



## TECHNICAL DATA

## STANDARD RESPONSE DRY PENDENT SPRINKLERS

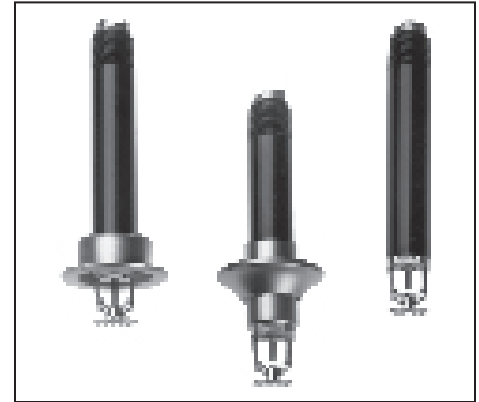
The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

### 1. DESCRIPTION

Viking Standard Response Dry Pendent Sprinklers are thermosensitive spray sprinklers suitable for use in areas subject to freezing. The sprinklers are designed for dry systems and preaction systems where it is necessary to prevent water or condensation from entering the drop nipple before sprinkler operation. They may also be installed in spaces subject to freezing and supplied from a wet system in an adjacent heated area.

Viking Standard Response Dry Pendent Sprinklers are available in various finishes and temperature ratings, standard or large orifice, to meet design requirements. The large orifice dry pendent sprinkler allows greater flows at lower pressures than standard orifice sprinklers.



### 2. LISTINGS AND APPROVALS

**cULus Listed:** Category VNIV

**FM Approved:** Classes 2013 and 2015

**NYC Approved:** MEA 89-92-E, Volume 37

**LPC Approved:** Ref. No. 096e/06

**CE Certified:** Standard EN 12259-1, EC-certificate of conformity 0832-CPD-2001

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

**NOTE:** Other International approval certificates are available upon request.

Refer to the Approval Chart on page 101d and Design Criteria on page 101e for cULus Listing and FM Approval requirements that must be followed.

### 3. TECHNICAL DATA

#### Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)

Maximum Working Pressure: 175 psi (12 bar). Factory tested pneumatically to 100 psi (6.89 bar)

Thread size: 1" NPT or 25 mm BSP

Nominal K-Factor for Standard Orifice Sprinklers: 5.6 U.S. (80.6 metric\*) for all listed and approved lengths.

Nominal K-Factor for Large Orifice Sprinklers: 8.0 U.S. (115.2 metric\*) for lengths up to 20". For lengths exceeding 20", refer to Figure 6 on page 101f.

\*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.

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

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.

#### Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 5 mm diameter

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

Displacement Ring: Phosphor Bronze UNS-C51000

Compression Screw: Brass UNS-C36000

Pip Cap: Brass UNS-C31400 or UNS-C31600 for standard orifice sprinklers. Brass UNS-C36000 for large orifice sprinklers

Pip Cap Adapter: Brass UNS-C36000

Seat: Copper UNS-C21000

Orifice: Copper UNS-C21000

Gasket: Buna-N

Tube: ERW Hydraulic Steel Tube

Inlet: Brass UNS-C31600

Support (Internal): Stainless Steel UNS-S30400 for standard orifice sprinklers. Brass UNS-C36000 for large orifice sprinklers.



## TECHNICAL DATA

## STANDARD RESPONSE DRY PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

Spring (Internal): Stainless Steel UNS-S30200  
 Barrel: Steel Pipe UNS-G10260, Electrodeposited Epoxy Base finish  
 Sleeve (for Adjustable Standard style only): Brass UNS-C26000 or UNS-C26800

### Escutcheon Materials:

Adjustable Standard Dry Escutcheons: Brass UNS-C26000 or UNS-C26800  
 Recessed Dry Escutcheons: Cold Rolled Steel UNS-G10080

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

Order Standard Response Dry Pendent Sprinklers by first adding the appropriate suffix for the sprinkler finish, the appropriate suffix for the temperature rating, and then the suffix for the length ("A" dimension) to sprinkler base part number. Order in a specific length noted as the "A" dimension (see Figures 3 through 5). The "A" dimension is the distance from the face of the fitting (tee) to the desired finished surface of the ceiling.

