



## TECHNICAL DATA

## FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK494 (K4.9)

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 Freedom® Residential Concealed Pendent Sprinkler VK494 is a small thermosensitive, glass-bulb residential sprinkler designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired. The orifice design, with a K-Factor of 4.9 (70.6 metric\*), allows the sprinkler's efficient use of available water supplies for the hydraulically designed fire-protection system. The fast response glass bulb operating element and special deflector characteristics meet the challenges of residential sprinkler standards.

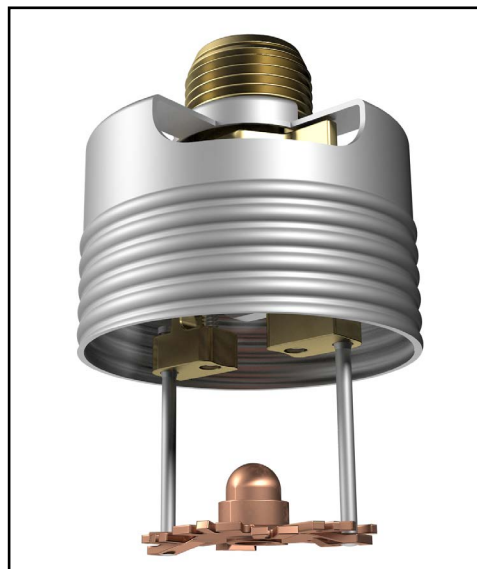
The sprinkler is pre-assembled with a threaded adapter for installation with a low-profile small-diameter cover assembly installed flush to the ceiling. The two-piece design allows installation and testing of the sprinkler prior to installation of the cover plate. The "push-on", "thread-off" design of the concealed cover plate assembly allows easy installation of the cover plate after the system has been tested and the ceiling finish has been applied, while also providing up to 1/2" (13 mm) of vertical adjustment. The cover assembly can be removed and reinstalled, allowing temporary removal of ceiling panels 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 atmospheres and is C-UL-US-EU Listed as corrosion resistant as indicated in the Approval Charts. The ENT finish is only available for the sprinkler assembly, the cover plate is not plated.

### 2. LISTINGS AND APPROVALS



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

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



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### 3. TECHNICAL DATA

#### Specifications:

Minimum Operating Pressure: Refer to the Approval Chart.

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: 4.9 U.S. (70.6 metric\*)

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

\* Metric K-factor measurement shown is in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

#### Material Standards:

Sprinkler Body: Brass UNS-C84400 or QM Brass

Deflector: Phosphor Bronze UNS-C51000

Deflector Pins: Stainless Steel UNS-S30200

Button: Brass UNS-C36000

Pip Cap and Insert Assembly: Copper UNS-C11000 and SS UNS-S30400

Compression Screw: 18-8 Stainless Steel

Yoke: UNS-S43000 Stainless Steel or Phosphor Bronze UNS-C51000

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

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

Shipping Cap: Polyethylene

#### Cover Plate Materials:

Cover Plate Assembly: Copper UNS-C11000 and Brass UNS-C26800 or Stainless Steel UNS-S30400

Spring: Beryllium Nickel

Solder: Eutectic

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

Viking Freedom® Residential Concealed Pendent Sprinkler VK494 and Cover Plate Assembly must be ordered separately:

**Sprinkler:** Order Sprinkler VK494 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 and ENT = JN

Temperature Suffix: 155 °F (68 °C) = B, 200 °F (93 °C) = E

For example, sprinkler VK494 with a Brass finish and a 200 °F (93 °C) temperature rating = Part No. 20759AE.

**Standard Cover Plates:** Base Part No. 13504 (2-3/4" diameter), Base Part No. 13642 (3-5/16" diameter), or Base Part No. 15394 (square cover plate, 3-5/16")

**Stainless Steel Cover Plates (not available with any finish or paint):** Base Part No. 21876 (2-3/4" diameter) or Base Part No. 21875 (3-5/16" diameter).



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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, Brushed Chrome = F-/B, Bright Brass = B, Antique Brass = B-/A, Brushed Brass = B-/B, Brushed Copper = E-/B, Painted White = M-/W, Painted Ivory = M-/I, Painted Black = M-/B

Temperature Suffix: 135 °F/57 °C = A

For example, cover 13504 with a Polished Chrome finish and a 135 °F/57 °C temperature rating = 13504FA.

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

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

**Sprinkler Wrenches\*\*:**

A. Heavy Duty Part No. 14047W/B\*\* (available since 2006), or

B. Head Cabinet Wrench Part No. 14031\*\*\* (available since 2006)

C. Optional Concealed Cover Plate Installer Tool Part No. 14412 (available since 2007)

D. Optional Large Concealed Cover Plate Installer Tool Part No. 14867 (available since 2007)

\*\*Requires a ½" ratchet (not available from Viking). \*\*\*Also optional for removal of the protective cap. Ideal for sprinkler cabinets.

**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, releasing the deflector. Continued heating of the exposed sprinkler causes the heat-sensitive liquid in the glass bulb to expand, causing the glass to shatter, releasing the yoke and pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern over a specific area of coverage determined by the water supply pressure at the sprinkler 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 Model VK494 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 <sup>1</sup> | Maximum Ambient Ceiling Temperature <sup>2</sup> | Temperature Rating of the Cover Assembly (Required) <sup>3</sup> | Cover Plate Base Part Number <sup>4</sup> | Large Cover Plate Base Part Number <sup>4</sup> | Square Cover Plate Base Part Number <sup>4</sup> | Bulb Color |
|--------------------------------------|---------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------|--------------------------------------------------|------------|
| Ordinary                             | 155 °F (68 °C)                                    | 100 °F (38 °C)                                   | 135 °F (57 °C)                                                   | 13504 or 21876 <sup>6</sup>               | 13642 or 21875 <sup>6</sup>                     | 15394                                            | Red        |
| Intermediate                         | 200 °F (93 °C)                                    | 150 °F (65 °C)                                   | 135 °F (57 °C)                                                   | 13504 or 21876 <sup>6</sup>               | 13642 or 21875 <sup>6</sup>                     | 15394                                            | Green      |

**Sprinkler Finishes:** Brass and ENT

**Cover Plate Finishes<sup>6</sup>:** Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, or Painted Black

**Corrosion Resistant Coatings<sup>5</sup>:** ENT

#### Footnotes

- The sprinkler temperature rating is stamped on the deflector.
- Based on NFPA-13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
- Maximum ambient temperature for cover assembly is 100 °F (38 °C).
- Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
- The corrosion resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. 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 automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway. For ENT coated sprinklers, the Belleville spring is exposed.
- Stainless Steel versions are not available with any finishes or paint.



