



TECHNICAL DATA

MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS

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

Viking Microfast® and MicrofastHP® Quick Response Pendent Sprinklers are small, thermosensitive, glass-bulb spray sprinklers available in several different finishes and 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 ENT finish 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: Classes 2001, 2002, 2015, and 2017

NYC Approved: Calendar Number 219-76-SA and MEA 89-92-E, Volume 16

ABS Certified: Certificate 04-HS407984C-PDA



VdS Approved: Certificates G4040095, G4040097, G4060056, G4060057, G4880045, G4930038, and G4980021



LPC Approved: Ref. Nos. 096e/03 and 096e/04



CE Certified: Standard EN 12259-1, EC-certificates of conformity 0786-CPD-40130, 0786-CPD-40170 and 0786-CPD-40279, 0832-CPD-2001, and 0832-CPD-2003

MED Certified: Standard EN 12259-1, EC-certificate of conformity 0832-MED-1003 and 0832-MED-1008

NOTE: Other International approval certificates are available upon request.

Refer to Approval Chart 1 and Design Criteria on page 41d for cULus Listing requirements and refer to Approval Chart 2 and Design Criteria on page 41f for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 1987.

Minimum Operating Pressure: 7 psi (0.5 bar)*

Maximum Working Pressure: Sprinklers 12282 and 12290 are rated for use with water working pressures ranging from the minimum 7 psi (0.5 bar) up to 250 psi (17 bar) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating "250" stamped on the deflector. All other Part Nos. not mentioned above are rated to a maximum 175 psi (12 bar) wwp.

Factory tested hydrostatically to 500 psi (34.5 bar)

Thread size: Refer to the Approval Charts

Nominal K-Factor: Refer to the Approval Charts

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length: Refer to the Approval Charts

*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 or QM Brass for Sprinklers 12979 and 12282. Brass UNS-C84400 for all other sprinklers.

Deflector: Phosphor Bronze UNS-C51000 or Copper UNS-C19500 for Sprinklers 12979, 06666B, and 06765B. Copper UNS-C19500 for Sprinkler 12282. Phosphor Bronze UNS-C51000, Copper UNS-C19500 or Brass UNS-C26000 for Sprinkler 06720B. Brass UNS-C26000 for all other Sprinklers.

Bushing (for Sprinklers 06718B, 06720B, and 12290): Brass UNS-C36000

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape

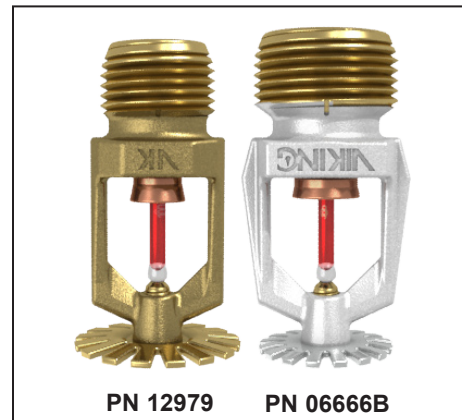
Screw: Brass UNS-C36000

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 coated.



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

Order Microfast® and MicrofastHP® Quick Response Pendent 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, Black PTFE = N, and ENT = JN

Temperature Suffix: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, and 286 °F (141 °C) = G

For example, sprinkler VK302 with a 1/2" thread, Brass finish and a 155 °F (68 °C) temperature rating = Part No. 12979AB

Available Finishes And Temperature Ratings:

Refer to Table 1.

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

Sprinkler Wrenches:

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

B. Wrench for Recessed Pendent Sprinklers: Part No. 16036W/B* (available since 2011)

C. Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool** Part No. 15915 (available since 2010.)

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

**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.

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 Microfast® and MicrofastHP® Quick Response Pendent Sprinklers are 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.

