



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 and Teflon® 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 cULus listed as corrosion resistant as indicated in the Approval Chart. (Note: FM Global has no approval classification for Teflon® and Polyester coatings as corrosion resistant.)



2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

FM Approved: Class 2020

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

ABS Certified: Certificate 04-HS407984C-PDA

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

LPC Approved: Ref. No. 096e/03 and 096e/04

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

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 the Approval Chart on page 41d and Design Criteria on page 41e for cULus and 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)

Testing: U.S.A. Patent No. 4,831,870

Thread size: Refer to the Approval Chart

Nominal K-Factor: Refer to the Approval Chart

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

Overall Length: Refer to the Approval Chart

Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Phosphor Bronze UNS-C51000 or Copper UNS-C19500 for Sprinklers 06662B, 06666B, 06765B, and 12104. Copper UNS-C19500 for Sprinkler 12282. 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 Teflon Tape

Screw: Brass UNS-C36000

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

Pip Cap Attachment: Brass UNS-C36000

Ejector Spring (for Sprinkler 12104): Stainless Steel

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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For Teflon® Coated Sprinklers: Belleville Spring-Exposed, Screw-Nickel Plated, Pip Cap-Teflon® Coated

For Polyester Coated Sprinklers: Belleville Spring-Exposed

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-Enloy® = F, White Polyester = M-/W, Black Polyester = M-/B, and Black Teflon® = N

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

For example, sprinkler VK302 with a 1/2" thread, Brass finish and a 155 °F/68 °C temperature rating = Part No. 06662BAB

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 coated and/or recessed sprinklers: Part No. 12144W/B** (available since 2003)

NOTE: RECESSED PENDENT SPRINKLERS WITH PROTECTIVE CAPS MUST USE WRENCH 12144W/B.

**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 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.

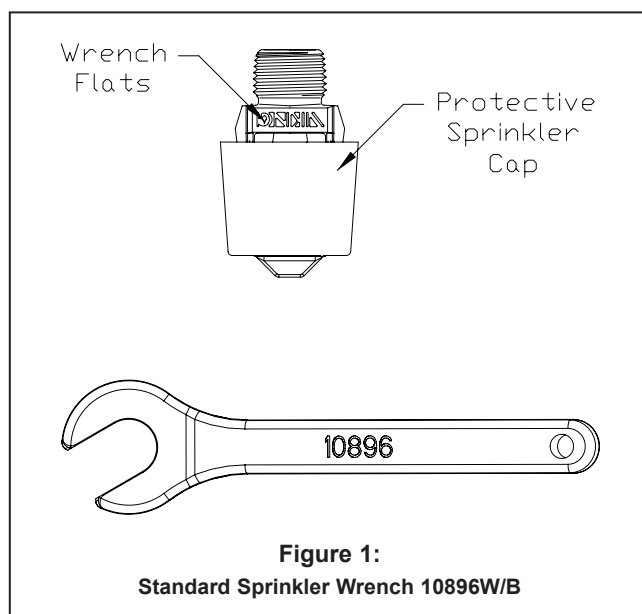


Figure 1:

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-Enloy®, White Polyester, Black Polyester, and Black Teflon®

Corrosion-Resistant Coatings⁴: White Polyester, Black Polyester, and Black Teflon®

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 41d. 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 Teflon® coatings.