These sprinklers are listed and approved in lengths from 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm) for the adjustable standard style, 3" to 47" (76.2 mm to 1,194 mm) for the plain barrel style, and 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm) for the adjustable recessed style. Lengths exceeding the standard lengths are available, with no approvals, on a "made-to-order" basis: Recessed Dry Pendent up to 65-1/2" (1,664 mm) for standard orifice and 64-1/4" (1,632 mm) for large orifice. Adjustable Standard Dry Pendent up to 63-1/2" (1,613 mm) for standard orifice and 62" (1,575 mm) for large orifice. Plain Barrel Dry Pendent up to 65" (1,651 mm) for standard orifice and 64" (1,626 mm) for large orifice. Contact the manufacturer for more information.

Finish Suffix: Brass = A, Chrome-Enloy® = F, and White Polyester = M-/W

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

For example, sprinkler VK154 with 1" NPT Threads, a Chrome finish and a 155 °F/68 °C temperature rating, and "A" length of 10" = Part No. 07740FB10.

### 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. 07297W/B (available since 1991)
  - B. Wrench for recessed sprinklers: Part No. 07565W/B\*\* (available since 1991)
- \*\*A 1/2" ratchet is required (not available from Viking).

**Sprinkler Guard:** Chrome, with no listings or approvals, for installation on dry pendent sprinklers manufactured after May 1994 only (Part No. 08954).

### Replacement Escutcheons:

- A. Adjustable Standard Dry Escutcheon: Base Part No. 07741
- B. Recessed Dry Escutcheon Cup: Base Part No. 05459A

## 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 internal parts to open the waterway. 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 Standard Response Dry Pendent Sprinkler is 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.



**TECHNICAL DATA**

**STANDARD RESPONSE  
DRY PENDENT SPRINKLERS**

The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

**TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES**

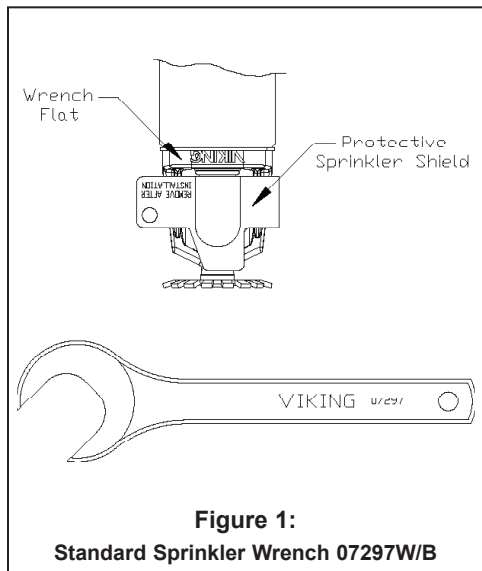
Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

