1. DESCRIPTION
The Viking Micromatic® Standard Response Upright Sprinkler VK145 is a small, thermosensitive, glass-bulb spray sprinkler available in several different finishes, temperature ratings, and K-factors 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). Viking standard response sprinklers may be ordered and/or used as open sprinklers (glass bulb and pip cap assembly removed) on deluge systems. Refer to Ordering Instructions.

2. LISTINGS AND APPROVALS
- **FM Approved**: Class Series 2000
- **VdS Approved**: Certificate G414003 and G4980001
- **LPCB Approved**: Certificate 096e/06
- **CE Certified**: Standard EN 12259-1, EC-certificate of constancy of performance 0832-CPR-S0021 and 0786-CPD-40137
- **China Approval**: Approved according to China GB standard.
- **MED Certified**: Standard EN 12259-1, EC-certificate 0832-MED-1003

**NOTE:** Other International approval certificates are available upon request. Refer to Approval Chart(s) and Design Criterion for Listing and Approval requirements that must be followed.

3. TECHNICAL DATA
Specifications:
- Minimum Operating Pressure: 7 psi (0.5 bar)*
- Maximum Working Pressure: 175 psi (12 bar) wwp
- Factory tested hydrostatically to 500 psi (34.5 bar)
- Thread size: 1/2" NPT, 15 mm BSPT
- Nominal K-factor: 5.6 U.S. (80.6 metric**)
- Glass-bulb fluid temperature rated to -65 °F (-55 °C)
- Overall Length: 2-3/16" (56 mm)

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

** 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:
- Frame Casting: Brass UNS-C84400 or QM Brass
- Deflector: Copper UNS-C19500
- Bulb: Glass, nominal 5 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 and Pip Cap-ENT Coated

Ordering Information: Refer to Table 1.

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.

Form No. F_032714  19.11.13  Rev 19.3

Replaces Form No. F_032714 Rev 19.2
(Revised China Approval; Obsoleted 19778)
6. INSPECTIONS, TESTS AND MAINTENANCE
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY
The Viking Micromatic® Standard Response Upright Sprinkler VK145 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.

<table>
<thead>
<tr>
<th>Sprinkler Base Part No.</th>
<th>Size 1: Finishes</th>
<th>Nominal Rating</th>
<th>Bulb Color</th>
<th>Hazard Classification</th>
<th>Max. Ambient Ceiling Temperature 2</th>
<th>Suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>13001</td>
<td>1/2 --</td>
<td>135 °F (57 °C)</td>
<td>Orange</td>
<td>Ordinary</td>
<td>100 °F (38 °C)</td>
<td>A</td>
</tr>
<tr>
<td>12990</td>
<td>-- 15</td>
<td>155 °F (68 °C)</td>
<td>Red</td>
<td>Ordinary</td>
<td>100 °F (38 °C)</td>
<td>B</td>
</tr>
<tr>
<td>20228®</td>
<td>-- 15</td>
<td>175 °F (79 °C)</td>
<td>Yellow</td>
<td>Intermediate</td>
<td>150 °F (65 °C)</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 °F (93 °C)</td>
<td>Green</td>
<td>Intermediate</td>
<td>150 °F (65 °C)</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td></td>
<td>212 °F (100 °C)</td>
<td>Green</td>
<td>Intermediate</td>
<td>150 °F (65 °C)</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td>286 °F (141 °C)</td>
<td>Blue</td>
<td>High</td>
<td>225 °F (107 °C)</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td></td>
<td>360 °F (182 °C)</td>
<td>Mauve</td>
<td>Extra High</td>
<td>300 °F (149 °C)</td>
<td>H</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 °F (260 °C)</td>
<td>Black</td>
<td>Ultra High</td>
<td>465 °F (240 °C)</td>
<td>L</td>
</tr>
</tbody>
</table>

Example: 13001MB/W = VK145 with White Polyester Finish and 155 °F (68 °C) Nominal temperature rating. This sprinkler is to be installed into an area with a maximum ambient temperature of 100 °F (38 °C) meaning if the area will experience temperatures above the maximum ambient rating, you shall use a higher temperature-rated sprinkler.

