



TECHNICAL DATA

MICROFAST® EC/QREC FUSIBLE ELEMENT HSW SPRINKLER VK609 (K5.6)

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 Microfast® EC/QREC Fusible Element Horizontal Sidewall Sprinkler VK609 is a small thermosensitive solder link spray sprinkler available with various finishes and temperature ratings to meet design requirements. The VK609 has both standard response and quick response listings. The fusible operating element and special deflector characteristics meet the challenges of quick response extended coverage standards. The special Polyester and Polytetrafluoroethylene (PTFE) coatings can be used in decorative applications where colors are desired.



2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV

Refer to Approval Chart 1 and Design Criteria 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)
 Deflector (Sprinkler 13949): U.S.A. Patent No. 4,296,816
 Thread Size: 1/2" (15 mm) NPT
 Nominal K-Factor: 5.6 U.S. (80.6 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: 2-11/16" (68 mm)

Material Standards:

Frame Casting: Brass UNS-C84400
 Deflector: Phosphor Bronze UNS-C51000
 Fusible Element Assembly: Nickel Alloy
 Trigger and Support: Stainless Steel UNS-S31600
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape
 Seat and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400
 Screw: Brass UNS-C36000

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

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

Order Quick Response Horizontal Sidewall Fusible Element Sprinkler VK609 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, and Black PTFE = N

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

For example, sprinkler VK609 with a Brass finish and a 165 °F / 74 °C temperature rating = Part No. 13971AC

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 recessed sprinklers with protective shields: Part No. 13655W/B** (available since 2003)

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

Sprinkler Cabinets:

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

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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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

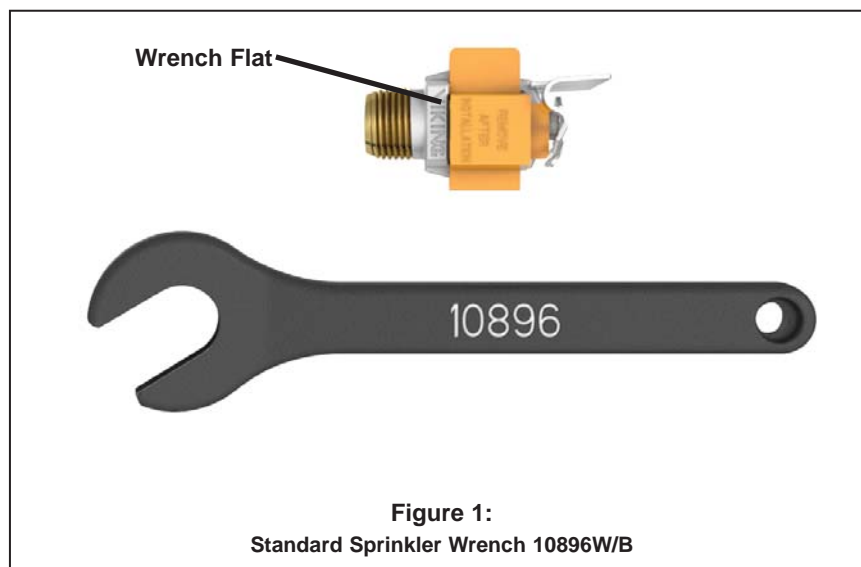
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking Quick Response Horizontal Sidewall 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.





