



## TECHNICAL DATA

## QREC CONCEALED HSW SPRINKLER VK638-D (K8.0)

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

Visit the Viking website for the latest edition of this technical data page [www.vikinggroupinc.com](http://www.vikinggroupinc.com)

### 1. DESCRIPTION

Viking Quick Response Extended Coverage Concealed Horizontal Sidewall Sprinkler VK638 is a thermosensitive spray sprinkler pre-assembled with a threaded adapter for installation with a domed cover. The glass bulb operating element and special deflector characteristics meet the challenges of quick response extended coverage standards.

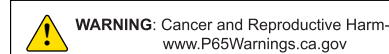
The cover plate provides up to 1/4" (6.35 mm) of horizontal adjustment and is available with several decorative finishes to meet design requirements. The two-piece design allows installation and testing of the sprinkler prior to installation of the cover plate. The "push-on", "thread-off" design of the concealed cover plate assembly allows easy installation of the cover plate after the system has been tested and the finish work has been completed. The cover assembly can be removed and reinstalled, allowing access behind the surface of the wall without taking the sprinkler system out of service or removing the sprinkler.

The Electroless Nickel PTFE (ENT) coating has been investigated for installation in corrosive environments and is listed and approved as indicated in the Approval Charts. The ENT finish is only available for the sprinkler assembly, the cover plate is not plated.



#### SPECIAL FEATURES:

- For Light Hazard Occupancies Only
- Designed for Corridor Applications
- 28' Maximum Width Spacing



### 2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

Refer to the Approval Chart and Design Criteria for cULus Listing requirements that must be followed.



### 3. TECHNICAL DATA

#### Specifications:

Available since 2012.

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: 8.0 U.S. (115.2 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): 2-3/4" (70 mm)

Covered by the following US Patent Nos: 7,854,269; 7,712,218; and 8,662,190

#### Material Standards:

Sprinkler Frame: Brass UNS-C84400

Flow Shaper: Brass UNS-C23000

Bulb: Glass, nominal 3 mm diameter

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

Compression Screws: 18-8 Stainless Steel

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

Yoke: Phosphor Bronze UNS-C51000

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

#### Cover Assembly Materials:

Cover: Copper UNS-C11000

Base: Brass UNS-C26800

Springs: Nickel Alloy

Solder: Eutectic

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

Viking QREC Concealed HSW Sprinkler VK638-D and Cover Plate Assembly must be ordered separately:

**Sprinkler:** Base Part No. 17375A-X for standard brass and 17375JN-X for ENT\*\* - insert the desired temperature rating suffix where the dash (-) is located (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 Suffixes: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E

For example, sprinkler VK638 with a 175 °F (79 °C) temperature rating = 17375ADX.

\*\*ENT is not available in 135 °F (57 °C).



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#### Cover Plate Assembly: Base Part No. 13501

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 (for use with 135 °F (57 °C) or 155 °F (68 °C) rated sprinklers only), 165 °F (74 °C) = C (for use with 175 °F (79 °C) or 200 °F (93 °C) rated sprinklers)

For example, cover 13501 with a Polished Chrome finish and a 165 °F (74 °C) temperature rating = 13501FC.

#### Available Finishes And Temperature Ratings: Refer to Table 1.

**Accessories:** (Also refer to the Viking website.)

**Sprinkler Wrench:** Part No. 13655W/B\* (available since 2006)

\* 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 yoke, pip cap, and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler flow shaper, forming a uniform spray pattern to extinguish or control the fire.

#### 6. INSPECTIONS, TESTS AND MAINTENANCE

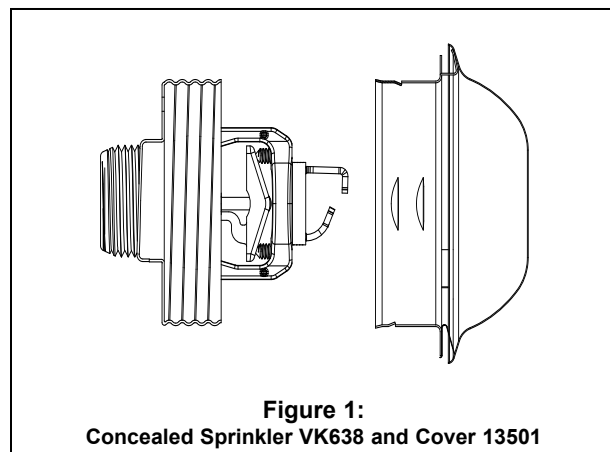
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

#### 7. AVAILABILITY

Viking Sprinkler VK638 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.