**Sprinkler Finishes:** Brass, Chrome-Enloy® (patents pending), and White Polyester

**Footnotes**

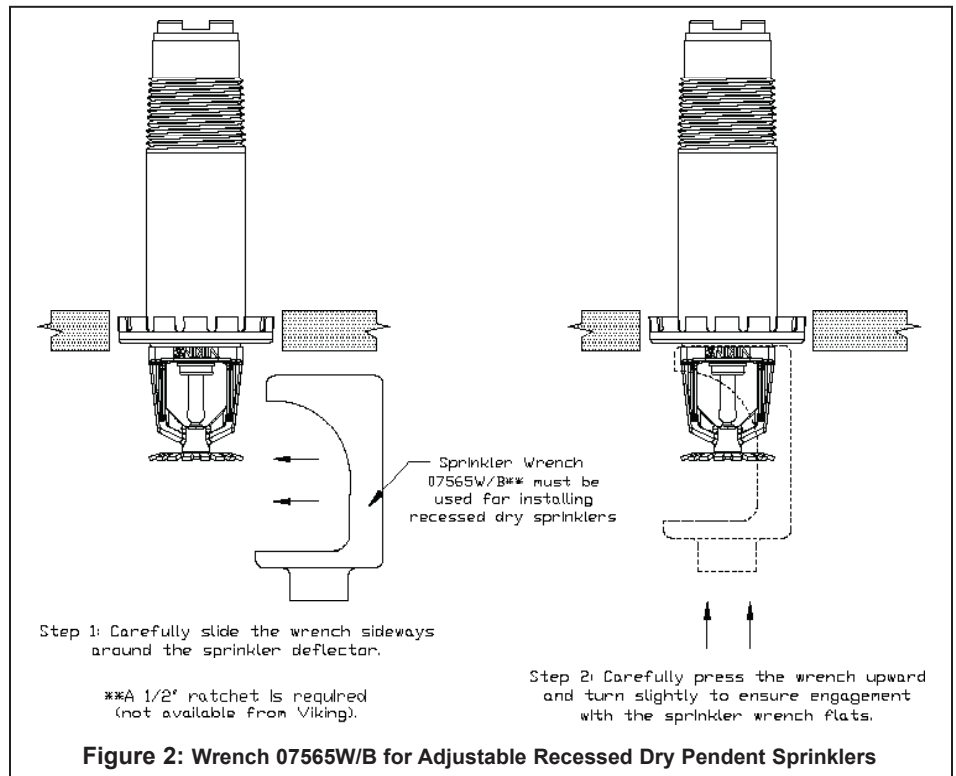
<sup>1</sup> The sprinkler temperature rating is stamped on the deflector.

<sup>2</sup> 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.



**Figure 1:**

**Standard Sprinkler Wrench 07297W/B**




Step 1: Carefully slide the wrench sideways around the sprinkler deflector.

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

Step 2: Carefully press the wrench upward and turn slightly to ensure engagement with the sprinkler wrench flats.

**Figure 2: Wrench 07565W/B for Adjustable Recessed Dry Pendent Sprinklers**

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h2 style="margin: 0;">STANDARD RESPONSE DRY PENDENT SPRINKLERS</h2>
---	--	--

The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058  
 Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

<h3 style="margin: 0;">Approval Chart</h3> <p style="margin: 0;">Standard Response Dry Pendent Sprinklers Maximum 175 PSI (12 bar) WWP</p>	<table border="1" style="border-collapse: collapse;"> <tr> <td style="font-size: small;">Temperature</td> <td rowspan="3" style="text-align: center; vertical-align: middle;"><b>KEY</b></td> </tr> <tr> <td style="font-size: small;">Finish</td> </tr> <tr> <td style="font-size: small;">Escutcheon (if applicable)</td> </tr> </table>	Temperature	<b>KEY</b>	Finish	Escutcheon (if applicable)
Temperature	<b>KEY</b>				
Finish					
Escutcheon (if applicable)					

Sprinkler Base Part Number <sup>1</sup>	SIN	Style	Thread Size		Nominal K-Factor <sup>2</sup>		Order Length Increment		Listings and Approvals <sup>4</sup> (Refer also to Design Criteria on page 101e.)						
			NPT	BSP	U.S.	metric <sup>3</sup>	Inches	mm	cULus <sup>5</sup>	FM	NYC <sup>6</sup>	VdS	LPCB	CE <sup>7</sup>	⚙ <sup>8</sup>

Standard Orifice															
07740	VK154	Adjustable Standard	1"	--	5.6	--	1/2"	12.7	A1	A3	A1	--	--	--	--
07854	VK154		--	25 mm	--	80.6	1/2"	12.7	A1	A3	A1	--	--	--	--
09341	VK155		--	25 mm	--	80.6	1/2"	12.7	--	--	--	--	A3	A3	A3
06530	VK158	Adjustable Recessed	1"	--	5.6	--	1/4"	6.35	B4	B4	B4	--	--	--	--
07853	VK158		--	25 mm	--	80.6	1/4"	6.35	B4	B4	B4	--	--	--	--
09342	VK159		--	25 mm	--	80.6	1/4"	6.35	--	--	--	--	B4	B4	B4
07852	VK150	Plain Barrel	1"	--	5.6	--	1/2"	12.7	A5	A5	A5	--	--	--	--
07855	VK150		--	25 mm	--	80.6	1/2"	12.7	A5	A5	A5	--	--	--	--
09343	VK151		--	25 mm	--	80.6	1/2"	12.7	--	--	--	--	A5	A5	A5