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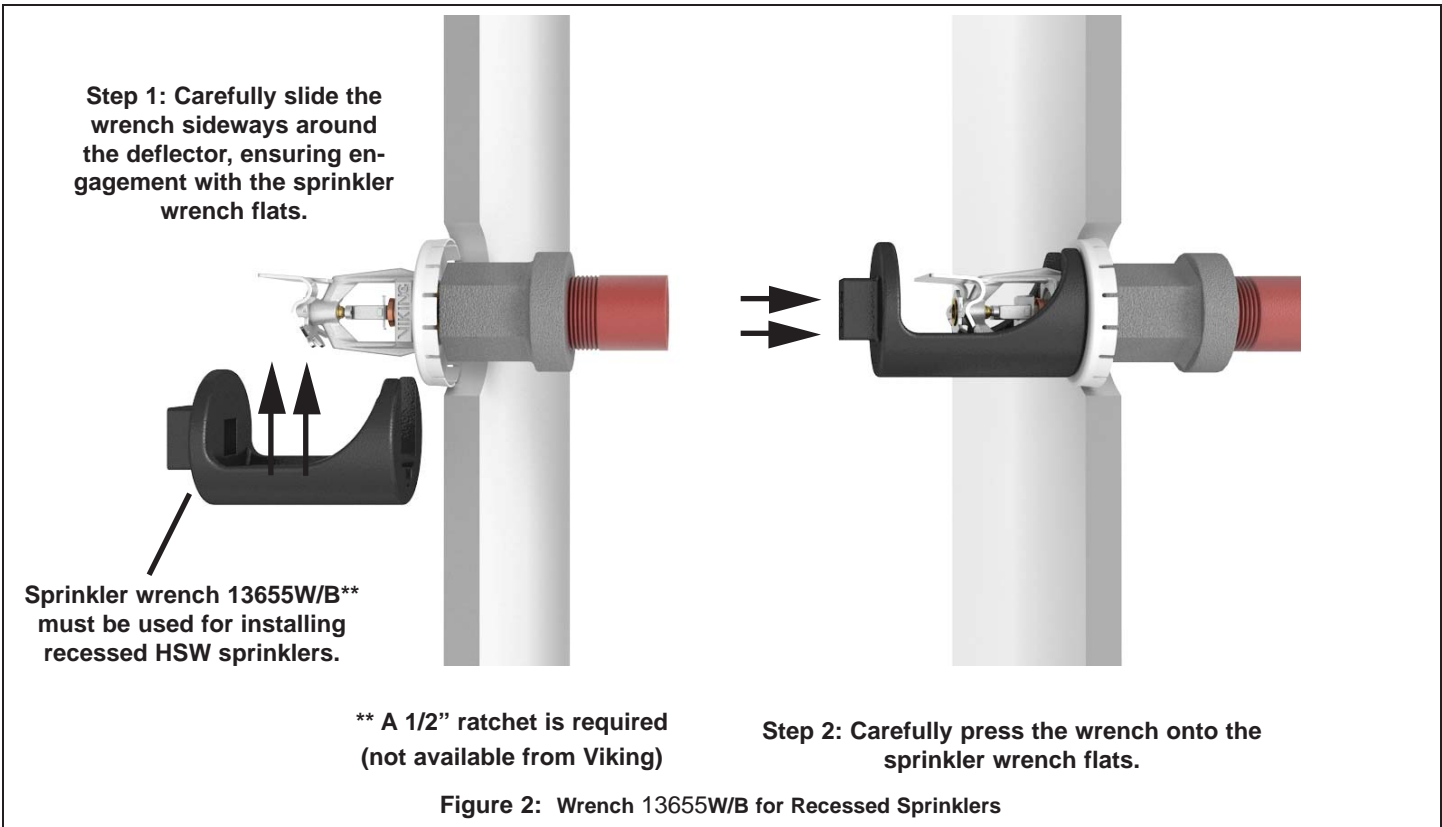
TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

| Sprinkler Temperature Classification | Sprinkler Nominal Temperature Rating ¹ | Maximum Ambient Ceiling Temperature ² | 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, White Polyester³, Black Polyester³, and Black PTFE³

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 and PTFE coatings. For PTFE coated open sprinklers only, the waterway is coated.





