



## TECHNICAL DATA

### MICROFAST® AND MicrofastHP® EC/QREC FUSIBLE ELEMENT HSW SPRINKLERS VK609 & VK613

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 Microfast® and MicrofastHP® EC/QREC HSW Sprinklers VK609 and VK613 are thermosensitive solder link spray sprinklers available in several different finishes and temperature ratings to meet varying design requirements. These sprinklers have both standard response and quick response listings. 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 and Teflon® coatings can be used in decorative applications where colors are desired.

#### 2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

**NOTE: Sprinkler VK609 is cULus Listed as a QREC Specific Application Sprinkler for use below sloped ceilings with slopes up to 4/12.**

Refer to the Approval Chart on page 91j and Design Criteria on page 91k for cULus Listing requirements that must be followed.

#### 3. TECHNICAL DATA

##### Specifications:

Available since 2007.

Minimum Operating Pressure: Refer to the Approval Chart.

**Maximum Working Pressure: Sprinkler VK613 is rated to a maximum 250 psi (17 bar) wwp for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating "250" stamped on the deflector. Sprinkler VK609 is rated to a maximum 175 psi (12 bar) wwp.**

Factory tested hydrostatically to 500 psi (34.5 bar).

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

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:

Sprinkler Frame: 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 Teflon Tape

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

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 Microfast® and MicrofastHP® EC/QREC HSW Sprinklers VK609 and VK613 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.

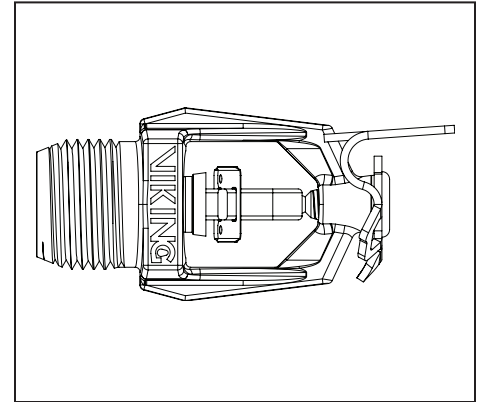
Finish Suffix: Brass = A, Chrome-Enloy® = F, White Polyester = M-/W, Black Polyester = M-/B, and Black Teflon® = N

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



For Light Hazard Occupancies Only

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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**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 ½” 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 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**

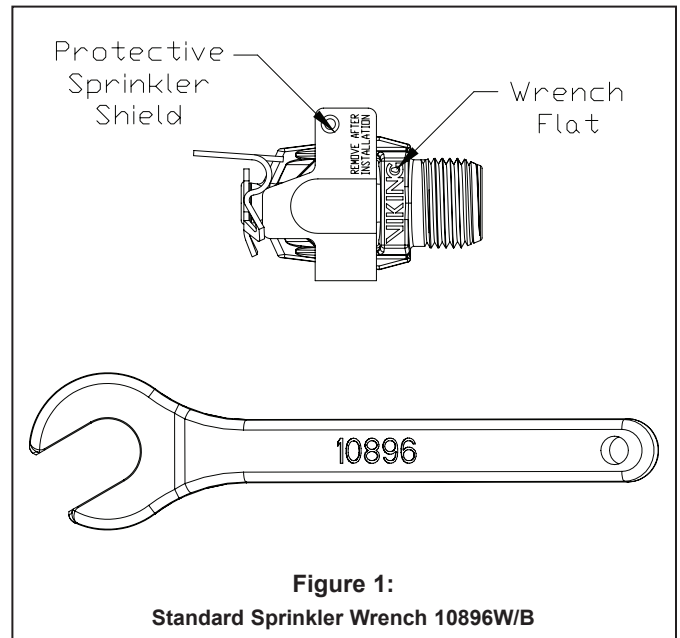
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

**7. AVAILABILITY**

The Viking Model VK609 and VK613 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.



