



TECHNICAL DATA

QUICK RESPONSE LARGE ORIFICE DRY PENDENT FUSIBLE LINK SPRINKLERS (VK290, VK286, VK282)

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 Quick Response Large Orifice Dry Pendent Fusible Link Sprinklers are thermostatic 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.

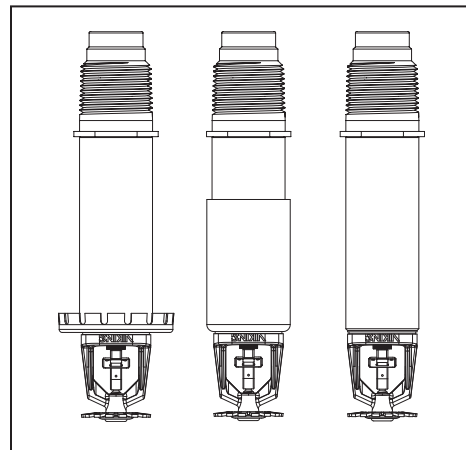
Viking Quick Response Dry Pendent Sprinklers are available in various finishes and temperature ratings to meet design requirements. The large orifice dry pendent sprinkler allows greater flows at lower pressures than standard orifice sprinklers.

2. LISTINGS AND APPROVALS

 **cULus Listed:** Category VNIV

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

Refer to the Approval Chart on page 105r and Design Criteria on page 105s for cULus Listing requirements that must be followed.



3. TECHNICAL DATA

Specifications:

Available since 2005.

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: 8.0 U.S. (115.2 metric*) for lengths up to 48".

* 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.

Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Brass UNS-C23000

Fusible Element Assembly: Nickel Alloy

Trigger and Support: Stainless Steel UNS-S31600

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

Compression Screw: Brass UNS-C36000

Seat and Adapter Assembly: Brass UNS-C36000

Orifice: Copper UNS-C11000 or UNS-C21000

Tube: ERW Hydraulic Steel Tube

Inlet and Barrel End: QM Brass or Brass UNS-C31400 or Brass UNS-C31600

Support (Internal): Brass UNS-C36000 or Brass UNS-C31400 or Brass UNS-C31600

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 Quick 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.

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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Lengths exceeding the standard lengths are available, with no approvals, on a "made-to-order" basis: Recessed Dry Pendant up to 64-1/4" (1,632 mm), Adjustable Standard Dry Pendant up to 62" (1,575 mm), and Plain Barrel Dry Pendant up to 64" (1,626 mm). Contact the manufacturer for more information.

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

Temperature Suffix: 165 °F (74 °C) = C, 205 °F (96 °C) = E, 280 °F (138 °C) = G

For example, sprinkler VK286 with 1" NPT Threads, a Chrome finish and a 165 °F (74 °C) temperature rating, and "A" length of 10" = Part No. 13255UFC10.

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 Pendant Sprinklers: Part No. 07565W/B** (available since 1991)
- C. Optional Protective Sprinkler Cap Remover/Recessed Escutcheon Installer Tool*** Part No. 15915 (available since 2010)

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

***Allows use from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F_051808.

Sprinkler Guard: Chrome, with no listings or approvals, for installation on dry pendant 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 fusible element assembly disengages, 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 Quick Response Dry Pendant 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.

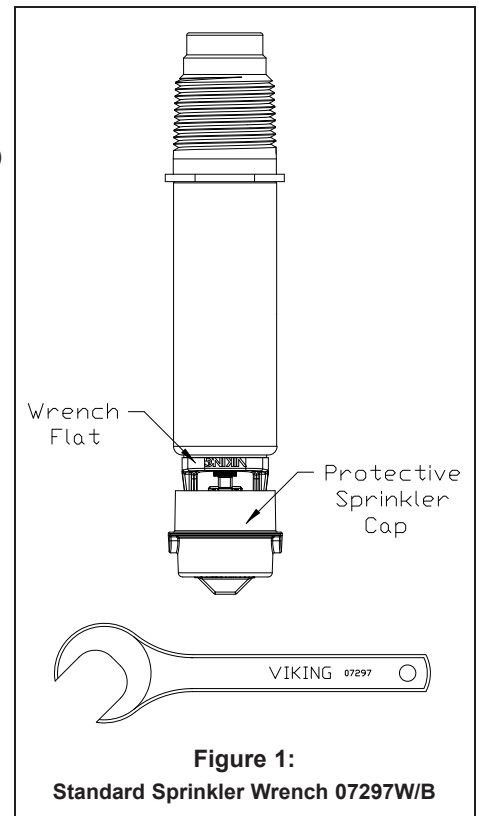


Figure 1:
Standard Sprinkler Wrench 07297W/B

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Frame Paint Color ²
Ordinary	165 °F (74 °C)	100 °F (38 °C)	None
Intermediate	205 °F (96 °C)	150 °F (65 °C)	White
High	280 °F (138 °C)	225 °F (107 °C)	Blue

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

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.



