VK4921 Standard Response Concealed Pendent Sprinkler K5.6 (80.6)

TECHNICAL DATA SHEET

1. PRODUCT IDENTIFICATION

This document covers the following product, hereafter referred to as “sprinkler”:

VK4921: Standard Response, Standard Coverage, Concealed Pendent, K5.6 (80.6) Sprinkler.

2. INTENDED USE

The sprinkler is intended to be used in automatic fire sprinkler systems as allowed by applicable approval authorities. The sprinkler must be used in accordance with:

1. the sprinkler’s Listings, Approvals, and associated design requirements.
2. the recognized design and installations standards issued, for example NFPA, FM, EN, VdS, or LPCB.
3. the latest revisions of all applicable manufacturer’s documentation.

Governmental codes, ordinances, and standards may apply and may differ from one another.

⚠ WARNING

Cancer and Reproductive Harm www.P65Warning.ca.gov

3. LISTING AND APPROVALS

Refer to section 5 for details and requirements that must be followed.

cULus Listed

LPCB Approved

FM Approved

CE Approved

UKCA Approved

China Approval

4. TECHNICAL SPECIFICATIONS

4.1 Definitions

Standard Concealed Pendent Sprinkler: A sprinkler intended to be oriented with the deflector below the frame so that water flows downward through the orifice, striking the deflector and forming an umbrella-shaped spray pattern downward. These sprinklers are designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired. Concealed sprinklers MUST be used in conjunction with a cover plate assembly.

Corrosion-Resistant Sprinkler: A special service sprinkler with non-corrosive protective coatings, or that is fabricated from non-corrosive material, for use in atmospheres that would normally corrode sprinklers. Standard pendent sprinklers can be ordered as corrosion-resistant sprinklers and can be used with escutcheons when allowed by the approval body.

4.2 Ratings and Physical Characteristics

Parameter	Value
Minimum operating pressure	7 PSI (0.5 bar)
Maximum pressure rating (cULus)	250 PSI (17.2 bar) wwp
Maximum pressure rating (FM)	175 PSI (12 bar) wwp
Factory-tested pressure	500 PSI (35 bar)
Thread size	1/2" NPT or 15 mm BSPT
Nominal K–factor	5.6 U.S. (80.6)
Minimum temperature rating (glass bulb)	–65 °F (–55 °C)

4.3 Markings and Dimensions

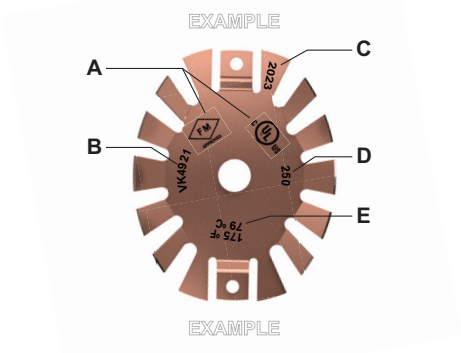


Figure – 1: Markings

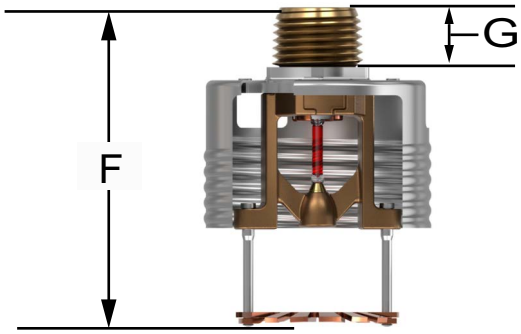


Figure – 2: Dimensions

Ref	Description	Value
A	Listings and Approvals	See sections 3 and 5
B	Manufacturers Sprinkler Identification Number (SIN)	VK4921
C	Manufacture date (year)	See marking
D	Maximum pressure rating (cULus)	250 PSI wwp
E	Nominal temperature rating	See marking
F	Height	2-1/4" (56 mm)
G	Nominal pipe engagement	7/16" (11 mm)

4.4 Materials of Construction

NOTICE: Do not disassemble the sprinkler.