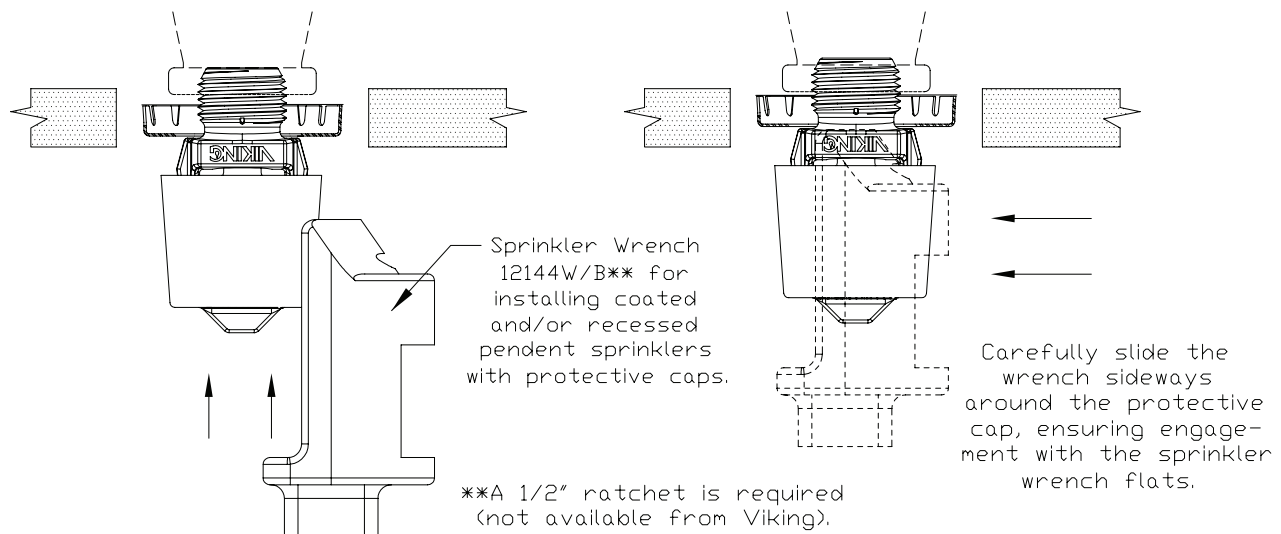


Figure 2: Wrench 12144W/B for Coated and/or Recessed Pendent Sprinklers



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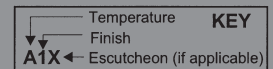
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Approval Chart

Microfast® and MicrofastHP® Quick Response Pendent Sprinklers



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	FM ⁵	NYC ⁶	VdS	LPCB	CE	CSA	
Standard Orifice															
06662B	VK302	1/2"	15 mm	5.6	80.6	2-1/4"	58	A1X, B1Y	A3X, B3Y	A1X, B1Y	A3	A3X, B3Y	C3X, E3Y ¹³	C3X, E3Y ¹⁵	
Large Orifice															
06666B	VK352	3/4"	20 mm	8.0	115.2	2-3/8"	60	A1X, B1Y	A2X, B2Y	A1X, B1Y	--	A3X	C3 ¹³	--	
12104	VK352	3/4"	20 mm	8.0	115.2	2-1/4"	58	--	--	--	G3	--	--	--	
06765B	VK352	1/2"	15 mm	8.0	115.2	2-3/8"	60	A1X, B1Y	--	A1X, B1Y	A3	--	--	--	
Small Orifice ⁹															
06718B ¹⁰	VK329	1/2"	15 mm	2.8	40.3	2-3/16"	56	A1X, B1Y	A2X	A1X, B1Y	--	--	--	--	
06720B ¹⁰	VK331	1/2"	15 mm	4.2	60.5	2-1/4"	58	A1X, B1Y	--	A1X, B1Y	--	--	--	--	
06932B	VK331	--	10 mm	4.2	60.5	2-3/8"	60	--	--	--	A3	--	G2 ¹⁴	--	
Maximum 250 PSI (17 bar) WWP Standard Orifice															
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	FM	NYC ¹¹	VdS	LPCB	CE	CSA	
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															
12290 ¹⁰	VK342	1/2"	15 mm	2.8	40.3	2-3/16"	56	A1X, B1Y	--	A1X	--	--	--	--	
Approved Temperature Ratings								Approved Finishes			Approved Escutcheons				
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 - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 286 °F (141 °C) E - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C) F - 155 °F (68 °C), 175 °F (79 °C), and 286 °F (141 °C) G - 155 °F (68 °C)								1 - Brass, Chrome-Enloy®, White Polyester ^{7,8} , Black Polyester ^{7,8} , and Black Teflon ^{®7} 2 - Brass and Chrome-Enloy® 3 - Brass, Chrome-Enloy®, White Polyester®, and Black Polyester®			X - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon ¹² Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon ¹² or recessed with the Viking Micromatic® Model E-1 or E-2 Recessed Escutcheon				
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 FM Approved for use only in wet-pipe sprinkler systems (or preaction systems qualifying as wet systems) for protection of occupancies described in the Factory Mutual Engineering and Research Loss Prevention Data Sheets and Technical Advisory Bulletins. ⁶ Accepted for use, City of New York Board of Standards and Appeals, Calendar Number 219-76-SA. ⁷ cULus Listed as corrosion resistant. ⁸ Other colors are available on request with the same Listings and Approvals as the standard colors. ⁹ 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. ¹⁰ The sprinkler orifice is bushed. ¹¹ Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 16. ¹² The Viking Microfast® Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon because it does not allow the fusible element of the sprinkler to be recessed behind the face of the wall or ceiling. ¹³ CE Certified, Standard EN 12259-1, EC-certificate of conformity 0832-CPD-2001 and 0832-CPD-2003. ¹⁴ CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40130 and 0786-CPD-40170. ¹⁵ CSA MED Certified. Standard EN 12259-1. EC-certificate of conformity 0832-MED-1003 and 0832-MED-1008.															



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DESIGN CRITERIA

(Also refer to the Approval Chart 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.

FM Approval Requirements:

For installation in accordance with the latest applicable FM Loss Prevention Data Sheets (including 2-8N) and Technical Advisory Bulletins. FM Global Loss Prevention Data Sheets and Technical Advisory Bulletins 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.

