



TECHNICAL DATA

STANDARD RESPONSE ELO UPRIGHT AND PENDENT SPRINKLERS (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

1. DESCRIPTION

The Viking Standard Response ELO Upright and Pendent Sprinklers are thermosensitive glass bulb spray sprinklers available in several different finishes and temperature ratings to meet design requirements. The special Polyester and Teflon® coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive atmospheres and are cULus listed as corrosion resistant as indicated in Approval Chart 1. (Note: FM Global has no approval classification for Teflon® and Polyester coatings as corrosion resistant.)

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 Standard

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 standard 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.



Upright

Pendent

2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

FM Approved: Class 2009

NYC Approved: MEA 89-92-E, Volume 3

NOTE: Upright Sprinkler VK530 and Pendent Sprinkler VK536 are cULus Listed as Specific Application Sprinklers as indicated in Design Criteria on page 13g.

Refer to Approval Chart 1 and Design Criteria on page 13g for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 13h for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 1992.

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

Thread size: 3/4" NPT or 20 mm BSP

Nominal K-Factor: 11.2 U.S. (161.3 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: 2-5/16" (58.7 mm)

Material Standards:

Sprinkler Frame: Brass UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 5 mm diameter

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

Compression Screw: Brass UNS-C36000

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

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

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

Order Standard Response Extra-Large Orifice Upright and Pendent Sprinklers by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome-Enloy® = F, White Polyester = M-/W, Black Polyester = M-/B, Black Teflon® = N, Wax Coated = C

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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TECHNICAL DATA

**STANDARD RESPONSE
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Temperature Suffix (°F/°C): 155°/68° = B, 175°/79° = D, 200°/93° = E, 286°/141° = G, OPEN = Z (Teflon® only).

For example, sprinkler VK530 with a Brass finish and a 155 °F/68 °C temperature rating = Part No. 09679AB

Available Finishes And Temperature Ratings: Refer to Table 1

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

Sprinkler Wrenches:

A. Standard Wrench: Part No. 05118CW/B (available since 1981).

B. Wrench for recessed pendent and/or coated sprinklers: Part No. 11663W/B** (available since 2001)

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

Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A (available since 1971)

B. Twelve-head capacity: Part No. 01725A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA 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 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

