

# VIKING<sup>®</sup> TECHNICAL DATA

## FREEDOM™ RESIDENTIAL FLUSH PENDENT SPRINKLER SIN VK420 (3.8 K-FACTOR)



### 1. PRODUCT NAME

Viking Freedom™ Model H-3 Residential Flush Pendent Sprinkler SIN VK420† (3.8 K-Factor)

- Sprinkler Base Part Number 09458

†The Sprinkler Identification Number (SIN) is stamped on the sprinkler.

### 2. MANUFACTURER

The Viking Corporation  
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(877) 384-5464

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### 3. PRODUCT DESCRIPTION

Viking Freedom™ Residential Pendent Sprinkler SIN VK420 is a small, flush, high-sensitivity solder link and lever residential sprinkler. The sprinkler and ceiling ring are available with a 165 °F (74 °C) temperature rating and either a Polished Chrome or White painted finish. The sprinkler is designed for use with concealed piping, mounted flush with the ceiling with the fusible link exposed.

The two-piece design of the sprinkler and ceiling ring allows for installation and testing of the sprinklers prior to ceiling installation. The ceiling ring allows for up to ½" (12,7 mm) of vertical adjustment and can be removed and re-installed, allowing access above removable ceiling panels without shutting down the sprinkler system and removing the sprinkler.

The deflector is held inside the sprinkler body until the eutectic metal solder link is fused. During fire conditions, when the fusible link reaches its operating temperature, the link, levers, and center cover plate fall away. The deflector is suspended below the ceiling. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern over a specific area of coverage determined by the water supply pressure at the sprinkler.

### 4. TECHNICAL DATA LISTINGS AND APPROVALS

- cULus Listings apply only when Sprinkler SIN VK420 is installed as a replacement sprinkler in existing residential sprinkler systems. SIN VK420 SPRINKLERS MANUFACTURED AFTER JULY 12, 2002 ARE NOT cULus LISTED FOR USE IN NEW SYSTEMS.*
- Sprinkler SIN VK420 is FM Approved for use in new residential sprinkler systems as well as a replacement in existing residential sprinkler systems, with smooth, flat, horizontal ceilings††.*

Refer to the Approval Chart for minimum water supply requirements and maximum areas of coverage.

††Includes ceilings with slopes up to and including 2/12 (9.5°).

Rated to 175 psi (1 207 kPa) water working pressure.

Factory tested pneumatically to 95 psi (655 kPa).

Spring: U.S.A. Patent No. 4,570,720  
Requires a 2" (50,8 mm) diameter opening in the ceiling.

Thread Size: Nominal ½" (15 mm) NPT  
Nominal K-Factor: 3.8 U.S. (5,5 metric\*)

\* Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.

Overall Length: 2-9/16" (65,1 mm)

