	TECHNICAL DATA	STANDARD/QUICK RESPONSE EXTENDED COVERAGE LIGHT HAZARD ELO PENDENT SPRINKLER VK608
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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 Extended Coverage Light Hazard Extra-Large Orifice (ECLH-ELO/QRECLH-ELO) Pendent Sprinkler VK608 is a thermosensitive spray sprinkler available in several different finishes and temperature ratings to meet varying design requirements. The glass bulb operating element and special deflector characteristics meet the challenges of quick response extended coverage standards. The sprinkler has both quick response and standard response listings as indicated in the Approval Charts on pages 85c-e. The special Polyester and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, ENT coating has been investigated for installation in corrosive atmospheres. See Approval Charts.



For Light Hazard Occupancies

2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class 2020

NYC Approved: MEA 89-92-E, Volume 9

Refer to Approval Chart 1 and Design Criteria on pages 85c-d for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 85e for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 1993.

Minimum Operating Pressure: Refer to the Approval Charts.

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

Factory tested hydrostatically to 500 psi (34.5 bar).

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

Nominal K-Factor: 11.2 U.S. (161.3 metric†)

† Metric K-factor measurement shown is 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" (59 mm)

Material Standards:

Sprinkler Frame: Brass UNS-C84400

Deflector: Brass UNS-C51000

Bulb: Glass, nominal 3 mm diameter

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

Screw: Brass UNS-C36000

Pip Cap and Insert Assembly: Leaded Bronze UNS-C31600 or UNS-C31400

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

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

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

Order Standard/Quick Response Extended Coverage Light Hazard Extra-Large Orifice (ECLH-ELO) Pendent Sprinkler VK608 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 = F, White Polyester = M-/W, Black Polyester = M-/B, Black PTFE = N, and ENT=JN

Temperature Suffix: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D

For example, sprinkler VK608 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 08339AB

Available Finishes And Temperature Ratings: Refer to Table 1.

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

Sprinkler Wrenches:

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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- A. Standard Wrench: Part No. 05118CW/B (available since 1981)
 - B. Wrench for recessed pendent sprinkler: Part No. 11663W/B** (available since 2001)
- **A 1/2" 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 and FM Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass 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 Sprinkler VK608 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.

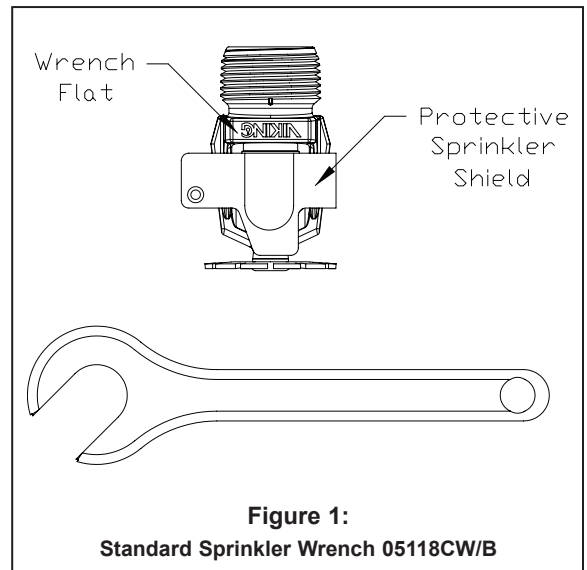


TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES			
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Sprinkler Finishes: Brass, Chrome, White Polyester ³ , Black Polyester ³ , Black PTFE ³ , and ENT			
Corrosion-Resistant Coatings⁴: 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 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 PTFE coatings. For PTFE coated open sprinklers only, the waterway is coated.			
⁴ The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart. 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 ENT automatic sprinklers, all exposed surfaces and the waterway are coated, but note that the spring is exposed.			