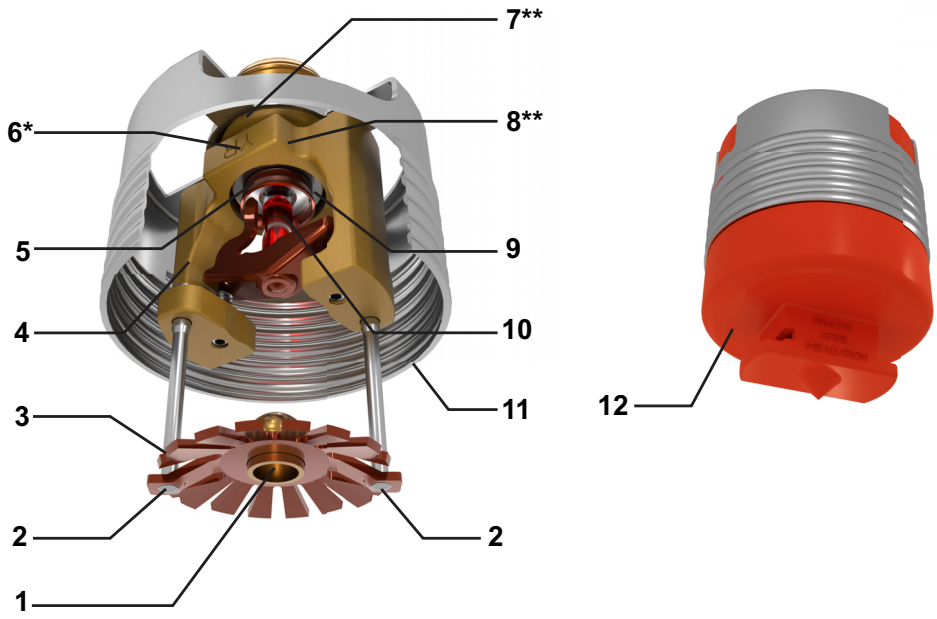


Figure – 3: Sprinkler Components

Ref	Description	Material
1	Compression screw	UNS–C36000
2	Deflector pins	Stainless steel UNS-S43000
3	Deflector	Phosphor bronze UNS-C51000
4	Sprinkler frame	QM brass or DZR brass
5	Pip cap (*not shown)	Copper UNS-C11000
6	Pip cap insert	Stainless steel UNS-S30400
7	Pip cap T-hinge ring	Stainless steel UNS-S31600
8	Vibration dampener ring (**not shown; under Belleville spring)	Buna-N rubber
9	Belleville spring	Nickel alloy, coated on both sides with PTFE tape
10	Bulb	Glass, nominal 0.20" (5 mm) diameter
11	Cover adapter	Cold-rolled steel JIS G3141 and carbon steel UNS-G10100
12	Shipping cap	High-density polyethylene

Figure – 4: Push-On

Figure – 5: Thread-On

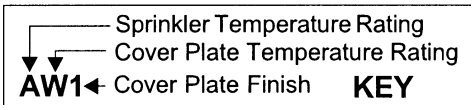
Ref	Cover Plate Description	Material
1	Cover	Copper UNS-C11000
2	Base	Brass UNS-C26800 or stainless steel UNS-S30400
3	Spring (*not shown)	Beryllium nickel
4	Solder (**not shown; connects base and cover)	Eutectic

5. LISTING AND APPROVAL DESIGN REQUIREMENTS

5.1 Listing and Approval Specifications

The following tables show the Listings and Approvals available at the time of printing. Check with the manufacturer for any additional approvals. For sprinkler pricing, refer to Viking's current price list.

All available Viking sprinkler base part numbers are approved and/or listed for specific material, equipment, and service standards. The following Approval tables indicate which temperature ratings, sprinkler finishes, and escutcheons (if applicable) each available sprinkler base part number is approved/listed for. To understand each approval specification, refer to this key:



Sprinkler Base Part Number	Thread Size		Approval Body	
	NPT	BSPT	cULus	FM
			Approval Specification	Approval Specification
			250 PSI (17 bar)	**175 PSI (12 bar)**
24683A	1/2"	—	AU1, AS2, BV1, BT2, CV1, CT2	AU1, AS2, BV1, BX1, BT2, CV1, CX1, CT2
24683JN[1,2]	1/2"	—	AU1, AS2, BV1, BT2, CV1, CT2	AU1, AS2, BV1, BX1, BT2, CV1, CX1, CT2
23116A	—	15 mm	AU1, AS2, BV1, BT2, CV1, CT2	AU1, AS2, BV1, BX1, BT2, CV1, CX1, CT2
23116JN[1,2]	—	15 mm	AU1, AS2, BV1, BT2, CV1, CT2	AU1, AS2, BV1, BX1, BT2, CV1, CX1, CT2

Approval Specification (Sprinkler Temperature Ratings) Key:

A = 155 °F (68 °C)
B = 175 °F (79 °C)
C = 200 °F (93 °C)