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Approval Chart

Quick Response Large Orifice Dry Pendent Fusible Link Sprinklers
Maximum 175 PSI (12 bar) WWP

Temperature	KEY
Finish	
A1X ← Escutcheon (if applicable)	

Base Part Number ¹	SIN	Style	Thread Size		Nominal K-Factor	Order Length Increment		Listings and Approvals ³ (Refer also to Design Criteria on page 105s.)						
			NPT	BSP		Inches	mm	cULus ⁴	FM	NYC ⁵	VdS	LPCB	CE	⚙
13255U	VK286	Adjustable Standard	1"	--	8.0 U.S. (115.2 metric ²)	1/2"	12.7	A1	--	A1	--	--	--	--
13258U	VK286		--	25 mm		1/2"	12.7	A1	--	A1	--	--	--	--
13256U	VK290	Adjustable Recessed	1"	--		1/4"	6.35	B2	--	B2	--	--	--	--
13259U	VK290		--	25 mm		1/4"	6.35	B2	--	B2	--	--	--	--
13254U	VK282	Plain Barrel	1"	--		1/2"	12.7	A3	--	A3	--	--	--	--
13257U	VK282		--	25 mm		1/2"	12.7	A3	--	A3	--	--	--	--

Approved Temperature Ratings

A - 165 °F (74 °C), 205 °F (96 °C), and 280 °F (138 °C)
B - 165 °F (74 °C) and 205 °F (96 °C)

Approved Finishes and "A" Dimensions

- 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 with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)
- 3 - Chrome-Enloy® or Brass with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)

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 Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol. 37.

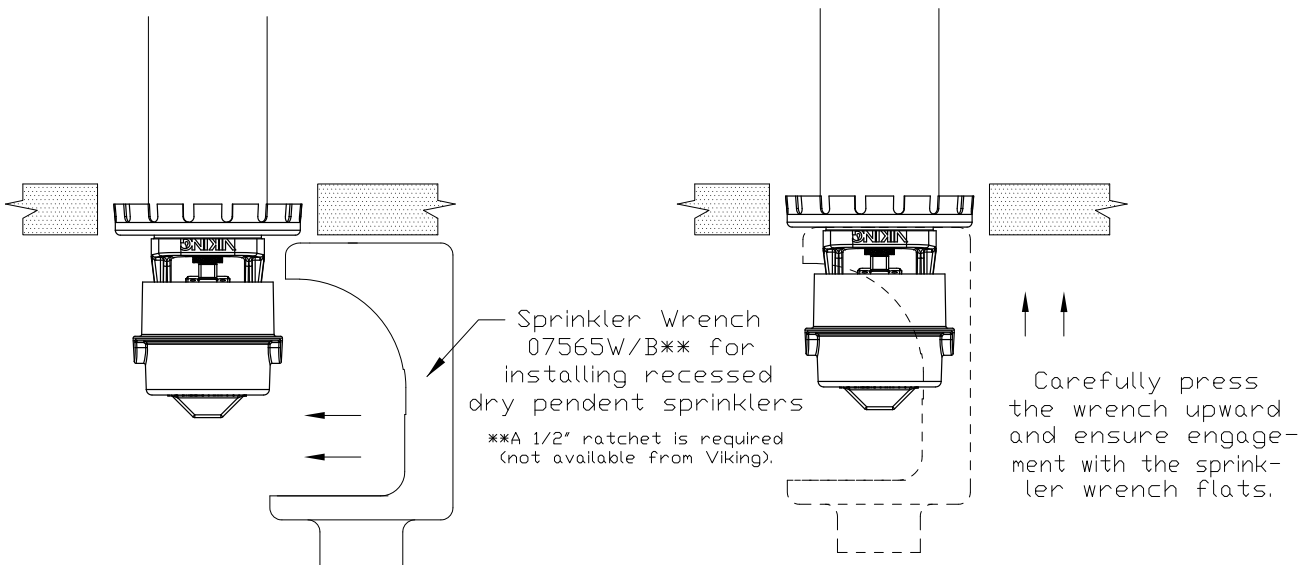


Figure 2: Wrench 07565W/B for Adjustable Recessed Dry Pendent Sprinklers



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DESIGN CRITERIA

(Also refer to the Approval Chart on page 105r.)