**Figure 1:  
Standard Sprinkler Wrench 10896W/B**

**TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES**

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	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 Polyester<sup>3</sup>, Black Polyester<sup>3</sup>, and Black Teflon<sup>®3</sup>

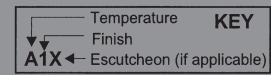
**Footnotes**

- <sup>1</sup> The sprinkler temperature rating is stamped on the deflector.
- <sup>2</sup> 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.
- <sup>3</sup> 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 Teflon® coatings.

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p><b>MICROFAST® AND MicrofastHP® EC/QREC FUSIBLE ELEMENT HSW SPRINKLERS VK609 &amp; VK613</b></p>
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Approval Chart											
Microfast® and MicrofastHP® EC/QREC Extended Coverage Fusible Element HSW Sprinklers VK609 and VK613 For Light Hazard Occupancies Only.											
Sprinkler Base Part Number <sup>1</sup>	SIN	Max. Pressure	NPT Thread Size		Nominal K-Factor		Maximum Areas of Coverage <sup>7</sup> (Width x Throw)	Minimum Water Supply Requirements <sup>7</sup> Flow/Pressure	Listings <sup>3</sup> (Refer also to Design Criteria on page 91k.)		
			Inches	mm	U.S.	metric <sup>2</sup>			cULus <sup>4</sup>	FM	NYC
<b>Sprinkler VK609 (Base Part No. 13971) for Standard Response<sup>6</sup> Extended Coverage Applications Installed with the deflector located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only.</b>											
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.
13971	VK609	175 psi	1/2	15	5.6	80.6	16' x 20' (4.9 m x 6.1 m)	32 gpm @ 32.7 psi (121.1 L/min @ 2.25 Bar)	B1Y	--	See Footnote 5.
<b>HP Sprinkler VK613 (Base Part No. 13973) for Standard Response<sup>6</sup> Extended Coverage Applications Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only.</b>											
13973	VK613	250 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.
13973	VK613	250 psi	1/2	15	5.6	80.6	16' x 20' (4.9 m x 6.1 m)	32 gpm @ 32.7 psi (121.1 L/min @ 2.25 Bar)	A1X	--	See Footnote 5.
<b>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.</b>											
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.
<b>HP Sprinkler VK613 (Base Part No. 13973) 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.</b>											
13973	VK613	250 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.
13973	VK613	250 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.
<b>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 sloped<sup>8</sup> 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 on page 91m.</b>											
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.
<b>Approved Temperature Ratings</b> A - 165 °F (74 °C) and 205 °F (96 °C) B - 165 °F (74 °C) C - 205 °F (96 °C)			<b>Approved Finishes</b> 1-Brass, Chrome-Enloy®, White Polyester, Black Polyester, and Black Teflon®				<b>Approved Escutcheons</b> 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				
<b>Footnotes</b>											
<sup>1</sup> Base part number is shown. For complete part number, refer to current Viking price list schedule. <sup>2</sup> 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. <sup>3</sup> This chart shows listings and approvals available at time of printing. Check with the manufacturer for any additional approvals. <sup>4</sup> Listed by Underwriter's Laboratories, Inc. for use in Canada. <sup>5</sup> Meets New York City requirements, effective July 1, 2008. <sup>6</sup> Listings and Approvals are limited to Light Hazard Occupancies where allowed by the installation standards being applied. <sup>7</sup> 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. <sup>8</sup> Listed area of coverage measured along ceiling slope. Consult Figure 6 for installation notes.											