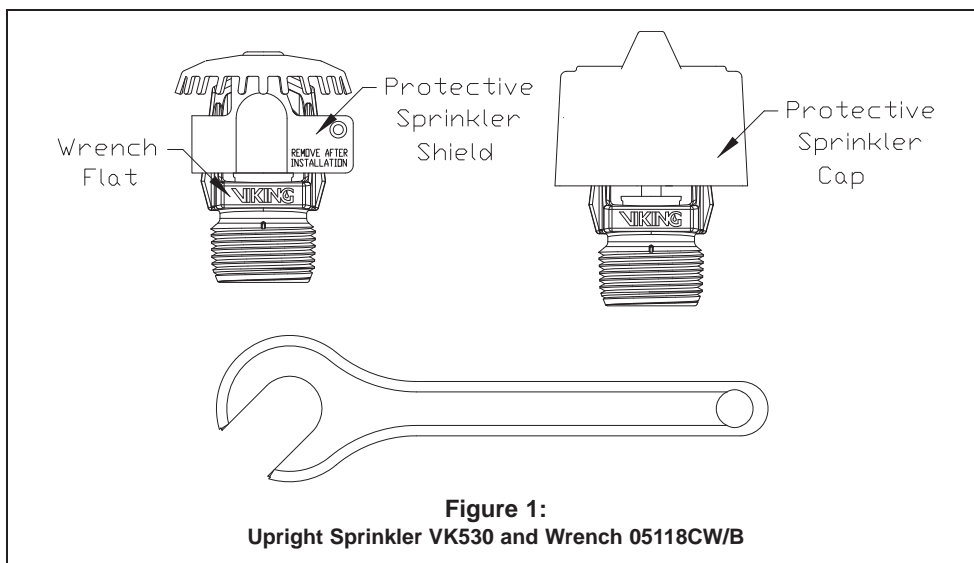
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking Standard Response Extra-Large Orifice Upright and 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.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">STANDARD RESPONSE ELO UPRIGHT AND PENDENT SPRINKLERS (STORAGE-DENSITY/AREA)</h3>
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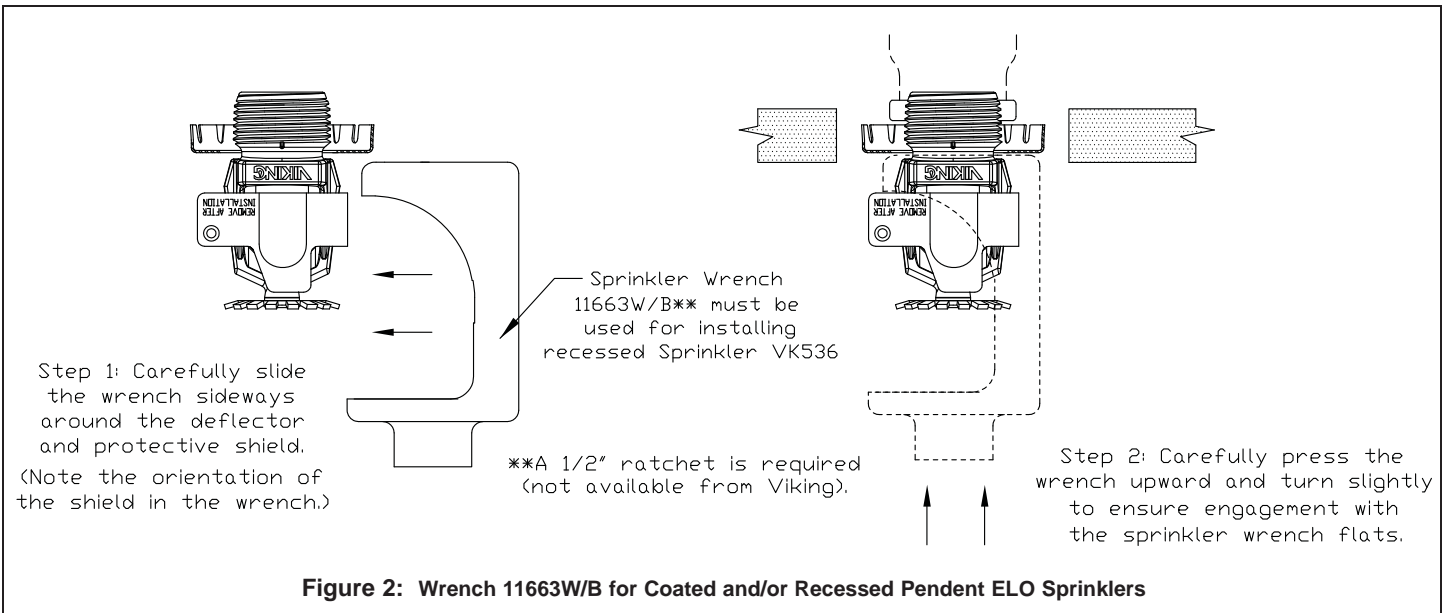
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TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES			
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

Sprinkler Finishes: Brass, Chrome-Enloy®, White Polyester, Black Polyester, and Black Teflon®
Corrosion-Resistant Coatings³: White Polyester, Black Polyester, and Black Teflon® in all temperature ratings. Wax-Coated Brass for sprinklers with the following temperature ratings:
 155 °F (68 °C) Lt. Brown Wax 175 °F (79 °C) Brown Wax 200 °F (93 °C) Brown Wax 286 °F (141 °C) Dk. Brown Wax⁴

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 coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and Teflon® coatings. For Teflon® coated open sprinklers only, the waterway is coated.
- ⁴ Wax melting point is 170 °F (76 °C) for 286 °F (141 °C) temperature rated sprinklers.