Approval Specification (Cover Plate Assembly Temperature Ratings) Key:

S = 139 °F (59 °C) stainless steel covers (23193, 23445, 23183, or 23473)[3]
T = 165 °F (74 °C) stainless steel covers (23193, 23455, 23183, or 23473)
U = 139 °F (59 °C) covers (23190, 23447, 23174, 23463, 23179, or 23482)[3]
V = 165 °F (74 °C) covers (23190, 23447, 23174, or 23463)
X = 165 °F (74 °C) square covers (23197 or 23482)

Approval Specification (Cover Plate Assembly Finishes) Key:

1 = Polished chrome, brushed chrome, bright brass, antique brass, brushed brass, brushed copper, painted white, painted ivory, or painted black[4]
2 = Stainless steel (painted or not painted)

Footnotes:

1. cULus Listed as corrosion-resistant.
2. FM Approved as a decorative finish.
3. The 139°F (59 °C) covers have an orange label. The 165 °F (74 °C) covers have a white label.
4. For white polyester and black polyester, other colors are available upon request with the same approvals as the standard colors.

Sprinkler Base Part Number	Thread Size		Approval Body			
	NPT	BSPT	Additional Listings and Approvals			
			175 PSI (12 bar)			250 PSI (17 bar)
			CE	LPCB	UKCA	CCCF
24683	1/2"	—	AU1, CV1	AU1, CV1	AU1, CV1	—
23116	—	15 mm	AU1, CV1	AU1, CV1	AU1, CV1	—
26549	—	15 mm	—	—	—	AU1, AS1, CV1, CT2

Approval Specification (Sprinkler Temperature Ratings) Key:

A = 155 °F (68 °C)
B = 175 °F (79 °C)
C = 200 °F (93 °C)

Approval Specification (Cover Plate Assembly Temperature Ratings) Key:

S = 139 °F (59 °C) stainless steel covers (23193, 23445, 23183, or 23473)[3]
T = 165 °F (74 °C) stainless steel covers (23193, 23455, 23183, or 23473)
U = 139 °F (59 °C) covers (23190, 23447, 23174, 23463, 23179, or 23482)[3]
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X = 165 °F (74 °C) square covers (23197 or 23482)

Approval Specification (Cover Plate Assembly Finishes) Key:

1 = Polished chrome, brushed chrome, bright brass, antique brass, brushed brass, brushed copper, painted white, painted ivory, or painted black[4]
2 = Stainless steel

Footnotes:

1. cULus Listed as corrosion-resistant.
2. FM Approved as a decorative finish.
3. The 139°F (59 °C) covers have an orange label. The 165 °F (74 °C) covers have a white label.
4. For white polyester and black polyester, other colors are available upon request with the same approvals as the standard colors.

5.2 cULus Listing Requirements and Details

The sprinkler is cULus Listed for installation in the U.S. and in Canada. Installation must be in accordance with the latest edition of NFPA 13 for standard spray sprinklers. This sprinkler is designed for use in light, ordinary, and extra hazard occupancies.

Venting is required for this sprinkler.

5.3 FM Approval Requirements and Details

The sprinkler is FM Approved as standard response Non–Storage upright sprinkler as indicated in the FM Approval Guide. 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. For specific application and installation requirements, refer to the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2–0).

5.4 Additional Approval Requirements and Details

Refer to Table 5.1 for approved configurations allowed by each of the following approvals.

- CE CPR: Standard EN 12259-1:1999 + A3:2006 Declaration of Performance DOP_S0021.
- LPCB: Standard EN 12259-1:1999 + A3:2006; Certification Number 096e/06.
- UKCA: Standard EN 12259-1:1999 + A3:2006; Declaration of Conformity UKCA DOC_S5029.
- China Approval: Approved according to China GB standard.

For specific application and installation requirements, refer to the latest applicable governmental codes, ordinances, and standards for the installation location.

5.5 Corrosion-Resistant Coatings

The corrosion-resistant coatings have passed the standard corrosion tests required by the approving agencies and are listed and approved as indicated in Table 5.1. These tests do not represent all possible corrosive environments. The Electroless Nickel PTFE (ENT) finish passed the UL 199 thirty-day corrosion test and is cULus Listed and FM Approved as corrosion-resistant. For automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway.

Prior to installation, verify that the coatings are compatible with, or suitable for, the proposed environment. For questions or concerns about ENT use, contact Viking Corp.

Venting is required for this sprinkler.