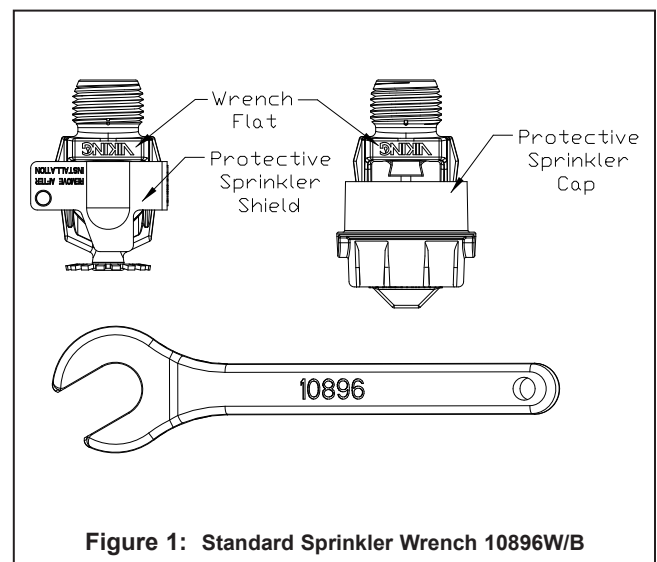


Figure 1: Standard Sprinkler Wrench 10896W/B



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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

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 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, PTFE, and ENT coatings. For ENT coated automatic sprinklers, the waterway is coated.

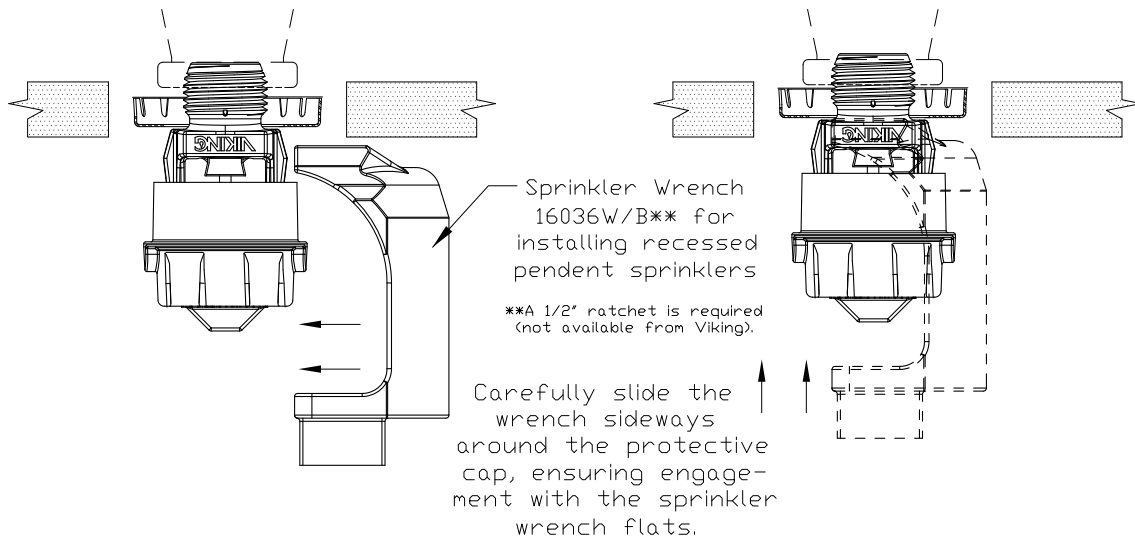


Figure 2: Wrench 16036W/B for Recessed Pendent Sprinklers

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Approval Chart 1 (UL) Microfast® and MicrofastHP® Quick Response Pendent Sprinklers Maximum 175 PSI (12 bar) WWP																				
												<table border="1" style="font-size: small;"> <tr> <td>—</td><td>Temperature</td><td rowspan="3" style="vertical-align: middle;">KEY</td> </tr> <tr> <td>▼</td><td>Finish</td> </tr> <tr> <td>A1X ←</td><td>Escutcheon (if applicable)</td> </tr> </table>		—	Temperature	KEY	▼	Finish	A1X ←	Escutcheon (if applicable)
—	Temperature	KEY																		
▼	Finish																			
A1X ←	Escutcheon (if applicable)																			