Large Orifice															
---------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sprinkler Base Part Number <sup>1</sup>	SIN	Style	Thread Size		Nominal K-Factor <sup>2</sup>	Order Length Increment		Listings and Approvals <sup>4</sup> (Refer also to Design Criteria on page 101e.)							
			NPT	BSP		Inches	mm	cULus <sup>5</sup>	FM	NYC <sup>6</sup>	VdS	LPCB	CE <sup>7</sup>	⚙ <sup>8</sup>	
12810	VK163	Adjustable Standard	1"	--	8.0 U.S. (115.2 metric <sup>3</sup> ) for lengths up to 20". For lengths over 20", refer to Figure 6 on page 101f.	1/2"	12.7	A2	--	A2	--	--	--	--	--
12813	VK163		--	25 mm		1/2"	12.7	A2	--	A2	--	--	--	--	--
12811	VK164	Adjustable Recessed	1"	--		1/4"	6.35	B4	--	B4	--	--	--	--	--
12814	VK164		--	25 mm		1/4"	6.35	B4	--	B4	--	--	--	--	--
12741	VK166	Plain Barrel	1"	--		1/2"	12.7	A5	--	A5	--	--	--	--	--
12812	VK166		--	25 mm		1/2"	12.7	A5	--	A5	--	--	--	--	--

Approved Temperature Ratings	Approved Finishes and "A" Dimensions
A - 155 °F (68 °C), 175 °F (79°C), 200 °F (93 °C), and 286 °F (141 °C) B - 155 °F (68 °C), 175 °F (79°C), and 200 °F (93 °C)	1 - Chrome-Enloy® or White Polyester sprinkler with a Chrome-Enloy® or White Polyester Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm) 2 - Chrome-Enloy® or White Polyester sprinkler with a Chrome-Enloy® Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm) 3 - Chrome-Enloy® with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm) 4 - Chrome-Enloy® or White Polyester with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm) 5 - Chrome-Enloy® or Brass with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)

**Footnotes**

<sup>1</sup> Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.

<sup>2</sup> K-Factor applies for standard lengths ("A" Dimensions indicated above).

<sup>3</sup> 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.

<sup>4</sup> This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.

<sup>5</sup> Listed by Underwriter's Laboratories for use in the U.S. and Canada.

<sup>6</sup> Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol. 37.

<sup>7</sup> CE Certified, Standard EN 12259-1, EC-certificate of conformity 0832-CPD-2001.

<sup>8</sup> MED Certified, Standard EN 12259-1, EC-certificate of conformity 0832-MED-1003.



**TECHNICAL DATA**

**STANDARD RESPONSE DRY PENDENT SPRINKLERS**

The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

**DESIGN CRITERIA**

(Also refer to the Approval Chart on page 101d.)

**cULus Listing Requirements:**

Standard Dry 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 pendent sprinklers.

- Designed for use in Light, Ordinary, and Extra Hazard occupancies.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13.
- Minimum spacing allowed is 6 ft. (1.8 m) unless baffles are installed in accordance with NFPA 13.
- Locate no less than 4" (102 mm) from walls.
- Maximum distance from walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.
- The sprinkler installation and obstruction rules contained in NFPA 13 for standard spray pendent sprinklers must be followed.

**FM Approval Requirements:**

Standard Dry Pendent Sprinklers are FM Approved as indicated in the Approval Chart for installation in accordance with the latest applicable FM Loss Prevention Data Sheets 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 DRY1-2 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.

- For "A" Dimension: 1. Determine the distance from the face of the tee to the finished ceiling.  
 2. Round to the nearest 1/2" (12.7 mm) between 1-1/2" and 4-1/2" (38.1 mm and 1,156 mm).  
**NOTE:** The deflector will be located approximately 3-7/16" (87.3 mm) below the ceiling with 1" (25.4 mm) upward and 1" (25.4 mm) downward adjustment.

