



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK275, VK277, & VK279)

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 Ordinary Hazard Dry Horizontal Sidewall 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. The large orifice dry sidewall sprinkler allows greater flows at lower pressures than standard orifice sprinklers.

Viking Quick Response Ordinary Hazard Dry Horizontal Sidewall Sprinklers are available in various finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings have been investigated for installation in corrosive atmospheres and are cULus listed as corrosion resistant as indicated in the Approval Chart.

NOTE: When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.

2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV

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

Refer to the Approval Chart on page 106u and Design Criteria on page 106w 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.

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

Covered by U.S. Patent numbers: 8,636,075 and 8,376,060

Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Phosphor Bronze UNS-C51000

Bulb: Glass, nominal 3 mm diameter

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

Compression Screw: Brass UNS-C36000

Pip Cap and Adapter: 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

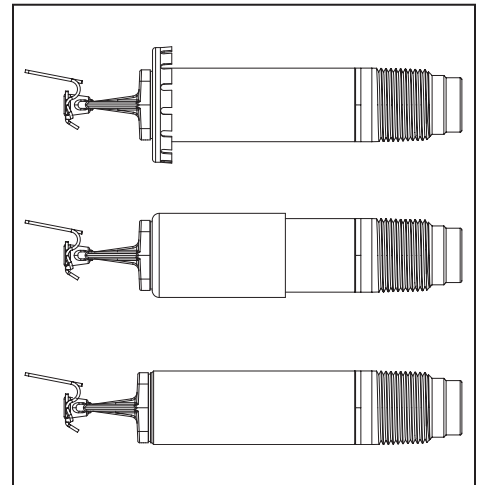
Recessed Dry Escutcheons: Cold Rolled Steel UNS-G10080

ENT Coated Adjustable and Recessed Escutcheons: Stainless Steel UNS-S30400

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

Order Quick Response Ordinary Hazard Dry Horizontal Sidewall 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, 5, 6, and 7). The "A" dimension is the distance from the face of the fitting (tee) to the desired finished surface of the wall in which it is to be installed. 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 Horizontal Sidewall up to 65-1/2" (1,664 mm). Adjustable Standard Dry Horizontal Sidewall up to 63-1/2" (1,613 mm). Plain Barrel Dry Horizontal Sidewall up to 65" (1,651 mm). Contact the manufacturer for more information.



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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Finish Suffix: Brass = A, Chrome = F, White Polyester = M-W, and ENT = JN
Temperature Suffix (°F/°C): 155°/68° = B, 175°/79° = D, 200°/93° = E, 286°/141° = G
Escutcheon Suffix = Y for the adjustable recessed sprinkler with the Model G-1
Escutcheon (no suffix needed for the Model E-1 Escutcheon).

For example, sprinkler VK279 with 1" NPT Threads, Chrome finish, 155 °F/
68 °C temperature rating, a Model G-1 Escutcheon, and "A" length of 10" = Part
No. 13171UFBY10.

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 ½" ratchet is required (not available from Viking).

Dry Sprinkler Protective Cover: Part No. 15610

Replacement Escutcheons:

- A. Adjustable Standard Dry Escutcheon: Base Part No. 08086F
- B. Model E-1 Recessed Dry Escutcheon Cup: Base Part No. 05459A

NOTE: Sprinkler is turned sideways for clarity. (Refer to Figures 2-7 for correct deflector orientation.)

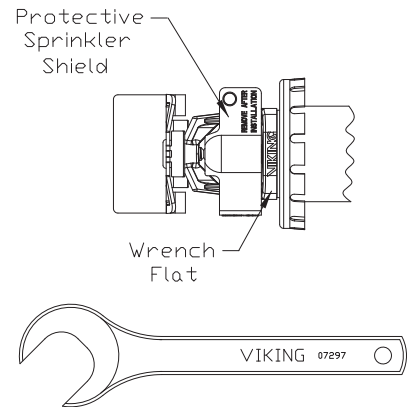


Figure 1: Standard Sprinkler Wrench 07297W/B

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 Quick Response Ordinary Hazard Dry Horizontal Sidewall 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.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temp. Rating ¹	Maximum Ambient Ceiling Temperature ²	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, White Polyester, and ENT

Corrosion-Resistant Coating^{3,4}: White Polyester and ENT in all temperature ratings

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.