**Figure 1:**  
Concealed Sprinkler VK638 and Cover 13501

**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>	Bulb Color
Ordinary	135 °F (57 °C) <sup>4</sup>	100 °F (38 °C)	Orange
Ordinary	155 °F (57 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green

**Sprinkler Finishes:** Brass and ENT

**Cover Plate Finishes:** Polished Chrome, Painted White, Painted Ivory, or Painted Black

**Corrosion Resistant Sprinkler Coatings<sup>3</sup>:** ENT<sup>4</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> The corrosion-resistant coatings have passed the standard corrosion tests required by the approving agencies as indicated in the Approval Chart. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For ENT coated open sprinklers only, the waterway is coated. Note that the spring is exposed on sprinklers with ENT coatings.

<sup>4</sup> ENT is not available in 135 °F (57 °C) for the sprinkler.



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Sprinkler Base Part Number <sup>1</sup>	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length (Sprinkler Body)	
	Inches	mm	U.S.	metric <sup>2</sup>		Inches	mm
17375A-X	3/4	20	8.0	115.2	175 psi (12 Bar)	2-3/4	70

**Approval Chart**

Quick Response EC Concealed HSW Sprinkler VK638

For Light Hazard Occupancies Only.

For installation below smooth, flat, horizontal ceilings only.

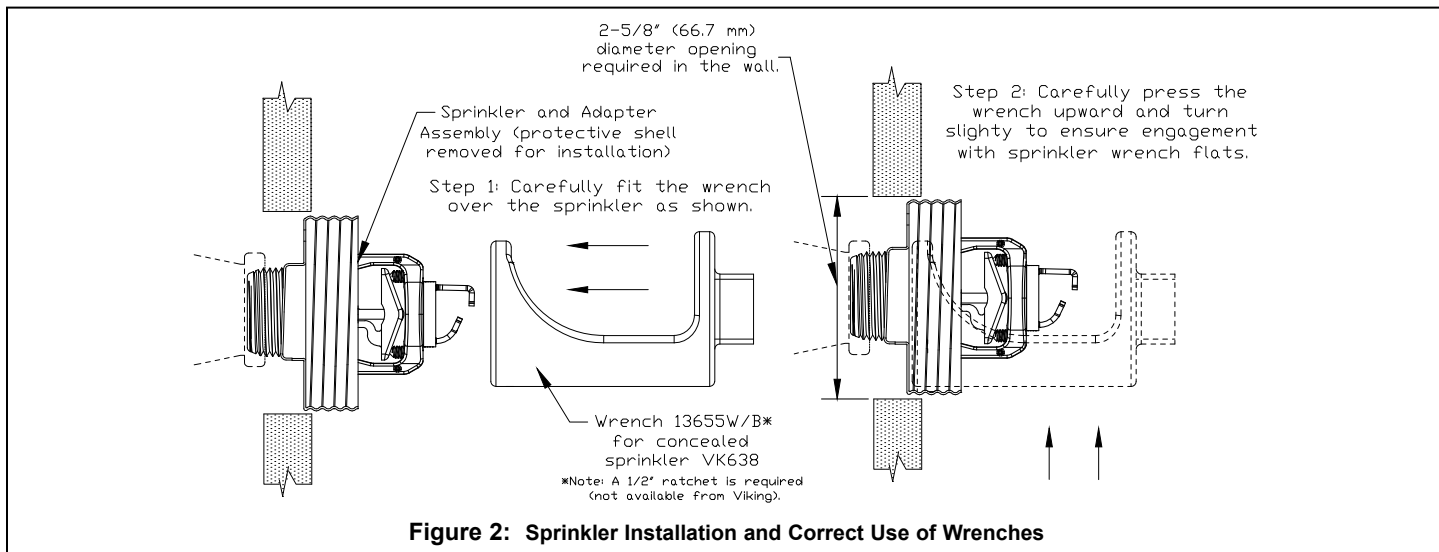
—	Sprinkler Temperature Rating
—	Cover Plate Temperature Rating
AW1	Cover Plate Finish KEY

