



## 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](http://www.vikinggroupinc.com)

### 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 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 VNIIV



FM Approved: Classes 2002 and 2020

China Approval: Approved according to China GB standard



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

**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)

\*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).

#### 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-S31600  
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 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, 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)



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#### 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 Microfas® 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 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES**

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	Frame Paint Color
Ordinary	165 °F (74 °C)	100 °F (38 °C)	None
Intermediate	205 °F (96 °C)	150 °F (65 °C)	White
High	280 °F (138 °C)	225 °F (107 °C)	Blue

**Sprinkler Finishes:** Brass, Chrome, White Polyester<sup>5</sup>, Black Polyester<sup>5</sup>, and ENT<sup>3,4</sup>

**Corrosion Resistant Sprinkler Coatings:** ENT<sup>3,4</sup>

#### Footnotes

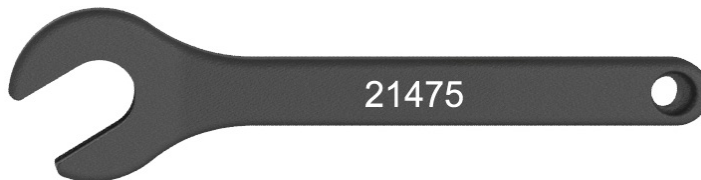
<sup>1</sup> The sprinkler temperature rating is stamped on the deflector.

<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. Note that the spring is exposed on sprinklers with ENT coatings. For ENT coated automatic sprinklers, the waterway is coated.

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

<sup>5</sup> For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only.



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

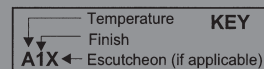


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Approval Chart 1 (UL)												
Microfast® Quick Response Fusible Element Upright Sprinkler VK301 Maximum 175 PSI (12 bar) WWP												
Base Part Number <sup>1</sup>	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals <sup>3</sup>				
		NPT	BSPT	U.S.	metric <sup>2</sup>	Inches	mm	cULus	VdS	LPCB	CE	China Approval
17535	VK301	1/2"	15 mm	5.6	80.6	2-1/4	58	A1	--	--	--	--
21363 <sup>7</sup>	VK301	--	15 mm	5.6	80.6	2-1/4	58	B3	--	--	--	B3
<b>NOTICE - Product Below - Limited Availability (Contact Local Viking Office)</b>												
12279	VK301	1/2"	15 mm	5.6	80.6	2-1/4	58	A2	--	--	--	B3
<b>Approved Temperature Ratings</b> A - 165 °F (74 °C), 205 °F (96 °C), 280 °F (138 °C) B - 165 °F (74 °C), 205 °F (96 °C)						<b>Approved Finishes</b> 1 - Brass, Chrome, White Polyester <sup>5</sup> , Black Polyester <sup>5</sup> , and ENT <sup>6</sup> 2 - Brass, Chrome, White Polyester <sup>5</sup> , and Black Polyester <sup>5</sup> 3 - Brass						
<b>Footnotes</b>												
<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. <sup>7</sup> Approved according the China GB standard.												



### 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.

**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

KEY	
Temperature	→
Finish	↓
A1X ←	Escutcheon (if applicable)

Base Part Number <sup>1</sup>	SIN	Thread Size		Nominal K-factor		Overall Length		FM Approvals <sup>3</sup> (Refer also to Design Criteria below.)
		NPT	BSPT	U.S.	metric <sup>2</sup>	Inches	mm	
17535	VK301	1/2"	15 mm	5.6	80.6	2-1/4	58	A1
21363 <sup>5</sup>	VK301	--	15 mm	5.6	80.6	2-1/4	58	B3

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

12279	VK301	1/2"	15 mm	5.6	80.6	2-1/4	58	A2
<b>Approved Temperature Ratings</b> A - 165 °F (74 °C), 205 °F (96 °C), and 280 °F (138 °C) B - 165 °F (74 °C) and 205 °F (96 °C)							<b>Approved Finishes</b> 1 - Brass, Chrome, and ENT 2 - Brass, Chrome, White Polyester <sup>4</sup> , and Black Polyester <sup>4</sup> 3 - Brass	

#### 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 FM Approvals available at the time of printing. Check with the manufacturer for any additional approvals.  
<sup>4</sup> Other colors are available on request with the same Approvals as the standard colors.  
<sup>5</sup> Approved according to China GB Standard.

#### 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.**