



## TECHNICAL DATA

## MICROMATIC® STANDARD RESPONSE UPRIGHT SPRINKLER VK145 (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 Micromatic® Standard Response Upright Sprinkler VK145 is a small, thermosensitive, glass-bulb spraysprinkler available in several different finishes, temperature ratings, and K-Factors to meet design requirements. The special Polyester coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive atmospheres and are listed/approved as corrosion resistant as indicated in the Approval Chart. (FM Global has no approval classification for Polyester coatings as corrosion resistant.)

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



**CCCF Approved:** Approved by the China Certification Center for Fire Products (CCCF)



**MED Certified:** Standard EN 12259-1, EC-certificate 0832-MED-1003



**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 Chart 2 and Design Criteria FM 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 BSP

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)

\*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).

\*\* 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

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

Order Micromatic® Standard Response Upright 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, Black Polyester = M-/B, Wax Coated = C, Wax Over Polyester = V-/W



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Temperature Suffix (°F/°C): 135°/68° = A, 155°/68° = B, 175°/79° = D, 200°/93° = E, 212°/100° = M, 286°/141° = G, 360°/182° = H, 500°/260° = L, OPEN = Z (PTFE only).

For example, sprinkler VK145 with a 1/2" thread, Brass finish and a 155 °F/68 °C temperature rating = Part No. 13001AB

**Available Finishes And Temperature Ratings:** Refer to Table 1.

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

### Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000)

B. Wrench for wax-coated sprinklers: Part No. 13577W/B\*\* (available since 2006)

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

### 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 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

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.



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**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>	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
Intermediate	212 °F (100 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue
Extra High	360 °F (182 °C)	300 °F (149 °C)	Mauve
Ultra High <sup>3</sup>	500 °F (260 °C)	465 °F (240 °C)	Black

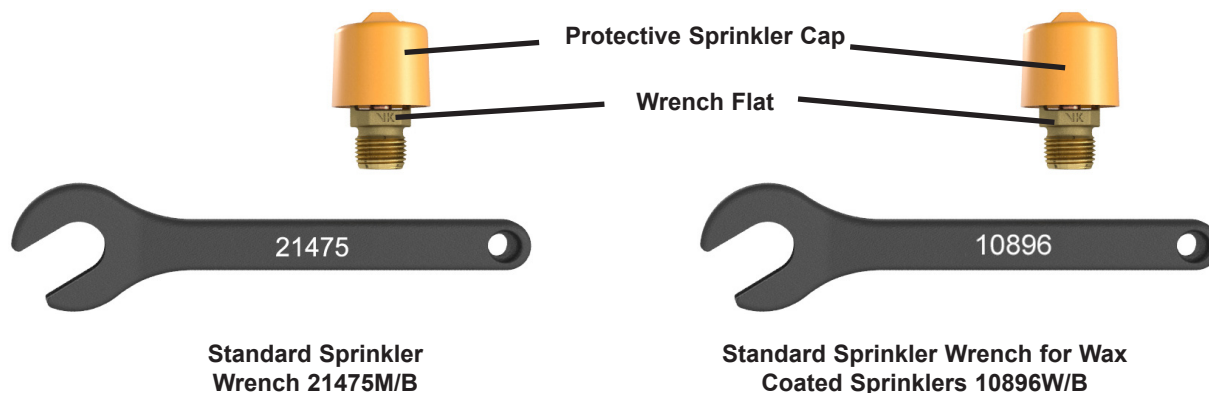
**Sprinkler Finishes:** Brass, Chrome, White Polyester, Black Polyester

**Corrosion-Resistant Coatings<sup>4</sup>:** White Polyester, Black Polyester, 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
- 212 °F (100 °C) Dk. Brown Wax<sup>5</sup>
- 286 °F (141 °C) Dk. Brown Wax<sup>5</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> 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.
- <sup>4</sup> The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. 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 coatings.
- <sup>5</sup> Wax melting point is 170 °F (76 °C) for 212 °F (100 °C) and 286 °F (141 °C) temperature rated sprinklers.