#### SPRINKLER MATERIALS

Sprinkler Body: Brass UNS-C84400

Body Cap: Brass UNS-C26000

Cover: Stainless Steel UNS-S43000

Deflector: Copper UNS-C19500

Deflector Pins: Stainless Steel UNS-S30300

Button: Brass UNS-C31400

Compression Screw: Brass UNS-C36000

Element Assembly: Beryllium Nickel and Eutectic Solder

Approval Chart				KEY		
Freedom™ Residential Flush Pendent Sprinkler SIN VK420 (3.8 K-Factor)				Temperature	Finish	Escutcheon (if applicable)
Maximum Areas of Coverage <sup>1</sup>	Ceiling Type	Minimum Water Supply Requirements <sup>1</sup>		Listings <sup>2</sup>		
		Single Sprinkler	Two or More	cULus <sup>3</sup>	NYC <sup>3</sup>	FM <sup>5</sup>
12' x 12' (3,7 m x 3,7 m)	Flat <sup>5</sup>	10 gpm @ 7.0 psi (38 L/min @ 48 kPa)	10 gpm @ 7.0 psi (38 L/min @ 48 kPa)	A1	A1	-
12' x 12' (3,7 m x 3,7 m)	Flat <sup>5</sup>	14 gpm @ 13.6 psi (53 L/min @ 93 kPa)	10 gpm @ 7.0 psi (38 L/min @ 48 kPa)	-	-	A1
14' x 14' (4,3 m x 4,3 m)	Flat <sup>5</sup>	11 gpm @ 8.4 psi (42 L/min @ 58 kPa)	10 gpm @ 7.0 psi (38 L/min @ 48 kPa)	A1	A1	-
14' x 14' (4,3 m x 4,3 m)	Flat <sup>5</sup>	20 gpm @ 27.7 psi (76 L/min @ 191 kPa)	14 gpm @ 13.6 psi (53 L/min @ 93 kPa)	-	-	A1
16' x 16' (4,9 m x 4,9 m)	Flat <sup>5</sup>	13 gpm @ 11.7 psi (50 L/min @ 81 kPa)	11 gpm @ 8.4 psi (42 L/min @ 58 kPa)	A1	A1	-
16' x 16' (4,9 m x 4,9 m)	Sloped <sup>4</sup>	16 gpm @ 17.7 psi (61 L/min @ 123 kPa)	12 gpm @ 10 psi (46 L/min @ 69 kPa)	A1	A1	-
16' x 16' (4,9 m x 4,9 m)	Flat <sup>5</sup>	26 gpm @ 46.8 psi (99 L/min @ 324 kPa)	18 gpm @ 22.5 psi (68 L/min @ 153 kPa)	-	-	A1
18' x 18' (5,5 m x 5,5 m)	Flat <sup>5</sup>	16 gpm @ 17.7 psi (61 L/min @ 123 kPa)	13 gpm @ 11.7 psi (50 L/min @ 81 kPa)	A1	A1	-
18' x 18' (5,5 m x 5,5 m)	Sloped <sup>4</sup>	20 gpm @ 27.7 psi (76 L/min @ 191 kPa)	17 gpm @ 20 psi (65 L/min @ 138 kPa)	A1	A1	-
20' x 20' (6,1 m x 6,1 m)	Flat <sup>5</sup>	19 gpm @ 25 psi (72 L/min @ 173 kPa)	17 gpm @ 20 psi (65 L/min @ 138 kPa)	A1	A1	-
Temperature Rating A - 165 °F (74 °C)			Finishes 1 - Polished Chrome or White Poly finish			

<sup>1</sup> For areas of coverage smaller than those shown, use the "Minimum Water Supply Requirement" for the next larger listing under "Maximum Areas of Coverage" for the sprinkler used. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the "Minimum Water Supply Requirement" used.

<sup>2</sup> This chart shows the listings and approvals available at the time of printing.

<sup>3</sup> Listed by Underwriters Laboratories, Inc. for use in the U.S. and Canada. Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15. cULus Listings and NYC Approvals apply only when Sprinkler SIN VK420 is installed as a replacement sprinkler in existing residential sprinkler systems.

<sup>4</sup> Listing is for residential occupancies with ceilings sloped between a 0/12 (0°) pitch and a 6/12 (26.6°) pitch. Areas under sloped ceilings must be measured along the slope. Refer to Figure 4, Installation Notes, on page 145 b.

<sup>5</sup> For residential occupancies with smooth, flat, horizontal ceilings, including ceilings with slopes up to and including 2/12 (9.5°).

Note: Units of measure in parentheses may be approximations.

Form No. F\_062395

Replaces page 145 a-b, dated March 22, 2002. Refer to residential sprinkler technical data page (i-iv) for general care, installation, and maintenance information.