³ The corrosion-resistant Polyester and ENT coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart. These tests cannot and do not represent all possible corrosive environments. Note: These coatings are NOT corrosion proof. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. Polyester and ENT coatings are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and ENT coatings.

⁴ When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.



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Approval Chart

Quick Response Ordinary Hazard Dry
 Horizontal Sidewall Sprinklers (8.0K)
 Maximum 175 PSI (12 bar) WWP

Temperature	KEY
Finish	
A1X ← Escutcheon (if applicable)	

Sprinkler Base Part Number ¹	SIN	Style	Thread Size		Nominal K-Factor ²	Order Length Increment		Listings and Approvals ⁴ (Refer also to Design Criteria on page 106w.)						
			NPT	BSP		Inches	mm	cULus ⁵	FM	NYC ⁶	VdS	LPCB	CE	⚙
13169U	VK277	Adjustable Standard	1"	--	8.0 U.S. (115.2 metric ³)	1/2"	12.7	A1, A5	--	A1	--	--	--	--
13175U	VK277		--	25 mm		1/2"	12.7	A1, A5	--	A1	--	--	--	--
13171U	VK279	Adjustable Recessed	1"	--		1/4"	6.35	B2, B6	--	B2	--	--	--	--
13177U	VK279		--	25 mm		1/4"	6.35	B2, B6	--	B2	--	--	--	--
13170U	VK275	Plain Barrel	1"	--		1/2"	12.7	A3	--	A4	--	--	--	--
13176U	VK275		--	25 mm		1/2"	12.7	A3	--	A4	--	--	--	--

Approved Temperature Ratings

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)

Approved Finishes and "A" Dimensions

- 1 - Chrome or White Polyester⁷ sprinkler with a Chrome 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 or White Polyester⁷ with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)
- 3 - Chrome, Brass, White Polyester⁷, or ENT⁷ with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)
- 4 - Chrome or Brass with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)
- 5 - ENT⁷ sprinkler with a ENT⁷ Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm)
- 6 - ENT⁷ with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)

Footnotes

- ¹ Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
- ² K-Factor applies for standard lengths ("A" Dimensions indicated above).
- ³ 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.
- ⁴ 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.
- ⁵ Listed by Underwriter's Laboratories for use in the U.S. and Canada for Light and Ordinary Hazard occupancies.
- ⁶ Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol. 37.
- ⁷ cULus Listed as corrosion resistant.

