1. DESCRIPTION

Viking Quick Response Dry Upright Sprinklers are thermosensitive spray sprinklers suitable for use in areas subject to freezing. The sprinklers are designed for dry systems and preaction systems where it is necessary to prevent water or condensation from entering the supply nipple before sprinkler operation. They are also suitable for use in unheated spaces above ceilings of heated rooms equipped with wet sprinkler systems.

Viking Quick Response Dry Upright Sprinklers may be used with a dry sprinkler seal (available to order separately) to cover the ceiling opening (see Figure 3). The special Polyester coating has been investigated for installation in corrosive atmospheres and is cULus listed as corrosion resistant as indicated in the Approval Chart.

NOTE: When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.

2. LISTINGS AND APPROVALS

- cULus Listed: Category VNIV
- NYC Approved: MEA 89-92-E, Volume 15

Refer to the Approval Chart on page 107c and Design Criteria on page 107d for cULus Listing requirements that must be followed.

3. TECHNICAL DATA

Specifications:
- Available since 1993.
- Minimum Operating Pressure: 7 psi (0.5 bar)
- Maximum Working Pressure: 175 psi (12 bar). Factory tested pneumatically to 100 psi (6.89 bar)
- Thread size: 1" NPT
- Nominal K-Factor: 5.6 U.S. (80.6 metric*) for all listed and approved lengths.

* 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.

- Glass-bulb fluid temperature rated to -65 °F (-55 °C)
- Covered by the following U.S. Patents: 8,636,075 and 10,220,231

Material Standards:
- Frame Casting: Brass UNS-C84400
- Deflector: Brass UNS-C26000
- Bulb: Glass, nominal 3 mm diameter
- Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape
- Compression Screw: Brass UNS-C36000
- Pip Cap: Brass UNS-C36000
- Pip Cap Adapter: Brass UNS-C36000
- Orifice: Copper UNS-C22000
- Tube: ERW Hydraulic Steel Tube
- Support (Internal): Stainless Steel UNS-S30400
- Barrel: Steel Pipe UNS-G10260, Electrodeposited Epoxy Base finish
- Barrel End and Threads: QM Brass

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

Sprinkler: Base Part No. 08417U

Order Quick Response Dry Upright Sprinklers by first adding the appropriate suffix for the sprinkler finish, the appropriate suffix for the temperature rating, and then the suffix for the length ("B" dimension) to sprinkler base part number. Order in a specific length noted as the “B” dimension (see Figure 2). The “B” dimension is the distance from the face of the fitting (tee) to the top of the deflector.
These sprinklers are listed and approved in lengths from 4-1/2" to 48-1/2" (114.3 mm to 1,232 mm). Lengths between 48-1/2" and 61-1/2" (1,232 mm and 1,562 mm) are available, with no approvals, on a “made-to-order” basis. Contact the manufacturer for more information.

Finish Suffix: Brass = A, and White Polyester = M-/W

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, 286 °F (141 °C) = G

For example, sprinkler VK184 with 1" NPT Threads, a Brass finish and a 155 °F (68 °C) temperature rating, and “B” length of 10” = Part No. 08417UAB10.

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the “Sprinkler Accessories” section of the Viking data book.)

Sprinkler Wrench: Standard Wrench Part No. 07297W/B (available since 1991)

Dry Sprinkler Insulating Boot Assembly: Part Number 13864F (Available since 2007).

NOTE: Dry Sprinklers and Insulating Boot Assemblies must be ordered separately.

Sprinkler Guard: Chrome, with no listings or approvals, for installation on dry upright sprinklers manufactured after May 1994 only (Part No. 08954).

4. INSTALLATION
Refer to appropriate NFPA Installation Standards.

5. OPERATION
During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the internal parts to open the waterway. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY
The Viking Quick Response Dry Upright Sprinkler is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

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

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

<table>
<thead>
<tr>
<th>Sprinkler Temperature Classification</th>
<th>Sprinkler Nominal Temp. Rating</th>
<th>Maximum Ambient Ceiling Temp.</th>
<th>Bulb Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary</td>
<td>155 °F (68 °C)</td>
<td>100 °F (38 °C)</td>
<td>Red</td>
</tr>
<tr>
<td>Intermediate</td>
<td>175 °F (79 °C)</td>
<td>150 °F (65 °C)</td>
<td>Yellow</td>
</tr>
<tr>
<td>Intermediate</td>
<td>200 °F (93 °C)</td>
<td>150 °F (65 °C)</td>
<td>Green</td>
</tr>
<tr>
<td>High</td>
<td>286 °F (141 °C)</td>
<td>225 °F (107 °C)</td>
<td>Blue</td>
</tr>
</tbody>
</table>