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Sprinkler Base Part Number ¹	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length	
		Inches	mm	U.S.	metric ²		Inches	mm
08339	VK608	3/4	20	11.2	161.3	175 psi (12 Bar)	2-5/16	59

<p>Approval Chart 1 (UL) Standard/Quick Response Extended Coverage ELO Pendent Sprinkler VK608 For Light Hazard Occupancies</p>	<table border="1" style="font-size: small;"> <tr> <td style="padding: 2px;">—</td> <td>Temperature</td> <td rowspan="3" style="font-weight: bold; vertical-align: middle;">KEY</td> </tr> <tr> <td style="padding: 2px;">—</td> <td>Finish</td> </tr> <tr> <td style="padding: 2px;">—</td> <td>Escutcheon (if applicable)</td> </tr> </table>	—	Temperature	KEY	—	Finish	—	Escutcheon (if applicable)
—	Temperature	KEY						
—	Finish							
—	Escutcheon (if applicable)							

Maximum Sprinkler Spacing (L x W ⁴)	Maximum Area per Sprinkler	Minimum Water Supply Requirements ⁴	Listings and Approvals ³ (Refer also to Design Criteria on page 85d.)	
			cULus ⁵	NYC ⁷

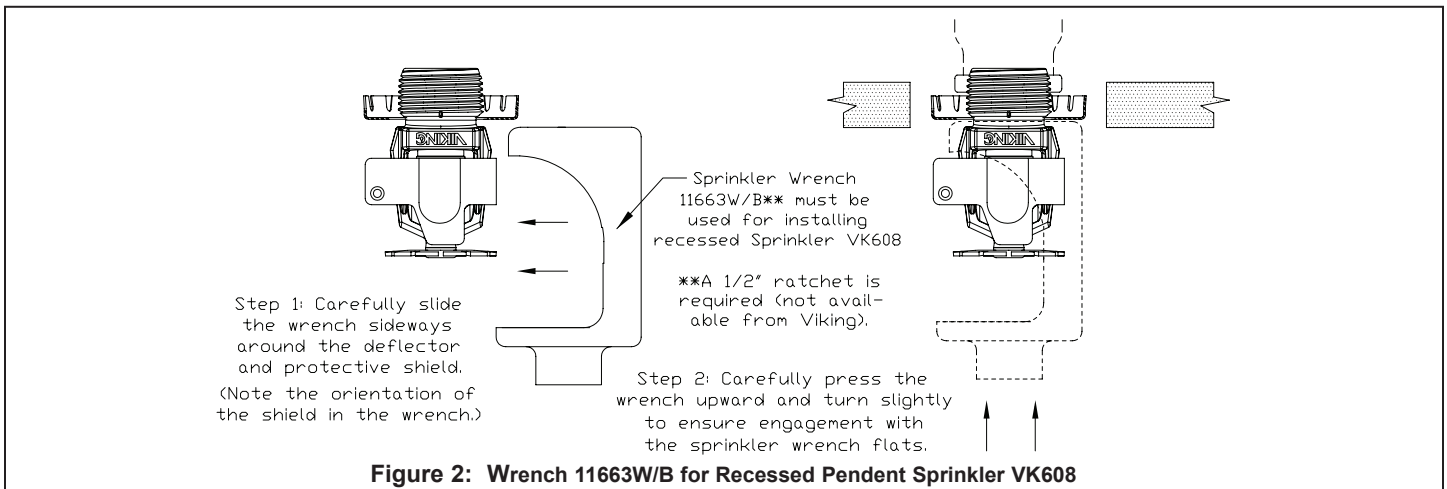
Standard Response⁶				
20 ft. x 20 ft. (6.1 m x 6.1 m)	400 ft ² (37.2 m ²)	40 gpm @ 12.8 psi (151.4 L/min @ .88 Bar)	C1Y, C2Z	C1Y

Quick Response				
16 ft. x 16 ft. (4.9 m x 4.9 m)	256 ft ² (23.8 m ²)	30 gpm @ 7.2 psi (113.6 L/min @ .50 Bar)	A1Y, D2Z	See Footnote 8.
18 ft. x 18 ft. (5.5 m x 5.5 m)	324 ft ² (30.1 m ²)	33 gpm @ 8.7 psi (124.9 L/min @ .60 Bar)	A1Y, D2Z	See Footnote 8.
20 ft. x 20 ft. (6.1 m x 6.1 m)	400 ft ² (37.2 m ²)	40 gpm @ 12.8 psi (151.4 L/min @ .88 Bar)	B1Y, E2Z	See Footnote 8.

