to 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, 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**

Quick Response Extra-Large Orifice Pendent Sprinkler VK377  
 Maximum 175 PSI (12 Bar) WWP

Temperature	KEY
Finish	
A1X ← Escutcheon (if applicable)	

Base Part Number <sup>1</sup>	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		FM Approvals <sup>3</sup> (Refer also to Design Criteria below.)	
			NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm		
08337	VK377	Pendent	3/4"	20 mm	11.2	161.3	2-5/16	58.7	A1X	
<b>Approved Temperature Ratings</b> A - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)					<b>Approved Finish</b> 1 - Brass and ENT <sup>4</sup>			<b>Escutcheons</b> X - Standard surface-mounted escutcheons		

**Footnotes**

1. Base part number shown. For complete part number, refer to Viking's current price 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 table shows the FM Approvals available at the time of printing. Other approvals may be in process.
4. FM approved as corrosion proofing for corrosive environments.

**DESIGN CRITERIA - FM**  
 Also refer to the Approval Chart above.

**FM Approval Requirements:**

Quick Response Extra-Large Orifice Pendent Sprinkler VK377 is FM Approved as a quick response pendent Non-Storage sprinkler, and as a quick response pendent Storage sprinkler as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including 2-0 and 8-9). 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.

**NOTE: The FM Installation guidelines may differ from UL and/or NFPA criteria.**

**IMPORTANT: Always refer to Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to 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, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.**

