1. DESCRIPTION
The Viking Microfast® Quick Response Upright Fusible Element Sprinkler VK301 is a small, thermosensitive, solder link spray sprinkler available in several different finishes and temperature ratings to meet design requirements. The special Polyester, PTFE, and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, the ENT coating has been investigated for installation in corrosive environments and is listed/approved as indicated in the approval charts.

2. LISTINGS AND APPROVALS
- cULus Listed: Category VNIV
- FM Approved: Classes 2002 and 2020
- China Approval: Approved according to China GB standard

NOTE: Other International approval certificates are available upon request. Refer to Approval Charts and Design Criteria 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)
- Testing: U.S.A. Patent No. 4,831,870
- Thread size: 1/2” NPT, 15 mm BSPT
- Nominal K-factor: 5.6 U.S. (80.6 metric**)
- Overall Length: 2-1/4” (58 mm)

Material Standards:
- Frame Casting: QM Brass
- Deflector: Brass UNS-C23000 or Copper UNS-C19500
- Fusible Element Assembly: Nickel Alloy
- Trigger and Support: Stainless Steel UNS-S316000
- Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape
- Seat and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400
- Screw: Brass UNS-C36000
- For PTFE Coated Sprinklers: Belleville Spring-Exposed, Screw-Nickel plated, Pip Cap-PTFE Coated
- For Polyester Coated Sprinklers: Belleville Spring-Exposed
- For ENT Coated Sprinklers: Belleville Spring-Exposed, Screw and Pip Cap-ENT Coated

Ordering Information: (Also refer to the current Viking price list.)
- Order Viking Microfast® Quick Response Fusible Element Upright Sprinkler VK301 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, Black Polyester = M-/B, Black PTFE = N, and ENT = JN
- Temperature Suffix: 165 °F (74 °C) = C, 205 °F (96 °C) = E, and 280 °F (138 °C)
- For example, sprinkler VK301 with a 1/2” NPT thread, Brass finish and a 165 °F (74 °C) temperature rating = Part No. 17535AC

Available Finishes And Temperature Ratings: Refer to Table 1.

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

5. OPERATION
During fire conditions, the heat-sensitive fusible element assembly disengages, releasing the seat and spring assemblies 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 Microfast® Quick Response Upright Fusible Element Sprinkler VK301 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>
<thead>
<tr>
<th>Sprinkler Temperature Classification</th>
<th>Sprinkler Nominal Temperature Rating¹</th>
<th>Maximum Ambient Ceiling Temperature²</th>
<th>Frame Paint Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary</td>
<td>165 °F (74 °C)</td>
<td>100 °F (38 °C)</td>
<td>None</td>
</tr>
<tr>
<td>Intermediate</td>
<td>205 °F (96 °C)</td>
<td>150 °F (65 °C)</td>
<td>White</td>
</tr>
<tr>
<td>High</td>
<td>280 °F (138 °C)</td>
<td>225 °F (107 °C)</td>
<td>Blue</td>
</tr>
</tbody>
</table>

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, Black PTFE, and ENT³⁴
Corrosion Resistant Sprinkler Coatings: ENT³⁴

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 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. Note that the spring is exposed on sprinklers with ENT coatings. For ENT coated automatic sprinklers, the waterway is coated.
⁴ cULus Listed as corrosion resistant.
⁵ 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 PTFE coatings.

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

MICROFAST® QUICK RESPONSE FUSIBLE ELEMENT UPRIGHT SPRINKLER VK301 (K5.6)

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

**DESIGN CRITERIA - UL**
(Also refer to Approval Chart 1 above.)

cULus Listing Requirements:
Quick Response Fusible Element Upright Sprinkler VK301 is 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. Maximum spacing allowed is 15 ft. (4.6 m).
- Minimum spacing allowed is 6 ft. (1.8 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 rules contained in NFPA 13 for standard spray upright sprinklers must be followed.