Maximum Areas of Coverage <sup>4</sup> (Width x Throw)	Minimum Water Supply Requirements <sup>4</sup>	Deflector-to-Ceiling Distance	Listings and Approvals <sup>3</sup> (See Design Criteria)	
			cULus <sup>5</sup>	NYC
28' x 12' (8.5 m x 3.7 m)	34 gpm @ 18.1 psi (128.7 L/min @ 1.24 Bar)	4 to 12" (102 to 305 mm)	AX1, BY1	See Footnote 6.
28' x 14' (8.5 m x 4.3 m)	40 gpm @ 25.0 psi (151.4 L/min @ 1.73 Bar)	4 to 12" (102 to 305 mm)	AX1, BY1	See Footnote 6.
<b>Sprinkler Temperature Ratings</b> A - 135 °F (57 °C) and 155 °F (68 °C) B - 175 °F (79 °C) and 200 °F (93 °C)		<b>Cover Assembly Temperature Ratings</b> X - 135 °F (57 °C) cover 13501 <sup>1</sup> Y - 165 °F (74 °C) cover 13501 <sup>1</sup>		<b>Cover Plate Finishes</b> 1 - Polished Chrome, Painted White <sup>7</sup> , Painted Ivory <sup>7</sup> , or Painted Black <sup>7</sup>

**Footnotes**

- Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
- 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.
- 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.
- 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.
- Listed by Underwriter's Laboratories, Inc. for use in the U.S. and Canada. cULus Listings are limited to Light Hazard occupancies with smooth, flat, horizontal ceilings only. Always install horizontal sidewall sprinklers with the top of the deflector parallel with the ceiling. Refer to Figure 3.
- Meets New York City requirements, effective July 1, 2008.
- 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 5.



**Figure 2: Sprinkler Installation and Correct Use of Wrenches**



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Sprinkler Base Part Number <sup>1</sup>	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length (Sprinkler Body)	
	Inches	mm	U.S.	metric <sup>2</sup>		Inches	mm
17375JN-X <sup>8</sup>	3/4	20	8.0	115.2	175 psi (12 Bar)	2-3/4	70

### Approval Chart

**Corrosion Resistant Quick Response EC Concealed HSW Sprinkler VK638**

**For Light Hazard Occupancies Only.**

**For installation below smooth, flat, horizontal ceilings only.**

—	Sprinkler Temperature Rating
—	Cover Plate Temperature Rating
AW1	Cover Plate Finish KEY

Maximum Areas of Coverage <sup>4</sup> (Width x Throw)	Minimum Water Supply Requirements <sup>4</sup>	Deflector-to-Ceiling Distance	Listings and Approvals <sup>3</sup> (See Design Criteria)	
			cULus <sup>5</sup>	NYC
28' x 12' (8.5 m x 3.7 m)	34 gpm @ 18.1 psi (128.7 L/min @ 1.24 Bar)	4 to 12" (102 to 305 mm)	AX1, BY1	See Footnote 6.
28' x 14' (8.5 m x 4.3 m)	40 gpm @ 25.0 psi (151.4 L/min @ 1.73 Bar)	4 to 12" (102 to 305 mm)	AX1, BY1	See Footnote 6.
<b>Sprinkler Temperature Ratings</b> A - 155 °F (68 °C) B - 175 °F (79 °C) and 200 °F (93 °C)		<b>Cover Assembly Temperature Ratings</b> X - 135 °F (57 °C) cover 13501 <sup>1</sup> Y - 165 °F (74 °C) cover 13501 <sup>1</sup>		<b>Cover Plate Finishes</b> 1 - Polished Chrome, Painted White <sup>7</sup> , Painted Ivory <sup>7</sup> , or Painted Black <sup>7</sup>

#### Footnotes

<sup>1</sup> Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> Listed by Underwriter's Laboratories, Inc. for use in the U.S. and Canada. cULus Listings are limited to Light Hazard occupancies with smooth, flat, horizontal ceilings only. Always install horizontal sidewall sprinklers with the top of the deflector parallel with the ceiling. Refer to Figure 3.

