



TECHNICAL DATA

STANDARD/QUICK RESPONSE EC LIGHT HAZARD ELO CONCEALED PENDENT SPRINKLER VK618

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 ELO Concealed Pendent Sprinkler VK618 is a thermosensitive spray sprinkler pre-assembled with a threaded adapter for installation with a domed cover. The sprinkler has an extra-large orifice to meet Light Hazard density requirements at lower pressures than standard or large orifice sprinklers. The glass bulb operating element and special deflector characteristics meet the challenges of quick response extended coverage standards.

The cover plate provides up to 1/2" (12.7 mm) of vertical adjustment and 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 work has been completed. 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.

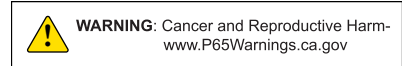


For Light Hazard Occupancies Only

2. LISTINGS AND APPROVALS

 **cULus Listed:** Category VNIV

Refer to the Approval Chart on page 86c and Design Criteria on page 86d for cULus Listing requirements that must be followed.



3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)

Maximum Working Pressure: 175 psi (12 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 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 (Sprinkler Body): 2-7/16" (61.8 mm)

Material Standards:

Sprinkler Frame: Brass UNS-C84400

Deflector: Brass UNS-C26000 or UNS-C51000

Bulb: Glass, nominal 3 mm diameter

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

Screw: Brass UNS-C36000

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

Cover Adapter: Cold Rolled Steel UNS-G10080, Finish: Clear Chromate over Zinc Plating

Cover Assembly Materials:

Cover: Copper UNS-C11000 and Brass UNS-C26000

Spring: Nickel Alloy

Solder: Eutectic

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

Viking Standard/Quick Response Extended Coverage Light Hazard Concealed Pendent Sprinkler VK618 and Cover Plate Assembly must be ordered separately:

Sprinkler: Base Part No. 08339A-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: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D

For example, sprinkler VK618 with a 175 °F (79 °C) temperature rating = 08339ADX.

Note: When ordering this sprinkler using the SIN, add suffix -D. For example, concealed sprinkler VK618 = VK618-D.

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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Cover Plate Assembly: Base Part No. 12381

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: 135 °F (57 °C) = A, 165 °F (74 °C) = C

For example, cover 12381 with a Polished Chrome finish and a 165 °F (74 °C) temperature rating = 12381FC.

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. 11663W/B* (available since 2001)

*Requires a 1/2" ratchet (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 liquid in the glass bulb to expand and 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 Model VK618 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.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

| Sprinkler Temperature Classification | Sprinkler Nominal Temperature Rating ¹ | Maximum Ambient Ceiling Temperature ² | Bulb Color | Temperature Rating of the Required Cover Assembly | Cover Plate Assembly Base Part Number ³ |
|--------------------------------------|---|--|------------|---|--|
| Ordinary | 135 °F (57 °C) | 100 °F (38 °C) | Orange | 135 °F (57 °C) | 12381 |
| Ordinary | 155 °F (68 °C) | 100 °F (38 °C) | Red | 135 °F (57 °C) | |
| Intermediate | 175 °F (79 °C) | 150 °F (65 °C) | Yellow | 165 °F (74 °C) | |

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.

³ Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.



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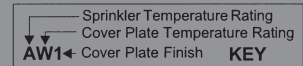
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| Sprinkler Base Part Number ¹ | NPT Thread Size | | Nominal K-Factor | | Maximum Water Working Pressure | Overall Length (Sprinkler Body) | |
|---|-----------------|----|------------------|---------------------|--------------------------------|---------------------------------|------|
| | Inches | mm | U.S. | metric ² | | Inches | mm |
| 08339A-X | 3/4 | 20 | 11.2 | 161.3 | 175 psi (12 bar) | 2-7/16 | 61.8 |

Approval Chart

Standard/Quick Response EC Light Hazard ELO
Concealed Pendent Sprinkler VK618



| Maximum Sprinkler Spacing ⁴ (Length x Width) | Minimum Water Supply Requirements ⁴ Flow/Pressure | Maximum Area Per Sprinkler | Listings and Approvals ³ (Refer also to Design Criteria on pg 86d.) | | |
|--|---|----------------------------|---|----|-----|
| | | | cULus ^{5,6} | FM | NYC |

Standard Response Applications

| | | | | | |
|---------------------------|--|---|-----|----|-----------------|
| 18' x 18' (5.5 m x 5.5 m) | 33 gpm @ 8.7 psi (124.9 L/min @ 0.60 bar) | 324 ft. ² (30.1 m ²) | CW1 | -- | See Footnote 5. |
| 20' x 20' (6.1 m x 6.1 m) | 40 gpm @ 12.8 psi (151.4 L/min @ 0.88 bar) | 400 ft. ² (37.2 m ²) | CW1 | -- | See Footnote 5. |

| Maximum Sprinkler Spacing ⁴ (Length x Width) | Minimum Water Supply Requirements ⁴ Flow/Pressure | Maximum Area Per Sprinkler | cULus ^{5,7} | FM | NYC |
|--|---|----------------------------|----------------------|----|-----|
|--|---|----------------------------|----------------------|----|-----|

