



## TECHNICAL DATA SHEET

## VK3521 Quick Response Pendent Sprinkler K8.0 (115)

### 1. PRODUCT IDENTIFICATION

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

VK3521: Quick Response, Standard Coverage, Pendent, K8.0 (115) 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.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### 3. LISTING AND APPROVALS

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



cULus Listed



VdS Approved



FM Approved



UKCA Approved



CE



MED Approved



LPCB Approved


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**4. TECHNICAL SPECIFICATIONS**
**4.1 Definitions**

**Standard Pendent Sprinkler:** A sprinkler intended to be oriented with the deflector below the frame so water flows downward through the orifice, striking the deflector and forming an umbrella-shaped spray pattern downward. These sprinklers are marked “SP/RP” (Standard Pendent/Recessed Pendent). When a standard pendent sprinkler is used with a recessed escutcheon, it becomes a recessed pendent sprinkler.

**Recessed Sprinkler:** A spray sprinkler assembly intended for installation with a concealed piping system. The assembly consists of a sprinkler installed in a decorative adjustable recessed escutcheon that minimizes the protrusion of the sprinkler beyond the ceiling or wall without adversely affecting the sprinkler distribution or sensitivity. Refer to the appropriate technical data page for allowable sprinkler models, temperature ratings, and occupancy classifications.

**NOTICE: Do not recess any sprinkler not listed or approved for use with the escutcheon. Refer to Section 5.**

**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. 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 rated pressure	175 psi (12 bar)
Factory tested pressure	500 psi (35 bar)
Thread size	3/4" NPT or 20 mm BSPT
Nominal K-factor	8.0 U.S. (115)
Minimum temperature rating (glass bulb)	-65 °F (-55 °C)

### 4.3 Markings and Dimensions

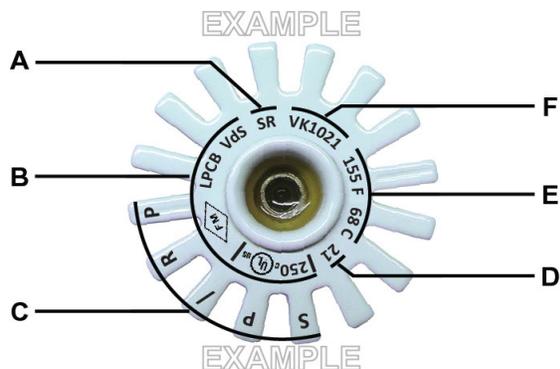


Figure – 1 Markings

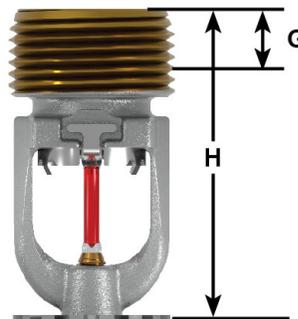


Figure – 2: Dimensions

Ref	Description	Value
A	Response type	QR: Quick Response
B	Listings and Approvals	See sections 3 and 5
C	Sprinkler type	SP/RP: Standard Pendent/Recessed Pendent
D	Manufacture date (year)	See marking
E	Nominal temperature rating	See marking
F	Manufacturers Sprinkler Identification Number (SIN)	VK3521
G	Nominal pipe engagement	7/16" (11 mm)
H	Height	2" (51 mm)

#### 4.4 Materials of Construction

**NOTICE: Do not disassemble the sprinkler.**

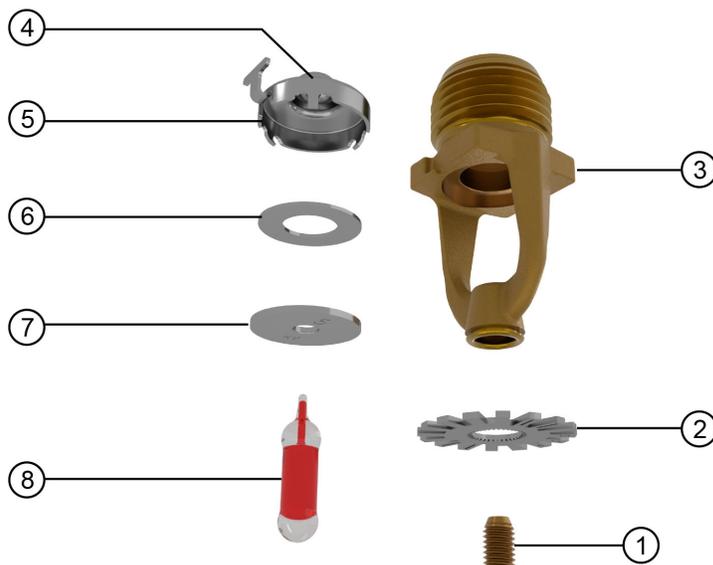


Figure – 3 Sprinkler Components

Ref	Description	Material
1	Compression screw	Brass CW612N, CW508L, UNS-C36000 or UNS-C26000
2	Deflector	Stainless steel UNS S30400
3	Sprinkler body	CW602N, UNS-C84400 or QM brass
4	Pip cap seal	Polytetrafluoroethylene (PTFE)
5	Pip cap shell	Stainless steel UNS-S44400
6	Belleville spring	Nickel alloy
7	Pip cap disc	Stainless steel UNS-S30100
8	Bulb	Glass, nominal 0.10" (3 mm) diameter


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**5. LISTING AND APPROVAL DESIGN REQUIREMENTS**
**5.1 Listing and Approval Specifications**

