



TECHNICAL DATA

QUICK RESPONSE EXTRA-LARGE ORIFICE UPRIGHT SPRINKLER VK531 (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

Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

1. DESCRIPTION

The Viking Quick Response Extra-Large Orifice Upright Sprinkler VK531 is a thermosensitive glass bulb spray sprinkler available in several different finishes and temperature ratings to meet design requirements. The special Polyester, Electroless Nickel PTFE (ENT), and PTFE 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. 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 Extra-Large Orifice Upright Sprinkler VK531 may be ordered and/or used as an open sprinkler (glass bulb and pip cap assembly removed) on deluge systems. Refer to Ordering Instructions below.



NOTE: As of May 2018 all logos have been removed from the wrench boss.



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

2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class 2009

Refer to the Approval Chart(s) and the Design Criteria for cULus Listing and FM Approval requirements.

3. TECHNICAL DATA

Specifications:

Available since 2000.

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

Thread size: 3/4"

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-C51000

Bulb: Glass, nominal 3 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 polyester-coated sprinklers: Belleville spring - exposed

For ENT-coated sprinkler: Belleville spring- exposed, screw and pipcap - ENT-plated.

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4. INSTALLATION

Refer to appropriate NFPA, FM Global, and/or 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 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 Quick Response Extra-Large Orifice Upright Sprinkler 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.



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Ordering Instructions

Choose a sprinkler base part number with the required thread size and listing or approval (refer to the approval chart).

Add the suffix for the desired finish.

Add the suffix for the desired temperature rating.

EXAMPLE: 10633AD = VK531 with brass finish and 175 °F (79 °C) nominal temperature rating. This sprinkler is to be installed into an area with a maximum ambient temperature of 150 °F (66 °C).

NOTE: The “-TQ” suffix for the part numbers below indicates a special protective cap (Figure 2-B) intended for use with InstaSea® fittings. When ordering sprinklers with TQ suffixes in combination with InstaSea® fittings, refer to Form No. F_021123 for installation instructions.

Sprinkler Base Part Number	
Part Number*	Thread Size
10633	3/4" NPT
10633XX-TQ*	3/4" NPT

Finish	
Description	Suffix
Brass	A
Chrome	F
White polyester	M-W
Black polyester	M-B
ENT	JN

Temperature Ratings				
Temperature Classification	Temperature Rating	Bulb color	Maximum Ambient Ceiling Temperature	Suffix
Ordinary	155 °F (68 °C)	Red	100 °F (38 °C)	B
Intermediate	175 °F (79 °C)	Yellow	150 °F (66 °C)	D
Intermediate	200 °F (93 °C)	Green	150 °F (66 °C)	E
High	286 °F (141 °C)	Blue	225 °F (107 °C)	G
Open (PTFE only)				Z

* Where “XX” is shown in the base part number, enter the desired suffixes for Finish and Temperature Rating (EXAMPLE: 10633AE-TQ)

Accessories
Sprinkler wrench: 05118CW/B (standard) & 11663W/B (coated sprinklers)
Sprinkler cabinet: 01724A (six-head capacity) & 01725A (twelve-head capacity)



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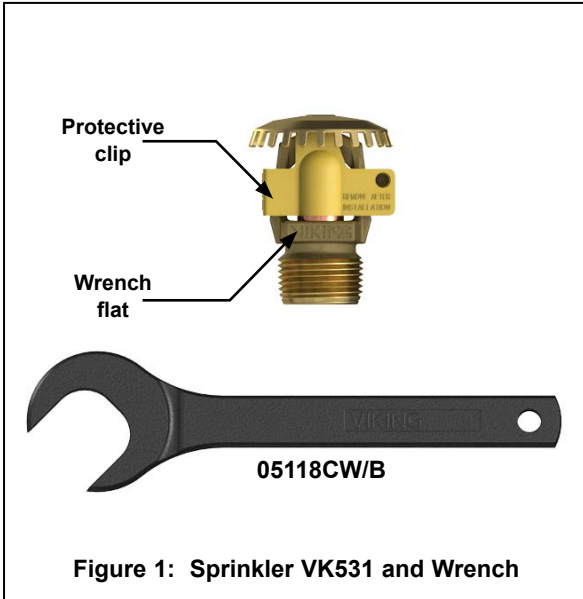