Quick Response Applications

| | | | | | |
|---------------------------|--|---|----------|----|-----------------|
| 16' x 16' (4.9 m x 4.9 m) | 30 gpm @ 7.2 psi (113.6 L/min @ 0.50 bar) | 256 ft. ² (23.8 m ²) | AW1, DX1 | -- | See Footnote 8. |
| 18' x 18' (5.5 m x 5.5 m) | 33 gpm @ 8.7 psi (124.9 L/min @ 0.60 bar) | 324 ft. ² (30.1 m ²) | BW1, DX1 | -- | See Footnote 8. |
| 20' x 20' (6.1 m x 6.1 m) | 40 gpm @ 12.8 psi (151.4 L/min @ 0.88 bar) | 400 ft. ² (37.2 m ²) | BW1, DX1 | -- | See Footnote 8. |

| Sprinkler Temperature Ratings | Cover Assembly Temperature Ratings | Cover Plate Finishes ⁹ |
|---|--|---|
| A - 135 °F (57 °C) and 155 °F (68 °C) B - 135 °F (57 °C) C - 155 °F (68 °C) D - 175 °F (79 °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 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 Listed by Underwriter's Laboratories, Inc. for use in the U.S. and Canada.
- ⁶ cULus Listings are limited to Light Hazard occupancies, where allowed by the installation standards being applied, below smooth, flat, horizontal ceilings only.
- ⁷ cULus Listings are limited to Light Hazard occupancies with smooth, flat, horizontal ceilings only.
- ⁸ Meets New York City requirements, effective July 1, 2008.
- ⁹ Painted finish consists 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

(Also refer to the Approval Chart on page 86c.)

cULus Listing Requirements: Standard/Quick Response Extended Coverage Light Hazard ELO Concealed Pendent Sprinkler SIN VK618 is cULus

Listed 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.
- **DEFLECTOR POSITION:** Install with the deflector 3/8" (9.5 mm) to 7/8" (22.2 mm) below the ceiling. Refer to Figure 3.
- 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.

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 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.

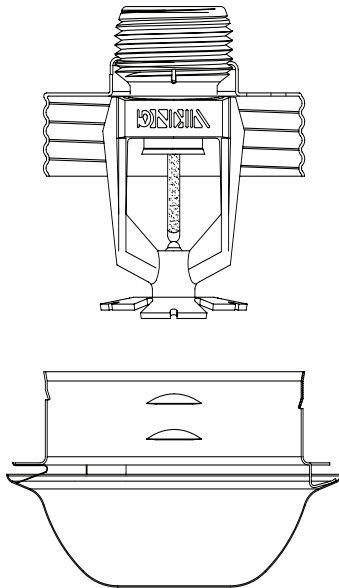


Figure 1:

Concealed Sprinkler VK618 and Cover 12381

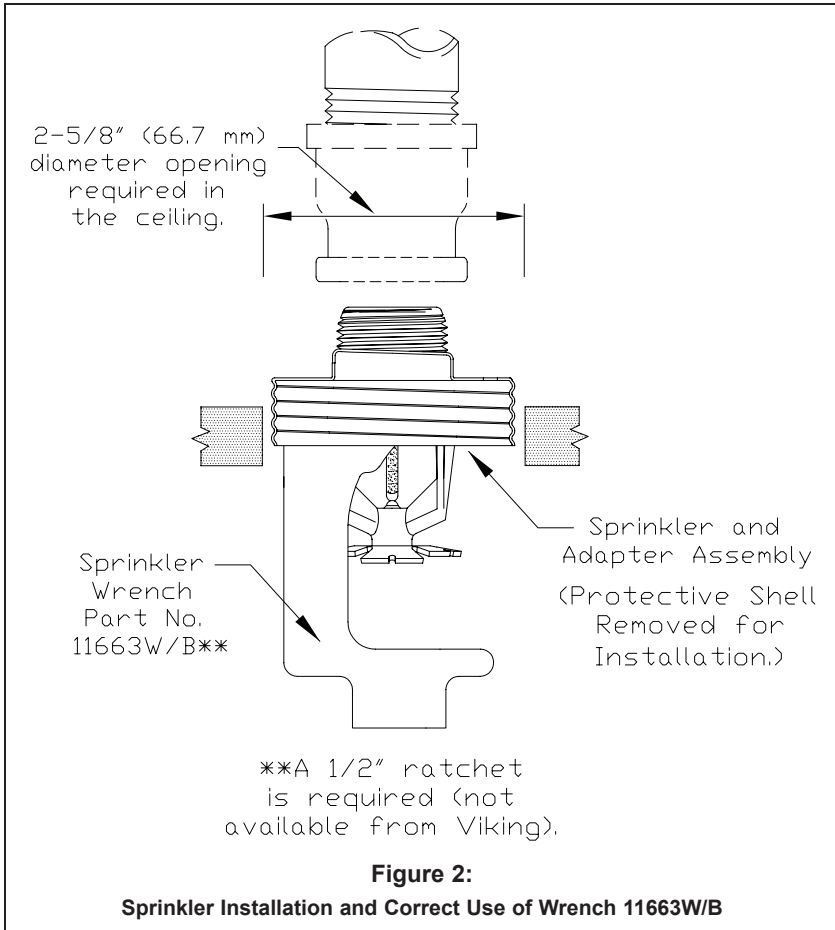


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Identification of Custom Paint Color:
All custom color painted cover plates will
have an identifying label affixed to the
inside of the cover that indicates custom
color and will have a representative sample
(a paint dot) of the paint on the label.

Figure 3: Identification of Custom Paint Color for Concealed Covers

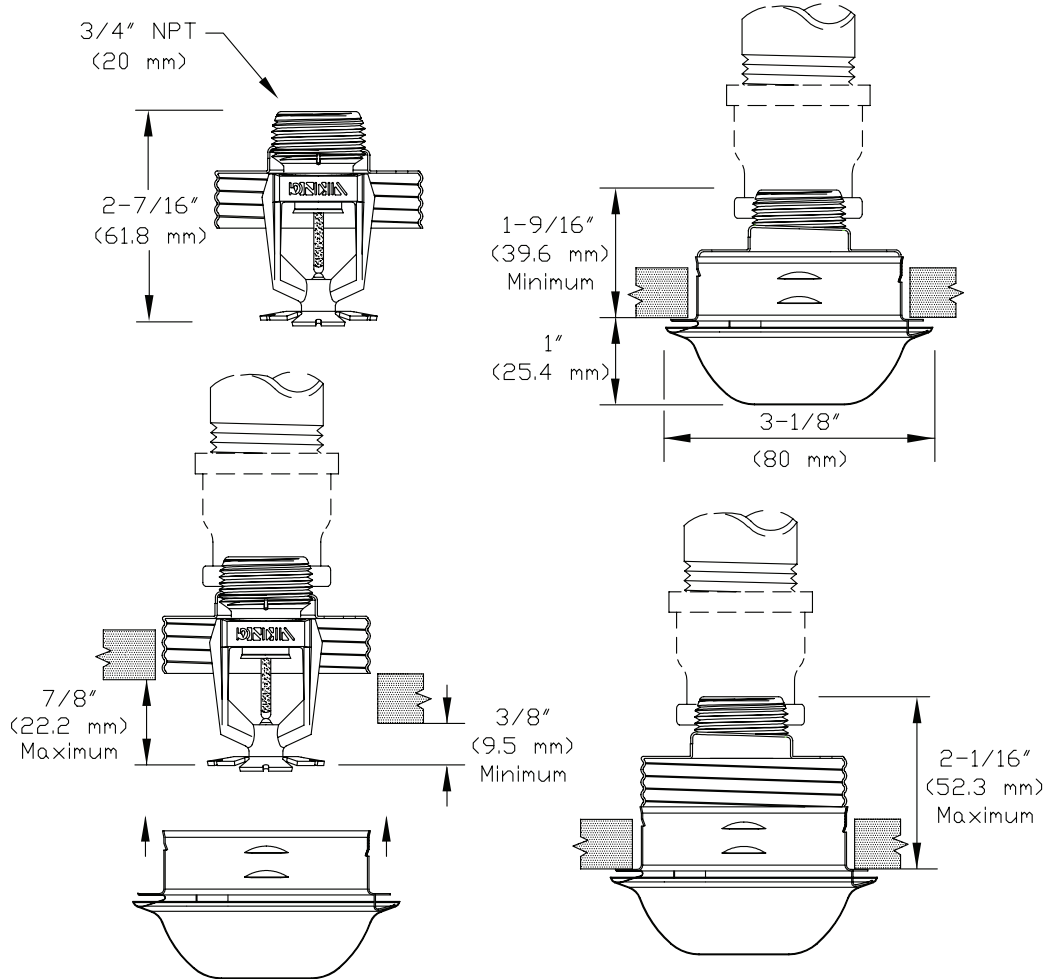


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NOTE: 2-5/8" (66.7 mm) diameter opening required in the ceiling.

Figure 4:
Sprinkler Dimensions and Cover Installation
Up to 1/2" (12.7 mm) Cover Adjustment Available