Sprinkler Base Part Number <sup>1</sup>	Thread Size		Approval Body				
	NPT	BSPT	cULus		FM		
			Approval Specification		Approval Specification		
23878	3/4"	—	A1, A2X, A3Y		A1, B2X, B3Y		
23890	—	20 mm	A1, A2X, A3Y		A1, B2X, B3Y		
<b>Additional Listings and Approvals Maximum WWP 175 psi (12 bar)</b>							
			CE	LPCB	VdS	UKCA	MED
23878	3/4"	—	A1, B2X, B3Y	A1, A2X, A3Y	A1	A1, A2X, A3Y	A1, A2X, A3Y
23890	—	20 mm	A1, B2X, B3Y	A1, A2X, A3Y	A1	A1, A2X, A3Y	A1, A2X, A3Y
<b>Approval Specification (Temperature Ratings) Key:</b>							
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)							
<b>Approval Specification (Finishes) Key:</b>							
1 = Brass, Chrome, White Polyester <sup>2,3</sup> , Black Polyester <sup>2,3</sup> , and ENT <sup>3,4</sup>							
2 = Brass, Chrome, White Polyester <sup>2,3</sup> , and Black Polyester <sup>2,3</sup>							
3 = ENT <sup>3,4</sup>							
<b>Approval Specification (Escutcheons) Key:</b>							
X = Installed with Viking Recessed Escutcheons Models NP-1, NP-2, and NP-3, or Viking Standard Surface Mounted Escutcheons							
Y = Installed with Viking Recessed Escutcheons Model NP-1, or Viking Standard Surface Mounted Escutcheons							
1 For complete part number, refer to Viking's current price list.							
2 For White Polyester and Black Polyester, other colors are available upon request and will carry the same Listings and Approvals as the standard colors.							
3 cULus Listed as corrosion resistant.							
4 FM Approved as corrosion resistant.							

**5.2 cULus Listing Requirements and Details**

The sprinkler is cULus Listed as indicated in Table 5.1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers. This sprinkler is designed for use in light and ordinary hazard occupancies.

**5.3 FM Approval Requirements and Details**

The sprinkler is FM Approved as quick response Non-Storage pendent sprinkler as indicated in the FM Approval Guide. The sprinkler is also approved for use in FM Approved vacuum dry sprinkler systems with a maximum supervisory vacuum pressure of -3 psi (-207 mbar). 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\_XT1A.
- LPCB: Standard EN 12259-1:1999 +A3:2006; Certificate Number 096m.
- VdS: Standard EN 12259-1:1999 +A3:2006; Certificate Number G 422014.
- UKCA: Standard EN12259-1:1999 +A3:2006; Declaration of Conformity UKCA DOC\_S5048.
- MED: Standard EN 12259-1:1999 +A3:2006; Declaration of Conformity DOC\_MED\_XT1.

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 Electro-less 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. The ENT finish has not been evaluated for environments containing chlorine, such as indoor swimming pools. It is not recommended for these applications.

#### 5.6 Sprinkler Guards and Water Shields

The sprinkler is approved for use with the Model XG Sprinkler Guard and the Model F-1 water shield. Refer to the Guards and Water Shields for XT1 Sprinklers technical data sheet for more information.

#### 5.7 Escutcheons

The sprinkler is approved for use with various styles of Viking escutcheons. Specific installation dimensions apply that must be observed. Refer to the sprinkler's Handling and Installation instructions for more information.

#### 5.8 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.


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**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: 23878MB/W** = VK3521 with white polyester finish 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
23878	3/4" NPT	Brass	A	135 °F (57 °C)	Orange	100 °F (38 °C)	A
23890	20 mm BSPT	Chrome	F	155 °F (68 °C)	Red	100 °F (38 °C)	B
		White Polyester	M-/W	175 °F (79 °C)	Yellow	150 °F (65 °C)	D
		Black Polyester	M-/B	200 °F (93 °C)	Green	150 °F (65 °C)	E
		ENT	JN	286 °F (141 °C)	Blue	225 °F (107 °C)	G
				OPEN	—	—	Z

## 6.2 Sprinkler Accessories



Figure – 4: Sprinkler Accessories

Image Reference	Part Number	Description
1)	23559MB	Straight wrench: required for proper installation
2)	23560MB	Recessed socket wrench
3)	01724A	Sprinkler cabinet: holds up to 6 sprinklers
4)	01725A	Sprinkler cabinet: holds up to 12 sprinklers (not shown)
5)	22071	Model NP-1 Slip-on style recessed escutcheon
	22077	Model NP-1 Slip-on style recessed escutcheon (stainless steel)
6)	22072	Model NP-2 Threaded recessed escutcheon
7)	22073	Model NP-3 Threaded recessed escutcheon (large diameter outer cup)
8)	01015A	Large standard flat surface mount escutcheon (steel)
9)	05464A	Small standard flat surface mount escutcheon (steel)
	09596	Small standard flat surface mount escutcheon (stainless steel)
10)	01016AFB	Standard raised surface mount escutcheon (chrome only)


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**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](http://www.vikinggroupinc.com/locations) OR Europe, Middle East, Africa (EMEA): [www.viking-emea.com/contact](http://www.viking-emea.com/contact)

**Manufacturer:**

The Viking Corporation  
5150 Beltway SE  
Caledonia, MI 49316  
Tel.: (800) 968-9501  
Fax: 269-818-1680  
Technical Services: 1-877-384-5464  
[techsvcs@vikingcorp.com](mailto:techsvcs@vikingcorp.com)

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Fax: +352 58 37 36  
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