



TECHNICAL DATA

**QUICK RESPONSE EXTENDED
COVERAGE FUSIBLE
ELEMENT PENDENT
SPRINKLERS VK601 & VK603**

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 QREC Fusible Element Pendent Sprinklers VK601 and VK603 are thermo-sensitive solder link spray sprinklers available in several different finishes and temperature ratings to meet varying design requirements. The fast response type fusible operating element and special deflector combine speed of operation and area of coverage to meet quick response extended coverage standards.

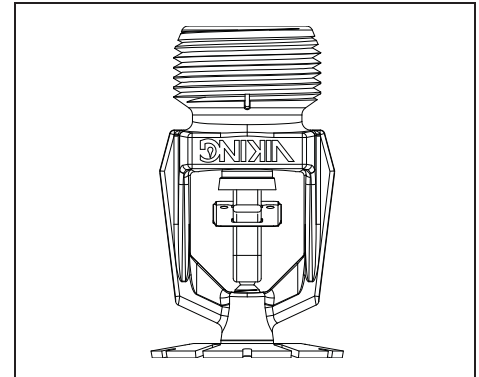
The special Polyester coatings can be used in decorative applications where colors are desired.

2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

FM Approved: Class 2020

Refer to Approval Chart 1 and Design Criteria on page 81j for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 81k for FM Approval requirements that must be followed.



For Light Hazard Occupancies Only

3. TECHNICAL DATA

Specifications:

Available since 2007.

Minimum Operating Pressure: Refer to the Approval Charts.

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

Testing: U.S.A. Patent No. 4,831,870

Thread sizes: Part No. 13969: 1/2" (15 mm) NPT, Part No. 14140: 3/4" (20 mm) NPT

Nominal K-Factors: 13969: 5.6 U.S. (80.6 metric†), 14140: 8.0 U.S. (115.2 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.

Overall Length: Part No. 13969: 2-5/16 (59 mm), Part No. 14140: 2-3/8" (61 mm)

Material Standards:

Sprinkler Frame: Brass UNS-C84400

Deflector: Brass UNS-C26000

Fusible Element Assembly: Nickel Alloy

Trigger and Support: Stainless Steel UNS-S31600

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

Seat and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

Pip Cap Attachment: Brass UNS-C36000

Screw: Brass UNS-C36000

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 QREC Fusible Element 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, and Black Polyester = M-/B

Temperature Suffix (°F/°C): 165°/74° = C and 205°/96° = E

For example, sprinkler VK601 with a Brass finish and a 165 °F/74 °C temperature rating = Part No. 13969AC

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. 10896W/B (available since 2000)

B. Wrench for coated and/or recessed sprinklers: Part No. 13655W/B†† (available since 2006)

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

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 | QUICK RESPONSE EXTENDED COVERAGE FUSIBLE ELEMENT PENDENT SPRINKLERS VK601 & VK603 |
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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, the heat-sensitive fusible element assembly disengages, releasing the seat and spring assemblies to open the waterway. 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 VK601 and VK603 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.

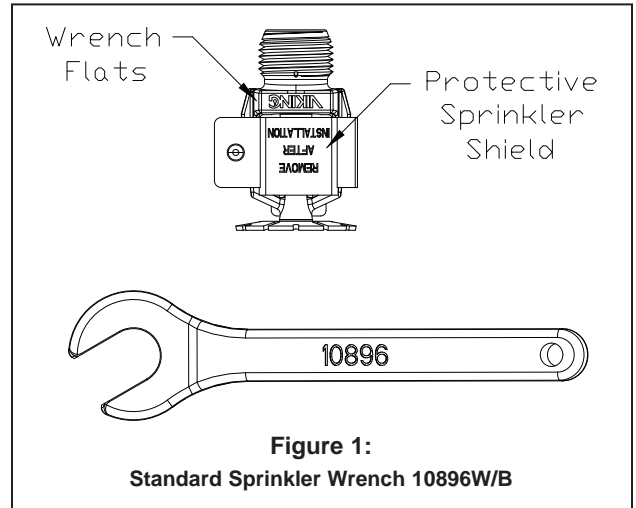


TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

| Sprinkler Temperature Classification | Sprinkler Nominal Temperature Rating ¹ | Maximum Ambient Ceiling Temperature ² | Frame Paint Color |
|--------------------------------------|---|--|-------------------|
| Ordinary | 165 °F (74 °C) | 100 °F (38 °C) | None |
| Intermediate | 205 °F (96 °C) | 150 °F (65 °C) | White |

Sprinkler Finishes: Brass, Chrome-Enloy[®], White Polyester³, and Black Polyester³

Footnotes

- ¹ Decorative sprinklers may not be color coded. The 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 coatings.