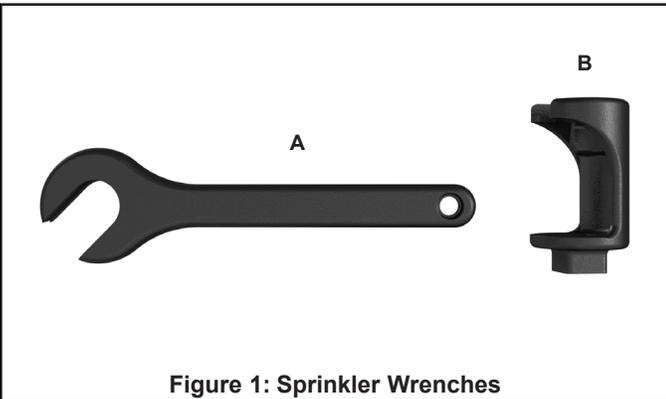


Figure 1: Sprinkler Wrenches

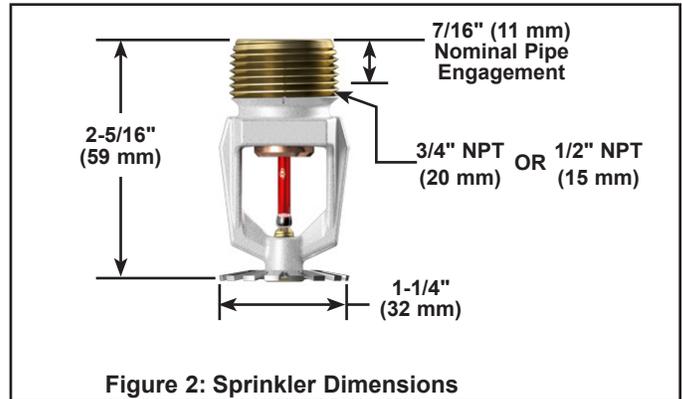


Figure 2: Sprinkler Dimensions

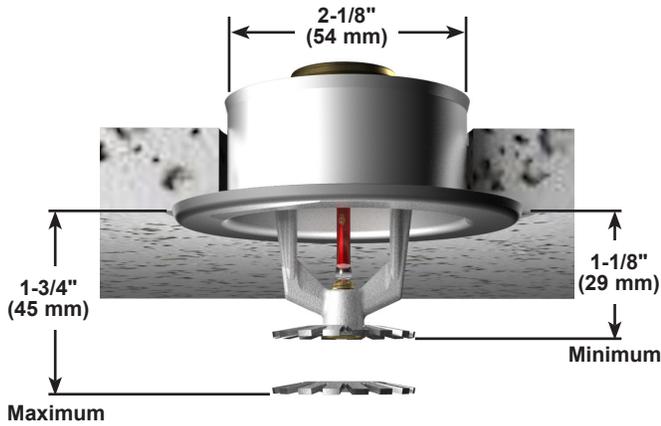


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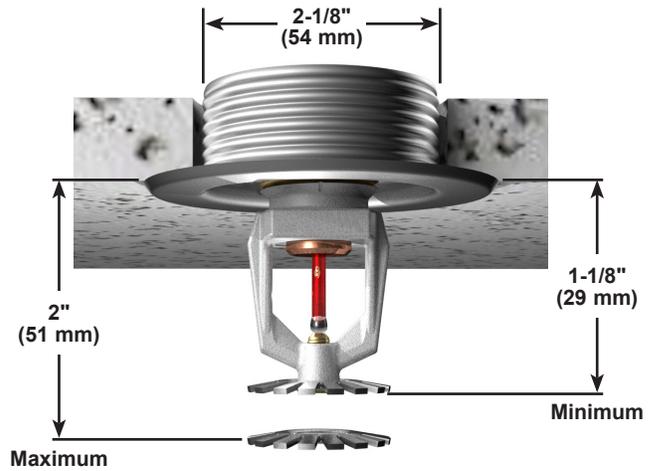
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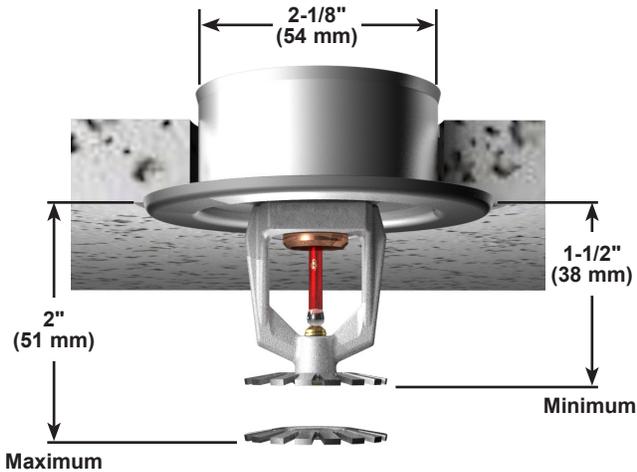
Ceiling Opening Size:  
 Minimum: 2-5/16" (59 mm)  
 Maximum: 2-1/2" (64 mm)



**E-1 Escutcheon**



**E-2 (shown) or E-3 Escutcheon**



**F-1 Escutcheon**



**Surface Mount Escutcheon**

**Figure 3: Installation Dimensions with Viking Escutcheons**

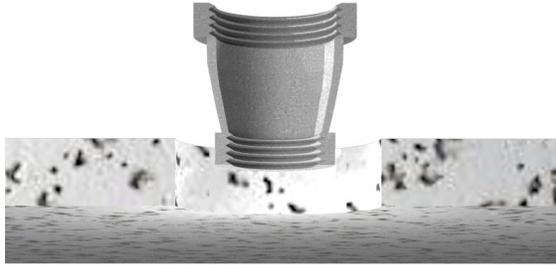


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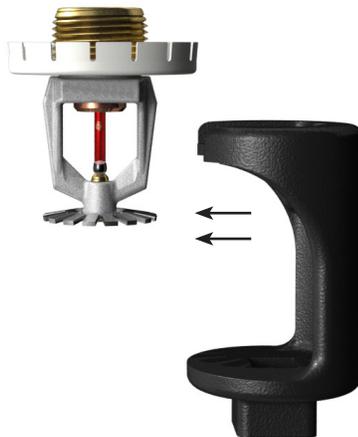
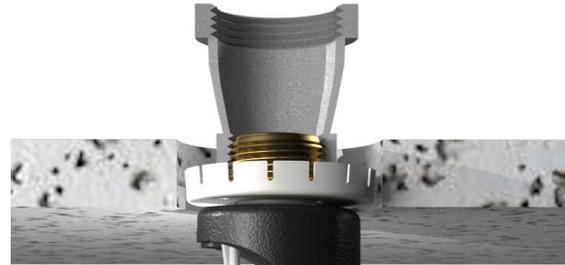
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1. Install the escutcheon inner ring onto the sprinkler threads then carefully slide the wrench\*\* sideways around the protective cap.



2. Push the wrench upwards to ensure engagement with the wrench flats. Install the sprinkler and escutcheon inner ring into the pipe fitting.



**Figure 4: Recessed Installation**

\*\*A 1/2" ratchet is required (not available from Viking).