Sprinkler Base Part No. ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to Design Criteria on page 41e.)					
		NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴	NYC ⁵	VdS	LPCB	CE	⊗
Standard Orifice													
12979	VK302	1/2"	15 mm	5.6	80.6	2-1/4"	57	A1X, B1Y, C4, E4Z	A1X, B1Y	--	--	--	--
18021	VK302	1/2"	15 mm	5.6	80.6	2-1/4"	58	A1X, B1Y	A1X, B1Y	A2	A2X, B2Y	C2X, E2Y ¹¹	C2X, E2Y ¹⁴
Large Orifice													
06666B	VK352	3/4"	20 mm	8.0	115.2	2-3/8"	60	A1X, B1Y, C4, E4Z	A1X, B1Y	A2	A2X	C2 ¹¹	--
06765B ¹⁵	VK352	1/2"	15 mm	8.0	115.2	2-3/8"	60	A1X, B1Y, C4, E4Z	A1X, B1Y	A2	--	A2 ¹²	--
Small Orifice⁸													
06718B ⁹	VK329	1/2"	15 mm	2.8	40.3	2-3/16"	56	A1X, B1Y	A1X, B1Y	--	--	--	--
06720B ⁹	VK331	1/2"	15 mm	4.2	57	2-1/4"	58	A1X, B1Y	A1X, B1Y	--	--	--	--
06932B	VK331	--	10 mm	4.2	57	2-3/8"	60	--	--	A2	--	G3 ¹³	--

Maximum 250 PSI (17 bar) WWP Standard Orifice													
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Sprinkler Base Part No. ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to Design Criteria on page 41e.)					
		NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴	NYC ¹⁰	VdS	LPCB	CE	⊗
12282	VK317	1/2"	15 mm	5.6	80.6	2-1/4"	58	A1X, B1Y	A1X	--	--	--	--

Maximum 250 PSI (17 bar) WWP Small Orifice ⁹													
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12290 ¹⁰	VK342	1/2"	15 mm	2.8	40.3	2-3/16"	56	A1X, B1Y	A1X	--	--	--	--
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<p style="text-align: center; margin: 0;">Approved Temperature Ratings</p> <p>A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)</p> <p>B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)</p> <p>C - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)</p> <p>D - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 286 °F (141 °C)</p> <p>E - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)</p> <p>F - 155 °F (68 °C), 175 °F (79 °C), and 286 °F (141 °C)</p> <p>G - 155 °F (68 °C)</p>	<p style="text-align: center; margin: 0;">Approved Finishes</p> <p>1 - Brass, Chrome, White Polyester^{6,7}, Black Polyester^{6,7}, and Black PTFE⁶</p> <p>2 - Brass, Chrome, White Polyester⁷, and Black Polyester⁷</p> <p>3 - Brass and Chrome</p> <p>4 - ENT⁶</p>	<p style="text-align: center; margin: 0;">Approved Escutcheons</p> <p>X - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon</p> <p>Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon</p> <p>Z - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1</p>
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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 Accepted for use, City of New York Board of Standards and Appeals, Calendar Number 219-76-SA.

⁶ cULus Listed as corrosion resistant.

⁷ Other colors are available on request with the same Listings and Approvals as the standard colors.

⁸ Listings and Approvals limited to Light Hazard Occupancies where allowed by the installation standards being applied, with hydraulically calculated wet systems only.
Exception: 4.2K sprinklers may be installed on hydraulically calculated dry pipe systems where piping is corrosion resistant or internally galvanized.

⁹ The sprinkler orifice is bushed.

¹⁰ Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 16.

¹¹ CE Certified, Standard EN 12259-1, EC-certificates of conformity 0832-CPD-2001 and 0832-CPD-2003.

¹² CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40279.

¹³ CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40130 and 0786-CPD-40170.

¹⁴ MED Certified, Standard EN 12259-1, EC-certificates of conformity 0832-MED-1003 and 0832-MED-1008.