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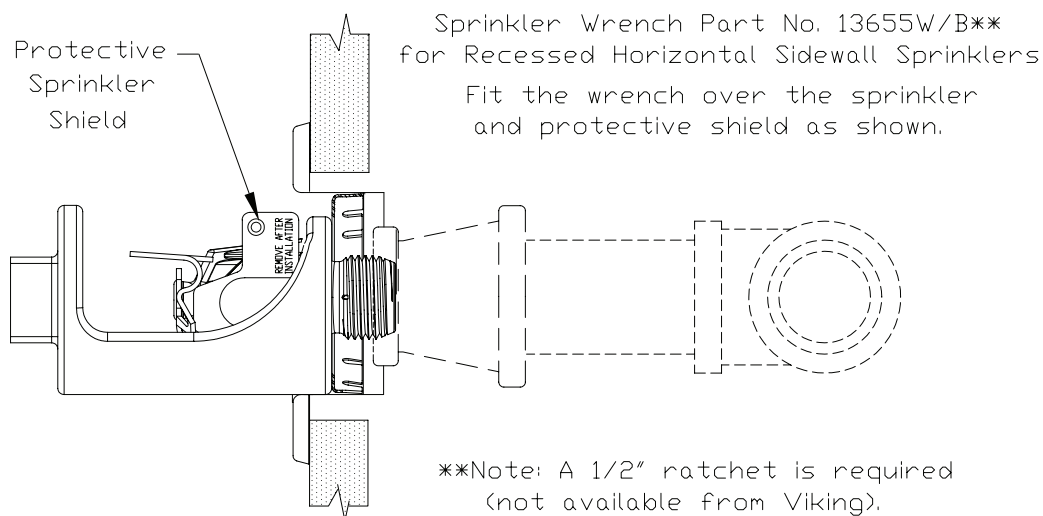
### DESIGN CRITERIA

(Also refer to the Approval Chart on page 91j.)

**cULus Listing Requirements:** Microfast® and MicrofastHP® EC/QREC Horizontal Sidewall Sprinklers VK609 and HP VK613 are 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 VK613 is limited to Light Hazard occupancies with smooth, flat, horizontal ceilings only.
- 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 on page 91j.
- 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 2: Wrench 13655W/B for Recessed Horizontal Sidewall Sprinklers**