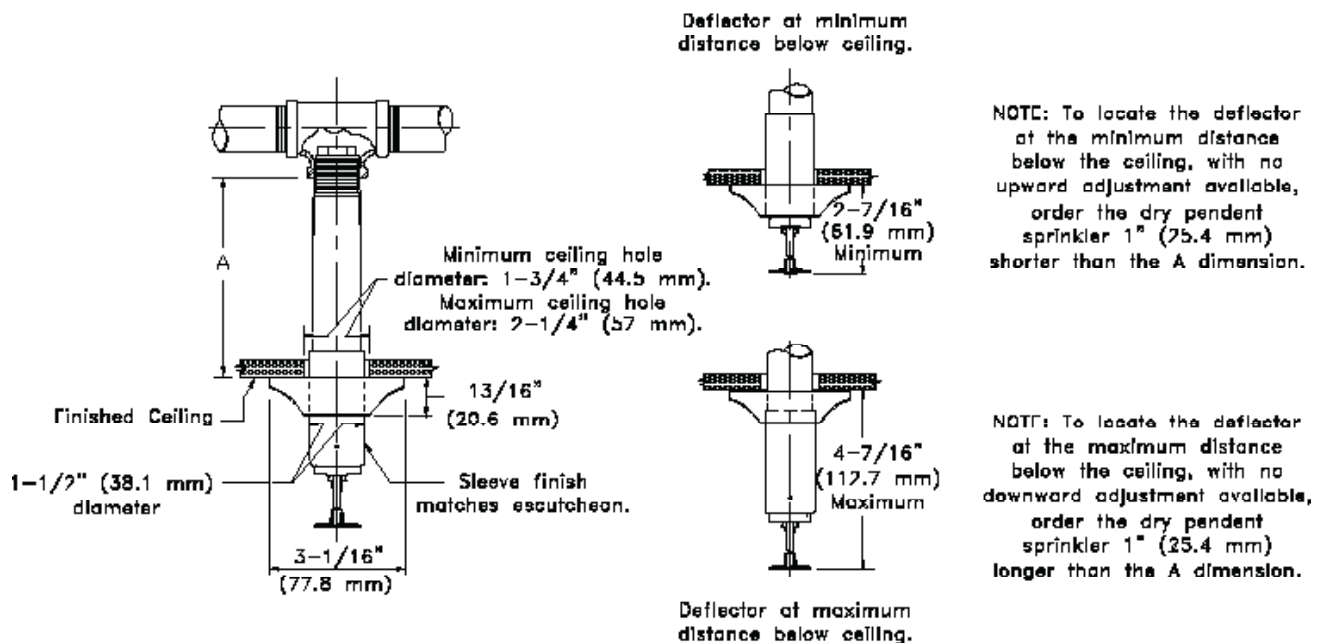


Figure 3: Adjustable Standard Dry Pendent Sprinkler



TECHNICAL DATA

STANDARD RESPONSE DRY PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

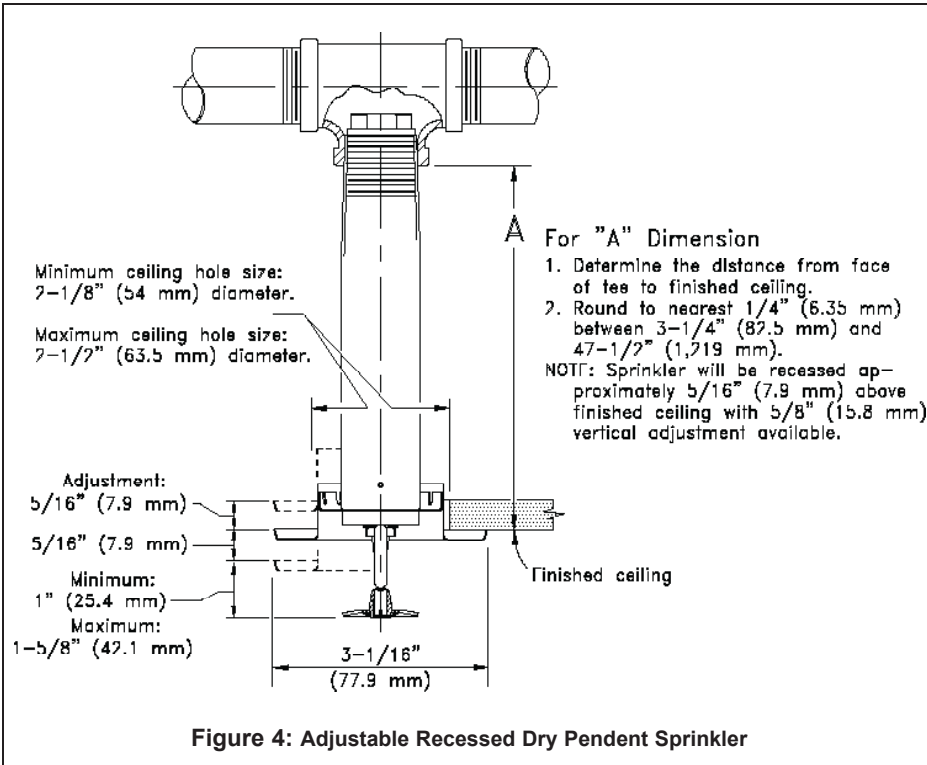


Figure 4: Adjustable Recessed Dry Pendent Sprinkler