<sup>6</sup> Meets New York City requirements, effective July 1, 2008.

<sup>7</sup> 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.

<sup>8</sup> cULus Listed as corrosion resistant.

**NOTE:** Custom colors are indicated on a label inside the cover assembly. Refer to Figure 5.



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**DESIGN CRITERIA**

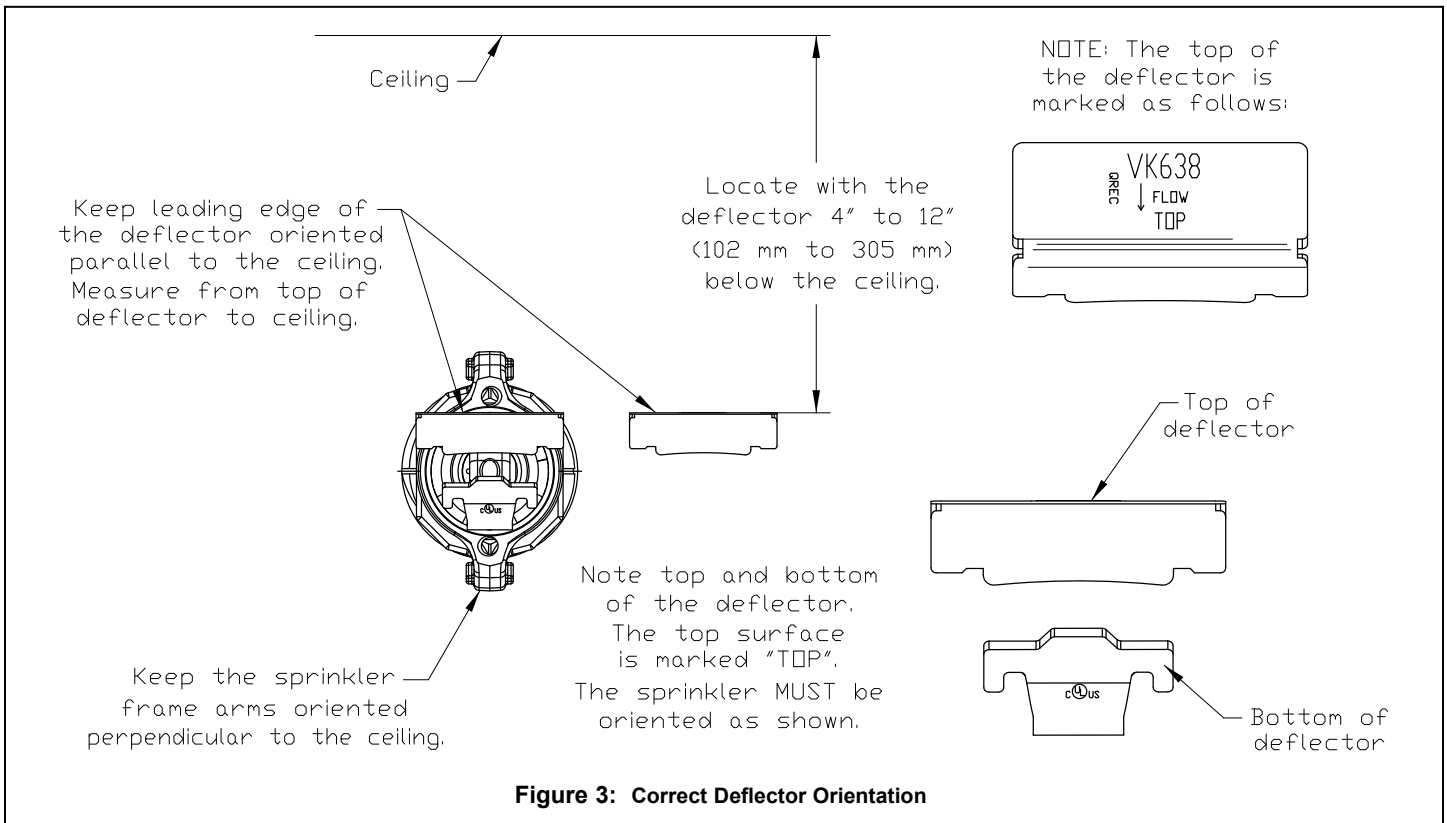
(Also refer to the Approval Chart)

**cULus Listing Requirements:** Quick Response Extended Coverage Concealed HSW Sprinkler VK638 is cULus Listed for installation in accordance with the latest edition of NFPA 13 for extended coverage sidewall spray sprinklers:

- Limited to Light Hazard occupancies with smooth, flat, horizontal ceilings only.
- Locate the the deflector 4" to 12" (102 mm to 305 mm) below the ceiling. Install with the leading edge of the deflector oriented parallel to the ceiling and with 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.
- Minimum distance between sprinklers is 12 ft. (3.7 m).
- 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.