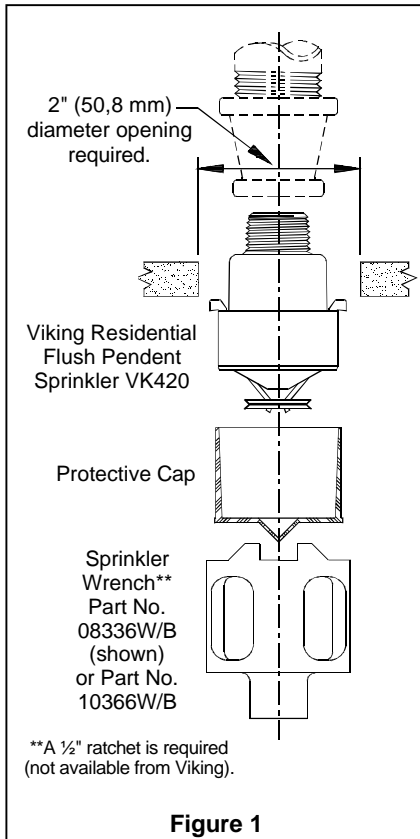
# VIKING<sup>®</sup> TECHNICAL DATA

## FREEDOM<sup>™</sup> RESIDENTIAL FLUSH PENDENT SPRINKLER SIN VK420 (3.8 K-FACTOR)

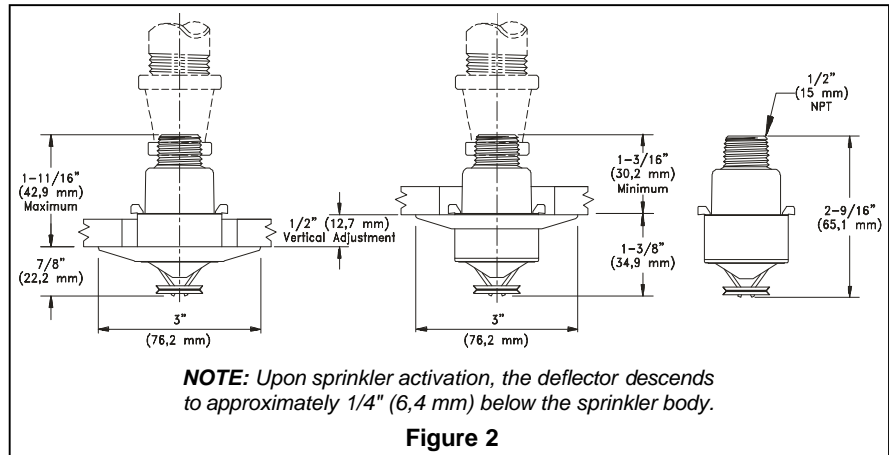
Levers: Stainless Steel UNS-S31600  
 Lever Bar: Copper Alloy UNS-C72500  
 Belleville Spring Sealing Assembly:  
 Nickel Alloy, coated on both sides with  
 Teflon Tape  
 Ceiling Ring: Cold Rolled Steel UNS-  
 G10080  
**AVAILABLE FINISHES**  
 Polished Chrome or White Poly finish

**TEMPERATURE RATINGS**  
 Refer to Table 1 on residential sprinkler  
 page (i) for residential sprinkler temper-  
 ature ratings and maximum ambient  
 ceiling temperatures allowed.  
**ACCESSORIES** (order separately)  
 A. Ceiling Ring: 3" (76,2 mm) outside di-  
 ameter, push-on only.  
 • Base Part No. 09390 (indicate finish)

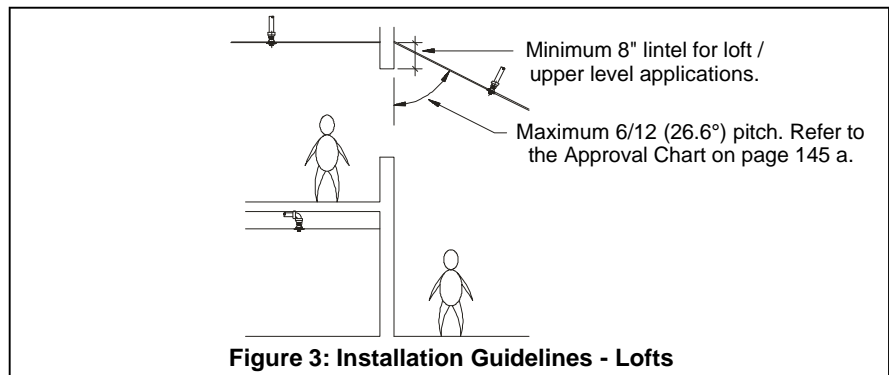
B. Sprinkler Cabinet: Part No. 01731A,  
 capacity: six (6) sprinklers  
 Available since 1971.  
 C. Flush/Concealed Sprinkler Wrenches\*\*  
 • Heavy Duty Part No. 08336W/B,  
 Available since 1993, or  
 • Light Duty Part No. 10366W/B\*\*\*,  
 Available since 1998.  
 \*\*Requires a 1/2" ratchet (not available from Vi-  
 king).  
 \*\*\*Ideal for sprinkler cabinets.