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|---|---|-------------|-----|--------|--|----------------------------------|--|
| Approval Chart 1 (UL) Quick Response Extended Coverage Pendent Fusible Element Sprinklers For Light Hazard Occupancies Only. Maximum 175 PSI (12 Bar) WWP | <table border="1" style="border-collapse: collapse;"> <tr> <td style="font-size: small;">Temperature</td> <td style="text-align: center;">KEY</td> </tr> <tr> <td style="font-size: small;">Finish</td> <td></td> </tr> <tr> <td style="font-size: small;">A1X ← Escutcheon (if applicable)</td> <td></td> </tr> </table> | Temperature | KEY | Finish | | A1X ← Escutcheon (if applicable) | |
| Temperature | KEY | | | | | | |
| Finish | | | | | | | |
| A1X ← Escutcheon (if applicable) | | | | | | | |

| Sprinkler Base Part Number ¹ | SIN | NPT Thread Size | | Nominal K-Factor | | Maximum Areas of Coverage ⁴ (Length x Width) | Minimum Water Supply Requirements ⁴ Flow/Pressure | Listings and Approvals ³ (Refer also to Design Criteria below.) | |
|---|-------|-----------------|----|------------------|---------------------|--|---|---|-----------------|
| | | Inches | mm | U.S. | metric ² | | | cULus ⁵ | NYC |
| 14140 | VK603 | 3/4 | 20 | 8.0 | 115.2 | 16' x 16' (4.9 m x 4.9 m) | 26 gpm @ 10.6 psi (98.4 L/min @ 0.73 Bar) | A1Y, B1Z | See Footnote 6. |
| 13969 | VK601 | 1/2 | 15 | 5.6 | 80.6 | 16' x 16' (4.9 m x 4.9 m) | 26 gpm @ 21.6 psi (98.4 L/min @ 1.49 Bar) | A1Y, B1Z | See Footnote 6. |
| 14140 | VK603 | 3/4 | 20 | 8.0 | 115.2 | 18' x 18' (5.5 m x 5.5 m) | 33 gpm @ 17.0 psi (124.9 L/min @ 1.17 Bar) | B1Z | See Footnote 6. |
| 13969 | VK601 | 1/2 | 15 | 5.6 | 80.6 | 18' x 18' (5.5 m x 5.5 m) | 33 gpm @ 34.7 psi (124.9 L/min @ 2.39 Bar) | B1Z | See Footnote 6. |

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|--|--|--|
| Sprinkler Temperature Ratings A - 205 °F (96 °C) B - 165 °F (74 °C) | Approved Finishes 1 - Brass, Chrome-Enloy®, White Polyester, and Black Polyester | Approved Escutcheons Y - Standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon Z - Standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1 or E-2 Recessed Escutcheon |
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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 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 with sprinklers of similar K-factor. Flows and pressures listed are per sprinkler.

⁵ Listed by Underwriter's Laboratories, Inc. for use in the U.S. and Canada for Light Hazard occupancies with smooth, flat, horizontal ceilings only.

⁶ Meets New York City requirements, effective July 1, 2008.

DESIGN CRITERIA - UL
 (Also refer to Approval Chart 1 above.)

cULus Listing Requirements:

QREC Pendent Sprinklers VK601 and VK603 are cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for extended coverage pendent spray sprinklers:

- Limited to Light Hazard occupancies 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.

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.

