1. DESCRIPTION
Viking Microfast® EC/QREC Pendent Sprinklers are small thermosensitive spray sprinklers available in several different finishes and temperature ratings to meet varying design requirements. These sprinklers have both standard response and quick response listings. The glass bulb operating element and special deflector characteristics meet the challenges of quick response extended coverage standards. The special Polyester coating can be used in decorative applications where colors are desired.

2. LISTINGS AND APPROVALS
- UL Listed: Category VNIV
- FM Approved: Class 2020
- NYC Approved: City of New York Board of Standards and Appeals, Calendar No. 219-76-SA

Refer to Approval Chart 1 and Design Criteria on pages 81c-d for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 81e for FM Approval requirements that must be followed.

3. TECHNICAL DATA
Specifications:
Available since 1988.
Minimum Operating Pressure: Refer to the Approval Charts.
Maximum Working Pressure: 175 psi (12 Bar). Factory tested hydrostatically to 500 psi (34.5 bar).
Factory tested hydrostatically to 500 psi (34.5 bar).
Thread sizes: Part No. 06778B: 1/2" (15 mm) NPT
Part No. 07077: 3/4" (20 mm) NPT
Nominal K-Factors: 06778B: 5.6 U.S. (80.6 metric†)
07077: 8.0 U.S. (115.2 metric†)
† Metric K-factor measurement shown is in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
Glass-bulb fluid temperature rated to -65 °F (-55 °C)
Overall Length: Part No. 06778B: 2-5/16 (59 mm), Part No. 07077: 2-3/8" (61 mm)

Material Standards:
Sprinkler Frame: Brass UNS-C84400 or QM Brass for Sprinkler 06778B.
Brass UNS-C84400 for all other sprinklers.
Deflector: Brass UNS-C26000
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

Ordering Information: (Also refer to the current Viking price list.)
Order Microfast® EC/QREC Pendent Sprinklers by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.
Finish Suffix: Brass = A, Chrome = F, White Polyester = M/W, and Black Polyester M/B
Temperature Suffix: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D
For example, sprinkler VK600 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 06778BAB

Available Finishes And Temperature Ratings:
Refer to Table 1.

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

Sprinkler Wrenches:
A. Standard Wrench: Part No. 10896W/B (available since 2000)
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 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
Viking Microfast® EC/QREC Pendant Sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

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

### Table 1: Available Sprinkler Temperature Ratings and Finishes

<table>
<thead>
<tr>
<th>Sprinkler Temperature Classification</th>
<th>Sprinkler Nominal Temperature Rating¹</th>
<th>Maximum Ambient Ceiling Temperature²</th>
<th>Bulb Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary</td>
<td>135 °F (57 °C)</td>
<td>100 °F (38 °C)</td>
<td>Orange</td>
</tr>
<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>
</tbody>
</table>

Sprinkler Finishes: Brass, Chrome, White Polyester³, and Black Polyester³

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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 For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester coatings.
## Approval Chart 1 (UL)

Microfast® Standard/Quick Response Extended Coverage Pendent Sprinklers
For Light Hazard Occupancies Only. Maximum 175 PSI (12 Bar) WWP

<table>
<thead>
<tr>
<th>Sprinkler Base Part No.</th>
<th>SIN</th>
<th>Thread Size</th>
<th>Nominal K-Factor</th>
<th>Maximum Areas of Coverage (Length x Width)</th>
<th>Minimum Water Supply Requirements Flow/Pressure</th>
<th>Listings and Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inches</td>
<td>U.S. metric</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Standard Response Applications
| 07077 VK602            | 3/4 | 20          | 8.0             | 115.2 20' x 20' (6.1 m x 6.1) m | 40 gpm @ 25.0 psi (151.4 L/min @ 1.72 Bar) B1Z | B1Y                     |
| 06778B VK600           | 1/2 | 15          | 5.6             | 80.6   20' x 20' (6.1 m x 6.1) m | 40 gpm @ 51.0 psi (151.4 L/min @ 3.52 Bar) B1Z | B1Y                     |
| Quick Response Applications
| 07077 VK602            | 3/4 | 20          | 8.0             | 115.2 16' x 16' (4.9 m x 4.9) m | 26 gpm @ 10.6 psi (98.4 L/min @ 0.73 Bar) E1Z | E1Z                     |
| 06778B VK600           | 1/2 | 15          | 5.6             | 80.6   16' x 16' (4.9 m x 4.9) m | 26 gpm @ 21.6 psi (98.4 L/min @ 1.49 Bar) E1Z | E1Z                     |
| 07077 VK602            | 3/4 | 20          | 8.0             | 115.2 18' x 18' (5.5 m x 5.5) m | 33 gpm @ 17.0 psi (124.9 L/min @ 1.17 Bar) E1Z | E1Z                     |
| 06778B VK600           | 1/2 | 15          | 5.6             | 80.6   18' x 18' (5.5 m x 5.5) m | 33 gpm @ 34.7 psi (124.9 L/min @ 2.39 Bar) E1Z | E1Z                     |
| 07077 VK602            | 3/4 | 20          | 8.0             | 115.2 20' x 20' (6.1 m x 6.1) m | 40 gpm @ 25.0 psi (151.4 L/min @ 1.72 Bar) D1Z | D1Z                     |
| 06778B VK600           | 1/2 | 15          | 5.6             | 80.6   20' x 20' (6.1 m x 6.1) m | 40 gpm @ 51.0 psi (151.4 L/min @ 3.52 Bar) D1Z | D1Z                     |