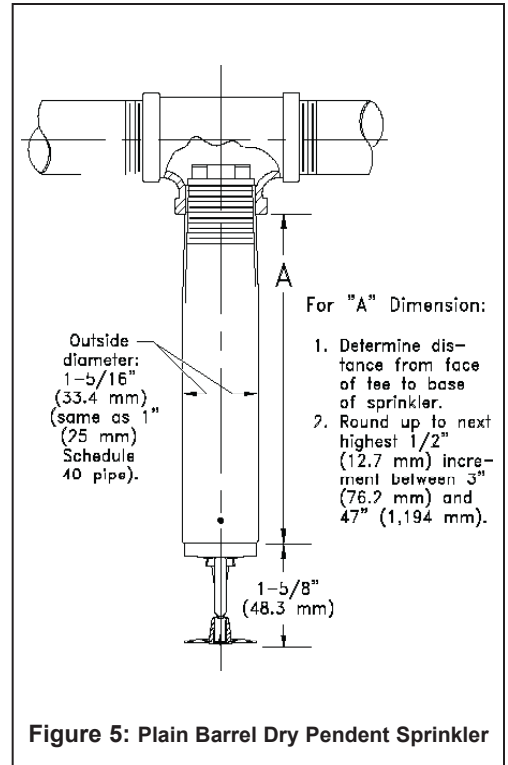
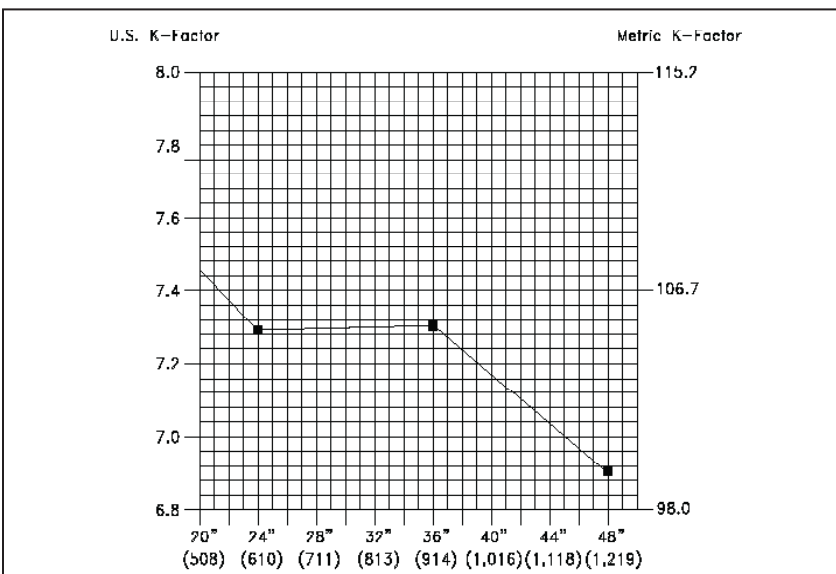


Figure 5: Plain Barrel Dry Pendent Sprinkler



Lengths exceeding the standard length are available, with no approvals, on a "made-to-order" basis. Contact the manufacturer.