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### Approval Chart Viking VK494, 4.9 K-Factor Residential Concealed Pendent 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 current editions of NFPA 13, 13R or 13D

| Sprinkler Base<br>Part Number <sup>1</sup>                       | SIN                                                         | NPT Thread Size    |                      | Nominal K-Factor                                     |                                                                                     | Maximum Water Working Pressure |
|------------------------------------------------------------------|-------------------------------------------------------------|--------------------|----------------------|------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------|
|                                                                  |                                                             | Inches             | mm                   | U.S.                                                 | metric <sup>2</sup>                                                                 |                                |
| 20759                                                            | VK494                                                       | 1/2                | 15                   | 4.9                                                  | 70.6                                                                                | 175 psi (12 bar)               |
| Max. Coverage Area <sup>6</sup><br>W X L<br>Ft. X Ft.<br>(m X m) | Flow GPM (LPM)                                              | Pressure PSI (bar) | Deflector to Ceiling | Installation Type                                    | Listings and Approvals <sup>3,5</sup>                                               | Minimum Spacing Ft. (m)        |
|                                                                  | 155 °F (68 °C), 200 °F (93 °C) Temperature Rated Sprinklers |                    |                      |                                                      |  |                                |
| 12 X 12<br>(3.7 X 3.7)                                           | 13<br>(49.2)                                                | 7.0<br>(0.48)      | Refer to Figure 2    | Concealed with Cover Plate Assembly. See Footnote 8. | See Footnotes 7, 9, 10, & 11                                                        | 8<br>(2.4)                     |
| 14 X 14<br>(4.3 X 4.3)                                           | 13<br>(49.2)                                                | 7.0<br>(0.48)      |                      |                                                      |                                                                                     |                                |
| 16 X 16<br>(4.9 X 4.9)                                           | 13<br>(49.2)                                                | 7.0<br>(0.48)      |                      |                                                      |                                                                                     |                                |
| 18 X 18<br>(5.5 X 5.5)                                           | 17<br>(64.4)                                                | 12.0<br>(0.83)     |                      |                                                      |                                                                                     |                                |
| 20 X 20<br>(6.1 X 6.1)                                           | 20<br>(75.7)                                                | 16.7<br>(1.15)     |                      |                                                      |                                                                                     |                                |

#### Footnotes

- Part number shown is the base part number. For complete part number, refer to current Viking price 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. Refer also to Design Criteria.
- Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.
- Meets New York City requirements, effective July 1, 2008.
- 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.
- Cover Temperature Rating is 135 °F (57 °C). Cover Part No. 13504<sup>1</sup>, 13642<sup>1</sup> (large diameter), or 15394<sup>1</sup> (square cover plate).
- Other paint colors are available on request with the same listings as the standard finish colors. Stainless Steel cover plates are not available with any finishes or paint. Listings and approvals apply for any paint manufacturer. Contact Viking for additional information. Custom colors are indicated on a label inside the cover assembly. Refer to Figure 3.
- Accepted Cover Plate Finishes are: Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, or Painted Black <sup>8</sup>.
- C-UL-US-EU Listed as corrosion resistant - Electroless Nickel PTFE (ENT)
- Stainless Steel Cover plate temperature rating is 135 °F (57 °C). Stainless Steel Cover Part Numbers: 21876<sup>1</sup> and 21875<sup>1</sup> (large diameter).



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### DESIGN CRITERIA

(Also refer to the Approval Chart on page 3.)

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

When using Viking Residential Concealed Pendent Sprinkler VK494 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:

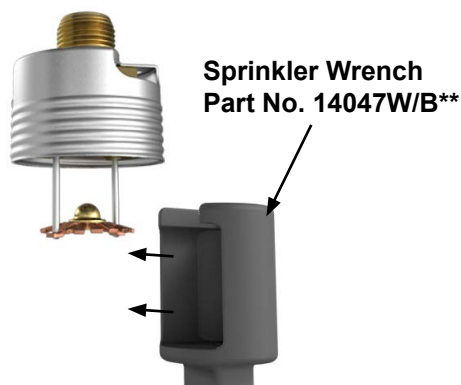
- The flow rates given in the Approval Chart for NFPA 13D and NFPA 13R applications for each listed area of coverage, **or**
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the "design area" in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

**NOTE:** Concealed sprinklers must be installed in neutral or negative pressure plenums only.

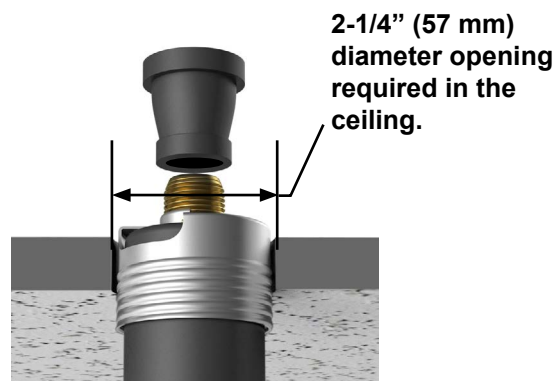
**IMPORTANT:** Always refer to Bulletin Form No. F\_080415 - Best Practices for Residential Sprinkler Handling and Installation. Also refer to Form No. F\_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA 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.

#### Sprinkler and Adapter Assembly

- Protective cap removed
- Use wrench 14047W/B\*\*

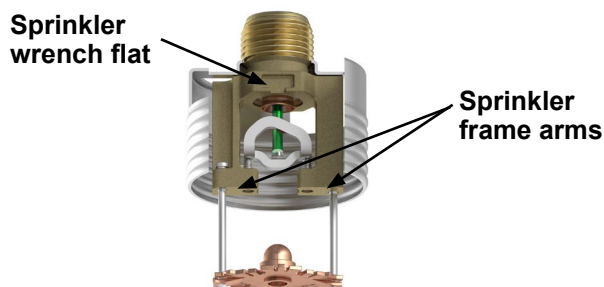


**Step 1:**  
Carefully slide the wrench sideways around the deflector and pins



**Step 2:**  
Carefully press the wrench upward and turn slightly to ensure engagement with the sprinkler wrench flats.

**NEVER** install the sprinkler by applying the installation wrench across the frame arms. **DO NOT** overtighten. Use only the designated sprinkler wrenches, Viking Part Numbers 14047W/B\*\* or 14031\*\*. A leak tight seal should be achieved by turning the sprinkler clockwise 1 to 1-1/2 turns beyond finger tight.



**Figure 1: Sprinkler Installation and Proper Wrench Usage**  
 \*\* A 1/2" ratchet is required (Not available from Viking)



