



TECHNICAL DATA

MicromaticHP® STANDARD RESPONSE UPRIGHT HIGH PRESSURE SPRINKLER VK021 (K2.8)

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 MicromaticHP® Standard Response Upright VK021 High Pressure Sprinkler is a small, thermosensitive, glass-bulb spray sprinkler available in several different finishes and temperature ratings to meet design requirements. The special Polyester and PTFE 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 Charts.

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



cULus Listed: Category VNIV

Refer to Approval Chart 1 and UL Design Criteria for requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)†
 Maximum Working Pressure: 250 psi (17 bar) wwp
 Factory tested hydrostatic rating: 500 psi (34.5 bar)
 Thread size: 1/2" NPT, 15 mm BSP
 Nominal K-Factor: 2.8 U.S. (40.3 metric**)
 Glass-bulb fluid temperature rating: -65 °F (-55 °C)
 Overall Length: 2-1/4" (58 mm)

† cULus Listing, FM Approval, and NFPA 13 installs require a minimum of 7 psi (0.5 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: Brass UNS-C84400
 Deflector: Brass UNS-C26000
 Bushing: Brass UNS-C36000
 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
 Pip Cap Attachment: Brass UNS-C36000
For Polyester Coated Sprinklers: Belleville Spring-Exposed
For PTFE Coated Sprinklers: Belleville Spring-Exposed, Screw-Nickel Plated, Pip Cap-PTFE Coated

††Not for FM Approval.

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

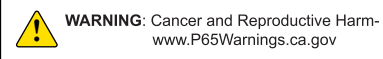
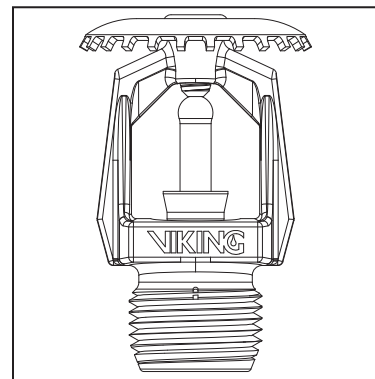
Order MicromaticHP® Standard Response Upright VK021 by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffixes: Brass = A, Chrome = F, White Polyester = M-W, Black Polyester = M-B, Black PTFE = N

Temperature Suffixes: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, 212 °F (100 °C) = M, 286 °F (141 °C) = G, 360 °F (182 °C) = H, OPEN = Z (PTFE only).

For example, sprinkler VK021 with a 1/2" thread, Brass finish and a 155 °F (68 °C) temperature rating = Part No. 09995AB

Available Finishes And Temperature Ratings: Refer to Table 1.





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Accessories: (Also refer to the current Viking price list.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 21475M/B (available since 2017).

D. Wrench for Wax Coated Sprinklers: Part No. 13577W/B* (available since 2006)

*A ½" 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 MicromaticHP® Standard Response Upright High Pressure Sprinkler VK021 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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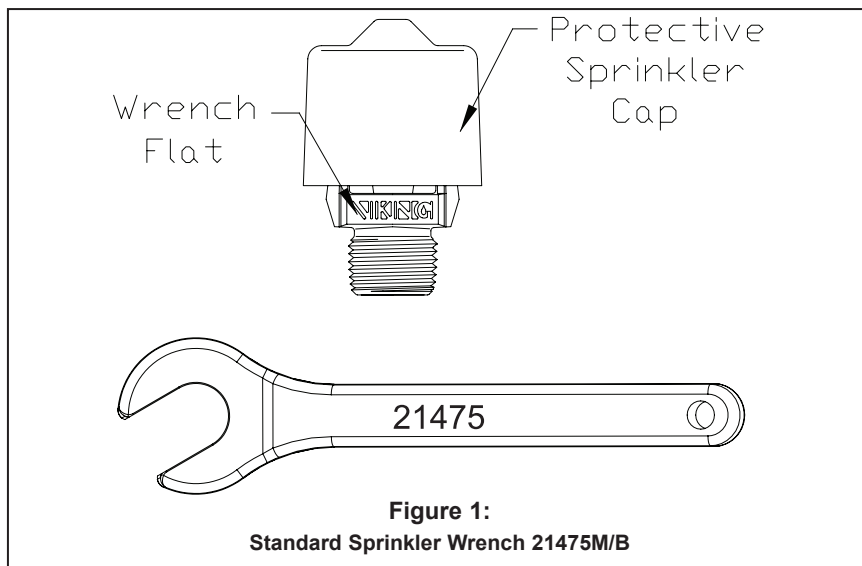
TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	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
High	286 °F (141 °C)	225 °F (107 °C)	Blue
Extra High	360 °F (182 °C)	300 °F (149 °C)	Mauve

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, and Black PTFE
Corrosion-Resistant Coatings³: White Polyester, Black Polyester, and Black PTFE

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 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.
- 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), response time may be severely retarded.



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



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Approval Chart 1 (UL)

MicromaticHP® Standard Response Upright
 High Pressure Sprinkler VK021
 Maximum 250 PSI (17.2 bar) WWP

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

Sprinkler Base Part Number ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to UL Design Criteria.)
		NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴
Standard Orifice								
09995 ⁸	VK021	1/2"	15 mm	2.8	40.3	2-1/4"	58	A1
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)				Approved Finishes 1 - Brass, Chrome, White Polyester ^{5,6} , Black Polyester ^{5,6} , and Black PTFE				
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 Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada. ⁵ cULus Listed as corrosion resistant. ⁶ Other colors are available on request with the same Listings and Approvals as the standard colors.								

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1.)

cULus Listing Requirements:

The Viking MicromaticHP® Standard Response Upright High Pressure Sprinkler VK021 is cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Small orifice sprinklers are limited to Light Hazard where allowed by the installation standards being applied, with hydraulically calculated wet systems only.
- 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 page 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.