Metric K-Factor measurements shown are when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-Factor by 10.0.

Figure 6: K-Factor/Length Graph for Large Orifice Dry Pendent Sprinklers for lengths from 20" to 48" (508 mm to 1,219 mm). Note: For lengths up to 20" (508 mm), the nominal K-Factor is 8.0 U.S. (115.2 metric).



TECHNICAL DATA

STANDARD RESPONSE DRY PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Road, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

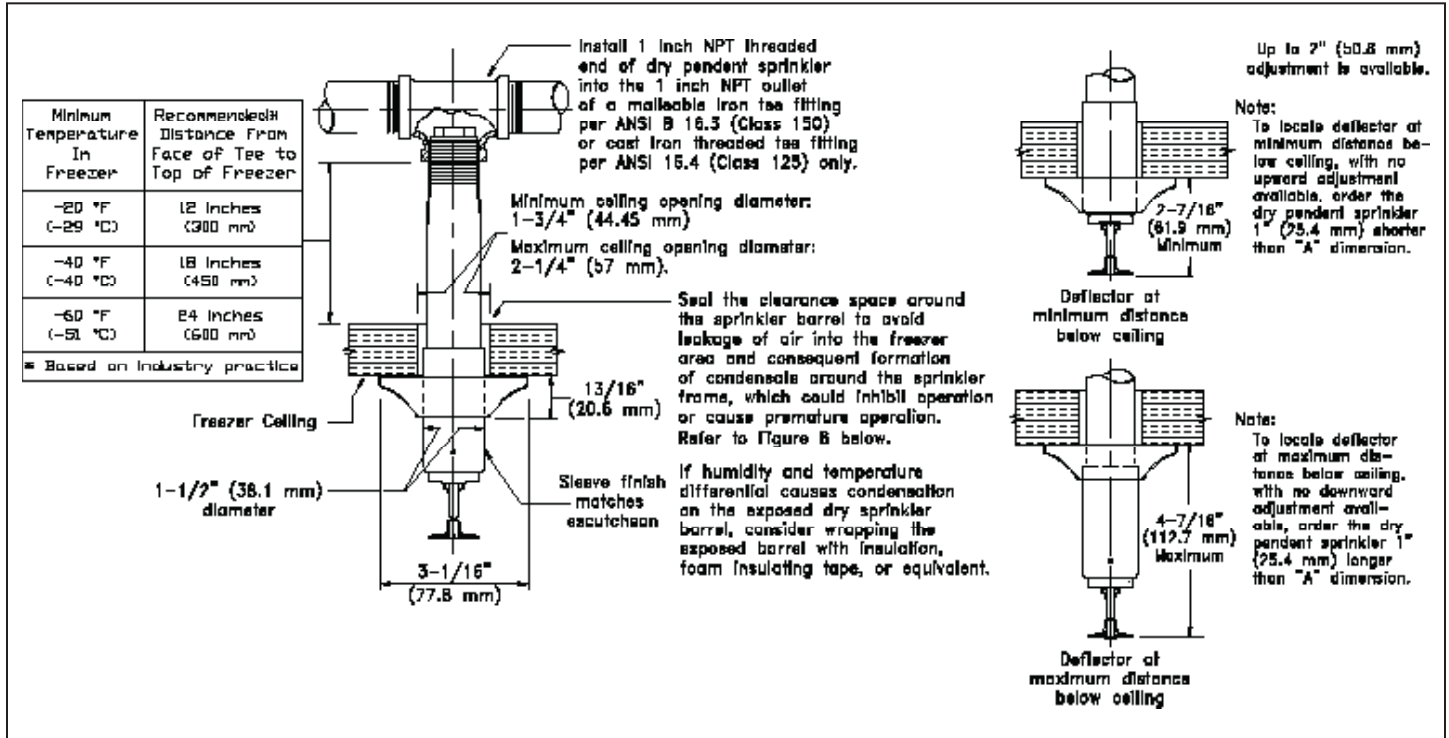


Figure 7: Dry Pendent Sprinkler Installation in Freezers (Adjustable Standard Dry Pendent Sprinkler is Shown)