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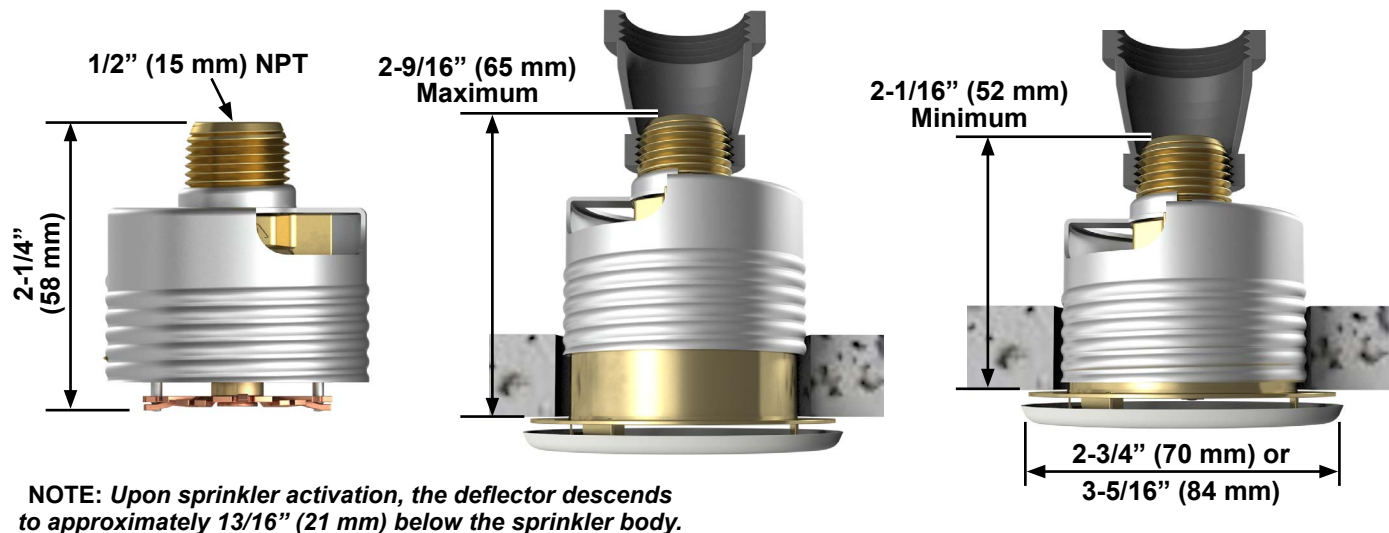


Figure 2: Sprinkler Dimensions and Cover Installation



All custom color painted cover plates will have an identifying label affixed to the inside of the cover that indicates the custom color and will have a representative sample (a paint dot) of the paint on the label.

Figure 3: Identification of Custom Paint for Concealed Covers



Figure 4: Square Cover Assembly 15394



## TECHNICAL DATA

## WATER AND AIR PRESSURE GAUGES

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058  
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### 1. DESCRIPTION

Viking Pressure Gauges give visual indication of the water or air pressure available to the fire protection system.

### 2. LISTINGS AND APPROVALS

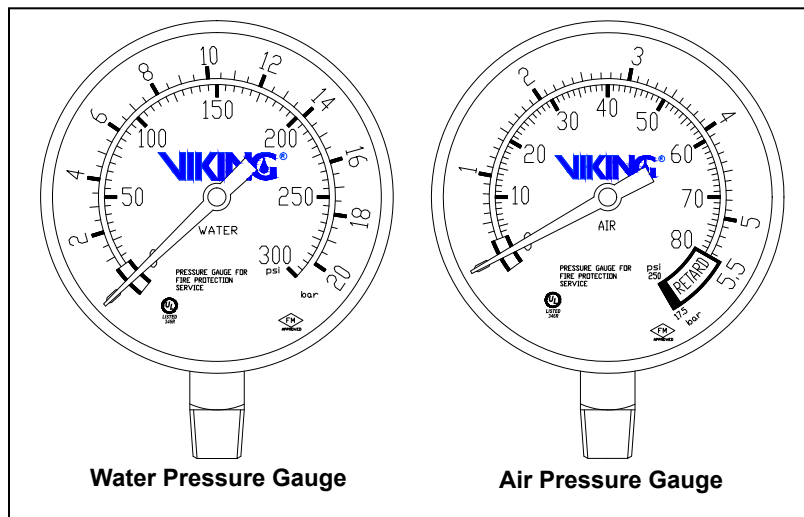
UL Listed - VEVX  
 ULc Listed - VEVXC  
 FM Approved - Pressure Gauges

### 3. TECHNICAL DATA

Connection: 1/4" NPT

Working Pressure:

- Water Gauge: 300 PSI (20.7 bar)
- Water Gauge: 600 PSI (41.4 bar)
- Air Gauge: 250 PSI (17.2 bar) (Air gauge includes a "Retard Zone" between 80 and 250 PSI)



Water Pressure Gauge

Air Pressure Gauge

### Material Standards

Case and window: Plastic

Bourdon Tube: Bronze

Socket: Brass

### Ordering Information

Available since 1977.

300 PSI (20.7 bar) Water Pressure Gauge - VWATERSF

600 PSI (41.4 bar) Water Pressure Gauge - VWATERSF600

250 PSI (17.2 bar) Air Pressure Gauge - VAIRSF



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### 4. INSTALLATION

1. Gauges are to be installed in accordance with the latest published standards of the National Fire Protection Association or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards whenever applicable.
2. Gauges must be handled with care. They must be stored in a cool, dry place in their original shipping container. Never install gauges that have been dropped or damaged in any way. Such gauges should be destroyed immediately.
3. Adequate heat must be provided where gauges are installed.
4. The gauges must be protected from mechanical damage. Install the gauges according to the following steps:
  - a. Apply a small amount of pipe-joint compound or tape to the external threads of the gauge only. Take care that no joint compound is allowed into the orifice of the gauge.
  - b. Turn the unit clockwise to thread the gauge into the 1/4" (6.4 mm) NPT connection of the fitting. DO NOT over-tighten the gauge.

### 5. AVAILABILITY

The water and air gauges 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.

### 6. GUARANTEES

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.



## TECHNICAL DATA

### MICROFAST® QUICK RESPONSE UPRIGHT SPRINKLER VK327 (K4.2)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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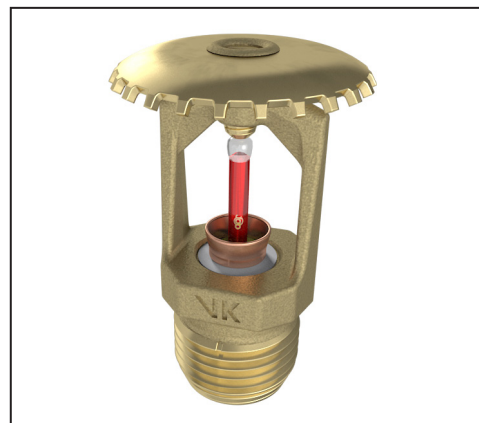
## 1. DESCRIPTION

The Viking Microfast® Quick Response Upright Sprinkler VK327 is a small, thermosensitive, glass-bulb spray sprinkler available in several different finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive environments and are listed/approved as indicated in the Approval Chart(s).

## 2. LISTINGS AND APPROVALS

 **cULus Listed:** Category VNIV

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



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## 3. TECHNICAL DATA

### Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)\*

Maximum Working Pressure: 175 psi (12 bar) wwp.

Factory tested hydrostatic rating: 500 psi (34.5 bar)

Thread size: 1/2" NPT, 15 mm BSPT

Nominal K-Factor: 4.2 U.S. (57 metric\*\*)

Glass-bulb fluid temperature rating: -65 °F (-55 °C)

Overall Length: 2-1/4" (58 mm)

\*cULus Listing, FM Approval, and NFPA 13 installs require a minimum of 7 psi (0.5 bar). The minimum operating pressure for LPCB and CE Approvals ONLY is 5 psi (0.35 bar).