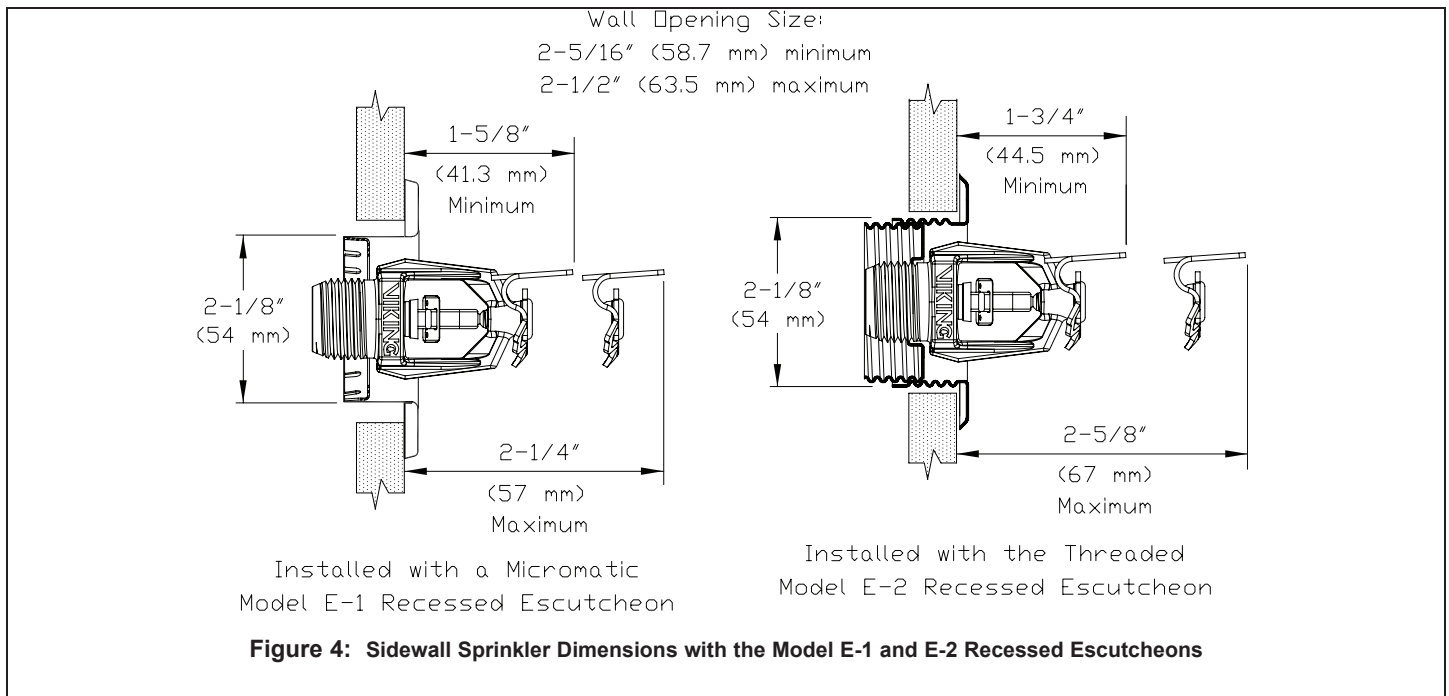
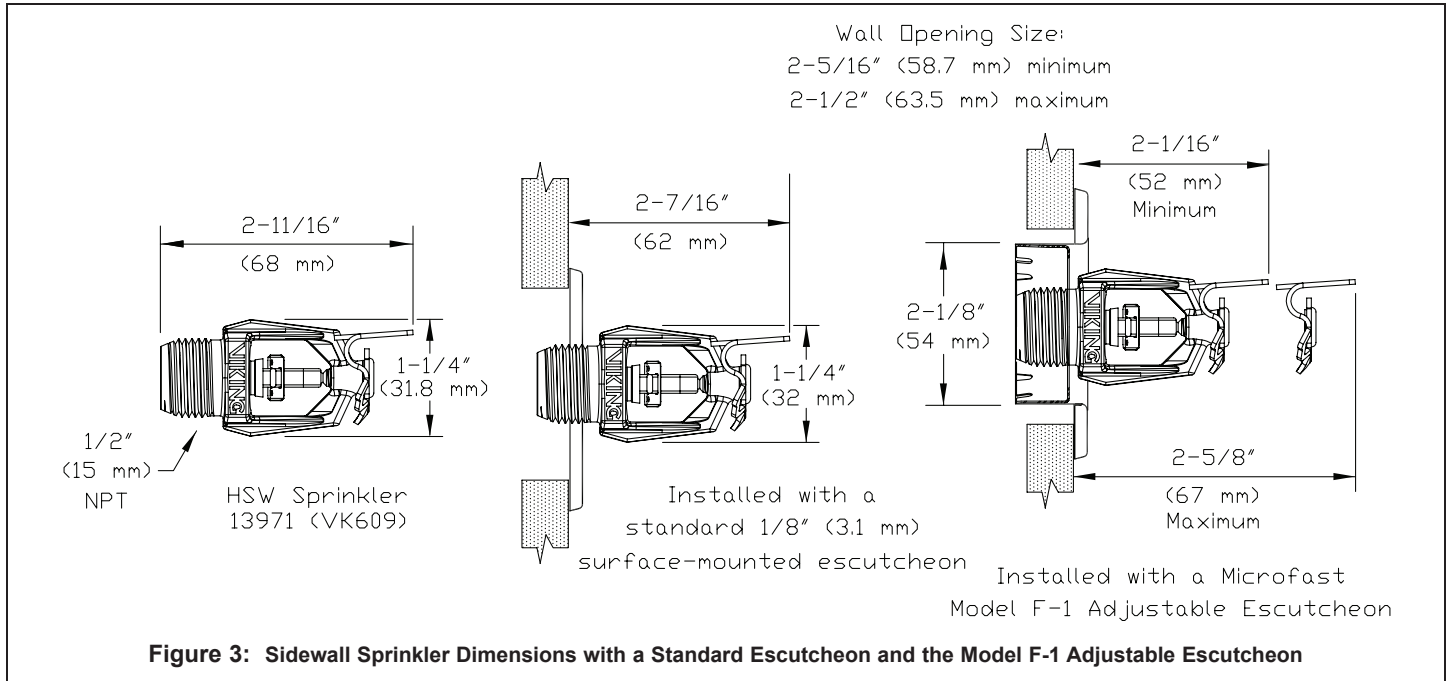


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