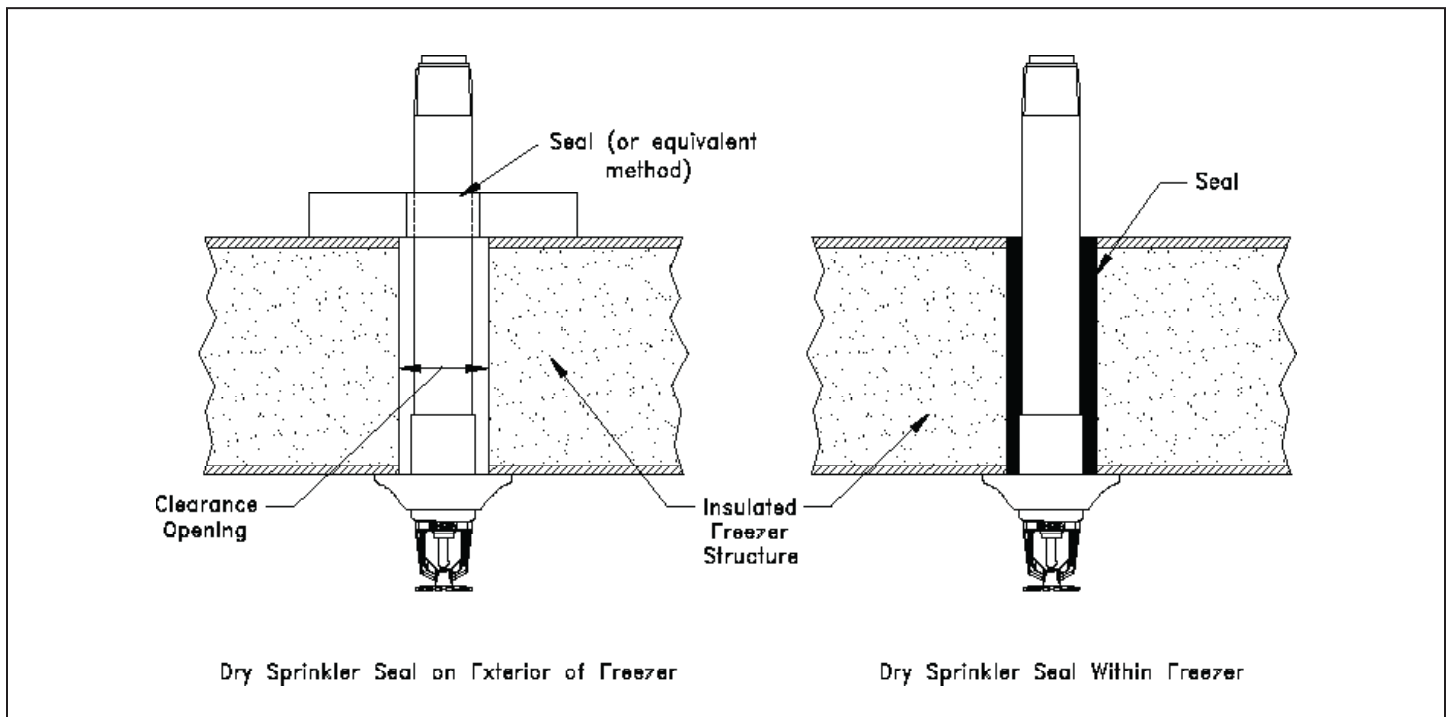


Figure 8: Dry Sprinkler Seal (Adjustable Standard Dry Pendent Sprinkler is Shown)

**THIS PAGE  
INTENTIONALLY  
LEFT BLANK**