Covered by the following US Patent No.: 4,831,870

### Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Brass UNS-C23000 or Copper UNS-C19500

Bushing: Brass UNS-C36000

Bulb: Glass, nominal 3 mm diameter

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

Screw: Brass UNS-C36000

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

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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

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

Order Viking Microfast® Quick Response Upright Sprinkler VK327 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 Suffixes: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B and ENT = JN

Temperature Suffixes: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, and 286 °F (141 °C) = G

For example, sprinkler VK327 with a 1/2" NPT thread, Brass finish and a 155 °F (68 °C) temperature rating = Part No. 06719BAB

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

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

**Sprinkler Wrench:** Standard Wrench: Part No. 21475M/B (available since 2017)

### 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.



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#### 5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the 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 Microfast® Quick Response Upright Sprinkler VK327 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 <sup>1</sup> | Maximum Ambient Ceiling Temperature <sup>2</sup> | Bulb Color |
|--------------------------------------|---------------------------------------------------|--------------------------------------------------|------------|
| Ordinary                             | 135 °F (57 °C)                                    | 100 °F (38 °C)                                   | Orange     |
| Ordinary                             | 155 °F (68 °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      |
| High                                 | 286 °F (141 °C)                                   | 225 °F (107 °C)                                  | Blue       |

**Sprinkler Finishes:** Brass, Chrome, White Polyester, Black Polyester and ENT<sup>3,4</sup>

**Corrosion-Resistant Coatings:** White Polyester, Black Polyester and ENT<sup>3,4</sup>

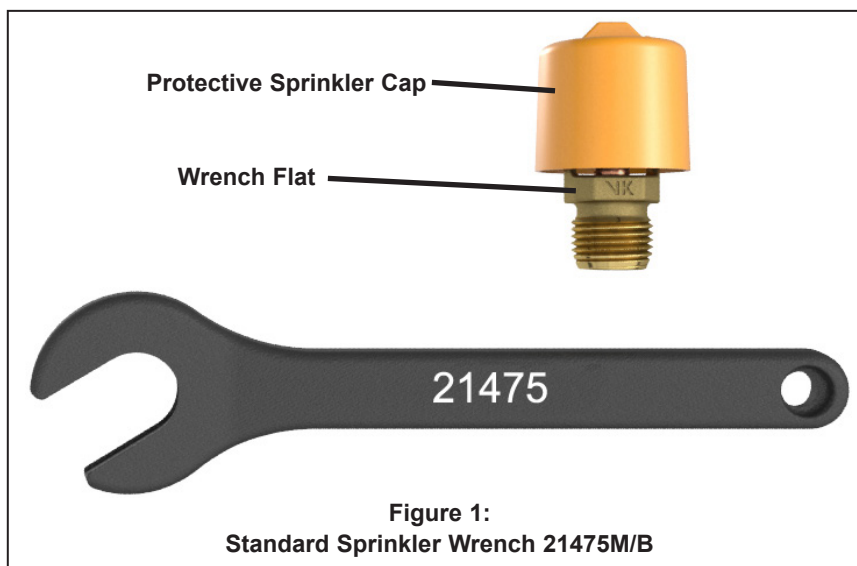
#### Footnotes

<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 test required by the approving agencies indicated in the Approval Chart(s). 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 automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and ENT coatings. For ENT coated automatic sprinklers, the waterway is coated.

<sup>4</sup> cULus Listed as corrosion resistant.



**Figure 1:**  
**Standard Sprinkler Wrench 21475M/B**



## TECHNICAL DATA

## MICROFAST® QUICK RESPONSE UPRIGHT SPRINKLER VK327 (K4.2)

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).

| Approval Chart                                                                                                                                                  |       |             |       |                  |                     |                                                                                        |    |                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|-------|------------------|---------------------|----------------------------------------------------------------------------------------|----|-------------------------------------|
| Microfast® Quick Response                                                                                                                                       |       |             |       |                  |                     |                                                                                        |    |                                     |
| Upright Sprinkler VK327                                                                                                                                         |       |             |       |                  |                     |                                                                                        |    |                                     |
| Maximum 175 PSI (12 bar) WWP                                                                                                                                    |       |             |       |                  |                     |                                                                                        |    |                                     |
| <div><div><div>Temperature</div><div>Finish</div><div>A1X ← Escutcheon (if applicable)</div></div><div>KEY</div></div>                                          |       |             |       |                  |                     |                                                                                        |    |                                     |
| Base Part Number <sup>1</sup>                                                                                                                                   | SIN   | Thread Size |       | Nominal K-Factor |                     | Overall Length                                                                         |    | Listings and Approvals <sup>3</sup> |
|                                                                                                                                                                 |       | NPT         | BSPT  | U.S.             | metric <sup>2</sup> | Inches                                                                                 | mm | cULus                               |
| 21269                                                                                                                                                           | VK327 | 1/2"        | 15 mm | 4.2              | 57                  | 2-3/16                                                                                 | 56 | A1, B2                              |
| Approved Temperature Ratings                                                                                                                                    |       |             |       |                  |                     | Approved Finishes                                                                      |    |                                     |
| A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)                                                                          |       |             |       |                  |                     | 1 - Brass, Chrome, White Polyester <sup>5,6</sup> , and Black Polyester <sup>5,6</sup> |    |                                     |
| B - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)                                                                                          |       |             |       |                  |                     | 2 - ENT <sup>6</sup>                                                                   |    |                                     |
| Footnotes                                                                                                                                                       |       |             |       |                  |                     |                                                                                        |    |                                     |
| <sup>1</sup> Base part number is shown. For complete part number, refer to Viking's current price 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 table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.           |       |             |       |                  |                     |                                                                                        |    |                                     |
| <sup>4</sup> Listed by Underwriters Laboratories Inc. for us in the U.S. and Canada                                                                             |       |             |       |                  |                     |                                                                                        |    |                                     |
| <sup>5</sup> Other colors are available on request with the same Listings and Approvals as the standard colors.                                                 |       |             |       |                  |                     |                                                                                        |    |                                     |
| <sup>6</sup> cULus Listed as corrosion resistant.                                                                                                               |       |             |       |                  |                     |                                                                                        |    |                                     |

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

## DESIGN CRITERIA

(Also refer to Approval Chart 1 above.)

### cULus Listing Requirements:

The Viking Microfast® Quick Response Upright Sprinkler VK327 is cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Small orifice sprinklers are limited to Light Hazard where allowed by the installation standards being applied, with hydraulically calculated wet systems only. Exception: 4.2K sprinklers may be installed on hydraulically calculated dry pipe systems where piping is corrosion resistant or internally galvanized.
- The sprinkler installation rules contained in NFPA 13 for standard spray upright sprinklers must be followed.

**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to page 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.**



## BULLETIN

CARE AND HANDLING  
OF SPRINKLERS

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

## SPRINKLERS ARE FRAGILE - HANDLE WITH CARE!

### General Handling and Storage:

- Store sprinklers in a cool, dry place.
- Protect sprinklers during storage, transport, handling, and after installation.
- Use the original shipping containers. DO NOT place sprinklers loose in boxes, bins, or buckets.
- Keep sprinklers separated at all times. DO NOT allow metal parts to contact sprinkler operating elements.

