



TECHNICAL DATA

MICROFAST® QUICK RESPONSE UPRIGHT SPRINKLER VK350 (K8.0)

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

1. DESCRIPTION

The Viking Microfast® Quick Response Upright Sprinkler VK350 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, Polytetrafluoroethylene (PTFE), 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 atmospheres and are listed/approved as corrosion resistant as indicated in the Approval Charts. (Note: **FM Global approves the ENT coating as corrosion resistant.** FM Global has no approval classification for PTFE and Polyester coatings as corrosion resistant.)



2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class Series 2000



VdS Approved: Certificates G414017 and G414018



LPCB Approved



CE Certified: Standard EN 12259-1, EC-certificate of conformity 0832-CPD-2001 and 0786-CPD-40278

NOTE: Other International approval certificates are available upon request.

Refer to Approval Chart 1 and Design Criteria cULus Listing requirements, and 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)
 Testing: U.S.A. Patent No. 4,831,870
 Thread size: 1/2" NPT, 15 mm BSP, 3/4" NPT, 20 mm BSP
 Nominal K-Factor: 8.0 U.S. (115.2 metric**)
 Glass-bulb fluid temperature rated to -65 °F (-55 °C)
 Overall Length: 2-5/16" (59 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: Brass UNS-C84400
 Deflector: Copper UNS-C19500
 Bulb: Glass, nominal 3 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 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 Pipcap - ENT plated.

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

Order Viking Microfast® Quick Response Upright Sprinkler VK350 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 Black PTFE = N, ENT = JN
 Temperature Suffix (°F/°C): 135°/57° = A, 155°/68° = B, 175°/79° = D, 200°/93° = E, and 286°/141° = G

For example, sprinkler VK350 with a 1/2" thread, Brass finish and a 155 °F/68 °C temperature rating = Part No. 18259AB

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

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

Sprinkler Cabinets:

Viking Technical Data may be found on
 The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
 The Web site may include a more recent
 edition of this Technical Data Page.



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- 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 Microfast® Quick Response Upright Sprinkler VK350 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 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 |

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, Black PTFE, and ENT

Corrosion-Resistant Coatings³: White Polyester, Black Polyester, and Black PTFE. ENT in all temperature ratings except 135 °F (57 °C)

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 on pages 51c-e. 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, ENT, and PTFE coatings. For ENT coated automatic sprinklers, the waterway is coated.

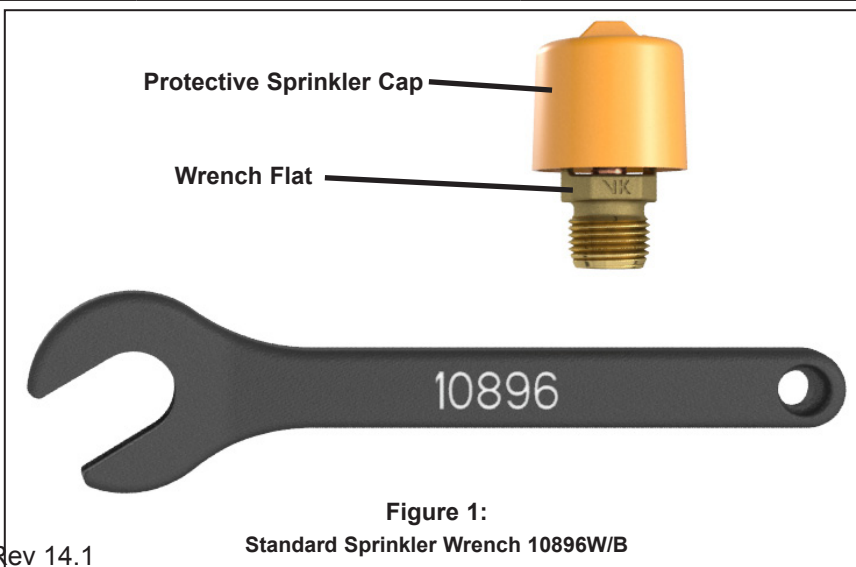


Figure 1:

Standard Sprinkler Wrench 10896W/B



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Approval Chart 1 (UL)

Microfast® Quick Response
Upright Sprinkler VK350
Maximum 175 PSI (12 bar) WWP

| KEY | |
|-------------|----------------------------|
| Temperature | Finish |
| A1X ← | Escutcheon (if applicable) |

| Base Part Number ¹ | SIN | Thread Size | | Nominal K-Factor | | Overall Length | | Listings and Approvals ³ (Refer also to Design Criteria.) | | | |
|-------------------------------|-------|-------------|-------|------------------|---------------------|----------------|----|---|-----|------|-----------------|
| | | NPT | BSP | U.S. | metric ² | Inches | mm | cULus ⁴ | VdS | LPCB | CE |
| 18257 | VK350 | 3/4" | -- | 8.0 | 115.2 | 2-5/16 | 59 | A1, B3 | A2 | A2 | B2 ⁷ |
| 18278 | VK350 | -- | 20 mm | 8.0 | 115.2 | 2-5/16 | 59 | A1, B3 | A2 | A2 | B2 ⁷ |
| 18259 ⁹ | VK350 | 1/2" | 15 mm | 8.0 | 115.2 | 2-5/16 | 59 | A1, B3 | A2 | -- | B2 ⁸ |

Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)
B - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)

Approved Finishes

- 1 - Brass, Chrome, White Polyester^{5,6}, Black Polyester^{5,6}, and Black PTFE⁵
- 2 - Brass, Chrome, White Polyester^{5,6}, and Black Polyester^{5,6}
- 3 - ENT⁵

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 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.
- ⁷ CE Certified, Standard EN 12259-1, EC-certificate of conformity 0832-CPD-2001.
- ⁸ CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40278.
- ⁹ The 1/2" NPT Large Orifice Sprinkler is listed and approved for retrofit only when installed in accordance with NFPA 13.

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1)

cULus Listing Requirements:

The Microfast® Quick Response Upright Sprinkler VK350 is cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- 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 QR1-3 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)

Microfast® Quick Response
 Upright Sprinkler VK350
 Maximum 175 PSI (12 bar) WWP

| KEY | |
|----------------------------------|---|
| Temperature | ↓ |
| Finish | ← |
| A1X ← Escutcheon (if applicable) | ← |

| Base Part Number ¹ | SIN | Thread Size | | Nominal K-Factor | | Overall Length | | FM Approvals ³ (Refer also to Design Criteria below.) |
|-------------------------------|-------|-------------|-------|------------------|---------------------|----------------|----|---|
| | | NPT | BSP | U.S. | metric ² | Inches | mm | |
| 18257 | VK350 | 3/4" | -- | 8.0 | 115.2 | 2-5/16 | 59 | A1, B2 |
| 18278 | VK350 | -- | 20 mm | 8.0 | 115.2 | 2-5/16 | 59 | A1, B2 |
| 18259 ⁵ | VK350 | 1/2" | 15 mm | 8.0 | 115.2 | 2-5/16 | 59 | A1, B2 |

Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)
 B - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141°C)

Approved Finishes

1 - Brass, Chrome, White Polyester⁴, and Black Polyester⁴
 2 - ENT⁶

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 The 1/2" NPT Large Orifice Sprinkler is listed and approved for retrofit only when installed in accordance with NFPA 13.
⁶ FM approved as corrosion resistant.

DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:

The Microfast® Quick Response Upright Sprinkler VK350 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 page QR1-3 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.