



TECHNICAL DATA

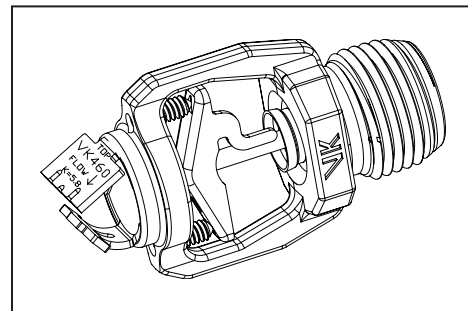
FREEDOM® RESIDENTIAL HORIZONTAL SIDEWALL SPRINKLER VK460 (K5.8)

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 Freedom® Residential Horizontal Sidewall Sprinkler VK460 is a small, thermosensitive, glass-bulb residential sprinkler available in several different finishes and temperature ratings to meet varying design requirements. The orifice design, with a K-Factor of 5.8 (83.6 metric†), allows efficient use of available water supplies for the hydraulically designed fire-protection system. The glass bulb operating element and special deflector characteristics meet the challenges of residential sprinkler standards.



2. LISTINGS AND APPROVALS



UL Listed (C-UL-US-EU): Category VKKW

Refer to the Approval Chart and Design Criteria for C-UL-US-EU Listing requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 2007.

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: 1/2" (15 mm) NPT

Nominal K-Factor: 5.8 U.S. (83.6 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: 2-1/2" (63.5 mm)

Covered by the following US Patent Nos.: 7,854,269 and 7,712,218

Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Brass UNS-C23000 or Phosphor Bronze UNS-C51000

Bulb: Glass, nominal 3 mm diameter

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

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

Compression Screws: 18-8 Stainless Steel

Yoke: Phosphor Bronze UNS-C51000

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

Sprinkler: Base Part No. 13933

Order Sprinkler VK460 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, and Black Polyester = M-/B

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

For example, sprinkler VK460 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 13933AB.

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).

Sprinkler Cabinets:

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

B. Twelve-head capacity: Part No. 01725A (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.

| | | |
|---|-----------------------|--|
|  | TECHNICAL DATA | FREEDOM® RESIDENTIAL HORIZONTAL SIDEWALL SPRINKLER VK460 (K5.8) |
|---|-----------------------|--|

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NOTE: Not for use with the Viking Residential Sprinkler Extension.

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the yoke, 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 VK460 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 |
|--------------------------------------|---|--|------------|
| 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, and Black Polyester

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.

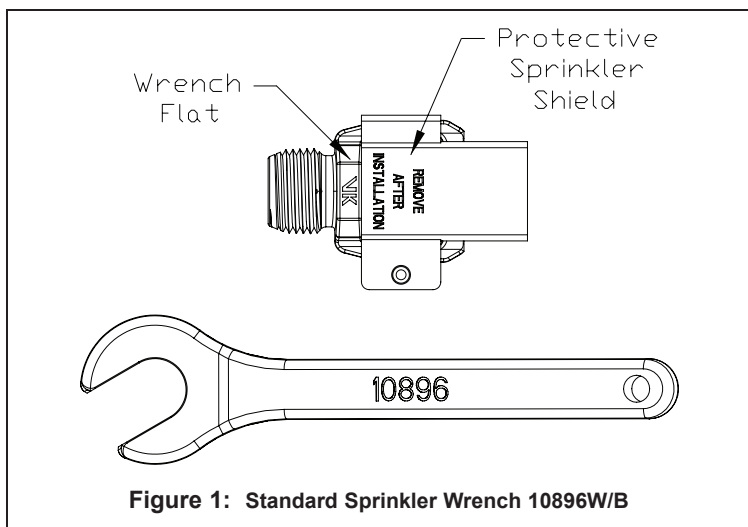


Figure 1: Standard Sprinkler Wrench 10896W/B



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Approval Chart
Viking VK460, 5.8 K-Factor Residential Horizontal Sidewall Sprinkler