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|---|--|-------------|------------|--------|----------------------------------|
| Approval Chart 2 (FM) Quick Response Extended Coverage Pendent Fusible Element Sprinklers Maximum 175 PSI (12 Bar) WWP | <table border="1" style="border-collapse: collapse;"> <tr> <td style="font-size: small;">Temperature</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">KEY</td> </tr> <tr> <td style="font-size: small;">Finish</td> </tr> <tr> <td style="font-size: small;">A1X ← Escutcheon (if applicable)</td> </tr> </table> | Temperature | KEY | Finish | A1X ← Escutcheon (if applicable) |
| Temperature | KEY | | | | |
| Finish | | | | | |
| A1X ← Escutcheon (if applicable) | | | | | |

| Sprinkler Base Part Number ¹ | SIN | NPT Thread Size | | Nominal K-Factor | | Maximum Areas of Coverage ⁴ (Length x Width) | Minimum Water Supply Requirements ⁴ Flow/Pressure | FM Approvals ³ (Refer also to Design Criteria below.) | |
|---|-------|--|----|------------------|---------------------|---|---|---|--|
| | | Inches | mm | U.S. | metric ² | | | | |
| 14140 | VK603 | 3/4 | 20 | 8.0 | 115.2 | 16' x 16' (4.9 m x 4.9 m) | 26 gpm @ 10.6 psi (98.4 L/min @ 0.73 Bar) | A1Z | |
| 13969 | VK601 | 1/2 | 15 | 5.6 | 80.6 | 16' x 16' (4.9 m x 4.9 m) | 26 gpm @ 21.6 psi (98.4 L/min @ 1.49 Bar) | A1Z | |
| 14140 | VK603 | 3/4 | 20 | 8.0 | 115.2 | 18' x 18' (5.5 m x 5.5 m) | 33 gpm @ 17.0 psi (124.9 L/min @ 1.17 Bar) | A1Z | |
| 13969 | VK601 | 1/2 | 15 | 5.6 | 80.6 | 18' x 18' (5.5 m x 5.5 m) | 33 gpm @ 34.7 psi (124.9 L/min @ 2.39 Bar) | A1Z | |
| Sprinkler Temperature Rating A - 165 °F (74 °C) | | Approved Finishes 1 - Brass, Chrome-Enloy®, White Polyester, and Black Polyester | | | | Approved Escutcheons Z - Standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1 or E-2 Recessed Escutcheon | | | |

Footnotes

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- 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.
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| DESIGN CRITERIA - FM (Also refer to Approval Chart 2 above.) |
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QREC Sprinklers VK601 and VK603 are FM Approved as quick response **Non-Storage** extended coverage pendent sprinklers as indicated in the FM Approval Guide. 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 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.