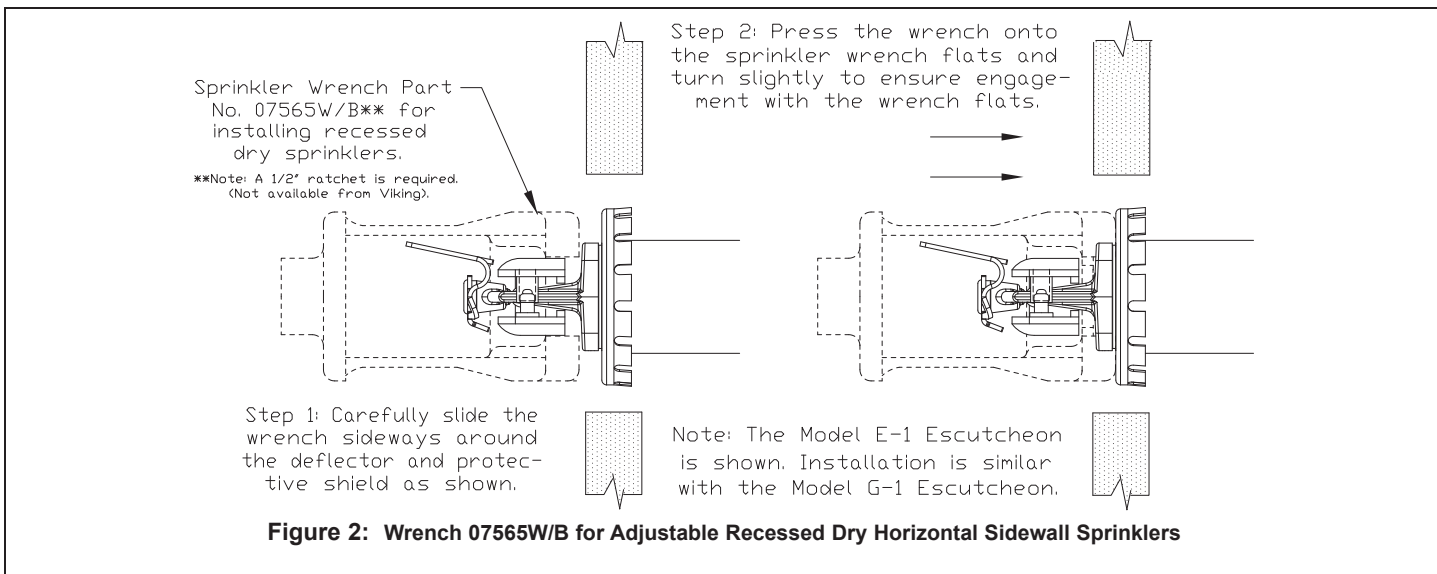


Figure 2: Wrench 07565W/B for Adjustable Recessed Dry Horizontal Sidewall Sprinklers



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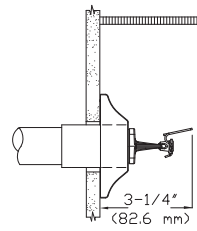
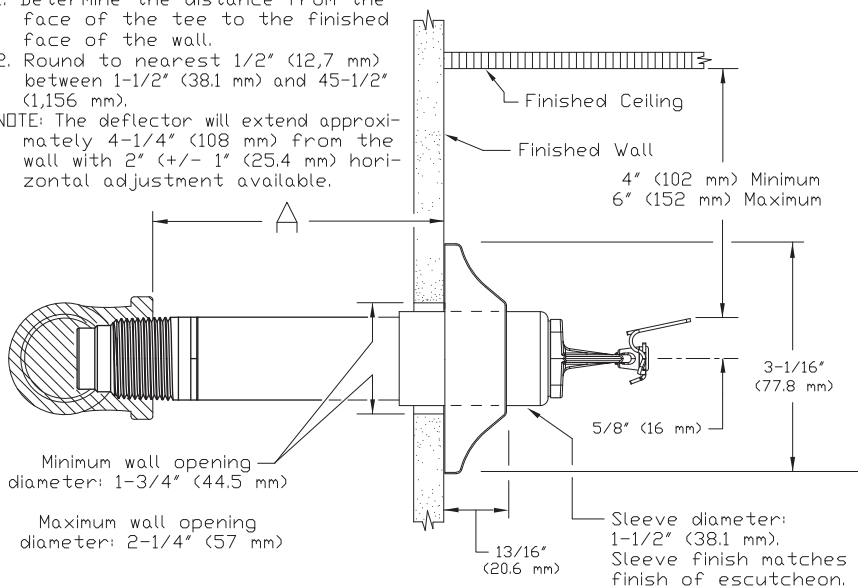
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For "A" Dimension:

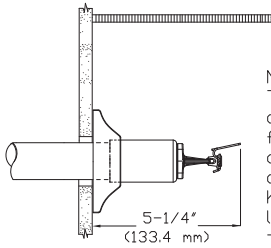
1. Determine the distance from the face of the tee to the finished face of the wall.
2. Round to nearest 1/2" (12.7 mm) between 1-1/2" (38.1 mm) and 45-1/2" (1,156 mm).

NOTE: The deflector will extend approximately 4-1/4" (108 mm) from the wall with 2" (+/- 1" (25.4 mm) horizontal adjustment available.



NOTE: To locate the deflector at the minimum distance from the wall, with no adjustment available, order the standard dry horizontal sidewall sprinkler 1" (25.4 mm) shorter than the "A" Dimension.