Approved Temperature Ratings	Approved Finishes	Approved Escutcheons
A - 135 °F (57 °C), 155 °F (68 °C), and 175 °F (79 °C) B - 135 °F (57 °C) and 175 °F (79 °C) C - 155 °F (68 °C) D - 155 °F (68 °C), and 175 °F (79 °C) E - 155 °F (68 °C)	1 - Brass, Chrome, White Polyester, Black Polyester, and Black PTFE 2 - ENT ⁹	Y - Standard surface-mounted escutcheons or the Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon Z - Standard surface-mounted escutcheons or the Micromatic Model E-1 Recessed Escutcheon.

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 listings and approvals available at time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
⁴ For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" for the next larger area listed. Flows and pressures listed are per sprinkler.
⁵ cULus Listed for use in the U.S. and Canada for Light Hazard occupancies only.
⁶ Listings are limited to Light Hazard Occupancies where allowed by the installation standards being applied.
⁷ Accepted for use, City of New York Department of Buildings, MEA 89-92 Vol. 9.
⁸ Meets New York City requirements, effective July 1, 2008.
⁹ cULus Listed as corrosion-resistant.



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DESIGN CRITERIA - UL
 (Also refer to the Approval Chart on page 85c.)

cULus Listing Requirements:

Standard/Quick Response Extended Coverage Light Hazard ELO Pendent Sprinkler VK608 is cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for extended coverage pendent spray sprinklers:

- Limited to Light Hazard occupancies, where allowed by the installation standards being applied, with smooth, flat, horizontal ceilings only.
- Minimum spacing allowed is 8 ft. (2.4 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 extended coverage pendent spray sprinklers must be followed.

Also, Viking ECLH-ELO Pendent Sprinkler VK608 is specifically cULus Listed for:

- For non-combustible obstructed construction within trusses or bar joists having non-combustible web members greater than 1" (25.4 mm) when applying the 4 times obstruction criteria rule as defined in NFPA 13 under "Obstructions to Sprinkler Discharge Pattern Development".
- For installation under concrete tees when installed as follows:
 1. The stems of the concrete tee construction must be spaced between 3 ft (0.9 m) and 7 ft-6 in (2.3 m) on center. The depth of the concrete tees must not exceed 30 in (762 mm). The maximum permitted concrete tee length is 32 ft (9.8 m). However, where the concrete tee length exceeds 32 ft (9.8 m), non-combustible baffles, equal in height to the depth of the tees, can be installed so that the space between the tees does not exceed 32 ft (9.8 m).
 2. The sprinkler deflector is to be located in a horizontal plane at or above 1" (25.4 mm) below the bottom of the concrete tee stems.
 3. When the sprinkler deflector is located higher than a horizontal plane 1" (25.4 mm) beneath the bottom of the concrete tee stems, the obstruction to sprinkler discharge criteria requirements of NFPA 13 for extended coverage upright sprinklers applies.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to pages EC1-3 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.