For systems designed to NFPA 13D or NFPA 13R. For systems designed to NFPA 13, refer to the design criteria. For Ceiling types refer to NFPA 13, 13R or 13D 2013 Editions

| 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 | | | |
| 13933 | VK460 | 1/2 | 15 | 5.8 | 83.6 | 175 psi (12 bar) | 2-1/2 | 63.5 | | | |
| Max. Coverage Area ³ Width X Length Ft. X Ft. (m X m) | Max. Spacing Ft. (m) | Ordinary Temp Rating (155 °F/68 °C) | | Intermediate Temp Rating (175 °F/79 °C) | | Top of Deflector to Ceiling | Installation Type | Listings and Approvals ⁴ | | | Minimum Spacing Ft. (m) |
| | | Flow ³ GPM (L/min) | Pressure ³ PSI (bar) | Flow ³ GPM (L/min) | Pressure ³ PSI (bar) | | | cUL ⁵ US EU | NYC | NSF ⁸ | |
| 12 X 12 (3.7 X 3.7) | 12 (3.7) | 16 (60.6) | 7.6 (0.52) | 16 (60.6) | 7.6 (0.52) | 4 to 6 inches | 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, or G-1 Adjustable Escutcheon | See Footnote 7 | See Footnote 6 | See Footnote 7 | 8 (2.4) |
| 14 X 14 (4.3 X 4.3) | 14 (4.3) | 16 (60.6) | 7.6 (0.52) | 16 (60.6) | 7.6 (0.52) | | | | | | |
| 16 X 16 (4.9 X 4.9) | 16 (4.9) | 20 (75.7) | 11.9 (0.82) | 21 (79.5) | 13.1 (0.90) | | | | | | |
| 16 X 18 (4.9 X 5.5) | 16 (4.9) | 22 (83.3) | 14.4 (0.99) | 22 (83.3) | 14.4 (0.99) | | | | | | |
| 16 X 20 (4.9 X 6.1) | 16 (4.9) | 26 (98.4) | 20.1 (1.39) | 26 (98.4) | 20.1 (1.39) | | | | | | |
| 16 X 22 (4.9 X 6.7) | 16 (4.9) | 31 (117.3) | 28.6 (1.97) | -- | -- | | | | | | |
| 18 X 18 (5.5 X 5.5) | 18 (5.5) | 23 (87.1) | 15.7 (1.1) | 23 (87.1) | 15.7 (1.1) | | | | | | |
| 18 X 20 (5.5 X 6.1) | 18 (5.5) | 29 (109.8) | 25.0 (1.7) | 29 (109.8) | 25.0 (1.7) | | | | | | |
| 20 X 20 (6.1 X 6.1) | 20 (6.1) | 30 (113.6) | 26.8 (1.8) | 30 (113.6) | 26.8 (1.8) | | | | | | |
| 16 X 24 (4.9 X 7.3) | 16 (4.9) | 38 (143.8) | 42.9 (2.96) | -- | -- | | | | | | |
| 14 X 26 (4.3 X 7.9) | 14 (4.3) | 42 (159) | 52.4 (3.62) | -- | -- | 6 to 12 inches | Standard surface-mounted escutcheons only | See Footnote 7 | See Footnote 6 | See Footnote 7 | |
| 12 X 12 (3.7 X 3.7) | 12 (3.7) | 16 (60.6) | 7.6 (0.52) | 16 (60.6) | 7.6 (0.52) | | | | | | |
| 14 X 14 (4.3 X 4.3) | 14 (4.3) | 18 (68.1) | 9.7 (0.67) | 18 (68.1) | 9.7 (0.67) | | | | | | |
| 16 X 16 (4.9 X 4.9) | 16 (4.9) | 24 (90.8) | 17.1 (1.2) | 24 (90.8) | 17.1 (1.2) | | | | | | |
| 16 X 18 (4.9 X 5.5) | 16 (4.9) | 27 (102.2) | 21.7 (1.49) | 27 (102.2) | 21.7 (1.49) | | | | | | |
| 16 X 20 (4.9 X 6.1) | 16 (4.9) | 32 (121.1) | 30.4 (2.1) | 32 (121.1) | 30.4 (2.1) | | | | | | |
| 16 X 22 (4.9 X 6.7) | 16 (4.9) | 37 (140.1) | 40.7 (2.81) | -- | -- | | | | | | |
| 18 X 18 (5.5 X 5.5) | 18 (5.5) | 29 (109.8) | 25.0 (1.7) | 29 (109.8) | 25.0 (1.7) | | | | | | |
| 18 X 20 (5.5 X 6.1) | 18 (5.5) | 35 (132.5) | 36.4 (2.51) | 35 (132.5) | 36.4 (2.51) | | | | | | |
| 20 X 20 (6.1 X 6.1) | 20 (6.1) | 36 (136.3) | 38.5 (2.66) | 36 (136.3) | 38.5 (2.66) | | | | | | |
| 16 X 24 (4.9 X 7.3) | 16 (4.9) | 42 (159) | 52.4 (3.62) | -- | -- | | | | | | |
| 14 X 26 (4.3 X 7.9) | 14 (4.3) | 46 (174.1) | 62.9 (4.34) | -- | -- | | | | | | |