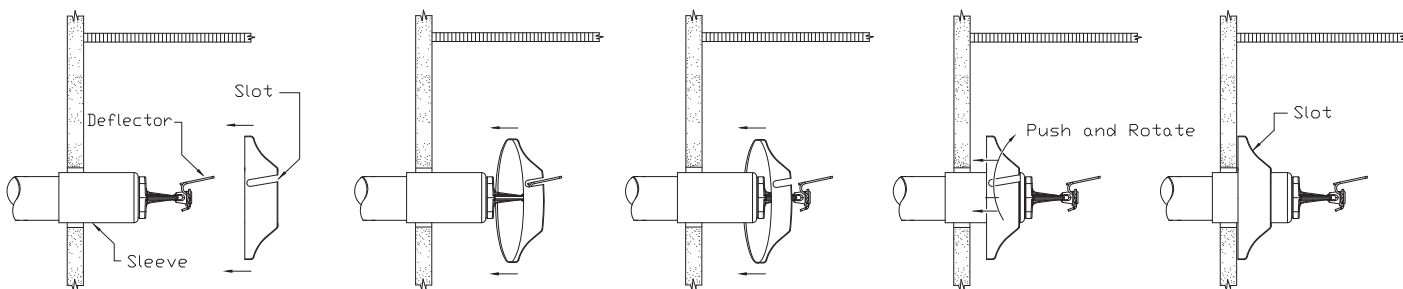
Deflector at Minimum Distance From Wall



NOTE: To locate the deflector at the maximum distance from the wall, with no adjustment available, order the standard dry horizontal sidewall sprinkler 1" (25.4 mm) longer than the "A" Dimension.

Deflector at Maximum Distance From Wall

Figure 3: Adjustable Standard Ordinary Hazard Dry HSW Sprinkler



STEP 1: Align the slot in the escutcheon with the horizontal surface of the deflector as shown.

STEP 2: Push the rounded end of the slot against the near edge of the deflector. Push the far side of the escutcheon past the deflector, toward the sleeve.

STEP 3: Pull the escutcheon away from the near edge of the deflector. Move the near side of the escutcheon over the deflector.

STEP 4: Push and rotate the escutcheon onto the sleeve.

STEP 5: To minimize visibility of the slot in the escutcheon, position the slot at the top of the sprinkler sleeve.

Figure 4: Adjustable Standard Escutcheon Installation



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DESIGN CRITERIA

(Also refer to the Approval Chart on page 106u.)

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 Ordinary Hazard Dry Horizontal Sidewall Sprinklers are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for sidewall standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies with smooth, flat ceilings only.
- 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).
- Deflector must be positioned between 4" and 6" (102 mm and 152 mm) below the ceiling. Keep the leading edge of the deflector and the centerline axis of the sprinkler frame oriented parallel with the ceiling.
- Locate no less than 4" (102 mm) from end walls.
- Maximum distance from end 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 sidewall standard spray sprinklers must be followed.

IIMPORTANT: 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.