**Corrosion Resistant Coatings**

- White Polyester and Black Polyester in all temperature ratings.
- ENT in all temperature ratings except 135 °F (57 °C).
- Wax-Coated Brass and Wax over Polyester for sprinklers with the following temperature ratings:
  - 155 °F (68 °C) Lt. Brown Wax
  - 175 °F (79 °C) Brown Wax
  - 200 °F (93 °C) Brown Wax
  - 286 °F (141 °C) Dk. Brown Wax

**Accessories**

**Sprinkler Wrenches (see Figure 1):**
- A. Standard Wrench: Part No. 21475M/B
- B. Standard Wrench for Wax Coated Sprinklers: Part No. 10896WB
- C. Socket Wrench for Recessed Pendent Sprinklers: Part No. 13655WB/S (A 1/2” ratchet is required, not available from Viking)
- D. Socket Wrench for Wax Coated Sprinklers: Part No. 13577WB/S (A 1/2” ratchet is required, not available from Viking)
- E. Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool: Part No. 15915

**Sprinkler Cabinet:**
- A. Up to 6 sprinklers: Part number 01724A (available since 1971).
- B. 6-12 Sprinklers: Part number 01725A (available since 1971).

**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. FM Approved corrosion resistant.
4. The corrosion resistant and corrosion proofing 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.
5. Sprinklers of Ultra-High temperature rating are intended for use inside ovens, dryers, or similar enclosures with normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the Ultra-High temperature rated sprinkler is significantly reduced below 300 °F (149 °C), response time may be severely retarded.
6. Wax melting point is 170 °F (76 °C) for 286 °F (141 °C) temperature rated sprinklers. For more information regarding wax coatings, refer to Bulletin Form No. F_010201.
7. Allows use from the floor by attaching a length of 1” diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F_051808.
8. Approved according to China GB Standard.
Sprinkler wrench 13577W/B** must be used for installing wax coated sprinklers.

Step 1: Carefully slide the wrench sideways around the deflector, ensuring engagement with the sprinkler wrench flats.

**Wax Coated Upright Sprinkler**

**A 1/2" ratchet is required (not available from Viking)**

Step 2: Carefully press the wrench downward and ensure engagement with the sprinkler wrench flats.

**Figure 2: Wrench 13577W/B for Wax Coated Sprinklers**
## Approval Chart 1

### Micromatic® Standard Response Upright Sprinkler VK145

<table>
<thead>
<tr>
<th>Base Part Number</th>
<th>SIN</th>
<th>Thread Size</th>
<th>Nominal K-factor</th>
<th>Overall Length</th>
<th>VdS</th>
<th>LPCB</th>
<th>C</th>
<th>China Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>13001</td>
<td>VK145</td>
<td>1/2&quot;</td>
<td>5.6</td>
<td>80.6</td>
<td>2-3/16</td>
<td>56</td>
<td>A1</td>
<td>A1, B2</td>
</tr>
<tr>
<td>12990</td>
<td>VK145</td>
<td>--</td>
<td>5.6</td>
<td>80.6</td>
<td>2-3/16</td>
<td>56</td>
<td>A1</td>
<td>A1, B2</td>
</tr>
<tr>
<td>20228³</td>
<td>VK145</td>
<td>--</td>
<td>5.6</td>
<td>80.6</td>
<td>2-3/16</td>
<td>56</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

NOTICE - Product Below - Limited Availability (Contact Local Viking Office)

<table>
<thead>
<tr>
<th>Base Part Number</th>
<th>SIN</th>
<th>Thread Size</th>
<th>Nominal K-factor</th>
<th>Overall Length</th>
<th>VdS</th>
<th>LPCB</th>
<th>C</th>
<th>China Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>10233</td>
<td>VK145</td>
<td>1/2&quot;</td>
<td>5.6</td>
<td>80.6</td>
<td>2-3/16</td>
<td>56</td>
<td>A1</td>
<td>A1, B2</td>
</tr>
<tr>
<td>10174</td>
<td>VK145</td>
<td>--</td>
<td>5.6</td>
<td>80.6</td>
<td>2-3/16</td>
<td>56</td>
<td>A1</td>
<td>A1, B2</td>
</tr>
</tbody>
</table>