¹⁵ The 1/2" NPT Large Orifice Sprinkler is Listed and Approved for retrofit only.



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DESIGN CRITERIA - UL

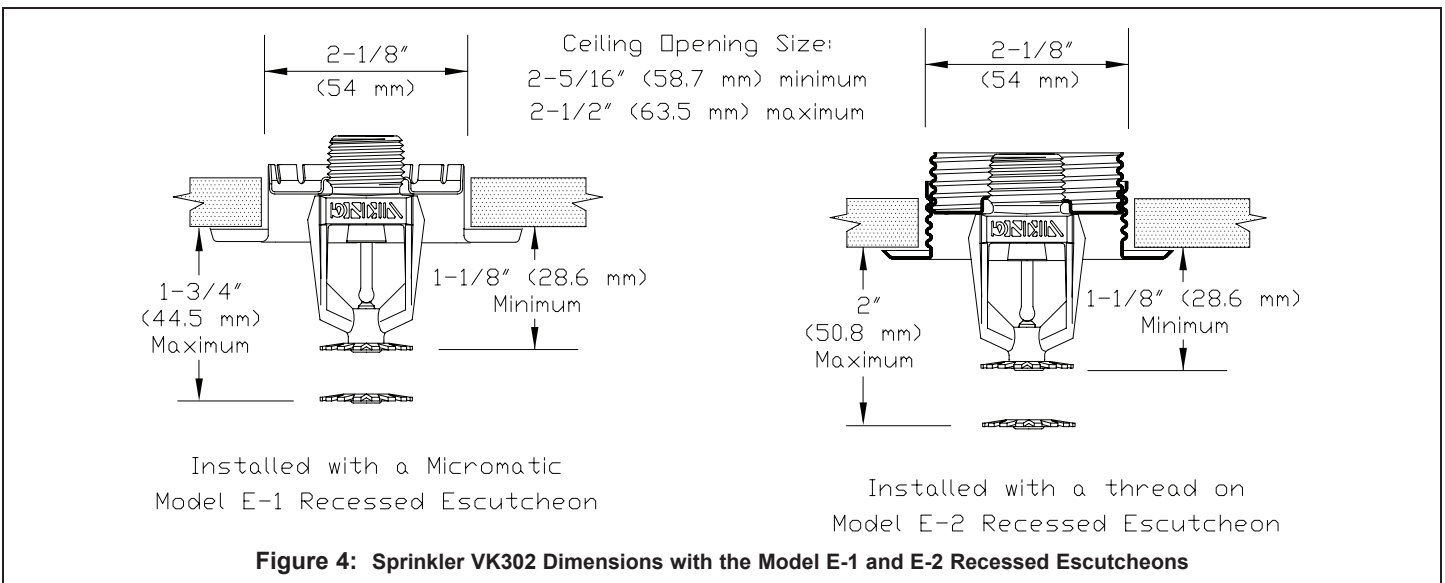
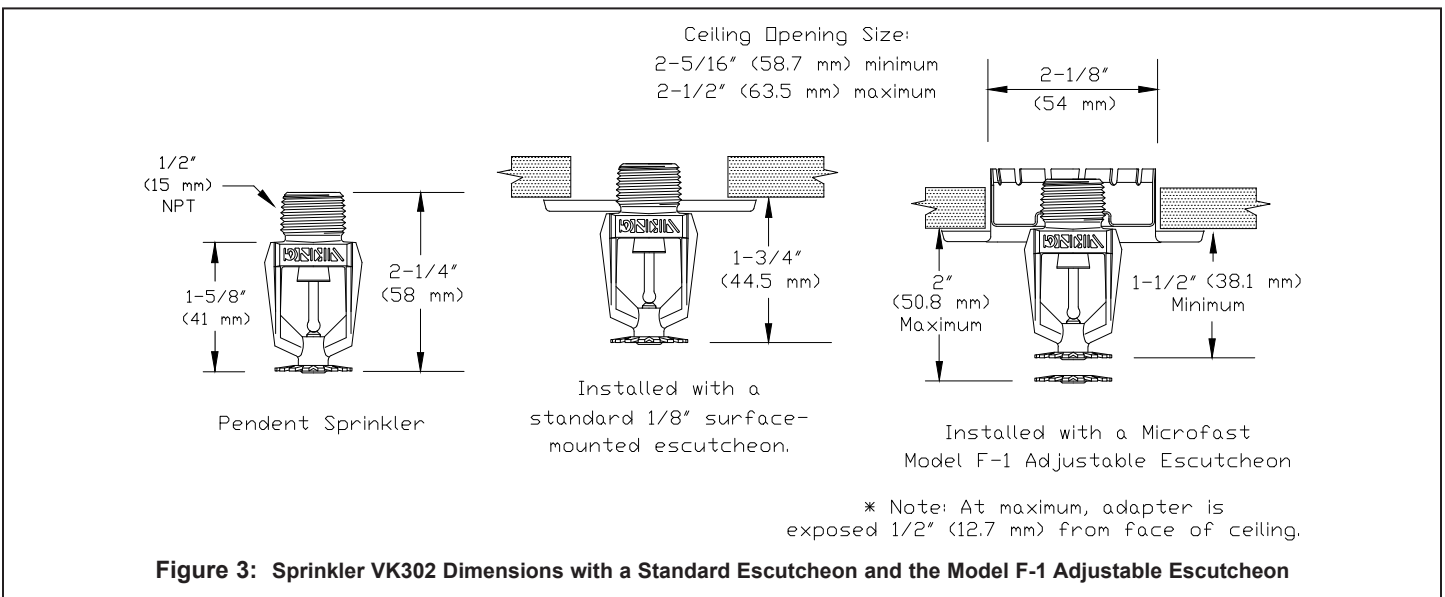
(Also refer to Approval Chart 1 on page 41d)