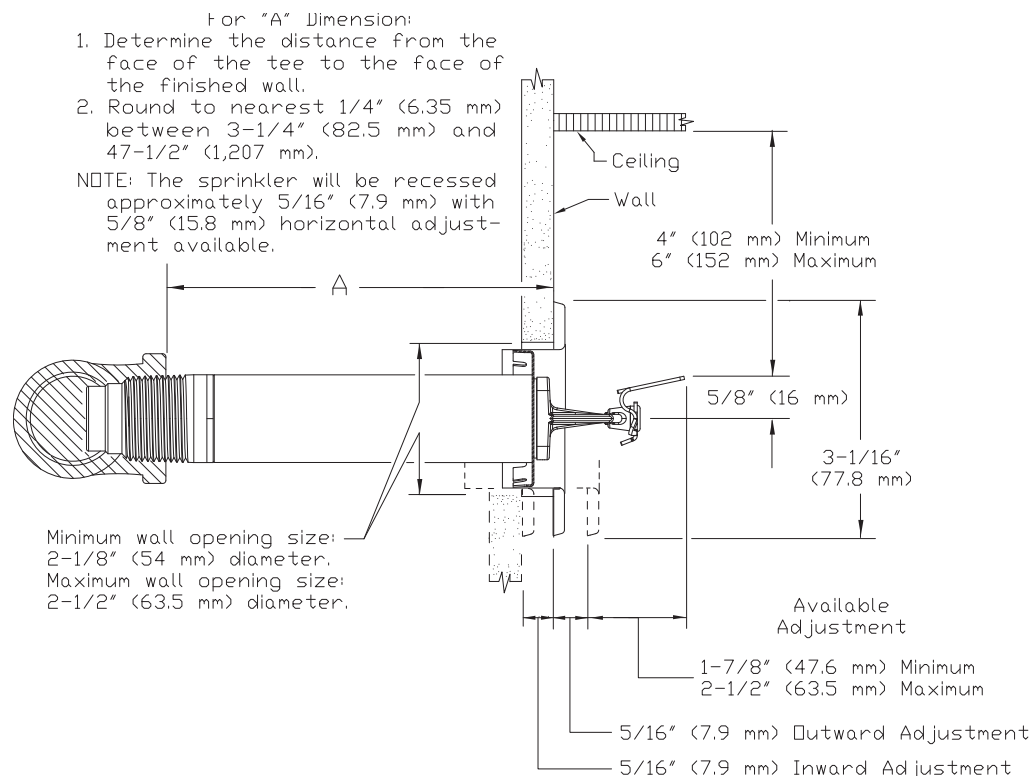


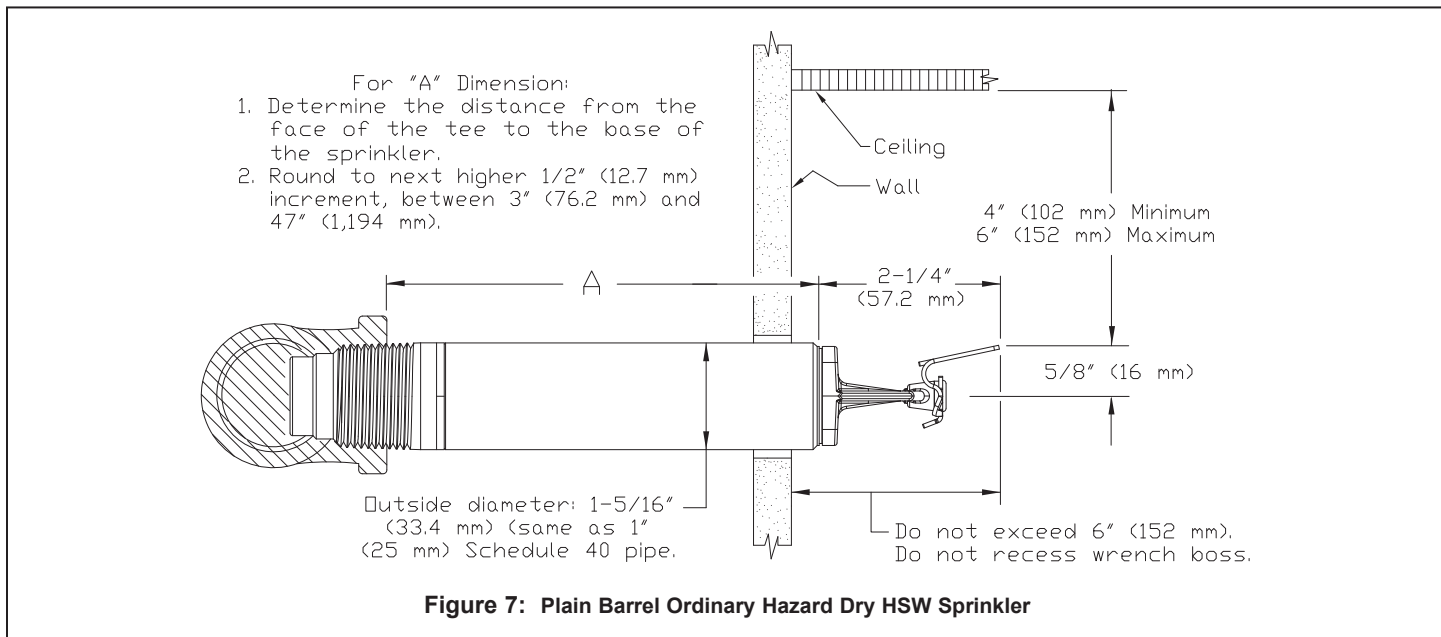
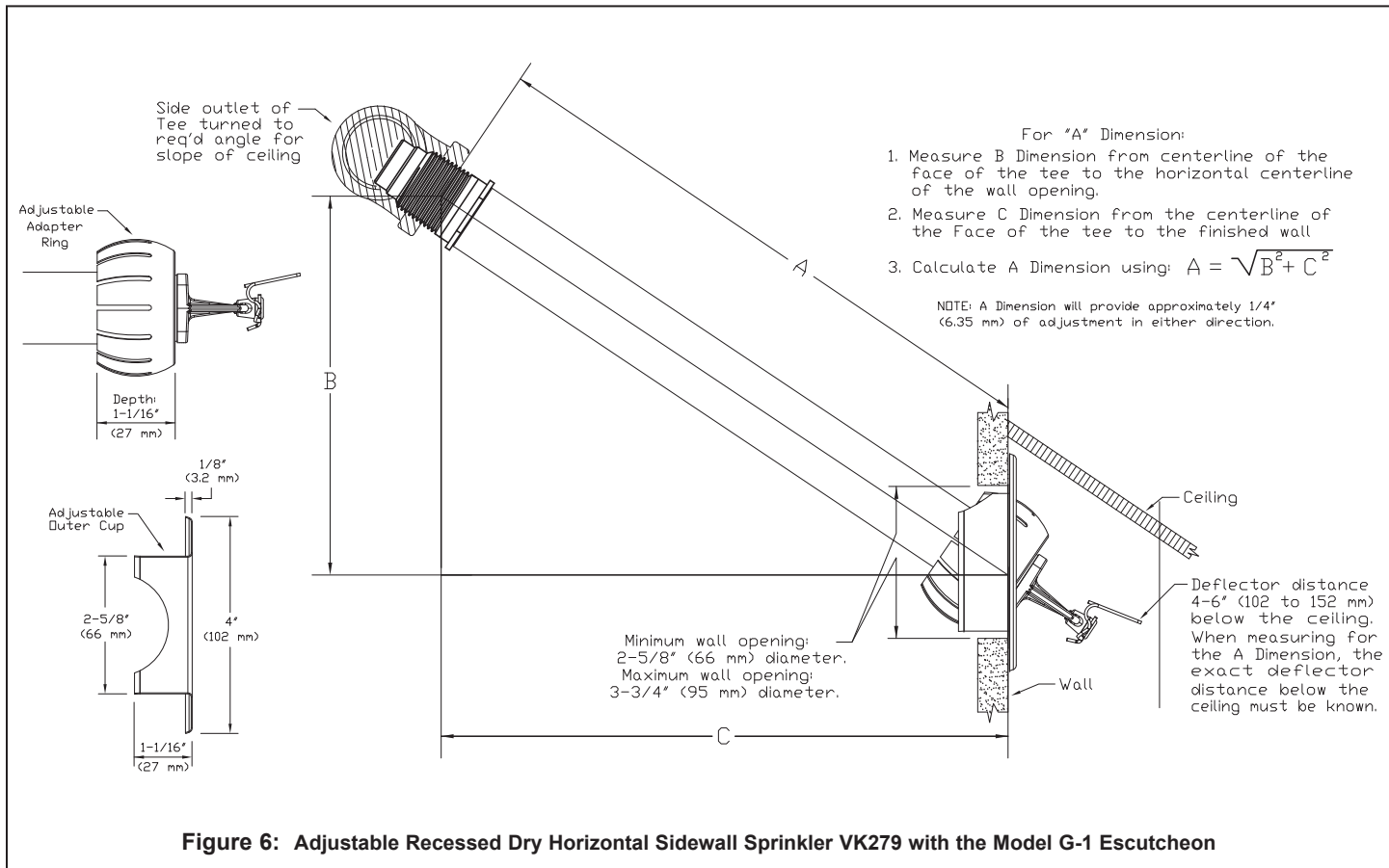
Figure 5: Adjustable Recessed Ordinary Hazard Dry HSW Sprinkler with the Model E-1 Escutcheon