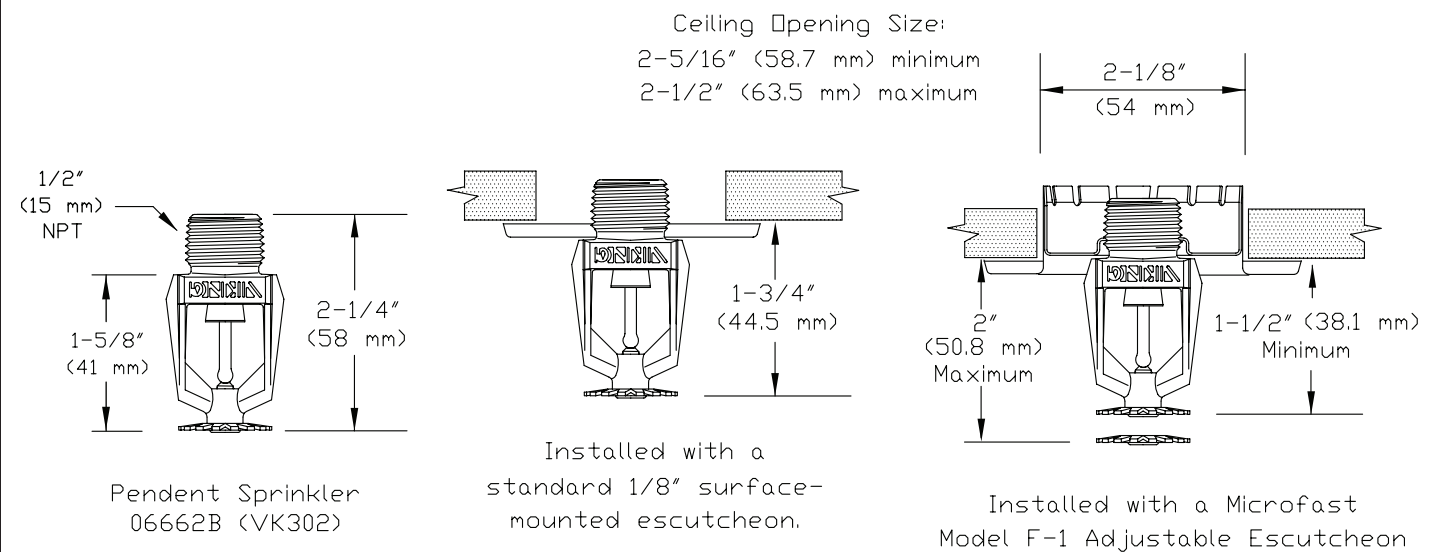


Figure 3: Sprinkler VK302 Dimensions with a Standard Escutcheon and the Model F-1 Adjustable Escutcheon



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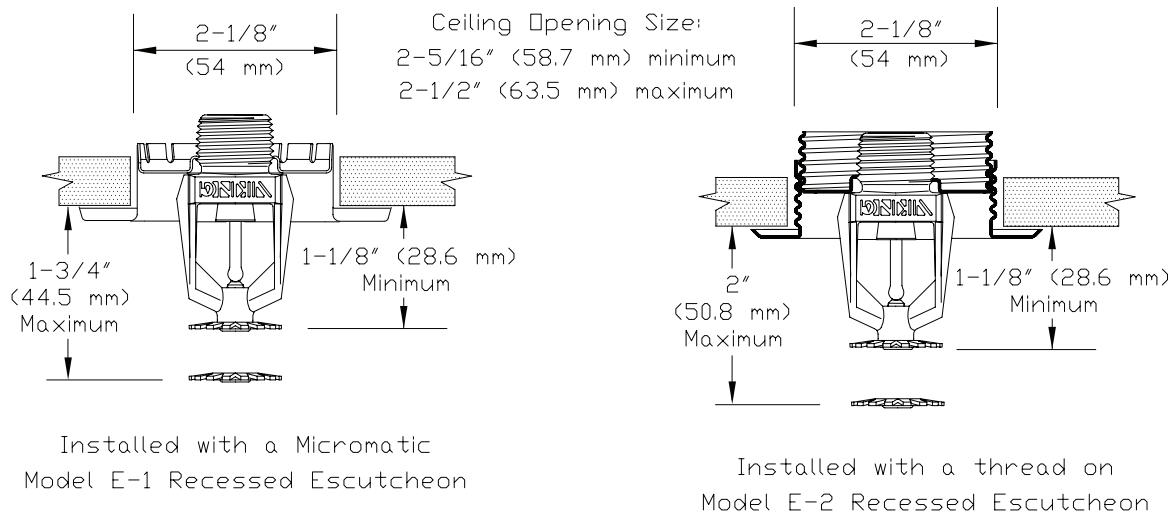


Figure 4: Sprinkler VK302 Dimensions with the Model E-1 and E-2 Recessed Escutcheons