Sprinkler Finishes: Brass and White Polyester

Corrosion-Resistant Coating*: White Polyester in all temperature ratings

Footnotes

1 The sprinkler temperature rating is stamped on the deflector.

2 Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

3 The corrosion-resistant Polyester coating has passed the standard corrosion test required by the approving agencies indicated on page 107c. These tests cannot and do not represent all possible corrosive environments. Note: This coating is NOT corrosion proof. Prior to installation, verify through the end-user that the coating is compatible with or suitable for the proposed environment. Polyester coating is applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester coatings.

4 When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.
### Approval Chart

**Quick Response Dry Upright Sprinklers**  
Maximum 175 PSI (12 bar) WWP

<table>
<thead>
<tr>
<th>Sprinkler Base Part Number(^1)</th>
<th>SIN</th>
<th>Style</th>
<th>Thread Size</th>
<th>Nominal K-Factor(^2)</th>
<th>Order Length Increment</th>
<th>Listings and Approvals(^4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NPT</td>
<td>BSP</td>
<td>U.S.</td>
<td>metric(^3)</td>
</tr>
<tr>
<td>08417U</td>
<td>VK184</td>
<td>Plain Barrel</td>
<td>1&quot;</td>
<td>--</td>
<td>5.6</td>
<td>80.6</td>
</tr>
</tbody>
</table>

#### Approved Temperature Ratings

- A - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)
- B - 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C)

#### Approved Finishes and “B” Dimensions

- 1 - Brass or White Polyester\(^7\) with “B” dimension 4-1/2” to 48-1/2” (114.3 mm to 1,232 mm)
- 2 - Brass with “B” dimension 4-1/2” to 48-1/2” (114.3 mm to 1,232 mm)

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**Footnotes**

1. Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
3. 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.
4. This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
5. Listed by Underwriter’s Laboratories for use in the U.S. and Canada.
6. Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol. 15.
7. cULus Listed as corrosion resistant.

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**Figure 1:**  Standard Sprinkler Wrench 07297W/B
NOTE: When using CPVC fittings with Viking dry sprinklers, use only new Nibco Model 5012-S-B1 tees. When selecting other CPVC fittings, contact Viking Technical Services.

cULus Listing Requirements:
Standard Dry Upright Sprinklers are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13.
- Minimum spacing allowed is 6 ft. (1.8 m) unless baffles are installed in accordance with NFPA 13.
- Locate no less than 4" (102 mm) from walls.
- Maximum distance from walls 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 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 DRY1-3 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

Figure 2: Quick Response Dry Upright Sprinkler
**Figure 4: Dry Upright Sprinkler Required Minimum Barrel Length Based on Ambient Temperature in the Protected Area**

The ambient temperature is the temperature at the discharge end of the sprinkler. For protected area temperatures that occur between the values listed, use the next cooler temperature.

**The protected area refers to the area above the ceiling.**

Seal the clearance space around the sprinkler to avoid leakage of air into the protected area, and consequent formation of condensate around the frame, which could inhibit operation or cause premature operation. Refer to Figure 3 above.

If humidity and temperature differential causes condensation on the exposed dry sprinkler, consider wrapping the exposed barrel with insulation, foam, insulating tape, or equivalent.

![Figure 3: Dry Sprinkler Seal](image-url)

- **Ambient Temperature of Protected Area at the Discharge End of the Sprinkler:**
  - Exposed Barrel Length
  - Face of Tee to Surface of Ceiling
  - In. (mm) In. (mm) In. (mm)
  - 40°F (4°C) 0 0 0
  - 30°F (-1°C) 0 0 0
  - 25°F (-4°C) 4 (108) 0 0
  - 10°F (-12°C) 8 (203) 1 (25.4) 0
  - 0°F (-18°C) 12 (305) 3 (76) 0
  - -10°F (-23°C) 14 (356) 4 (102) 1 (25.4)
  - -20°F (-29°C) 14 (356) 6 (152) 3 (76)
  - -30°F (-34°C) 16 (406) 8 (203) 4 (102)
  - -40°F (-40°C) 18 (457) 8 (203) 4 (102)
  - -50°F (-46°C) 20 (508) 8 (203) 6 (152)
  - -60°F (-51°C) 22 (559) 10 (254) 6 (152)

*(Added patent number.)*