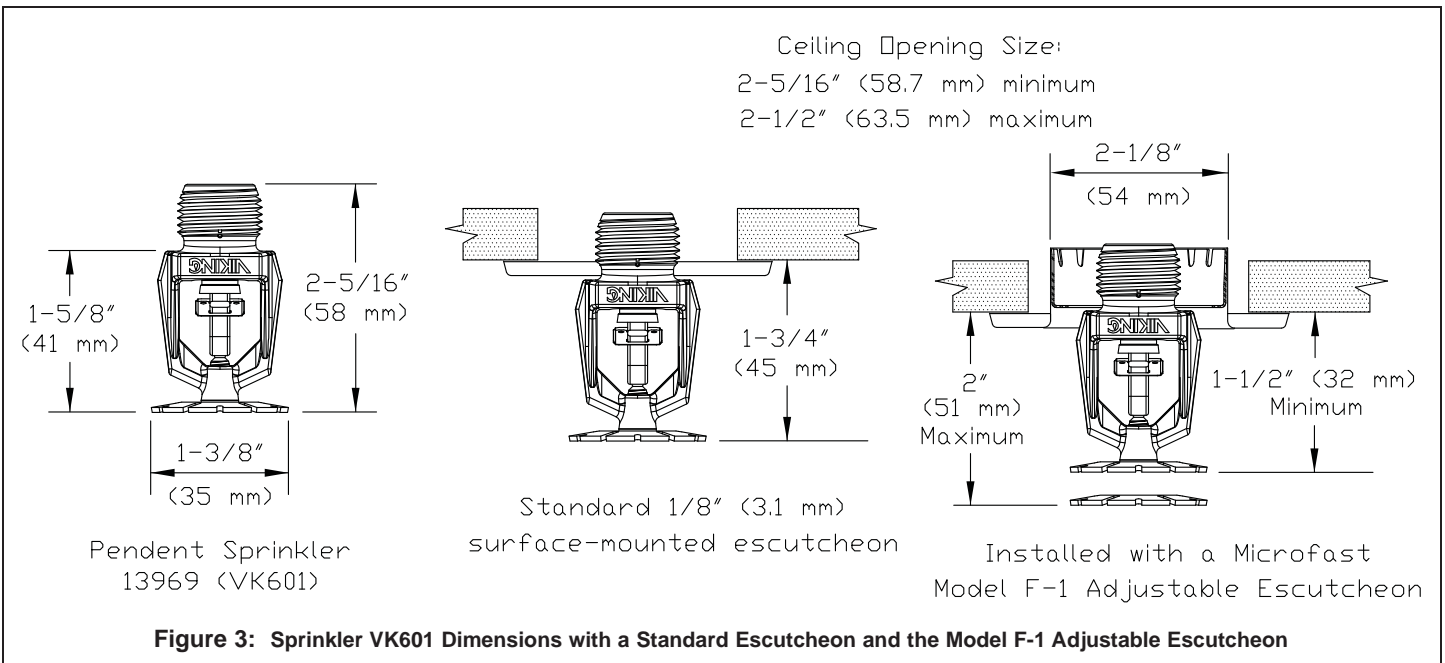
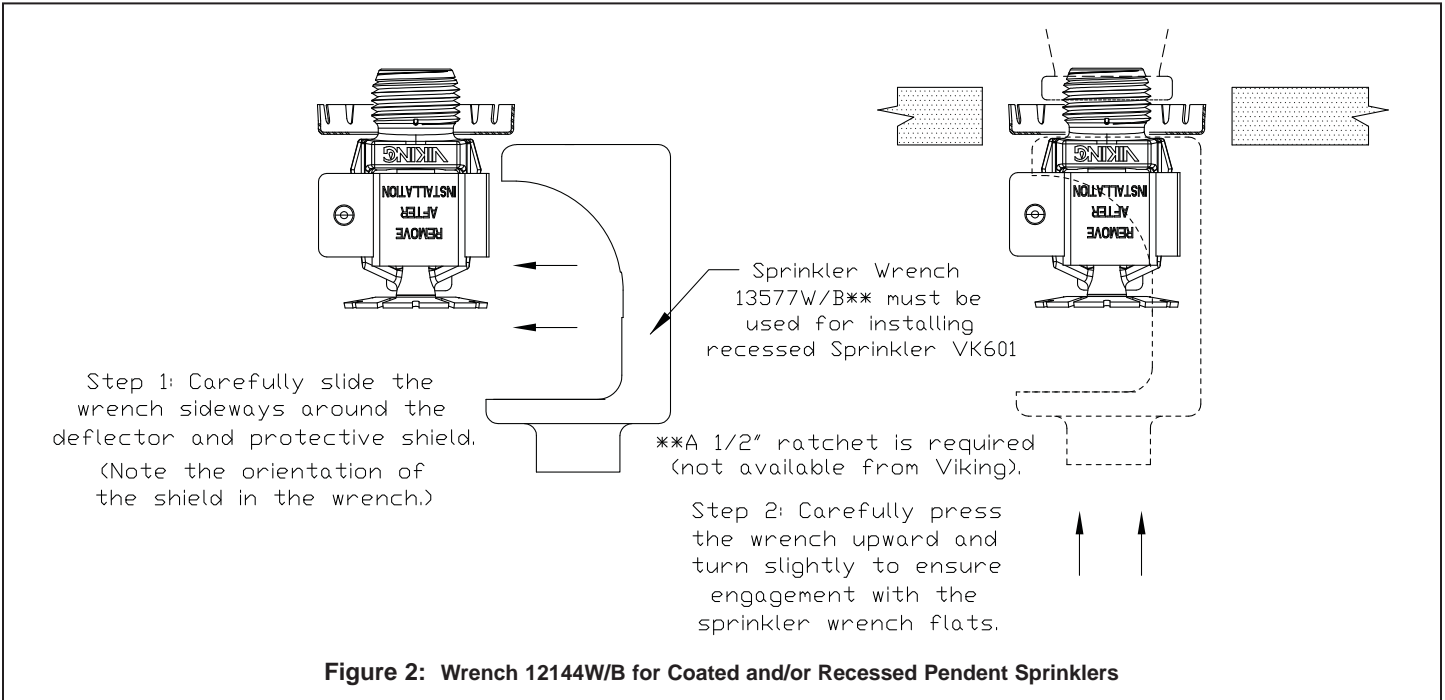


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