Footnotes

- ¹ Part number shown is the base part number. For complete part number, refer to Viking's current price 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 For areas of coverage smaller than shown, use the "Flow" and "Pressure" for the next larger area listed. Flows and pressures listed are per sprinkler. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the minimum "Flow" and "Pressure" used.
- ⁴ 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. Refer also to Design Criteria.
- ⁵ Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.
- ⁶ Meets New York City requirements, effective July 1, 2008.
- ⁷ Approved Finishes are: Brass, Chrome, White Polyester, and Black Polyester ⁹
- ⁸ UL Classified to NSF/ANSI Standard 61, Drinking Water System Components (MH48034)
- ⁹ Other paint colors are available on request with the same C-UL-US-EU listings as the standard finish colors.

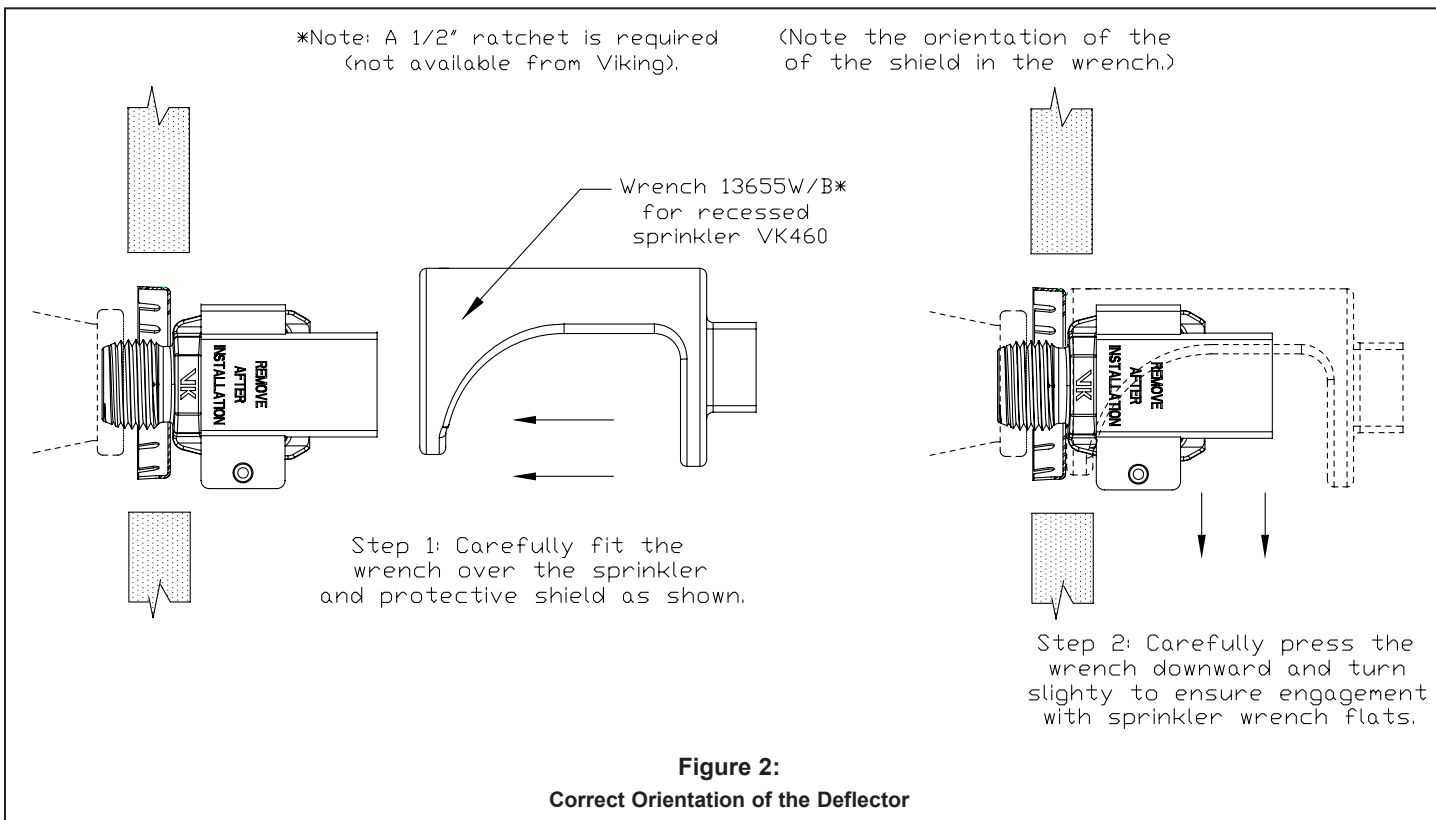


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DESIGN CRITERIA

(Also refer to the Approval Chart.)