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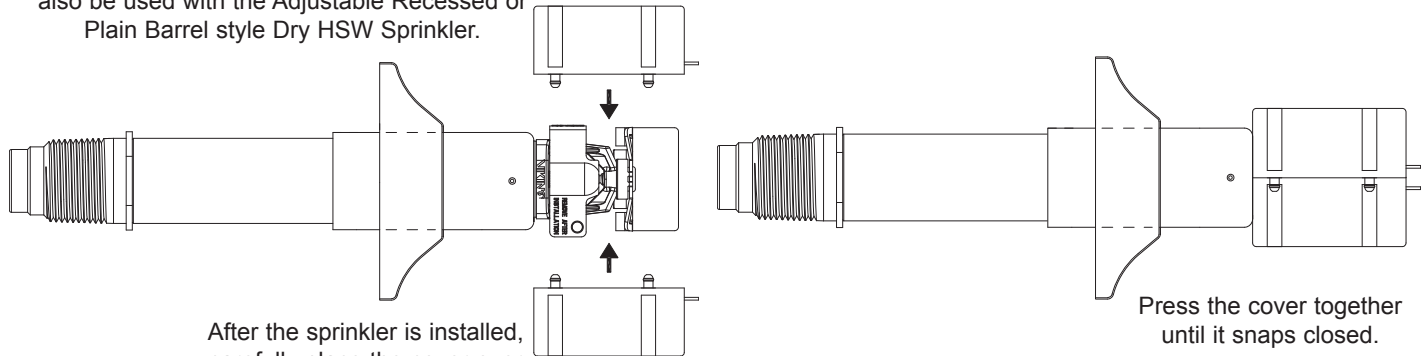
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NOTE: Shown with an Adjustable Standard Dry HSW Sprinkler. The protective cover may also be used with the Adjustable Recessed or Plain Barrel style Dry HSW Sprinkler.



After the sprinkler is installed, carefully place the cover over the dry sprinkler as shown.

Press the cover together until it snaps closed.

NOTE: Remove the sprinkler clip and cover before placing the system in service!

Figure 8: Dry Horizontal Sidewall Sprinkler Cover Part Number 15610 (shown with an Adjustable Standard Dry HSW Sprinkler) (Optional for temporary use with Viking Dry HSW Sprinklers until finish work is completed around the sprinkler.)

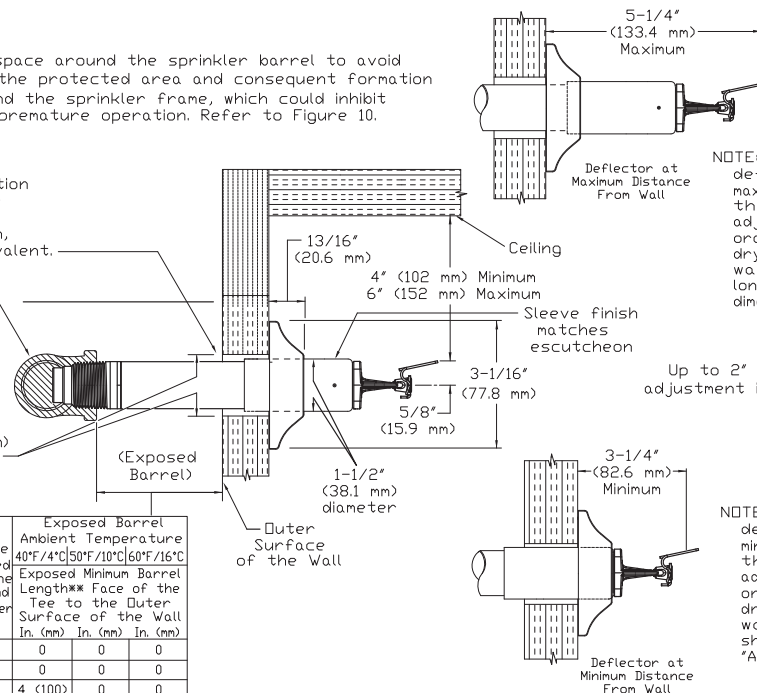
Seal the clearance space around the sprinkler barrel to avoid leakage of air into the protected area and consequent formation of condensate around the sprinkler frame, which could inhibit operation or cause premature operation. Refer to Figure 10.

If humidity and temperature differential causes condensation on the exposed dry sprinkler barrel, consider wrapping the exposed barrel with insulation, foam insulating tape, or equivalent.

Install the 1" NPT threaded end of the dry sidewall sprinkler into the 1" NPT outlet of a malleable iron tee fitting per ANSI B 16.3 (Class 150) or cast iron threaded tee fitting per ANSI 16.4 (Class 125) only.