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

Approved Temperature Ratings
A - 165 °F (74 °C), 205 °F (96 °C), 280 °F (138 °C)
B - 165 °F (74 °C), 205 °F (96 °C)

Approved Finishes
1 - Brass, Chrome, White Polyester, Black Polyester, Black PTFE, and ENT
2 - Brass, Chrome, White Polyester, and Black Polyester
3 - Brass

Footnotes
1 Base part number is shown. For complete part number, refer to Viking’s current price 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 table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
4 Listed by Underwriters Laboratories Inc. for us in the U.S. and Canada
5 Other colors are available on request with the same Listings and Approvals as the standard colors.
6 cULus Listed as corrosion resistant.
7 Approved according the China GB standard.

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**Approval Chart 1 (UL)**
Microfast® Quick Response Fusible Element
Upright Sprinkler VK301
Maximum 175 PSI (12 bar) WWP

<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>Listings and Approvals</th>
<th>Temperature Finish</th>
<th>China Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NPT BSPT</td>
<td>U.S. metric²</td>
<td>Inches</td>
<td>mm</td>
<td>cULus</td>
<td>VdS</td>
</tr>
<tr>
<td>17535</td>
<td>VK301</td>
<td>1/2” 15 mm</td>
<td>5.6 80.6</td>
<td>2-1/4</td>
<td>58</td>
<td>A1</td>
<td>--</td>
</tr>
<tr>
<td>21363</td>
<td>VK301</td>
<td>-- 15 mm</td>
<td>5.6 80.6</td>
<td>2-1/4</td>
<td>58</td>
<td>B3</td>
<td>--</td>
</tr>
</tbody>
</table>

Approved Temperature Ratings
A - 165 °F (74 °C), 205 °F (96 °C), 280 °F (138 °C)
B - 165 °F (74 °C), 205 °F (96 °C)

Approved Finishes
1 - Brass, Chrome, White Polyester, Black Polyester, Black PTFE, and ENT
2 - Brass, Chrome, White Polyester, and Black Polyester
3 - Brass

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

12279 VK301 1/2” 15 mm 5.6 80.6 2-1/4 58 A2 -- -- -- B3

Footnotes
1 Base part number is shown. For complete part number, refer to Viking’s current price 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 table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
4 Listed by Underwriters Laboratories Inc. for us in the U.S. and Canada
5 Other colors are available on request with the same Listings and Approvals as the standard colors.
6 cULus Listed as corrosion resistant.
7 Approved according the China GB standard.
Microfast® Quick Response Fusible Element Upright Sprinkler VK301 (K5.6)

### DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

**FM Approval Requirements:**
The Microfast® Quick Response Fusible Element Upright Sprinkler VK301 is FM Approved as a quick response Non-Storage upright sprinkler 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.

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**Approval Chart 2 (FM)**

Microfast® Quick Response Fusible Element

Upright Sprinkler VK301

Maximum 175 PSI (12 bar) WWP

<table>
<thead>
<tr>
<th>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 BSPT</td>
<td>U.S. metric2</td>
<td>Inches mm</td>
<td></td>
</tr>
<tr>
<td>17535</td>
<td>VK301</td>
<td>1/2”</td>
<td>15 mm 5.6 80.6</td>
<td>2-1/4 58</td>
<td>A1</td>
</tr>
<tr>
<td>213636</td>
<td>VK301</td>
<td>--</td>
<td>15 mm 5.6 80.6</td>
<td>2-1/4 58</td>
<td>B3</td>
</tr>
</tbody>
</table>

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

| 12279 | VK301 | 1/2” | 15 mm 5.6 80.6 | 2-1/4 58 | A2 |

### Approved Temperature Ratings

A - 165 °F (74 °C), 205 °F (96 °C), and 280 °F (138 °C)

B - 165 °F (74 °C) and 205 °F (96 °C)

### Approved Finishes

1. Brass, Chrome, and ENT
2. Brass, Chrome, White Polyester4, and Black Polyester4
3. Brass

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**Footnotes**

1. Base part number is shown. For complete part number, refer to Viking’s current price 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 table shows the FM Approvals available at the time of printing. Check with the manufacturer for any additional approvals.
4. Other colors are available on request with the same Approvals as the standard colors.
5. Approved according to China GB Standard.