### For Pre-Assembled Drops:

- Protect sprinklers during handling and after installation.
- For recessed assemblies, use the protective sprinkler cap (Viking Part Number 10364).

### Sprinklers with Protective Shields or Caps:

- DO NOT remove shields or caps until after sprinkler installation and there no longer is potential for mechanical damage to the sprinkler operating elements.
- **Sprinkler shields or caps MUST be removed BEFORE placing the system in service!**
- Remove the sprinkler shield by carefully pulling it apart where it is snapped together.
- Remove the cap by turning it slightly and pulling it off the sprinkler.

### Sprinkler Installation:

- DO NOT use the sprinkler deflector or operating element to start or thread the sprinkler into a fitting.
- **Use only the designated sprinkler head wrench!** Refer to the current sprinkler technical data page to determine the correct wrench for the model of sprinkler used.
- DO NOT install sprinklers onto piping at the floor level.
- Install sprinklers after the piping is in place to prevent mechanical damage.
- DO NOT allow impacts such as hammer blows directly to sprinklers or to fittings, pipe, or couplings in close proximity to sprinklers. Sprinklers can be damaged from direct or indirect impacts.
- DO NOT attempt to remove drywall, paint, etc., from sprinklers.
- **Take care not to over-tighten the sprinkler and/or damage its operating parts!**

#### Maximum Torque:

1/2" NPT: 14 ft-lbs. (19.0 N-m)

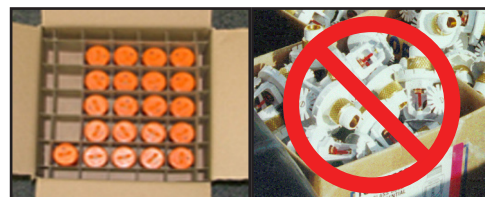
3/4" NPT: 20 ft-lbs. (27.1 N-m)

1" NPT: 30 ft-lbs. (40.7 N-m)



**CORRECT**  
(Original container used)

**INCORRECT**  
(Placed loose in box)



**CORRECT**  
(Protected with caps)

**INCORRECT**  
(Protective caps not used)



**CORRECT**  
(Piping is in place at the ceiling)

**INCORRECT**  
(Sprinkler at floor level)



**CORRECT**  
(Special installation wrenches)

**INCORRECT**  
(Designated wrench not used)



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### **! WARNING**

Any sprinkler with a loss of liquid from the glass bulb or damage to the fusible element should be destroyed. Never install sprinklers that have been dropped, damaged, or exposed to temperatures exceeding the maximum ambient temperature allowed. Sprinklers that have been painted in the field must be replaced per NFPA 13. Protect sprinklers from paint and paint overspray in accordance with the installation standards. Do not clean sprinklers with soap and water, ammonia, or any other cleaning fluid. Do not use adhesives or solvents on sprinklers or their operating elements.

**Refer to the appropriate technical data page and NFPA standards for complete care, handling, installation, and maintenance instructions. For additional product and system information Viking data pages and installation instructions are available on the Viking Web site at [www.vikinggroupinc.com](http://www.vikinggroupinc.com).**



## BULLETIN

CARE AND HANDLING  
OF SPRINKLERS

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

## PROTECTIVE SPRINKLER SHIELDS AND CAPS

### General Handling and Storage:

Many Viking sprinklers are available with a plastic protective cap or shield temporarily covering the operating elements. The snap-on shields and caps are factory installed and are intended to help protect the operating elements from mechanical damage during shipping, storage, and installation. NOTE: It is still necessary to follow the care and handling instructions on the appropriate sprinkler technical data sheets\* when installing sprinklers with bulb shields or caps.

### WHEN TO REMOVE THE SHIELDS AND CAPS:

NOTE: SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

Remove the shield or cap from the sprinkler only after checking all of the following:

- The sprinkler has been installed\*.
- The wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements.

**SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!**

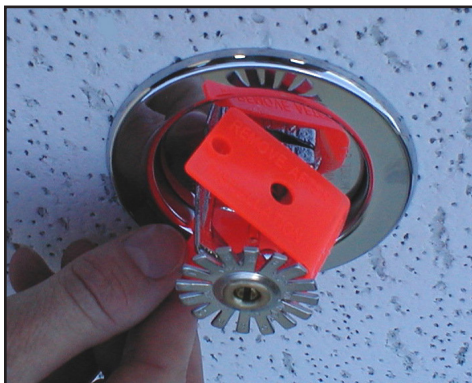


Figure 1: Sprinkler shield being removed from a pendent sprinkler.



Figure 2: Sprinkler cap being removed from a pendent sprinkler.



Figure 3: Sprinkler cap being removed from an upright sprinkler.

## HOW TO REMOVE SHIELDS AND CAPS:

No tools are necessary to remove the shields or caps from sprinklers. DO NOT use any sharp objects to remove them! **Take care not to cause mechanical damage to sprinklers when removing the shields or caps.** When removing caps from fusible element sprinklers, use care to prevent dislodging ejector springs or damaging fusible elements. NOTE: Squeezing the sprinkler cap excessively could damage sprinkler fusible elements.

- To remove the shield, simply pull the ends of the shield apart where it is snapped together. Refer to Figure 1.
- To remove the cap, turn it slightly and pull it off the sprinkler. Refer to Figures 2 and 3.

### NOTICE

Refer to the current sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used.



Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

\* Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at [www.vikinggroupinc.com](http://www.vikinggroupinc.com).



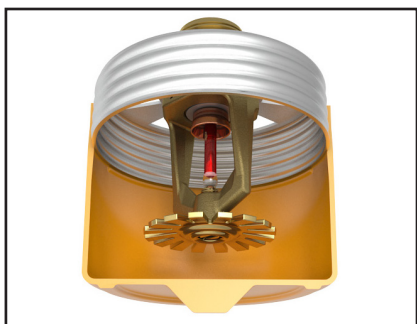
## BULLETIN

CARE AND HANDLING  
OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058  
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**CONCEALED COVER ASSEMBLIES ARE FRAGILE!**  
**TO ASSURE SATISFACTORY PERFORMANCE OF THE PRODUCT, HANDLE WITH CARE.**



Concealed Sprinkler and Adapter  
 Assembly with Protective Cap



Concealed Sprinkler and Adapter  
 Assembly (Protective Cap Removed)

Cover Plate Assembly  
 (Pendent Cover 12381 shown)



## GENERAL HANDLING AND STORAGE INSTRUCTIONS:

- Do not store in temperatures exceeding 100 °F (38 °C). Avoid direct sunlight and confined areas subject to heat.
- Protect sprinklers and cover assemblies during storage, transport, handling, and after installation.
  - Use original shipping containers.
  - Do not place sprinklers or cover assemblies loose in boxes, bins, or buckets.
- Keep the sprinkler bodies covered with the protective sprinkler cap any time the sprinklers are shipped or handled, during testing of the system, and while ceiling finish work is being completed.
- Use only the designated Viking recessed sprinkler wrench (refer to the appropriate sprinkler data page) to install these sprinklers. **NOTE:** The protective cap is temporarily removed during installation and then placed back on the sprinkler for protection until finish work is completed.
- Do not over-tighten the sprinklers into fittings during installation.
- Do not use the sprinkler deflector to start or thread the sprinklers into fittings during installation.
- Do not attempt to remove drywall, paint, etc., from the sprinklers.
- Remove the plastic protective cap from the sprinkler before attaching the cover plate assembly. **PROTECTIVE CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!**

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at [www.vikinggroupinc.com](http://www.vikinggroupinc.com).