**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 Form No. F\_080614 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.**



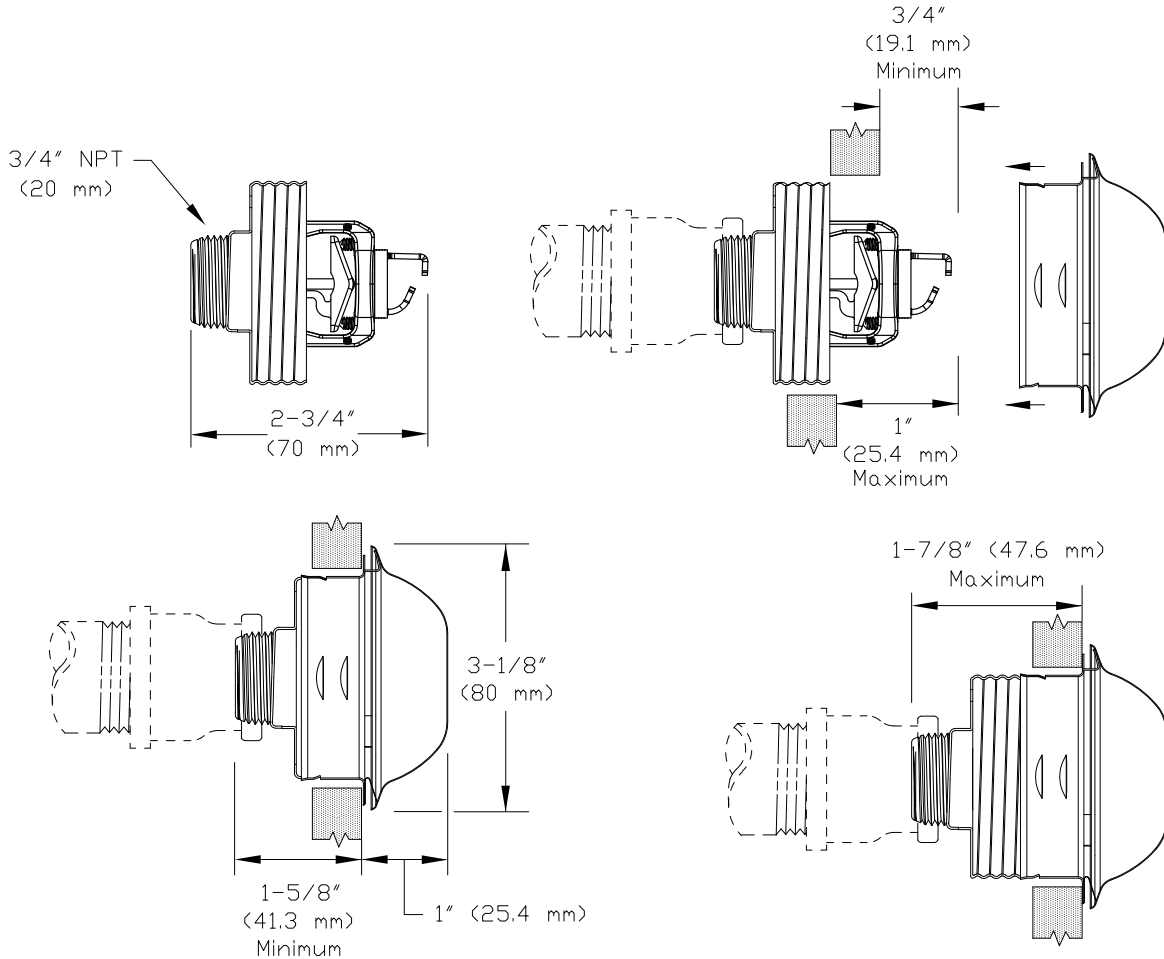
**Figure 3: Correct Deflector Orientation**



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**Figure 4:**  
**Sprinkler Dimensions and Cover Installation**



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.

