



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

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.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

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)

*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

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.



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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.

Sprinkler Base Part No.	Size		1: Finishes		2: Temperature Ratings				
	NPT Inch	BSPT mm	Description	Suffix ¹	Nominal Rating	Bulb Color	Hazard Classification	Max. Ambient Ceiling Temperature ²	Suffix
13001	1/2	--	Brass	A	135 °F (57 °C)	Orange	Ordinary	100 °F (38 °C)	A
12990	--	15	Chrome	F	155 °F (68 °C)	Red	Ordinary	100 °F (38 °C)	B
20228 ⁸	--	15	White Polyester	M-/W	175 °F (79 °C)	Yellow	Intermediate	150 °F (65 °C)	D
			Black Polyester	M-/B	200 °F (93 °C)	Green	Intermediate	150 °F (65 °C)	E
			Wax	C	212 °F (100 °C)	Green	Intermediate	150 °F (65 °C)	M
			Wax over Polyester	V-/W	286 °F (141 °C)	Blue	High	225 °F (107 °C)	G
			ENT ³	JN	360 °F (182 °C)	Mauve	Extra High	300 °F (149 °C)	H
					500 °F (260 °C)	Black	Ultra High ⁶	465 °F (240 °C)	L

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 Coatings⁵

- 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 Polyester⁷ 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 Wax⁷

Accessories

Sprinkler Wrenches (see Figure 1):

- Standard Wrench: Part No. 21475M/B
- Standard Wrench for Wax Coated Sprinklers: Part No. 10896W/B
- Socket Wrench for Recessed Pendent Sprinklers: Part No. 13655W/B (A 1/2" ratchet is required, not available from Viking)
- Socket Wrench for Wax Coated Sprinklers: Part No. 13577W/B (A 1/2" ratchet is required, not available from Viking)
- Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool⁹: Part No. 15915

Sprinkler Cabinet:

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

Footnotes

- Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.
- 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.
- FM Approved corrosion resistant.
- 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.
- 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.
- 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](#).
- 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](#).
- Approved according to China GB Standard.



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

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Figure 1: Sprinkler Wrenches

Sprinkler wrench 13577W/B**
must be used for installing
wax coated sprinklers.

Step 1: Carefully slide the
wrench sideways around the
deflector, ensuring engage-
ment 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



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Approval Chart 1

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

KEY	
Temperature	—
Finish	—
Escutcheon (if applicable)	—

Base Part Number ¹	SIN	Thread Size		Nominal K-factor		Overall Length		VdS	LPCB	CE ⁴	5	China Approval
		NPT	BSPT	U.S.	metric ²	Inches	mm					
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	--
20228 ⁶	VK145	--	15 mm	5.6	80.6	2-3/16	56	--	--	--	--	D3

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

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

- 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.



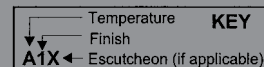
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Approval Chart 2 (FM)

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



Sprinkler Base Part Number ¹	SIN	Thread Size		Nominal K-factor		Overall Length		FM Approvals ³ (Refer also to Design Criteria below.)
		NPT	BSPT	U.S.	metric ²	Inches	mm	
13001	VK145	1/2"	15 mm	5.6	80.6	2-3/16	56	A1, B2, C3, D1, E4
12990	VK145	--	15 mm	5.6	80.6	2-3/16	56	A1, B2, D1, E4
20228 ⁶	VK145	--	15 mm	5.6	80.6	2-3/16	56	F5
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)⁴
 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.