## BULLETIN

CARE AND HANDLING  
OF SPRINKLERS

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

## USE THE FOLLOWING PRECAUTIONS WHEN HANDLING WAX-COATED SPRINKLERS

Many of Viking's sprinklers are available with factory-applied wax coating for corrosion resistance. These sprinklers **MUST** receive appropriate care and handling to avoid damaging the wax coating and to assure satisfactory performance of the product.

### General Handling and Storage of Wax-Coated Sprinklers:

- Store the sprinklers in a cool, dry place (in temperatures below the maximum ambient temperature allowed for the sprinkler temperature rating. Refer to Table 1 below.)
- Store containers of wax-coated sprinklers separate from other sprinklers.
- Protect the sprinklers during storage, transport, handling, and after installation.
- Use original shipping containers.
- Do not place sprinklers in loose boxes, bins, or buckets.

### Installation of Wax-Coated Sprinklers:

Use only the special sprinkler head wrench designed for installing wax-coated Viking sprinklers (any other wrench may damage the unit).

- Take care not to crack the wax coating on the units.
- For touching up the wax coating after installation, wax is available from Viking in bar form. Refer to Table 1 below. The coating **MUST** be repaired after sprinkler installation to protect the corrosion-resistant properties of the sprinkler.
- Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they would be exposed to temperatures exceeding the maximum recommended ambient temperature for the temperature rating used.
- Inspect the coated sprinklers frequently soon after installation to verify the integrity of the corrosion resistant coating. Thereafter, inspect representative samples of the coated sprinklers in accordance with NFPA 25. Close up visual inspections are necessary to determine whether the sprinklers are being affected by corrosive conditions.

TABLE 1

| Sprinkler Temperature Rating<br>(Fusing Point) | Wax Part<br>Number | Wax Melting Point | Maximum Ambient<br>Ceiling Temperature <sup>1</sup> | Wax Color   |
|------------------------------------------------|--------------------|-------------------|-----------------------------------------------------|-------------|
| 155 °F (68 °C) / 165 °F (74 °C)                | 02568A             | 148 °F (64 °C)    | 100 °F (38 °C)                                      | Light Brown |
| 175 °F (79 °C)                                 | 04146A             | 161 °F (71 °C)    | 150 °F (65 °C)                                      | Brown       |
| 200 °F (93 °C)                                 | 04146A             | 161 °F (71 °C)    | 150 °F (65 °C)                                      | Brown       |
| 220 °F (104 °C)                                | 02569A             | 170 °F (76 °C)    | 150 °F (65 °C)                                      | Dark Brown  |
| 286 °F (141 °C)                                | 02569A             | 170 °F (76 °C)    | 150 °F (65 °C)                                      | Dark Brown  |

<sup>1</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.



**WARNING** Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

**Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at [www.vikinggroupinc.com](http://www.vikinggroupinc.com).**

**BULLETIN****REGULATORY AND HEALTH  
WARNINGS**

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**

Regulatory and Health Warnings applying to materials used in the manufacture and construction of fire protection products are provided herein as they relate to legally mandated jurisdictional regions.

**⚠ WARNING****STATE OF CALIFORNIA, USA**

Installing or servicing fire protection products such as sprinklers, valves, piping etc. can expose you to chemicals including, but not limited to, lead, nickel, butadiene, titanium dioxide, chromium, carbon black, and acrylonitrile which are known to the State of California to cause cancer or birth defects or other reproductive harm.

For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**2. WARRANTY TERMS AND CONDITIONS**

For details of warranty, refer to Viking's current list price schedule at [www.vikinggroupinc.com](http://www.vikinggroupinc.com) or contact Viking directly.



## TECHNICAL DATA

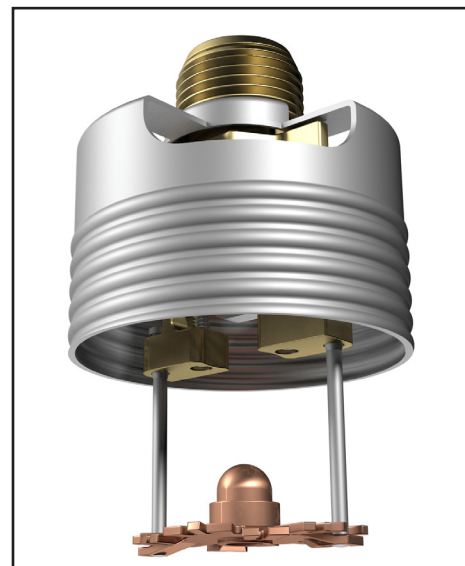
## FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK496 (K3.0)

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 Freedom® Residential Concealed Pendent Sprinkler VK496 is a small thermosensitive, glass-bulb residential sprinkler designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired. The orifice design, with a K-Factor of 3.0 (43.2 metric\*), allows the sprinkler's efficient use of available water supplies for the hydraulically designed fire-protection system. The fast response glass bulb operating element and special deflector characteristics meet the challenges of residential sprinkler standards.

The sprinkler is pre-assembled with a threaded adapter for installation with a low-profile small-diameter cover assembly installed flush to the ceiling. 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 ceiling finish has been applied, while also providing up to 1/2" (13 mm) of vertical adjustment. The cover assembly can be removed and reinstalled, allowing temporary removal of ceiling panels 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 atmospheres and is C-UL-US-EU Listed as corrosion resistant as indicated in the Approval Charts. The ENT finish is only available for the sprinkler assembly, the cover plate is not plated.



### 2. LISTINGS AND APPROVALS



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

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



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### 3. TECHNICAL DATA

#### Specifications:

Minimum Operating Pressure: Refer to the Approval Chart.

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: 3.0 U.S. (43.2 metric\*)

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

\* Metric K-factor measurement shown is in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

#### Material Standards:

Sprinkler Body: Brass UNS-C84400 or QM Brass

Deflector: Phosphor Bronze UNS-C51000

Deflector Pins: Stainless Steel UNS-S30200

Button: Brass UNS-C31600

Pip Cap and Insert Assembly: Copper UNS-C11000 and SS UNS-S30400

Compression Screw: 18-8 Stainless Steel

Yoke: UNS-S43000 Stainless Steel or Phosphor Bronze UNS-C51000

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

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

Shipping Cap: Polyethylene

#### Cover Plate Materials:

Cover Plate Assembly: Copper UNS-C11000 and Brass UNS-C26800

Spring: Beryllium Nickel

Solder: Eutectic

#### Available Finishes and Temperature Ratings:

| Finish      | Brass          | ENT            |
|-------------|----------------|----------------|
| Suffix      | A              | JN             |
| Temperature | 155 °F (68 °C) | 200 °F (93 °C) |
| Suffix      | B              | E              |