**Figure 1:  
Standard Sprinkler Wrenches**



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**Approval Chart 1**

Micromatic® Standard Response Upright Sprinkler VK145  
 Maximum 175 PSI (12 bar) WWP

Temperature	KEY
Finish	
A1X ← Escutcheon (if applicable)	

Base Part Number <sup>1</sup>	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals <sup>3</sup>					
		NPT	BSP	U.S.	metric <sup>2</sup>	Inches	mm	cULus	VdS	LPCB	CE <sup>4</sup>	⚙ <sup>5</sup>	©
13001	VK145	1/2"	15 mm	5.6	80.6	2-3/16	56	--	A1	A1, B2	A1	C1	--
12990	VK145	--	15 mm	5.6	80.6	2-3/16	56	--	A1	A1, B2	A1	C1	--
19778	VK145	1/2"	15 mm	5.6	80.6	2-3/16	56	--	--	--	--	--	D3
20228	VK145	--	15 mm	5.6	80.6	2-3/16	56	--	--	--	--	--	D3
<b>NOTICE - Product Below - Limited Availability (Contact Local Viking Office)</b>													
10233	VK145	1/2"	15 mm	5.6	80.6	2-3/16	56	--	A1	A1, B2	A1	C1	--
10174	VK145	--	15 mm	5.6	80.6	2-3/16	56	--	A1	A1, B2	--	C1	--

**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)

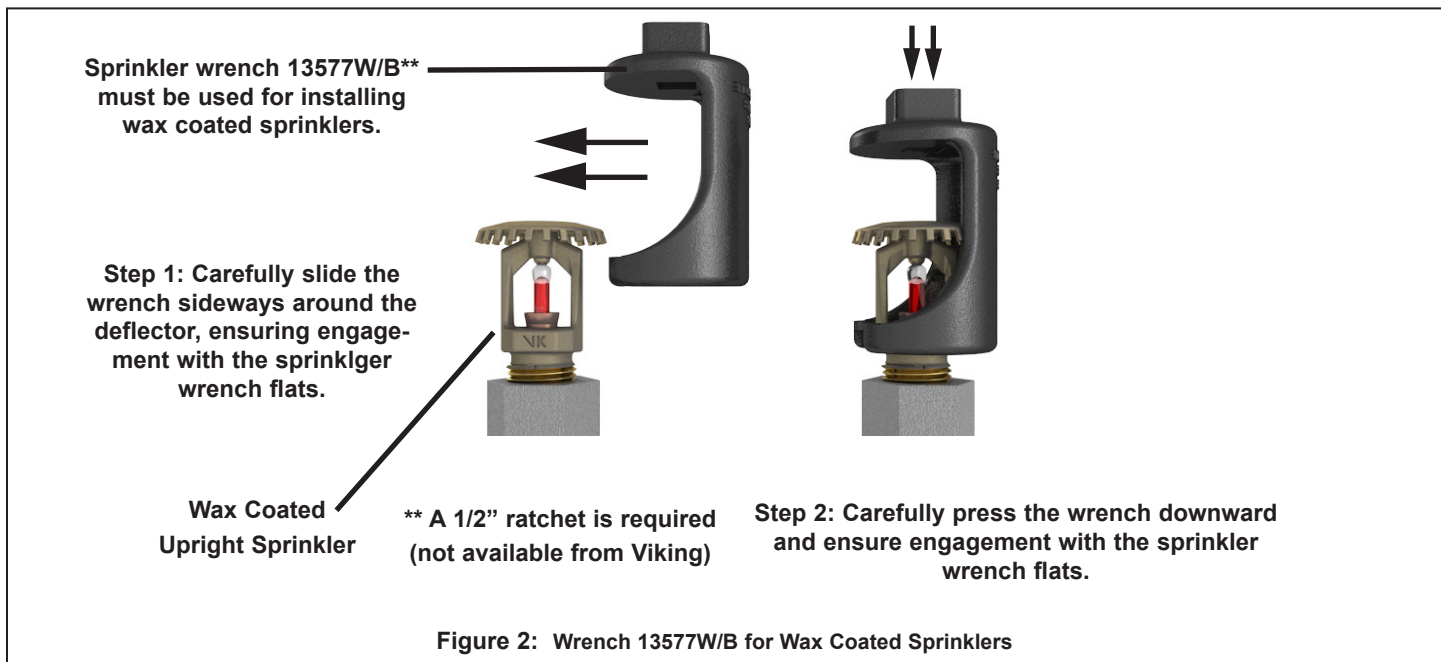
**Approved Finishes**

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

**Footnotes**

- <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 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.
- <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> CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40137 and EC-certificate of constancy of performance 0832-CPR-S0021
- <sup>5</sup> MED Certified, Standard EN 12259-1, EC-certificate 0832-MED-1003.

**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.**





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### Approval Chart 2 (FM)

Micromatic® Standard Response Upright Sprinkler VK145  
 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	BSP	U.S.	metric <sup>2</sup>	Inches	mm	
13001	VK145	1/2"	15 mm	5.6	80.6	2-3/16	56	A1, B2, C3, D1
12990	VK145	--	15 mm	5.6	80.6	2-3/16	56	A1, B2, D1
<b>NOTICE - Product Below - Limited Availability (Contact Local Viking Office)</b>								
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)<sup>4</sup>

#### 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)

#### 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 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.  
<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> 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.

### 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.**