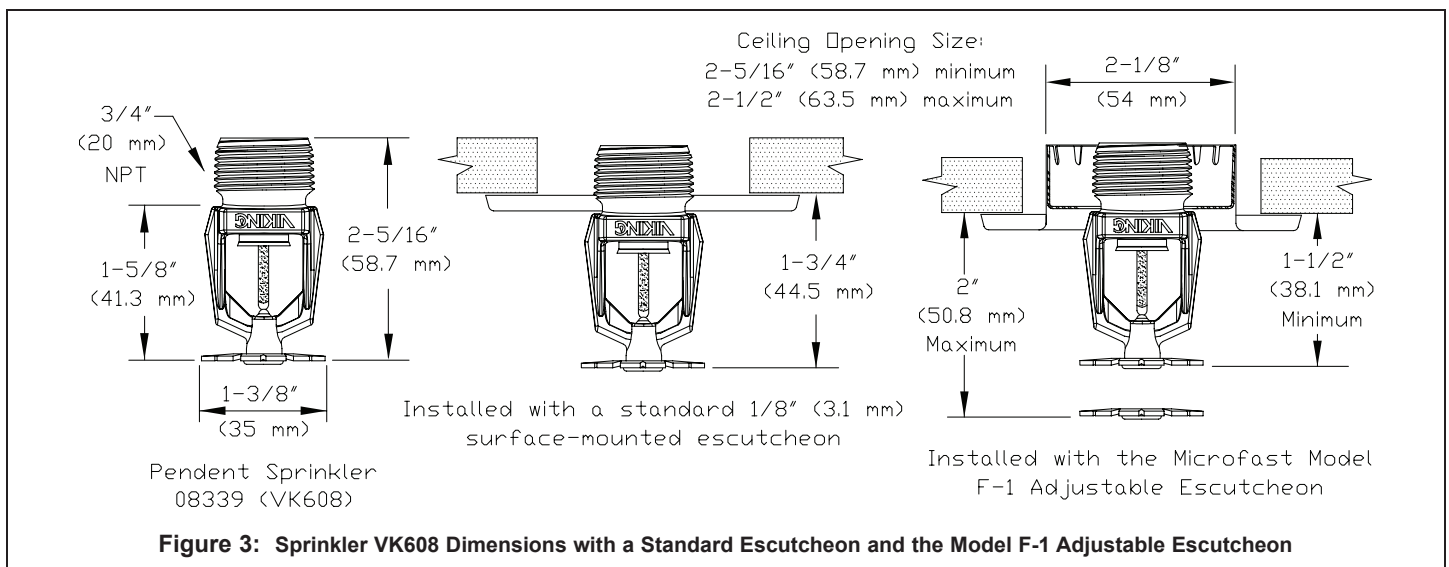


Figure 3: Sprinkler VK608 Dimensions with a Standard Escutcheon and the Model F-1 Adjustable Escutcheon

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Sprinkler Base Part Number ¹	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length	
		Inches	mm	U.S.	metric ²		Inches	mm
08339	VK608	3/4	20	11.2	161.3	175 psi (12 Bar)	2-5/16	59

<p>Approval Chart 2 (FM) Quick Response Extended Coverage ELO Pendent Sprinkler VK608</p>	<table border="1" style="border-collapse: collapse;"> <tr> <td style="padding: 2px;">Temperature</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">KEY</td> </tr> <tr> <td style="padding: 2px;">Finish</td> </tr> <tr> <td style="padding: 2px;">Escutcheon (if applicable)</td> </tr> </table>	Temperature	KEY	Finish	Escutcheon (if applicable)
Temperature	KEY				
Finish					
Escutcheon (if applicable)					

Maximum Sprinkler Spacing (L x W ⁴)	Maximum Area per Sprinkler	Minimum Water Supply Requirements ⁴	FM Approvals ³ (Refer also to Design Criteria below.)
16 ft. x 16 ft. (4.9 m x 4.9 m)	256 ft ² (23.8 m ²)	30 gpm @ 7.2 psi (113.6 L/min @ 0.50 Bar)	B1Y, A1X, D2Z, C2X
18 ft. x 18 ft. (5.5 m x 5.5 m)	324 ft ² (30.1 m ²)	33 gpm @ 8.7 psi (124.9 L/min @ 0.60 Bar)	B1Y, A1X, D2Z, C2X
20 ft. x 20 ft. (6.1 m x 6.1 m)	400 ft ² (37.2 m ²)	40 gpm @ 12.8 psi (151.4 L/min @ 0.88 Bar)	B1Y, A1X, D2Z, C2X

<p>Approved Temperature Ratings</p> <p>A - 135 °F (57 °C), 155 °F (68 °C), and 175 °F (79 °C) B - 135 °F (57 °C), 155 °F (68 °C) C - 155 °F (68 °C), and 175 °F (79 °C) D - 155 °F (68 °C)</p>	<p>Approved Finishes</p> <p>1 - Brass, Chrome, White Polyester, and Black Polyester 2 - ENT⁵</p>	<p>Approved Escutcheons</p> <p>X - Standard surface-mounted escutcheons Y - Standard surface-mounted escutcheons or the Microfast[®] Model F-1 Adjustable Escutcheon, or recessed with the Micromatic[®] Model E-1, E-2, or E-3 Recessed Escutcheon Z - Standard surface-mounted escutcheons or the Micromatic Model E-1 Recessed Escutcheon.</p>
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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 time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
⁴ For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" for the next larger area listed. Flows and pressures listed are per sprinkler.
⁵ FM Approved as corrosion-resistant.

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

FM Approval Requirements:

Quick Response Extended Coverage Extra-Large Orifice Pendent Sprinkler VK608 is FM Approved as a quick response extended coverage pendent **Non-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). 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 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 EC1-3 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.



TECHNICAL DATA

STANDARD/QUICK RESPONSE
EXTENDED COVERAGE
LIGHT HAZARD ELO
PENDENT SPRINKLER VK608

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