NOTE: When using CPVC fittings with Viking dry sprinklers, use only new Nibco Model 5012-S-BI tees. When selecting other CPVC fittings, contact Viking Technical Services.

cULus Listing Requirements:

Quick Response 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 and Ordinary 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.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page DRY1-3 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.

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 45-1/2" (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.

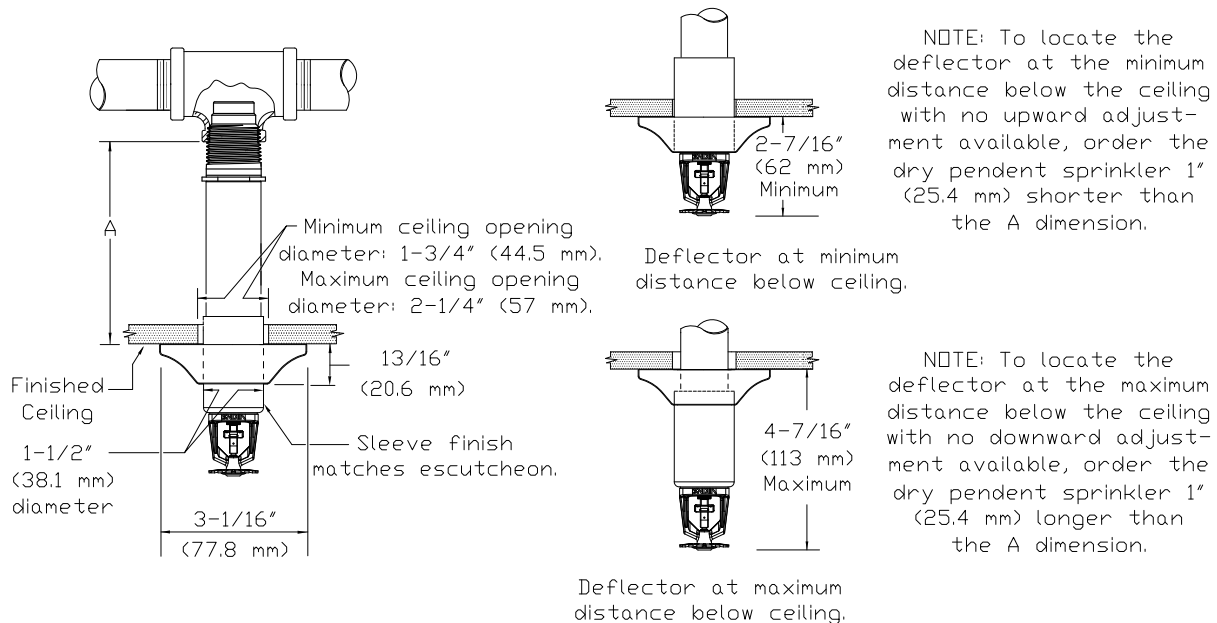


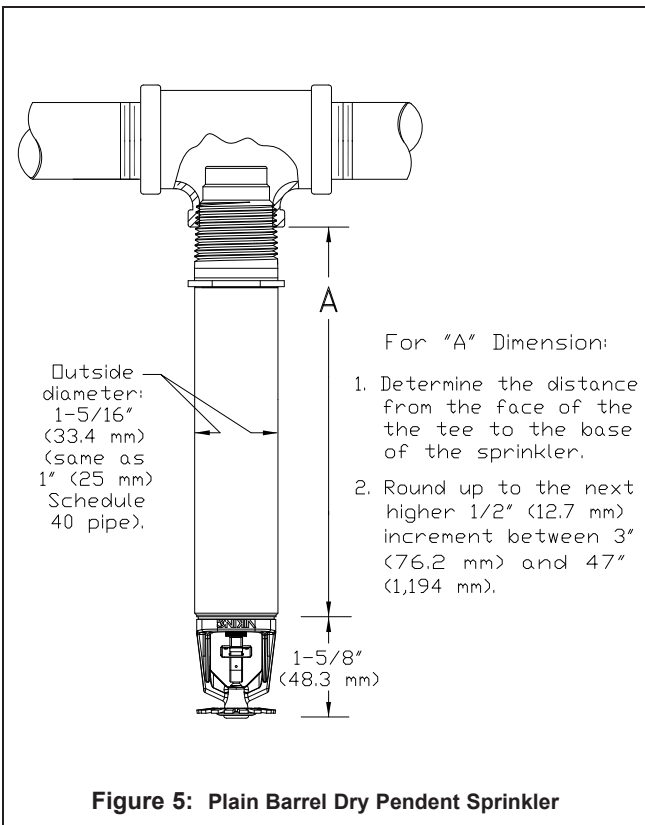
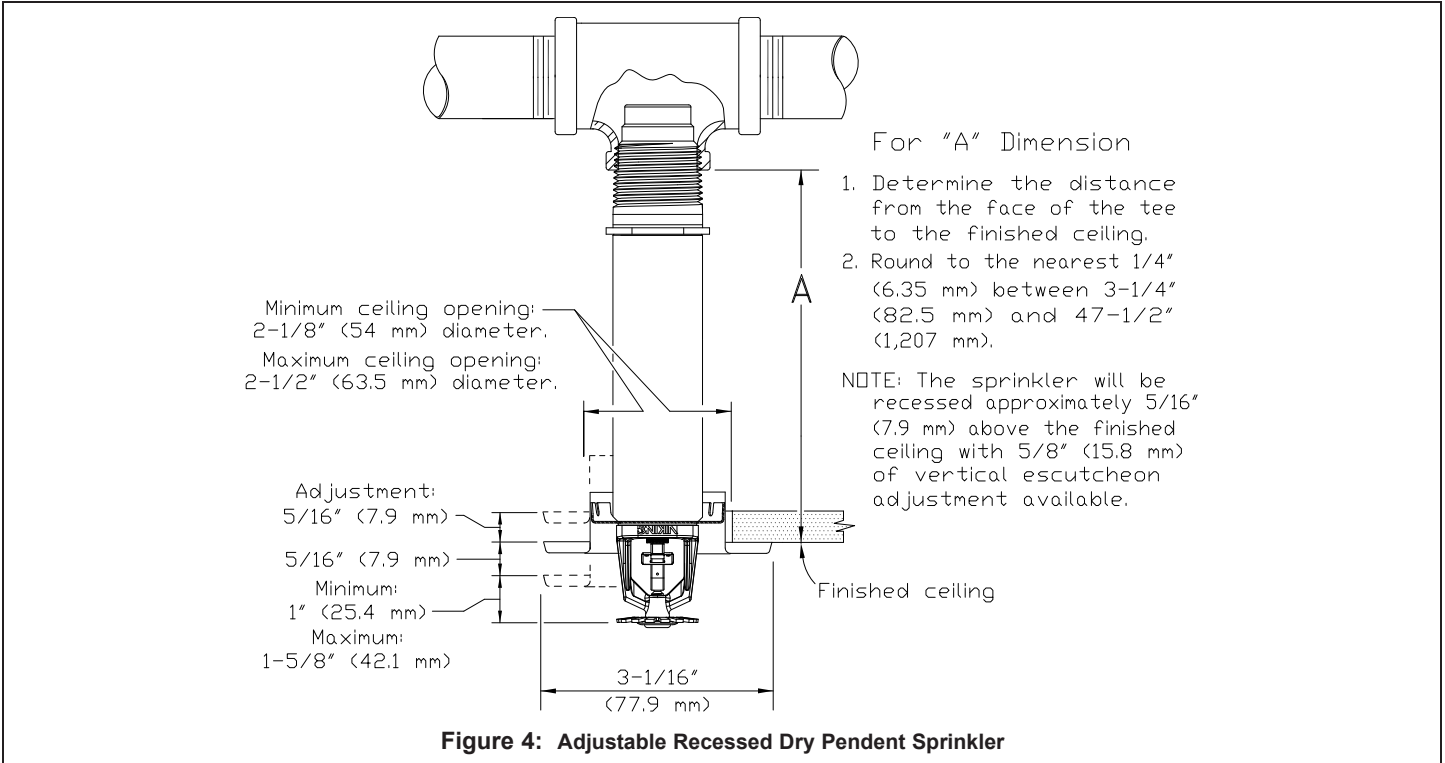
Figure 3: Adjustable Standard Dry Pendent Sprinkler with up to 2" (51 mm) Adjustment