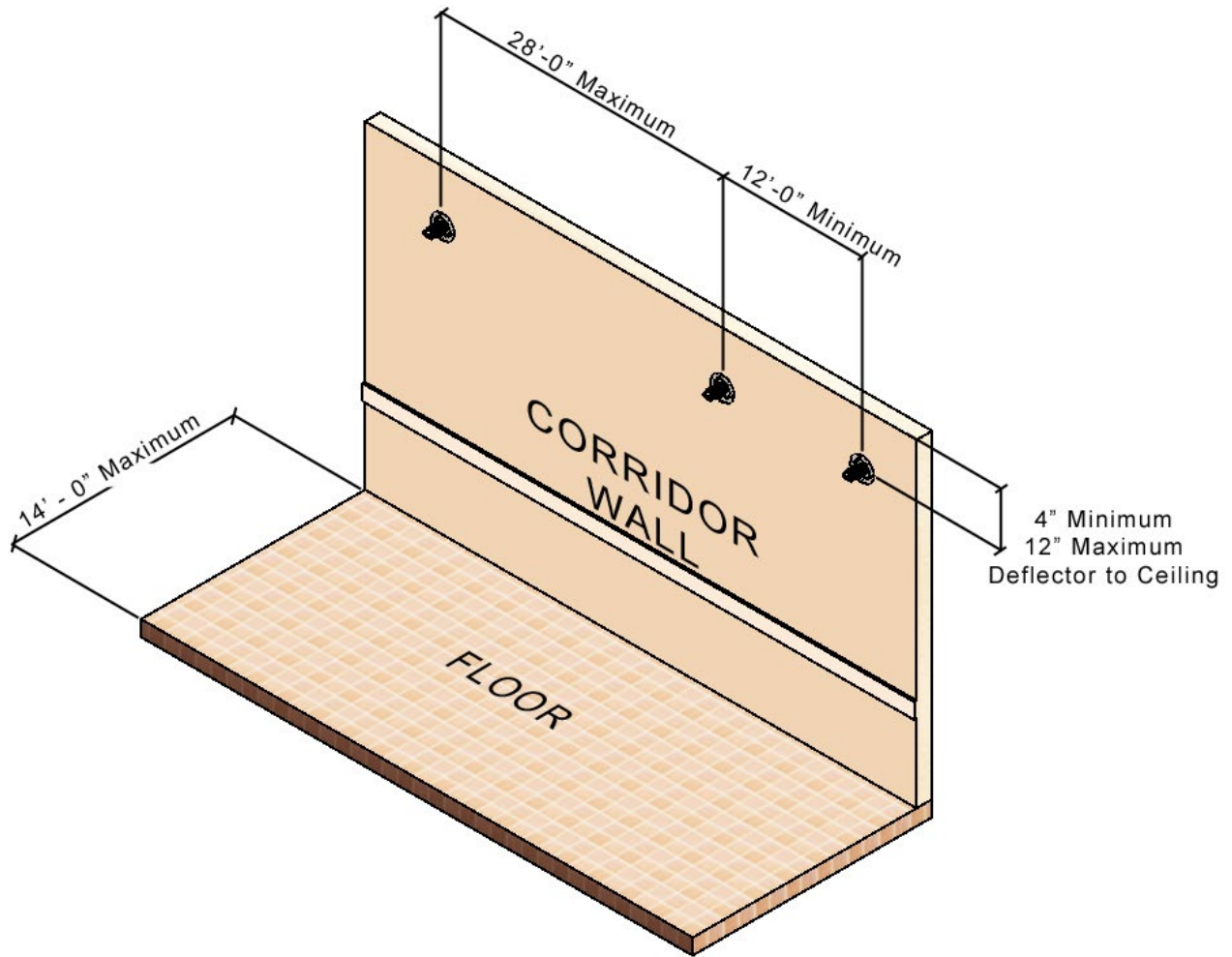
**Figure 5: Identification of Custom Paint Color for Concealed Covers**



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**Figure 6: Sprinkler VK638 Installed**