UL Listing Requirements (C-UL-US-EU):

When using Viking Residential Sprinkler VK460 for systems designed to NFPA 13D or NFPA 13R, apply the listed areas of coverage and minimum water supply requirements shown in the Approval Chart.

For systems designed to NFPA 13: The number of design sprinklers is to be the four contiguous most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in the Approval Chart for NFPA 13D and NFPA13R applications for each listed area of coverage, or
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the "design area" in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).
- The VK460 horizontal sidewall sprinkler deflector shall be located a minimum of 1-3/8" (35 mm) and a maximum of 6" (152 mm) from the wall on which it is installed.

DEFLECTOR POSITION: Install sprinkler VK460 with the leading edge of the deflector oriented parallel to the ceiling and the sprinkler frame arms oriented perpendicular to the ceiling (see Figure 3). **THE TOP SURFACE OF THE DEFLECTOR IS MARKED "TOP"**. The sprinkler must be oriented as shown in Figure 3.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to pages RES1-17 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 and any other similar Authorities Having Jurisdiction, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. Final approval and acceptance of all residential sprinkler installations must be obtained from the Authorities Having Jurisdiction.

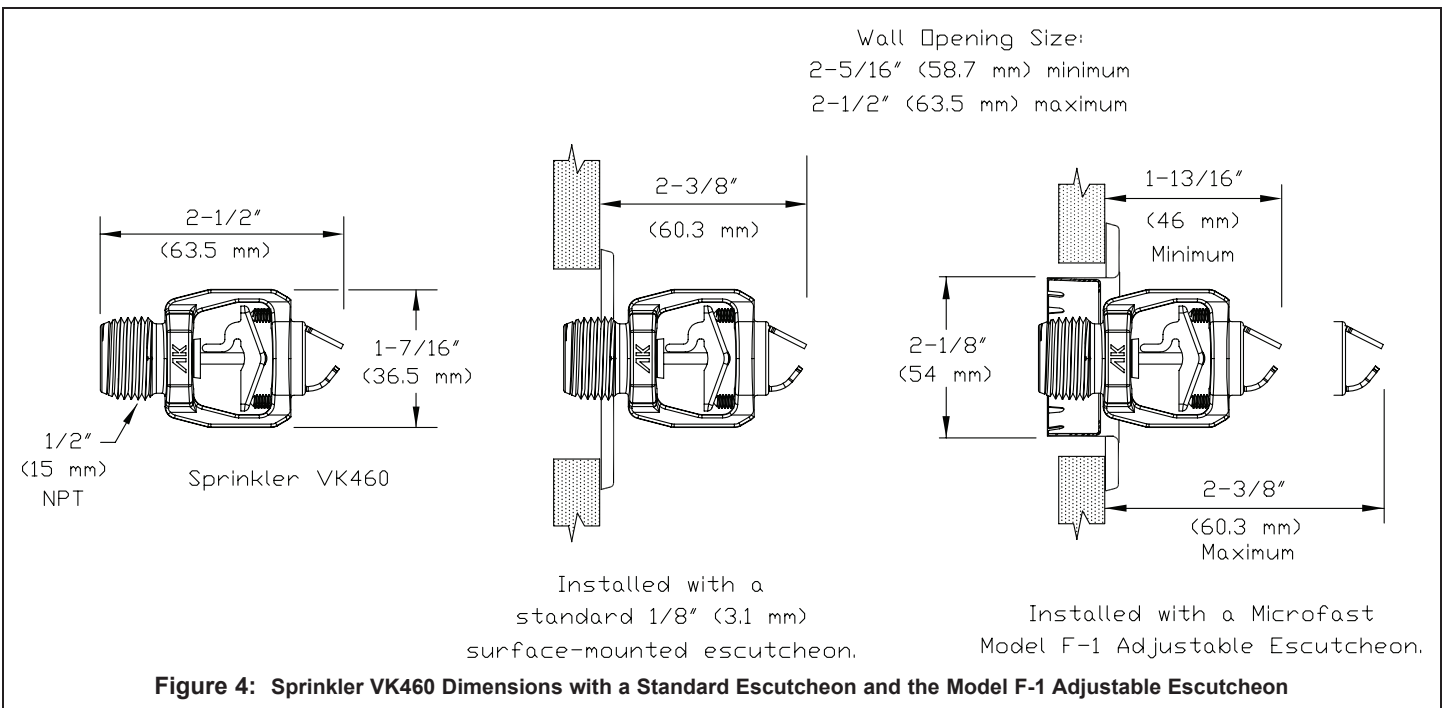
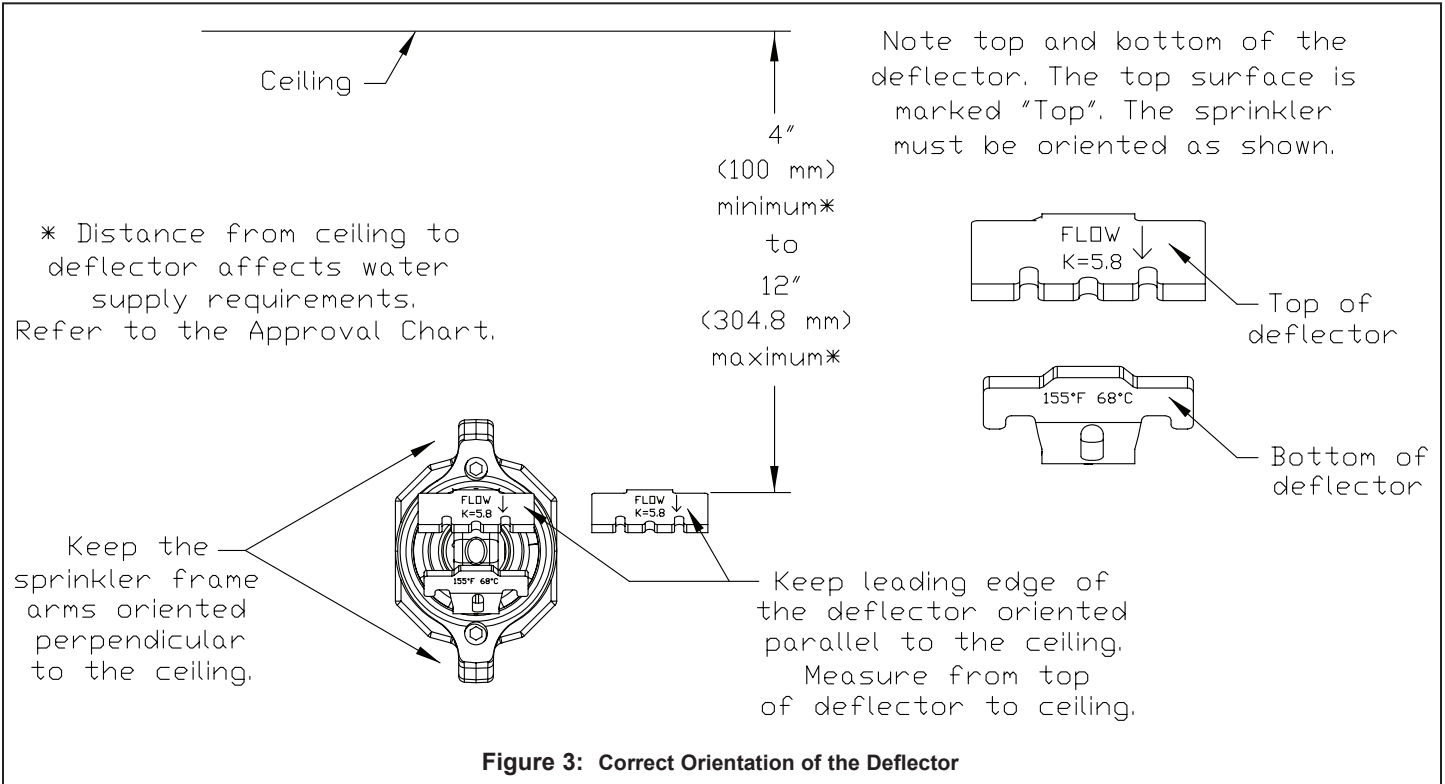