5.6 Available Temperature Ratings

Viking sprinklers are available in several temperature ratings that relate to a specific temperature classification. Applicable installation rules mandate the use and limitations of each temperature classification. In selecting the appropriate temperature classification, the maximum expected ceiling temperature must be known. When there is doubt as to the maximum temperature at the sprinkler location, a maximum-reading thermometer should be used to determine the temperature under conditions that would show the highest readings to be expected. In addition, recognized installation rules may require a higher temperature classification, depending upon sprinkler location, occupancy classification, commodity classification, storage height, and other hazards. In all cases, the maximum expected ceiling temperature dictates the lowest allowable temperature classification. Sprinklers located immediately adjacent to a heat source may require a higher temperature rating.

6. ORDERING PROCEDURE

6.1 Sprinkler

1. Choose a sprinkler base part number with the required thread size and Listing or Approval (refer to section 5):
2. Add the suffix for the desired finish.
3. Add the suffix for the desired temperature rating.

NOTE: For polyester, insert the desired temperature rating suffix where the dash (–) is shown.

EXAMPLE: 24683AB = VK4921 with brass 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).

1. Sprinkler Base Part Number		2. Finish		3. Temperature Rating			
See Section 5		Description	Suffix	Nominal Temperature Rating	Bulb Color	Maximum Ambient Ceiling Temperature	Suffix
24683	1/2" NPT	Brass	A	155 °F (68 °C)	Red	100 °F (38 °C)	B
23116	15 mm BSPT	ENT	JN	175 °F (79 °C)	Yellow	150 °F (65 °C)	D
26549	15 mm BSPT			200 °F (93 °C)	Green	150 °F (65 °C)	E

6.2 Cover Plates

1. Select a cover plate base part number:
2. Add the suffix for the desired finish.
3. Add the suffix for the desired cover plate temperature rating.

EXAMPLE: 23190MC/W = 165 °F (74 °C) temperature rated 2-3/4" (70 mm) diameter round cover plate with a painted white finish.

1. Cover Plate Base Part Number[1, 5]					
Thread-On Style			Push-On Style		
Base Part Number	Size Inch (mm)	Type	Base Part Number	Size Inch (mm)	Type
23190	2-3/4 (70)	Round	23447	2-3/4 (70)	Round
23174	3-5/16 (84)	Round	23463	3-5/16 (84)	Round
23179	3-5/16 (84)	Square	23482	3-5/16 (84)	Square
23193	2-3/4 (70)	Stainless steel round	23455	2-3/4 (70)	Stainless steel round
23183	3-5/16" (70)	Stainless steel round	23473	3-5/16 (84)	Stainless steel round

2. Finish	
Description	Suffix[2]
Polished chrome	F
Brushed chrome	F-/B
Bright brass	B
Antique brass	B-/A
Brushed brass	B-/B
Brushed copper	E-/B
Painted white	M-/W
Painted ivory	M-/I
Painted black	M-/B

3. Temperature Ratings[3,4]				
Cover Plate Nominal Rating (Required)	Temperature Classification	Sprinkler Nominal Rating	Sprinkler Maximum Ambient Ceiling Temperature	Suffix
139 °F (59 °C)	Ordinary	155 °F (68 °C)	100 °F (38 °C)	A
165 °F (74 °C)	Intermediate	175 °F (79 °C)	150 °F (65 °C)	C
165 °F (74 °C)	Intermediate	200 °F (93 °C)	150 °F (65 °C)	C

Footnotes

1. For complete part number, refer to Viking's current price list.
2. Where a dash (-) is shown in the finish suffix designation, insert the desired Temperature Rating suffix. See example above.
3. The sprinkler temperature rating is stamped on the deflector.
4. 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.
5. Stainless steel cover plates can be painted with either the standard or custom paint colors.

6.3 Sprinkler Accessories

For the most appropriate sprinkler accessories, refer to the Approval Charts in section 5.

Figure – 6: Sprinkler Accessories

Image Reference	Part Number	Description
1)	22978M/B	Heavy-duty wrench
2)	23143	Light-duty wrench
3)	14412	Concealed cover plate installation tool
4)	14867	Large concealed cover plate installation tool
5)	01731A	Sprinkler cabinet: holds up to 6 sprinklers

7. CONTACT

The sprinkler and accessories are available through Viking distributors only. Contact your local Viking sales office, which can be found on our website:

Americas and Asia: www.vikinggroupinc.com/locations OR Europe, Middle East, Africa (EMEA): www.viking-emea.com/contact

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Caledonia, MI 49316
Tel.: (800) 968–9501
Fax: 269–818–1680
Technical Services: 1–877–384–5464
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