Figure 1: Sprinkler VK531 and Wrench



Figure 2: Sprinkler with Torque Assist Cap

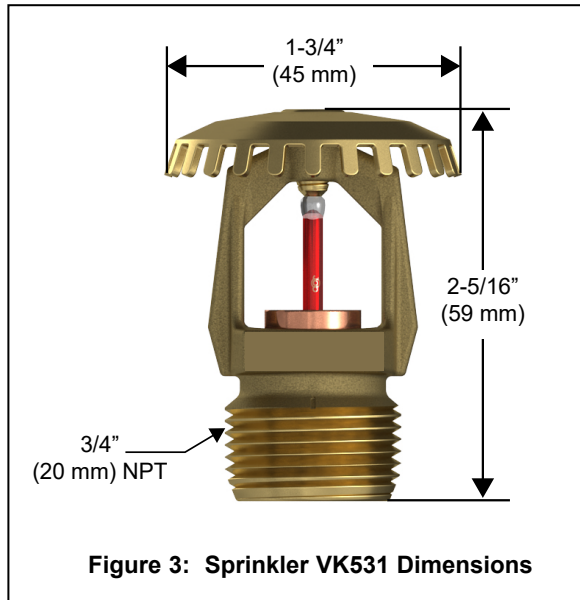


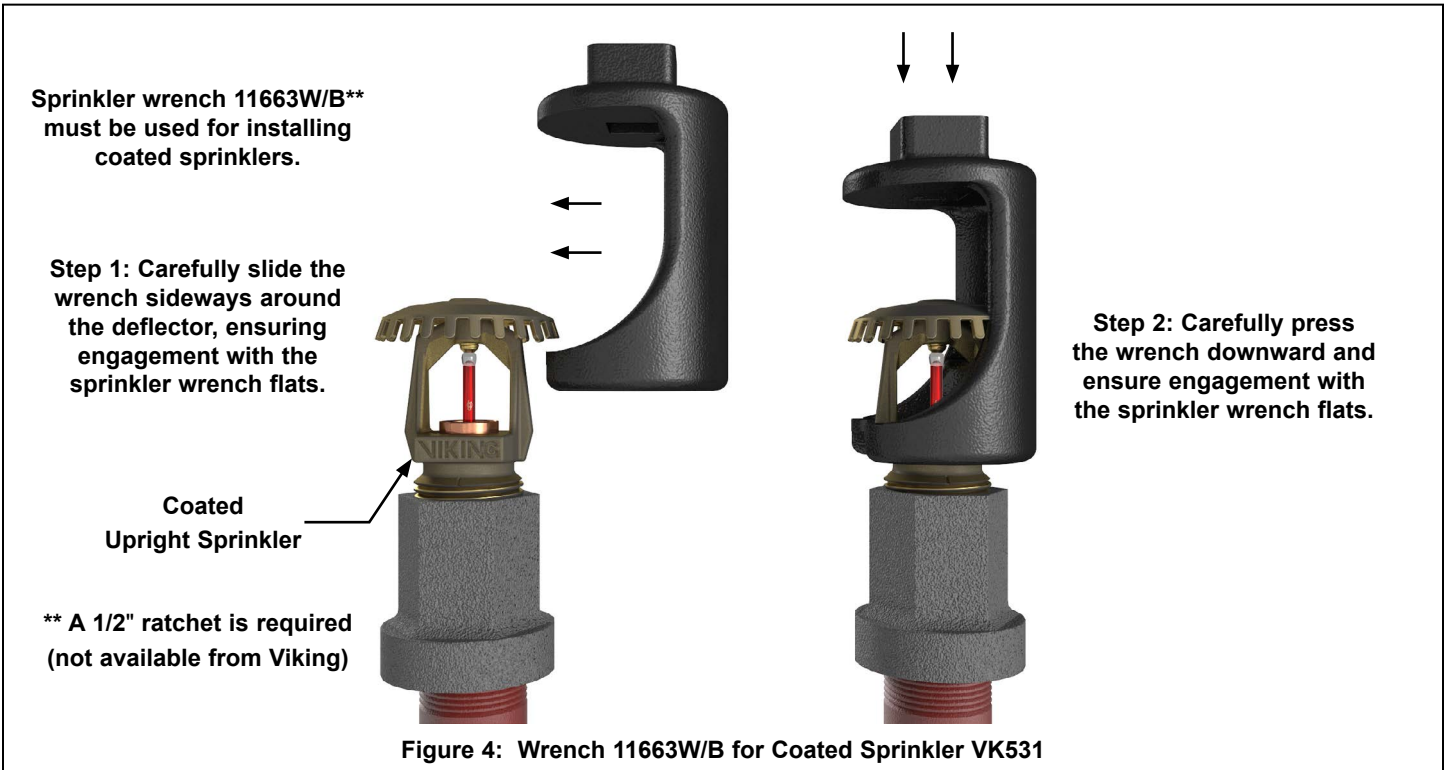
Figure 3: Sprinkler VK531 Dimensions



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Approval Chart 1 (UL)

Quick Response Extra-Large Orifice Upright Sprinkler VK531
Maximum 175 PSI (12 Bar) WWP

KEY	
Temperature	—
Finish	▼
A1X ← Escutcheon (if applicable)	←

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	BSPT	U.S.	metric ²	Inches	mm	cULus ^{4,5}
10633	VK531	Upright	3/4"	--	11.2	161.3	2-5/16	58.7	A1
10633XX-TQ	VK531	Upright	3/4"	--	11.2	161.3	2-5/16	58.7	A1
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, chrome, white polyester ⁶ , black polyester ⁶ , and ENT ⁶				
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 cULus Listed as corrosion-resistant. 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 ENT. For all ENT coated sprinklers, the waterway is coated.									

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1 above.)

cULus Listing Requirements:

Quick Response Extra-Large Orifice Upright Sprinkler VK531 is cULus Listed for installation in accordance with the latest edition of NFPA 13 for standard upright 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 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 sprinklers must be followed.

IMPORTANT: Always refer to Bulletin 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 Upright Sprinkler VK531
Maximum 175 PSI (12 Bar) WWP

KEY	
Temperature	↓
Finish	←
Escutcheon (if applicable)	A1X

Base Part Number ¹	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		FM Approvals ³ (Refer also to Design Criteria below.)
			NPT	BSPT	U.S.	metric ²	Inches	mm	
10633	VK531	Upright	3/4"	--	11.2	161.3	2-5/16	58.7	A1
10633XX-TQ	VK531	Upright	3/4"	--	11.2	161.3	2-5/16	58.7	A1
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, Chrome, and ENT ⁴		
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-resistant.									

DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:

- Quick Response Extra-Large Orifice Upright Sprinkler VK531 is FM Approved for use as a quick response upright **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 Data Sheets 2-0 and 8-9).
- Approved storage sprinklers are also FM Approved for use as non-storage sprinklers.
 - 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.

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 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.