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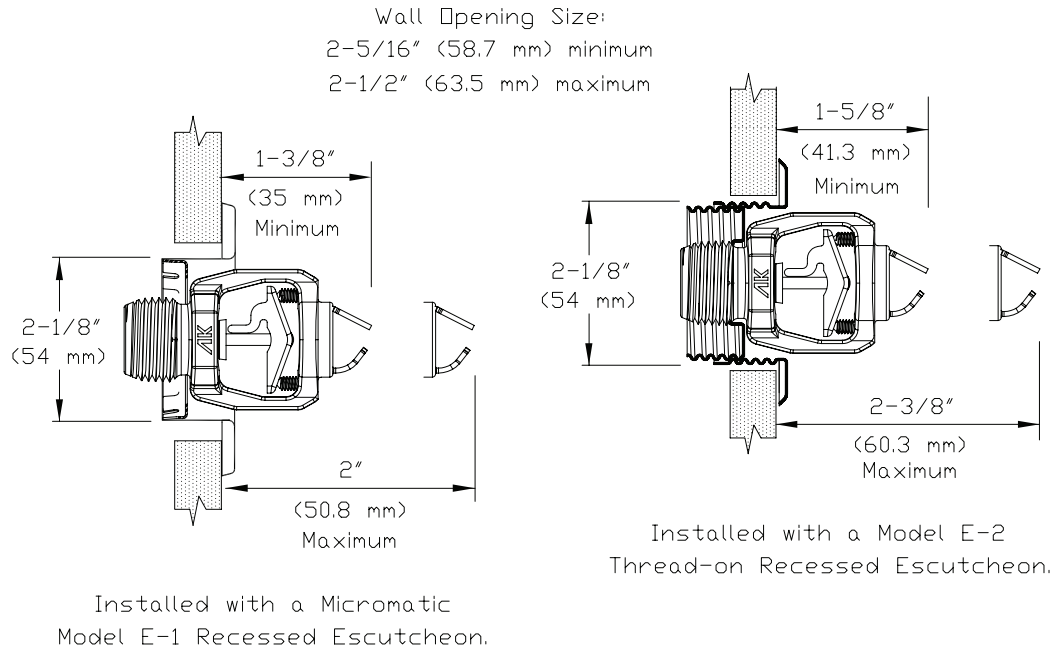


Figure 5: Sprinkler VK460 Dimensions with the Model E-1 and E-2 Recessed Escutcheons

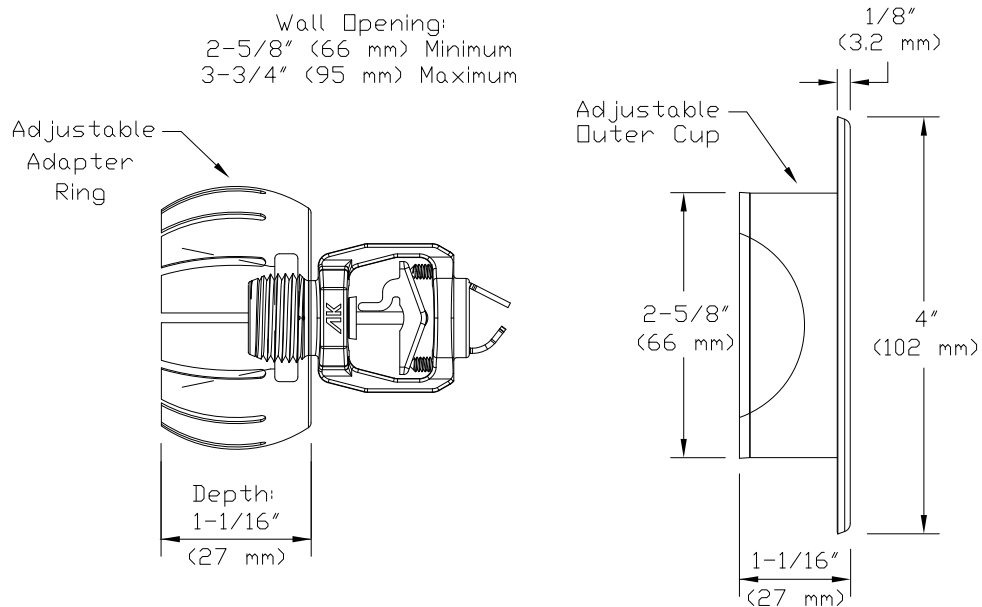


Figure 6: Sprinkler VK460 Dimensions with the Model G-1 Escutcheons