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Approval Chart

Microfast® EC/QREC Extended Coverage
Fusible Element HSW Sprinkler VK609
For Light Hazard Occupancies Only.

| | |
|----------------------------------|------------|
| Temperature | KEY |
| Finish | |
| A1X ← Escutcheon (if applicable) | |

| Sprinkler Base Part Number ¹ | SIN | Max. Pressure | NPT Thread Size | | Nominal K-Factor | | Maximum Areas of Coverage ⁷ (Width x Throw) | Minimum Water Supply Requirements ⁷ Flow/Pressure | Listings ³ (Refer also to Design Criteria.) | | |
|---|-------|---------------|---|----|------------------|---------------------|--|---|---|----|-----------------|
| | | | Inches | mm | U.S. | metric ² | | | cULus ⁴ | FM | NYC |
| Sprinkler VK609 (Base Part No. 13971) for Standard Response⁶ Extended Coverage Applications Installed with the deflector located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only. | | | | | | | | | | | |
| 13971 | VK609 | 175 psi | 1/2 | 15 | 5.6 | 80.6 | 16' x 18' (4.9 m x 5.5 m) | 29 gpm @ 26.8 psi (109.8 L/min @ 1.85 Bar) | C1X | -- | See Footnote 5. |
| Sprinkler VK609 (Base Part No. 13971) for Quick Response Extended Coverage Applications Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only. | | | | | | | | | | | |
| 13971 | VK609 | 175 psi | 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) | A1X | -- | See Footnote 5. |
| 13971 | VK609 | 175 psi | 1/2 | 15 | 5.6 | 80.6 | 16' x 18' (4.9 m x 5.5 m) | 29 gpm @ 26.8 psi (109.8 L/min @ 1.85 Bar) | B1X | -- | See Footnote 5. |
| Sprinkler VK609 (Base Part No. 13971) for Quick Response - QREC Specific Application - Maximum 175 PSI WWP For Installation with the deflector located 4" to 6" (102 mm to 152 mm) below sloped⁸ ceilings with slopes from 2/12 through 4/12 (9.5° to 18.4°) pitch. Sprinkler must be located at the high-point intersection of the wall and the ceiling with spray directed down the slope. Refer to Figure 6. | | | | | | | | | | | |
| 13971 | VK609 | 175 psi | 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) | A1X | -- | See Footnote 5. |
| 13971 | VK609 | 175 psi | 1/2 | 15 | 5.6 | 80.6 | 16' x 18' (4.9 m x 5.5 m) | 29 gpm @ 26.8 psi (109.8 L/min @ 1.85 Bar) | B1X | -- | See Footnote 5. |
| Approved Temperature Ratings A - 165 °F (74 °C) and 205 °F (96 °C) B - 165 °F (74 °C) C - 205 °F (96 °C) | | | Approved Finishes 1 - Brass, Chrome, White Polyester, Black Polyester, and Black PTFE | | | | Approved Escutcheons X - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon®, or recessed with the Viking Micromatic® Model E-1, E-2, or G-1 Recessed Escutcheon Y - Recessed with the Micromatic® Model E-1 Recessed Escutcheon only | | | | |

Footnotes

- ¹ Base part number is shown. For complete part number, refer to current Viking price list schedule.
- ² Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in bar, multiply the metric K-factor by 10.0.
- ³ This chart shows listings and approvals available at time of printing. Check with the manufacturer for any additional approvals.
- ⁴ Listed by Underwriter's Laboratories, Inc. for use in Canada.
- ⁵ Meets New York City requirements, effective July 1, 2008.
- ⁶ Listings and Approvals are limited to Light Hazard Occupancies where allowed by the installation standards being applied.
- ⁷ For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" for the next larger listed area of coverage with sprinklers of similar K-Factor.
- ⁸ Listed area of coverage measured along ceiling slope. Consult Figure 6 for installation notes.



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DESIGN CRITERIA

(Also refer to the Approval Chart.)

cULus Listing Requirements: Microfast® EC/QREC Horizontal Sidewall Sprinkler VK609 is cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for extended coverage sidewall spray sprinklers:

- Sprinkler VK609 is cULus Listed for Light Hazard occupancies with smooth, flat, horizontal ceilings. Sprinkler VK609 is also listed for ceilings with slopes to 4/12 (18.4°), as a QREC “Specific Application Sprinkler”.
- For sprinkler VK609 in sloped ceiling applications, Sections 11.2.3.2.3 and 11.2.3.2.4 of the 2007 Edition of NFPA-13 do not apply regarding System Area of Operation. Sprinkler VK609 should be installed according to the areas of coverage, and flows and pressures listed in the Approval Chart.
- In sloped ceiling installations, sprinkler VK609 is listed for installation at the high-point intersection of the wall and the ceiling. In sloped ceiling installations, the spray must be directed down the slope. Spray may NOT be directed across the slope. Refer to Figure 6.
- Listed area of coverage for sloped ceilings corresponds to ceiling slope. (For sloped ceiling applications, actual floor coverage will be less than the listed area.)
- Refer to the Approval Chart for required deflector distance below the ceiling. Install with the leading edge of the deflector oriented parallel to the ceiling (see Figure 6).
- Minimum distance from end walls is 4 in. (102 mm).
- Maximum distance from the end wall 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 sidewall 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, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

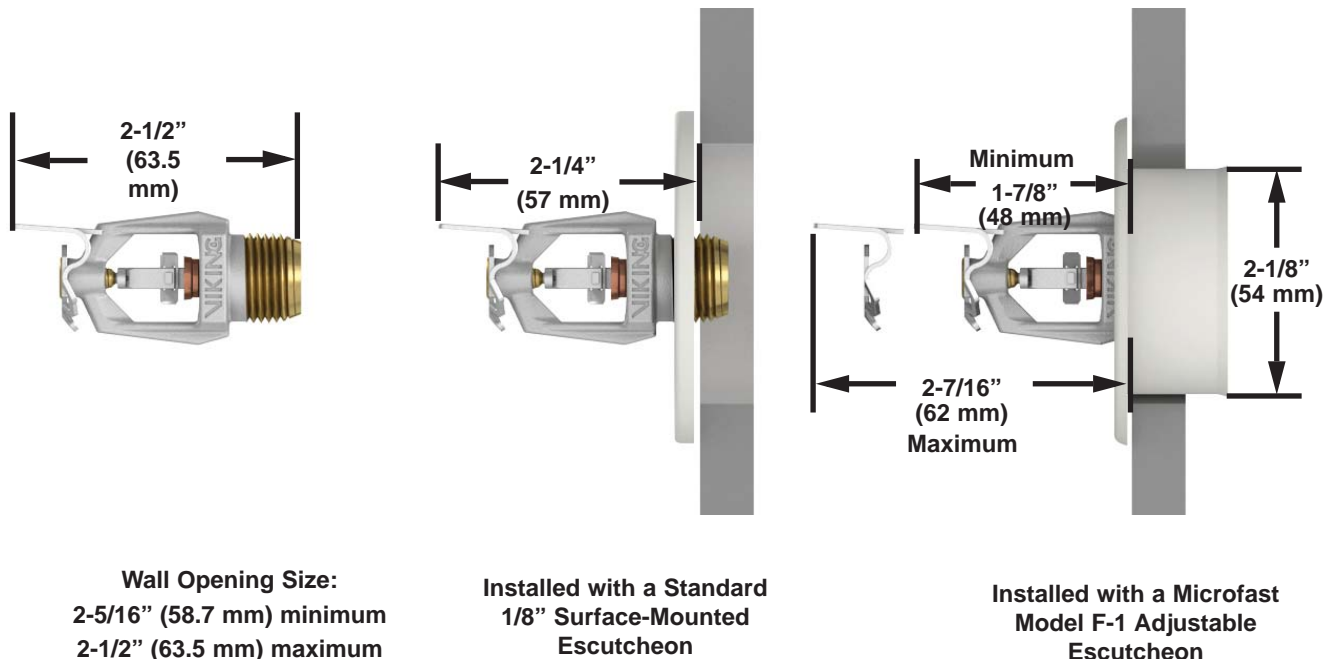


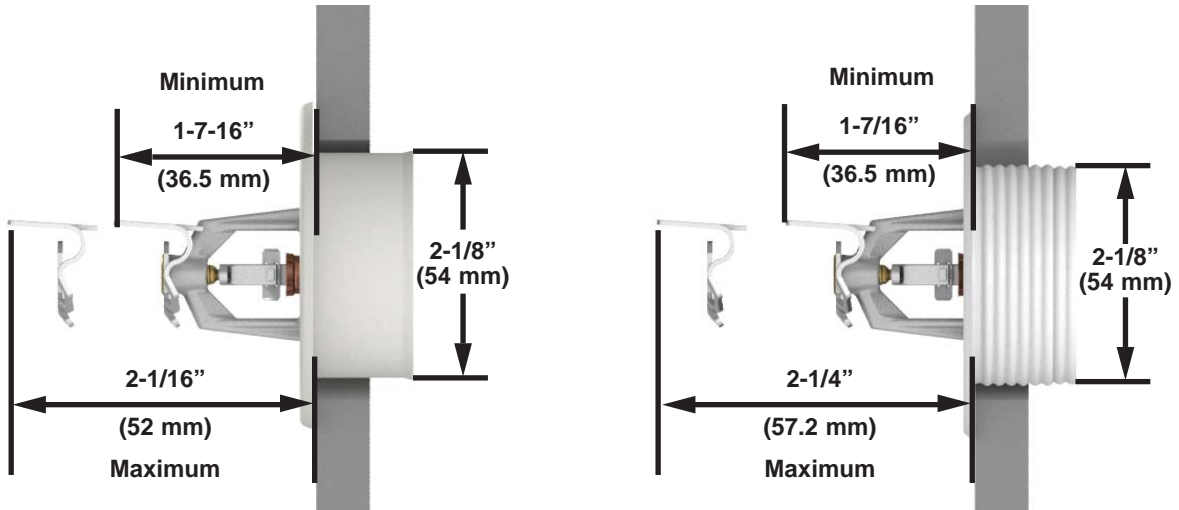
Figure 3: Sidewall Sprinkler Dimensions with a Standard Escutcheon and the Model F-1 Adjustable Escutcheon



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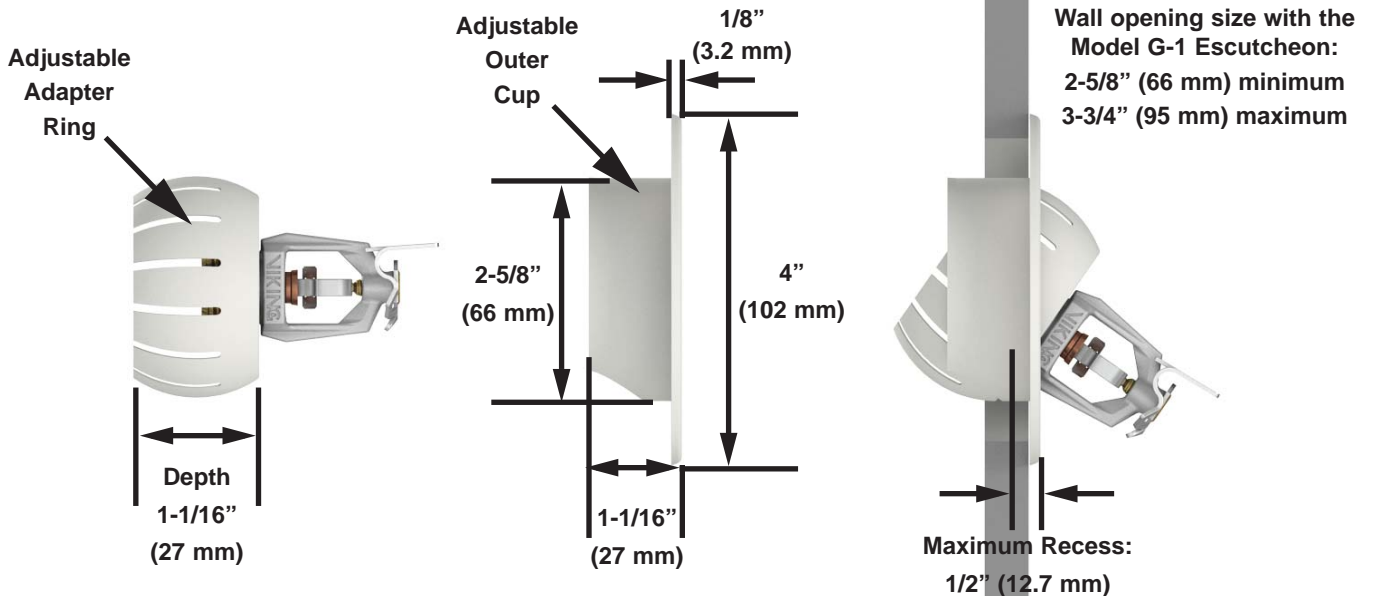