**Ordering Information:** Refer to Tables 1 and 2.



## TECHNICAL DATA

## FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK496 (K3.0)

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  
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### 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, releasing the deflector. Continued heating of the exposed sprinkler causes the heat-sensitive liquid in the glass bulb to expand, causing the glass to shatter, releasing the yoke and pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern over a specific area of coverage determined by the water supply pressure at the sprinkler 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 Model VK496 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: ORDERING INFORMATION**  
 Instructions: Using the sprinkler base part number,  
 (1) add the suffix for the desired Finish  
 (2) add the suffix for the desired Temperature Rating.  
 (3) Order a cover plate (refer to Table 2)

| Sprinkler<br>Base Part<br>No. | Size        |            | 1: Finishes        |                     | 2: Temperature Ratings                                                                                                 |            |                                                  |        |
|-------------------------------|-------------|------------|--------------------|---------------------|------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------|--------|
|                               | NPT<br>Inch | BSPT<br>mm | Description        | Suffix <sup>1</sup> | Nominal Rating                                                                                                         | Bulb Color | Max. Ambient Ceiling<br>Temperature <sup>2</sup> | Suffix |
| 22773                         | 1/2         | --         | Brass              | A                   | 155 °F (68 °C)                                                                                                         | Red        | 100 °F (38 °C)                                   | B      |
|                               |             |            | ENT <sup>3,4</sup> | JN                  | 200 °F (93 °C)                                                                                                         | Green      | 150 °F (65 °C)                                   | E      |
|                               |             |            |                    |                     | <b>Example: 22773AE =</b><br><b>200 °F (93 °C) Temperature Rated Sprinkler</b><br><b>with a standard Brass finish.</b> |            |                                                  |        |

#### Accessories

##### Sprinkler Wrenches (see Figure 1):

- A. Heavy Duty Part Number: 14047WB<sup>5</sup>
- B. Head Cabinet Wrench Part Number: 14031<sup>6</sup>

##### Sprinkler Cabinet:

Part number 01731A.

#### Footnotes

1. Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.
2. Based on NFPA 13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
3. UL Listed as corrosion resistant.
4. The corrosion resistant coatings have passed the standard corrosion test required by the approving agencies 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 automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway.
5. Requires a 1/2" ratchet which is not available from us.
6. Optional for removal of the protective cap. Ideal for sprinkler cabinets.



## TECHNICAL DATA

## FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK496 (K3.0)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058  
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**TABLE 2: COVER PLATE ORDERING INFORMATION**

Instructions: Using the cover plate base part number,

(1) add the suffix for the desired Finish

(2) add the suffix for the required Cover Plate Nominal Rating.

| Cover Plate<br>Base Part<br>Number <sup>4</sup> | Size<br>Inch (mm) | Style  | 1: Finishes     |                     | Temperature Rating Matrix <sup>1,2</sup>                                                                                                                                                                                     |                             |                                                               |        |
|-------------------------------------------------|-------------------|--------|-----------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------|--------|
|                                                 |                   |        | Description     | Suffix <sup>6</sup> | Cover Plate<br>Nominal Rating<br>(Required)                                                                                                                                                                                  | Sprinkler<br>Nominal Rating | Sprinkler Max.<br>Ambient Ceiling<br>Temperature <sup>2</sup> | Suffix |
| 13504                                           | 2-3/4 (70)        | Round  | Polished Chrome | F                   | 135 °F (57 °C)                                                                                                                                                                                                               | 155 °F (68 °C)              | 100 °F (38 °C)                                                | A      |
| 13642                                           | 3-5/16 (84)       | Round  | Brushed Chrome  | F-/B                | 165 °F (73 °C) <sup>3</sup>                                                                                                                                                                                                  | 200 °F (93 °C)              | 150 °F (65 °C)                                                | C      |
| 15394                                           | 3-5/16 (84)       | Square | Bright Brass    | B                   | <b>Corrosion Resistant Sprinkler Coating: ENT<sup>5</sup></b><br><br><b>Example: 13504MA/W =</b><br><b>135 °F (57 °C) Temperature Rated 2-3/4" (70 mm) Diameter</b><br><b>Round Cover Plate with a Painted White finish.</b> |                             |                                                               |        |
|                                                 |                   |        | Antique Brass   | B-/A                |                                                                                                                                                                                                                              |                             |                                                               |        |
|                                                 |                   |        | Brushed Brass   | B-/B                |                                                                                                                                                                                                                              |                             |                                                               |        |
|                                                 |                   |        | Brushed Copper  | E-/B                |                                                                                                                                                                                                                              |                             |                                                               |        |
|                                                 |                   |        | Painted White   | M-/W                |                                                                                                                                                                                                                              |                             |                                                               |        |
|                                                 |                   |        | Painted Ivory   | M-/I                |                                                                                                                                                                                                                              |                             |                                                               |        |
|                                                 |                   |        | Painted Black   | M-/B                |                                                                                                                                                                                                                              |                             |                                                               |        |

### Footnotes

- The sprinkler temperature rating is stamped on the deflector.
- Based on NFPA-13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
- Maximum ambient temperature for cover assembly is 100 °F (38 °C).
- Part number shown is the base part number. For complete part number, refer to current our price list schedule.
- The corrosion resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. 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 automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway. For ENT coated sprinklers, the Belleville spring is exposed.
- Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.



## TECHNICAL DATA

## FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK496 (K3.0)

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)

### APPROVAL CHART

#### VK496, 3.0 K-Factor Residential Concealed Pendent 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 current editions of NFPA 13, 13R or 13D

| Sprinkler Base<br>Part Number <sup>1</sup>                             | SIN               | Thread Size           |                         | Nominal K-Factor                                                |                                                                                                  | Maximum Water Working Pressure |
|------------------------------------------------------------------------|-------------------|-----------------------|-------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------|
|                                                                        |                   | Inches                | mm                      | U.S.                                                            | metric <sup>2</sup>                                                                              |                                |
| 22773                                                                  | VK496             | 1/2                   | 15                      | 3.0                                                             | 43.2                                                                                             | 175 psi (12 bar)               |
| Maximum<br>Coverage Area <sup>5</sup><br>W X L<br>Ft. X Ft.<br>(m X m) | All Temperatures  |                       | Deflector<br>to Ceiling | Installation Type                                               | Listings and<br>Approvals <sup>3</sup>                                                           | Minimum Spacing<br>Ft.<br>(m)  |
|                                                                        | Flow<br>gpm (Lpm) | Pressure<br>PSI (bar) |                         |                                                                 |  <sup>4</sup> |                                |
| 12 X 12<br>(3.7 X 3.7)                                                 | 8<br>(30.3)       | 7.1<br>(0.49)         | Refer to<br>Figure 2    | Concealed with Cover<br>Plate Assembly. See<br>Footnotes 6 & 7. | See Footnotes 3, 4, and 8                                                                        | 8<br>(2.4)                     |
| 14 X 14<br>(4.3 X 4.3)                                                 | 12<br>(45.4)      | 16<br>(1.1)           |                         |                                                                 |                                                                                                  |                                |
| 16 X 16<br>(4.9 X 4.9)                                                 | 15<br>(56.8)      | 25<br>(1.72)          |                         |                                                                 |                                                                                                  |                                |

### Footnotes

- Part number shown is the base part number. For complete part number, refer to current our price 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. Refer also to Design Criteria.
- Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.
- 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.
- Other paint colors are available on request with the same listings as the standard finish colors. Listings and approvals apply for any paint manufacturer. Contact Viking for additional information. Custom colors are indicated on a label inside the cover assembly. Refer to Figure 3.
- Accepted Cover Plate Finishes are: Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, or Painted Black <sup>6</sup>.
- C-UL-US-EU Listed as corrosion resistant - Electroless Nickel PTFE (ENT)



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### DESIGN CRITERIA

(Also refer to the Approval Chart on page 3.)