Minimum wall opening diameter: 1-3/4" (44.5 mm)
Maximum wall opening diameter: 2-1/4" (57 mm).

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
	Exposed Minimum Barrel Length**	Face of the Tee to the Outer Surface of the Wall	
	In. (mm)	In. (mm)	In. (mm)
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)



NOTE: To locate the deflector at the maximum distance from the wall, with no adjustment available, order the standard dry horizontal sidewall sprinkler 1" longer than the "A" dimension.

Up to 2" (50.8 mm) adjustment is available.

NOTE: To locate the deflector at the minimum distance from the wall, with no adjustment available, order the standard dry horizontal sidewall sprinkler 1" shorter than the "A" dimension.

*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, 6, and 7 for the "A" dimension. Exposed minimum barrel lengths are inclusive up to 30 mph wind velocities.

Figure 9: Dry Horizontal Sidewall Sprinkler Minimum Barrel Length Based on Ambient Temperature in the Protected Area (Adjustable Standard Dry HSW Sprinkler is Shown)



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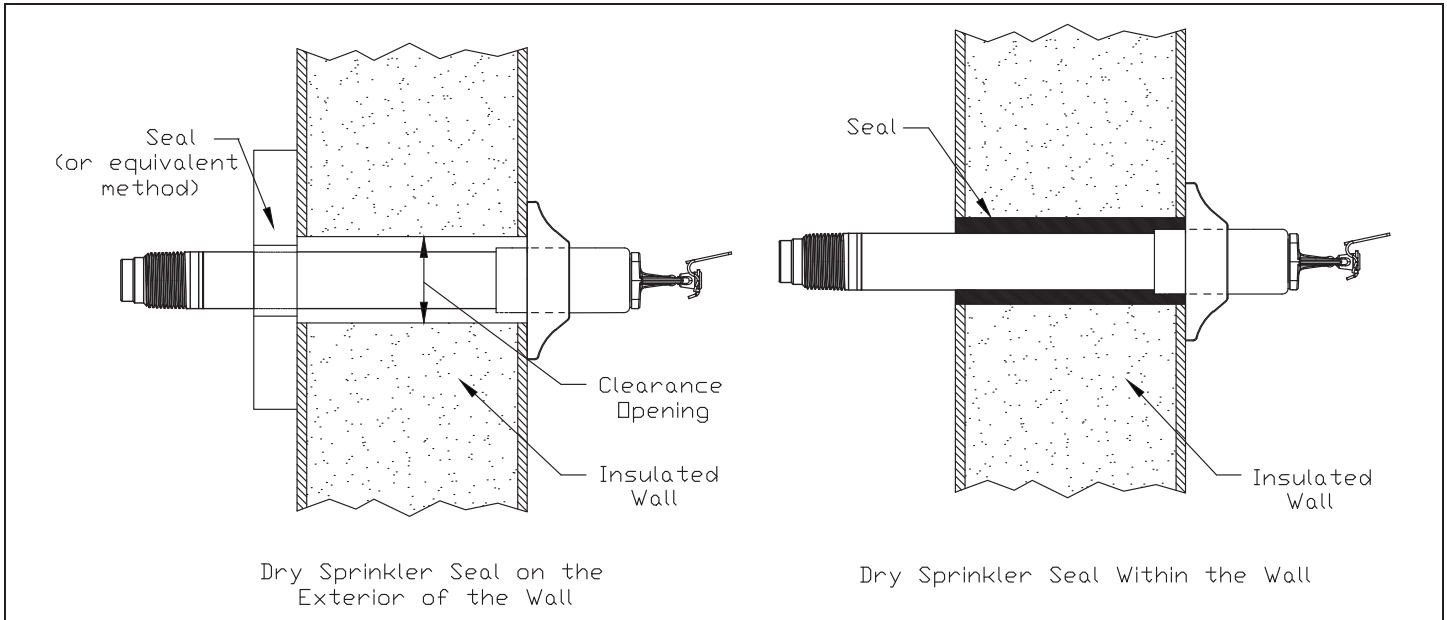


Figure 10: Dry Sprinkler Seal (Adjustable Standard Dry HSW Sprinkler is Shown)