Sprinkler Temperature Ratings
A - 135 °F (57 °C) and 155 °F (68 °C)
B - 155 °F (68 °C) and 175 °F (79 °C)
C - 175 °F (79 °C)
D - 135 °F (57 °C)
E - 135 °F (57 °C), 155 °F (68 °C), and 175 °F (79 °C)

### Approved Finishes
1. Brass, Chrome, White Polyester, and Black Polyester

### Approved Escutcheons
Y - Standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon
Z - Standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon

### Footnotes
1. Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
2. Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
3. 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.
4. For areas of coverage smaller than shown, use the “Minimum Water Supply Requirement” for the next larger area listed with sprinklers of similar K-factor. Flows and pressures listed are per sprinkler.
5. Listed by Underwriter’s Laboratories, Inc. for use in the U.S. and Canada for Light Hazard occupancies with smooth, flat, horizontal ceilings only.
6. cULus Listings are limited to Light Hazard occupancies, where allowed by the installation standards being applied.
7. Accepted for use, City of New York Board of Standards and Appeals, Calendar Number 219-76-SA.
**Design Criteria - UL**

(Also refer to Approval Chart 1 on page 81c.)

**cULus Listing Requirements:**

Standard/Quick Response Extended Coverage Pendent Sprinklers SIN VK600 and VK602 are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for extended coverage pendent spray sprinklers:

- Limited to Light Hazard occupancies, where allowed by the installation standards being applied, with smooth, flat, horizontal ceilings only.
- Minimum spacing allowed is 8 ft. (2.4 m) unless baffles are installed in accordance with NFPA 13.
- Minimum distance from walls is 4 in. (102 mm).
- 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 extended coverage pendent spray sprinklers must be followed.

**Important:** Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to pages EC1-3 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

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**Figure 2:** Wrench 13577W/B for recessed pendent sprinkler VK600 and VK602

- Step 1: Carefully slide the wrench sideways around the sprinkler deflector and protective shield. (Note the orientation of the shield in the wrench.)
- Sprinkler Wrench 13577W/B** must be used for installing recessed sprinkler VK600 and VK602
- **A 1/2" ratchet is required (not available from Viking).**
- Step 2: Carefully press the wrench upward and ensure engagement with the sprinkler wrench flats.
### Approval Chart 2 (FM)

Microfast® Quick Response Extended Coverage Pendent Sprinklers

<table>
<thead>
<tr>
<th>Sprinkler Base Part Number¹</th>
<th>SIN</th>
<th>NPT Thread Size</th>
<th>Nominal K-Factor</th>
<th>Maximum Areas of Coverage¹</th>
<th>Minimum Water Supply Requirements² Flow/Pressure</th>
<th>FM Approvals³ (Refer also to Design Criteria below.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inches mm</td>
<td>U.S. metric²</td>
<td>(Length x Width)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07077 VK602</td>
<td>3/4</td>
<td>20</td>
<td>8.0</td>
<td>16' x 16' (4.9 m x 4.9 m)</td>
<td>26 gpm @ 10.6 psi (98.4 L/min @ 0.73 Bar)</td>
<td>A1Z</td>
</tr>
<tr>
<td>06778B VK600</td>
<td>1/2</td>
<td>15</td>
<td>5.6</td>
<td>16' x 16' (4.9 m x 4.9 m)</td>
<td>26 gpm @ 21.6 psi (98.4 L/min @ 1.49 Bar)</td>
<td>A1Z</td>
</tr>
<tr>
<td>07077 VK602</td>
<td>3/4</td>
<td>20</td>
<td>8.0</td>
<td>18' x 18' (5.5 m x 5.5 m)</td>
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<td>06778B VK600</td>
<td>1/2</td>
<td>15</td>
<td>5.6</td>
<td>20' x 20' (6.1 m x 6.1 m)</td>
<td>40 gpm @ 51.0 psi (151.4 L/min @ 3.52 Bar)</td>
<td>A1Z</td>
</tr>
</tbody>
</table>

### Sprinkler Temperature Ratings

- A - 135 °F (57 °C), 155 °F (68 °C), and 175 °F (79 °C)

### Approved Escutcheons

- Z - Standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon

### Approvals

1. Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
2. Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
3. This chart shows the FM Approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
4. For areas of coverage smaller than shown, use the “Minimum Water Supply Requirement” for the next larger area listed with sprinklers of similar K-factor. Flows and pressures listed are per sprinkler.

### DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

**FM Approval Requirements:**

Quick Response Extended Coverage Pendent Sprinklers VK600 and VK602 are FM Approved as quick response Non-Storage extended coverage pendent sprinklers as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

**NOTE:** The FM installation guidelines may differ from cULus and/or NFPA criteria.

**IMPORTANT:** Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to pages EC1-3 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.
Figure 3: Sprinkler VK600 Dimensions with a Standard Escutcheon and the Model F-1 Adjustable Escutcheon

Figure 4: Sprinkler VK600 Dimensions with the Model E-1 and E-2 Recessed Escutcheons