cULus Listing Requirements:

Microfast® and MicrofastHP® Quick Response Pendent Sprinklers are 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 (*exception: 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 pendent sprinklers must be followed.

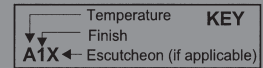
IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS</h3>
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Approval Chart 2 (FM)								
Microfast® Quick Response Pendent Sprinklers Maximum 175 PSI (12 bar) WWP								
Sprinkler Base Part No. 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	
Standard Orifice								
12979	VK302	1/2"	15 mm	5.6	80.6	2-1/4"	57	A2X, B2Y, C3, D3Z
18021	VK302	1/2"	15 mm	5.6	80.6	2-1/4"	58	A2X, B2Y
Large Orifice								
06666B	VK352	3/4"	20 mm	8.0	115.2	2-3/8"	60	A2X, B2Y, C3, D3Z
06765B ⁷	VK352	1/2"	15 mm	8.0	115.2	2-3/8"	60	A2X, B2Y, C3, D3Z
Small Orifice⁴								
06718B ⁶	VK329	1/2"	15 mm	2.8	40.3	2-3/16"	56	A1X
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 - 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), and 286 °F (141 °C) D - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)				Approved Finishes 1 - Brass and Chrome 2 - Brass, Chrome, White Polyester ⁵ , and Black Polyester ⁵ 3 - ENT ⁸			Approved Escutcheons X - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon Z - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1	
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 FM Approved as quick response control mode standard spray Non-storage sprinklers. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). ⁵ Other colors are available on request with the same Listings and Approvals as the standard colors. ⁶ The sprinkler orifice is bushed. ⁷ The 1/2" NPT Large Orifice Sprinkler is Listed and Approved for retrofit only. ⁸ FM approved as corrosion resistant.								



DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:
 The sprinklers indicated in Approval Chart 2 are FM Approved as quick response **Non-storage** standard spray pendent 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 Sheets 2-0 and 8-9). 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.

†Sprinklers VK302 and VK352 are also FM Approved as quick response **Rack Storage** standard spray pendent sprinklers. Refer to technical data page 131a-e for Intermediate Level In-Rack Sprinklers.

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.