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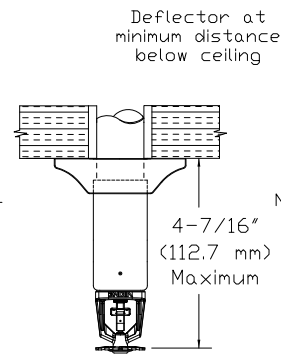
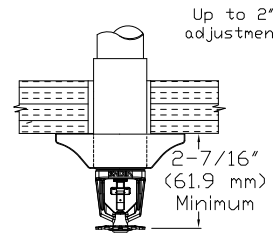
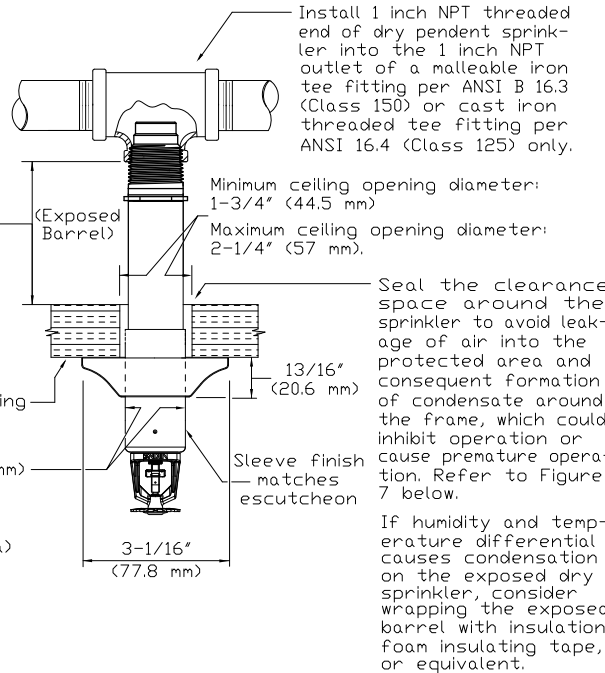
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Ambient Temperature of Protected Area* at the Discharge End of the Sprinkler	Exposed Barrel Ambient Temperature		
	40°F/4°C	50°F/10°C	60°F/16°C
40°F (4°C)	0	0	0
30°F (-1°C)	0	0	0
20°F (-7°C)	4 (100)	0	0
10°F (-12°C)	8 (203)	1 (25.4)	0
0°F (-18°C)	12 (305)	3 (76)	0
-10°F (-23°C)	14 (356)	4 (102)	1 (25.4)
-20°F (-29°C)	14 (356)	6 (152)	3 (76)
-30°F (-34°C)	16 (406)	8 (203)	4 (102)
-40°F (-40°C)	18 (457)	8 (203)	4 (102)
-50°F (-46°C)	20 (508)	10 (254)	6 (152)
-60°F (-51°C)	20 (508)	10 (254)	6 (152)



*The protected area refers to the area below the ceiling. The ambient temperature is the temperature at the discharge end of the sprinkler. For protected area temperatures that occur between the values listed, use the next cooler temperature.
**The minimum required barrel length is not the same as the "A" dimension. Refer to Figures 3-5 for the "A" dimension.
NOTE: Exposed minimum barrel lengths are inclusive up to 30 mph wind velocities.

Figure 6: Dry Pendent Sprinkler Required Minimum Barrel Length Based on Ambient Temperature in the Protected Area (Adjustable Standard Dry Pendent Sprinkler is Shown)

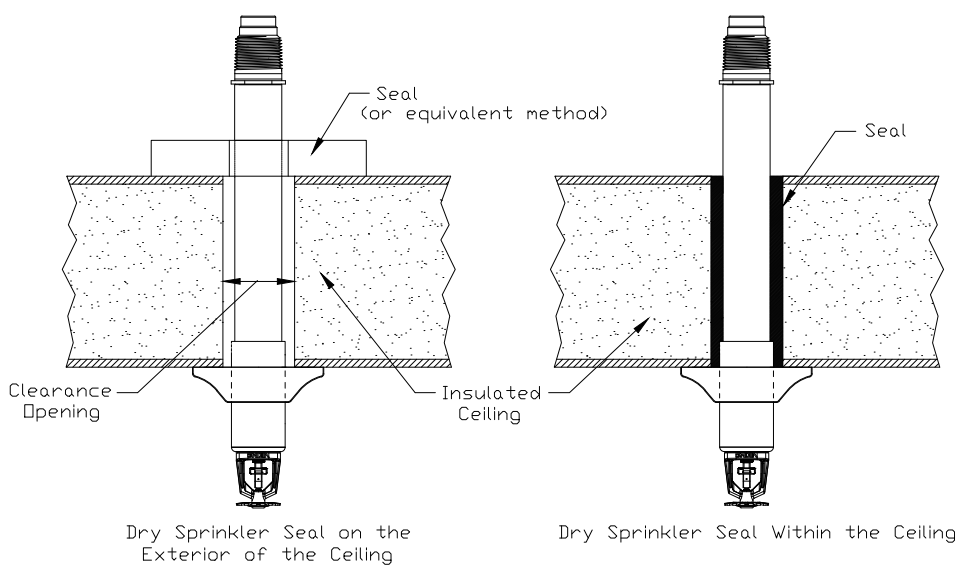


Figure 7: Dry Sprinkler Seal (Adjustable Standard Dry Pendent Sprinkler is Shown)