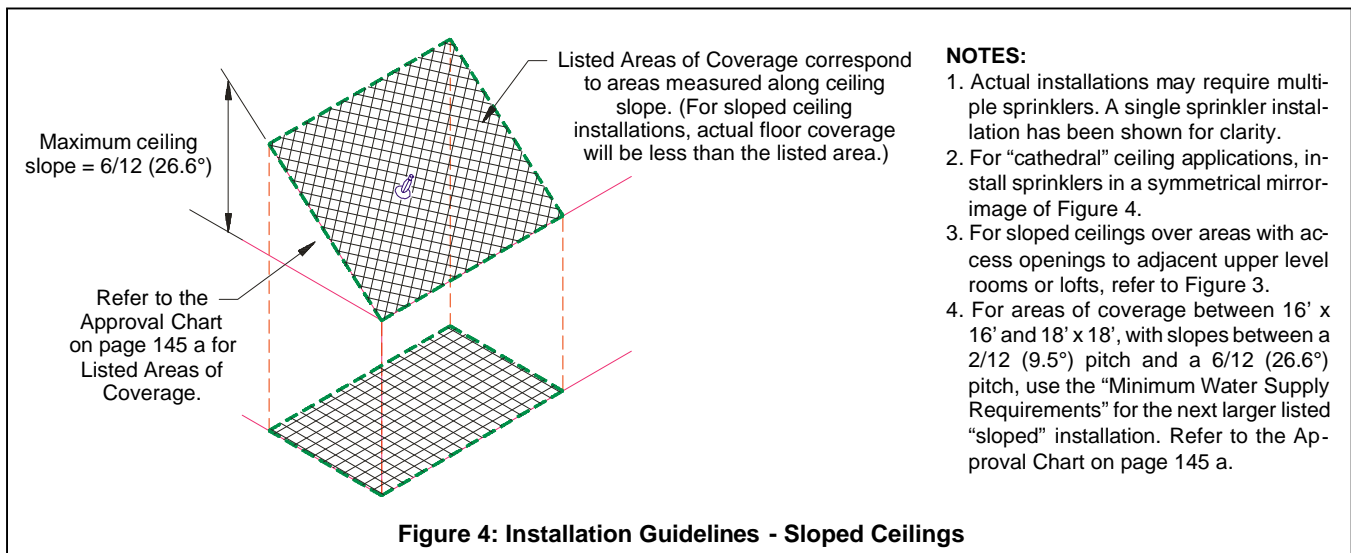
**Figure 1**



**Figure 2**



**Figure 3: Installation Guidelines - Lofts**



**Figure 4: Installation Guidelines - Sloped Ceilings**

- NOTES:**
- Actual installations may require multiple sprinklers. A single sprinkler installation has been shown for clarity.
  - For "cathedral" ceiling applications, install sprinklers in a symmetrical mirror-image of Figure 4.
  - For sloped ceilings over areas with access openings to adjacent upper level rooms or lofts, refer to Figure 3.
  - For areas of coverage between 16' x 16' and 18' x 18', with slopes between a 2/12 (9.5°) pitch and a 6/12 (26.6°) pitch, use the "Minimum Water Supply Requirements" for the next larger listed "sloped" installation. Refer to the Approval Chart on page 145 a.