Wall Opening Size:
2-5/16" (58.7 mm) minimum
2-1/2" (63.5 mm) maximum

Installed with the
Micromatic Model E-1
Recessed Escutcheon

Installed with the
Threaded Model E-2
Recessed Escutcheon

Figure 4: Sidewall Sprinkler Dimensions with the Model E-1 and E-2 Recessed Escutcheons



Wall opening size with the
Model G-1 Escutcheon:
2-5/8" (66 mm) minimum
3-3/4" (95 mm) maximum

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

Step 2: Carefully press the wrench onto the
sprinkler wrench flats.

Figure 5: Sidewall Sprinkler Dimensions with the Model G-1 Escutcheon



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NOTES:

1. In sloped ceiling installations, sprinkler is listed for installation at the high-point intersection of the wall and the ceiling. In sloped ceiling installations, the spray must be directed down the slope. Spray may NOT be directed across the slope.

2. Listed area of coverage for sloped ceilings corresponds to ceiling slope. (For sloped ceiling applications, actual floor coverage will be less than the listed area.)

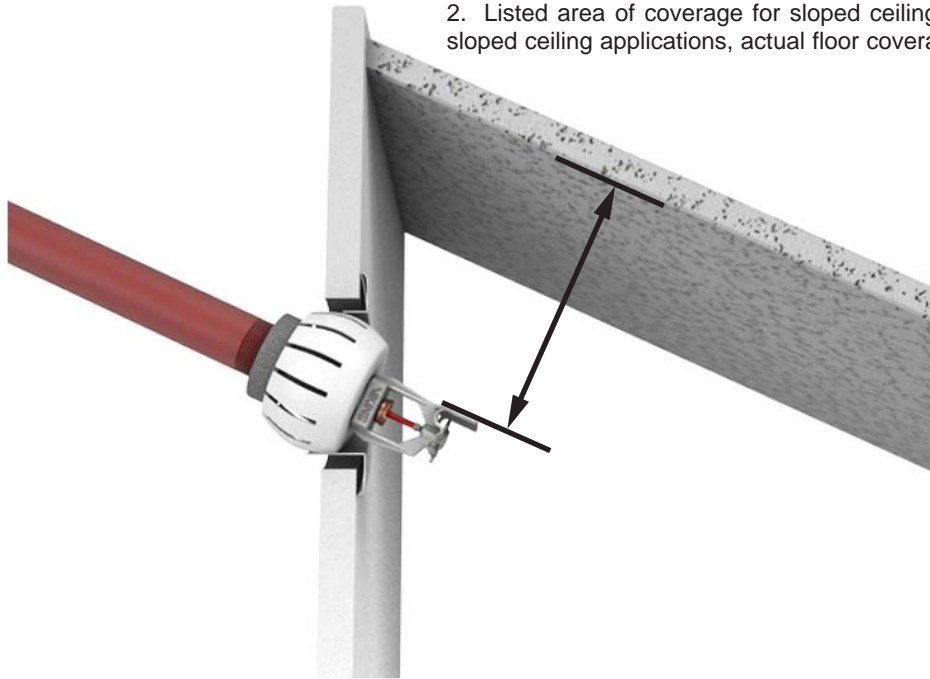


Figure 6: Model G-1 Recessed Escutcheon Installed with an EC HSW Sprinkler below a sloped ceiling.