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

When using Viking Residential Concealed Pendent Sprinkler VK496 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:

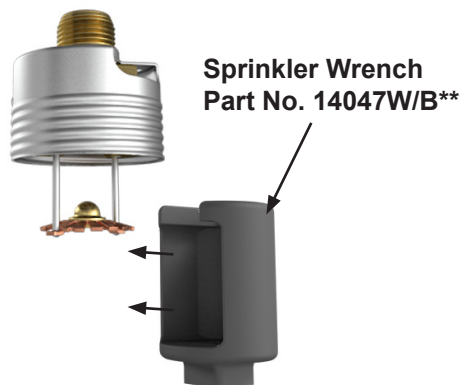
- The flow rates given in the Approval Chart for NFPA 13D and NFPA 13R applications for each listed area of coverage, **or**
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the "design area" in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

**NOTE:** Concealed sprinklers must be installed in neutral or negative pressure plenums only.

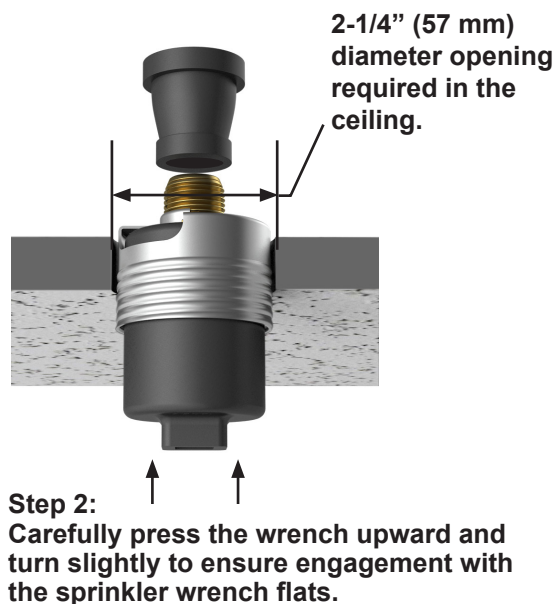
**IMPORTANT:** Always refer to Bulletin Form No. F\_080415 - Best Practices for Residential Sprinkler Handling and Installation. Also refer to Form No. F\_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA 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.

#### Sprinkler and Adapter Assembly

- Protective cap removed
- Use wrench 14047W/B\*\*

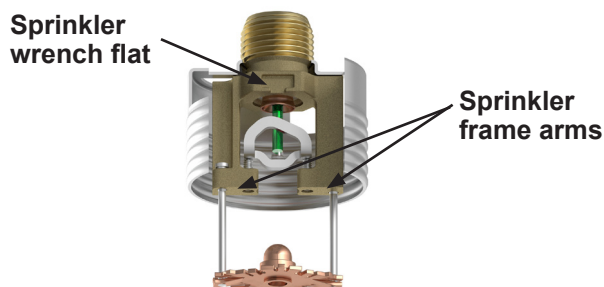


**Step 1:**  
Carefully slide the wrench sideways around the deflector and pins



**Step 2:**  
Carefully press the wrench upward and turn slightly to ensure engagement with the sprinkler wrench flats.

**NEVER** install the sprinkler by applying the installation wrench across the frame arms. **DO NOT** overtighten. Use only the designated sprinkler wrenches, Viking Part Numbers 14047W/B\*\* or 14031\*\*. A leak tight seal should be achieved by turning the sprinkler clockwise 1 to 1-1/2 turns beyond finger tight.



**Figure 1: Sprinkler Installation and Proper Wrench Usage**  
 \*\* A 1/2" ratchet is required (Not available from Viking)



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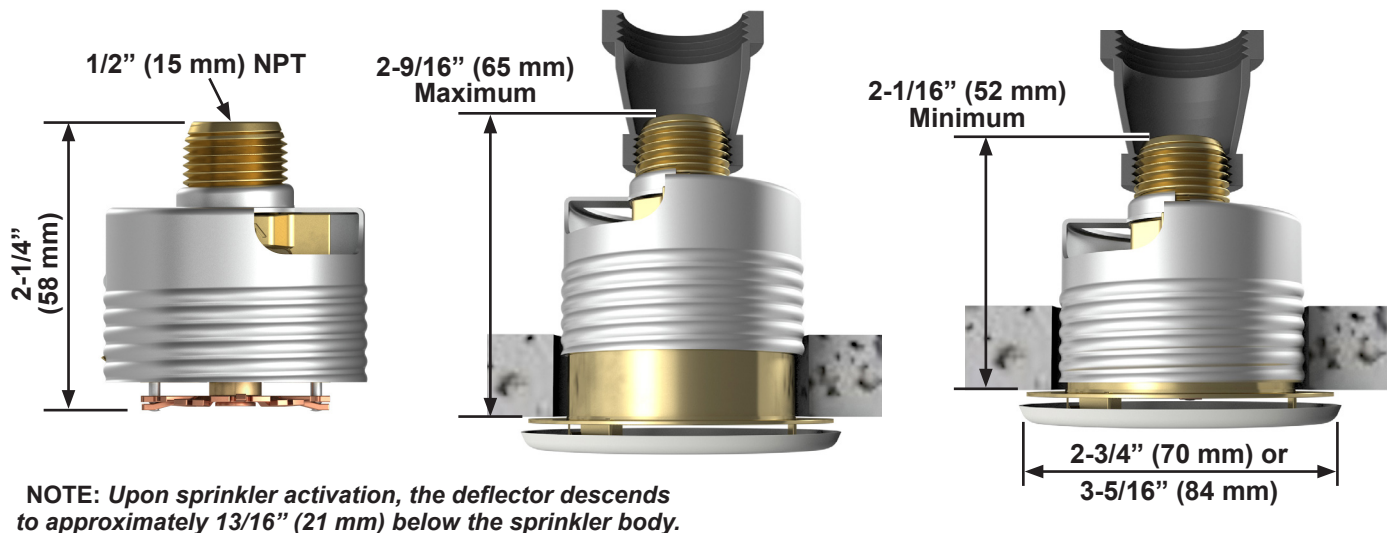


Figure 2: Sprinkler Dimensions and Cover Installation



All custom color painted cover plates will have an identifying label affixed to the inside of the cover that indicates the custom color and will have a representative sample (a paint dot) of the paint on the label.

Figure 3: Identification of Custom Paint for Concealed Covers



Figure 4: Square Cover Assembly 15394