### Approved Temperature Ratings

- **A** - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)

- **B** - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)

- **C** - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)

- **D** - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C)

### Approved Finishes

1. Brass, Chrome, White Polyester, and Black Polyester
2. Wax-Coated Brass and Wax over Polyester
3. Chrome

### Footnotes

1. Base part number is shown. For complete part number, refer to Viking's current price schedule.
2. Metric K-factor shown is for use when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
3. This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
4. CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40137 and EC-certificate of constancy of performance 0832-CPR-S0021
5. MED Certified, Standard EN 12259-1, EC-certificate 0832-MED-1003.
6. Approved according to China GB standard.

**IMPORTANT:** Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Bulletin 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, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.
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

**TECHNICAL DATA**

**MICROMATIC® STANDARD RESPONSE UPRIGHT SPRINKLER VK145 (K5.6)**

### Approval Chart 2 (FM)

**Micromatic® Standard Response Upright Sprinkler VK145**

<table>
<thead>
<tr>
<th>Sprinkler Base Part Number¹</th>
<th>SIN</th>
<th>Thread Size</th>
<th>Nominal K-factor</th>
<th>Overall Length</th>
<th>FM Approvals²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NPT</td>
<td>BSPT</td>
<td>U.S. metric²</td>
<td>Inches</td>
</tr>
<tr>
<td>13001 VK145</td>
<td>1/2&quot;</td>
<td>15 mm</td>
<td></td>
<td>5.6</td>
<td>80.6</td>
</tr>
<tr>
<td>12990 VK145</td>
<td>--</td>
<td>15 mm</td>
<td></td>
<td>5.6</td>
<td>80.6</td>
</tr>
<tr>
<td>20228³ VK145</td>
<td>--</td>
<td>15 mm</td>
<td></td>
<td>5.6</td>
<td>80.6</td>
</tr>
</tbody>
</table>

**NOTICE - Product Below - Limited Availability (Contact Local Viking Office)**

| 10233 VK145 | 1/2" | 15 mm | 5.6 | 80.6 | 2-3/16 | 56 | A1, B2, C3, D1 |
| 10174 VK145 | --   | 15 mm | 5.6 | 80.6 | 2-3/16 | 56 | A1, B2, D1    |

### Approved Temperature Ratings

**A** - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 212 °F (100 °C), 286 °F (141 °C), and 360 °F (182 °C)

**B** - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)

**C** - 286 °F (141 °C)

**D** - 500 °F (260 °C)³

**E** - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 212 °F (100 °C), and 286 °F (141 °C)

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

### Approved Finishes

1 - Brass, Chrome, White Polyester, and Black Polyester
2 - White Polyester and Wax-Coated Brass (corrosion resistant)
3 - 200 °F (93 °C) High-Temperature Wax Coating (corrosion resistant); maximum ambient temperature allowed at ceiling = 150 °F (65 °C)
4 - ENT⁵
5 - Chrome

### Footnotes

¹ Base part number is shown. For complete part number, refer to Viking’s current price schedule.
² Metric K-factor shown is for use when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
³ This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
⁴ Sprinklers of Ultra-High temperature rating are intended for use inside ovens, dryers, or similar enclosures with normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the Ultra-High temperature rated sprinkler is significantly reduced below 300 °F (149 °C), the response time of the Ultra-High temperature rated sprinkler may be severely retarded.
⁵ FM Approved as corrosion resistant.
⁶ Approved according to China GB standard

### DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

**FM Approval Requirements:**

Sprinkler VK145 is FM Approved as standard response Non-Storage upright 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 Bulletin Form No. F 080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.