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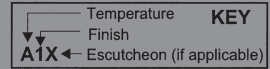
Approval Chart 1 (UL) Standard Response Extra-Large Orifice Upright and Pendent Sprinklers Maximum 175 PSI (12 Bar) WWP										
Base Part Number ¹	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to Design Criteria below.)	
			NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴	NYC ⁶
09679	VK530	Upright	3/4"	--	11.2	161.3	2-5/16	58.7	A3, B1, C2	See Footnote 7.
14819	VK530	Upright	--	20 mm	11.2	161.3	2-5/16	58.7	A3, B1, C2	--
07961	VK536	Pendent	3/4"	--	11.2	161.3	2-5/16	58.7	B1Y, C1Z, C2Y	B1Y, C1Z, C2Y
14820	VK536	Pendent	--	20 mm	11.2	161.3	2-5/16	58.7	B1Y, C1Z, C2Y	--
Approved Temperature Ratings A - 286 °F (141 °C) B - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C) C - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)			Approved Finishes 1 - Brass, Chrome-Enloy [®] , White Polyester ⁵ , Black Polyester ⁵ , and Black Teflon ⁶⁵ 2 - Wax-Coated Brass (corrosion resistant) 3 - Brass with 200 °F (93 °C) Wax Coating (corrosion resistant); Maximum ambient ceiling temperature = 150 °F (65 °C).				Escutcheons Y - Standard surface-mounted escutcheons or the Micro-fast [®] Model F-1 Adjustable Escutcheon Z - Standard surface-mounted escutcheons or the Micro-fast [®] Model F-1 Adjustable Escutcheon, or recessed with the Micromatic [®] Model E-1 or E-2 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 as corrosion-resistant. ⁶ Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 3. ⁷ Meets New York City requirements, effective July 1, 2008.										

DESIGN CRITERIA - UL (Also refer to Approval Chart 1 above.)
<p>cULus Listing Requirements:</p> <p>Standard Response Extra-Large Orifice Upright Sprinkler VK530 and Pendent Sprinkler VK536 are cULus Listed for installation in accordance with the latest edition of NFPA 13 for standard upright and pendent spray sprinklers:</p> <ul style="list-style-type: none"> • Designed for use in hazard occupancies up to and including Extra-Hazard Group II with a minimum operating pressure of 7 psi (0.5 bar). • Sprinklers VK530 and VK536 are 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). • The sprinkler installation and obstruction rules contained in NFPA 13 for standard spray upright and pendent sprinklers must be followed.
<p>Also:</p> <p>When acceptable to the Authority Having Jurisdiction, Viking Standard Response Extra-Large Orifice Sprinklers VK530 and VK536 may be used as specific-application heads with a density of .6/2000 ft.² for wet systems or .6/2600 ft.² for dry systems to protect single-, double-, multiple-row, and portable rack storage of Class I-IV, Group A and B Plastics, cartoned, expanded or unexpanded, as well as exposed unexpanded when the following conditions are met:</p> <ul style="list-style-type: none"> • A maximum storage height of 20 ft. (6.1 m). • A maximum ceiling height of 25 ft. (7.6 m). • A 36-inch (914 mm) minimum clearance from the deflector to the top of storage. <p>Otherwise, design to the appropriate density/area requirements.</p>
<p>IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to pages 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.</p>

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Approval Chart 2 (FM) Standard Response Extra-Large Orifice Upright and Pendent Sprinklers Maximum 175 PSI (12 Bar) WWP									
Base Part Number ¹	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		FM Approvals ³ (Refer also to Design Criteria below.)
			NPT	BSP	U.S.	metric ²	Inches	mm	
09679	VK530	Upright	3/4"	--	11.2	161.3	2-5/16	58.7	A2
14819	VK530	Upright	--	20 mm	11.2	161.3	2-5/16	58.7	A2
07961	VK536	Pendent	3/4"	--	11.2	161.3	2-5/16	58.7	A1X
14820	VK536	Pendent	--	20 mm	11.2	161.3	2-5/16	58.7	A1X
Approved Temperature Ratings A - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)					Approved Finishes 1 - Brass 2 - Brass and Chrome-Enloy®			Escutcheons 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.									



DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:
 Standard Response Extra-Large Orifice Upright Sprinkler VK530 and Pendent Sprinkler VK536 are FM Approved as standard response upright and pendent **Non-Storage** sprinklers, and as a standard response upright and pendent **Storage** sprinklers 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 cULus and/or NFPA criteria.

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



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