



TECHNICAL DATA

DRY SPRINKLER INSULATING BOOT ASSEMBLIES

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

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

The Dry Sprinkler Boot is designed to be used with most models of dry sprinklers including ESFR to help seal the clearance space around the barrel. When properly installed, this seal decreases the potential for leakage of air through the opening in the ceiling or wall and consequent formation of condensate around the sprinkler connection on the system piping. In freezer installations, condensation can lead to ice build-up, which could inhibit sprinkler operation or cause premature sprinkler operation. The Dry Sprinkler Boot Assembly (optional) is intended to slow the exchange of air between the inside and outside of the freezer (or any dry sprinkler installation) to help prevent humidity and temperature differential in the area around the sprinkler. Insulating boot assemblies (optional) shall be installed on smooth, flat, and clean surfaces.

The rubber seal is designed with a material that will not drip when exposed to open flame. This protects the deflector from acquiring material that would impede its water distribution characteristics.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

2. LISTINGS AND APPROVALS

Install in accordance with applicable NFPA standards. Refer to Design Criteria for requirements that must be followed.

NOTE: Laboratory approval of dry sprinkler boot assemblies are not required and use of these assemblies does not alter any of the listings or approvals for Viking dry sprinklers. Refer to the sprinkler technical data pages.

3. TECHNICAL DATA

Specifications: The boot consists of a rubber foam seal covered with a two-piece ring fastened to the ceiling, deck, or wall, with four (4) screws.

Outside Diameter: 6" (152 mm)

Depth: 1" (25 mm)

Material Standards:

Seal:

ASTM D1056 2A0/1 4015-EL EPDM-Butyl-PE Foam Rubber OR

ASTM D1056 2A1 Neoprene/EPDM/SBR OR

ASTM D1056 2C1 Neoprene/EPDM

Over Seal Ring and Under Seal Ring: Cold Rolled Steel

Finish: Clear Chromate over Zinc Plating

Screws:

#10 x 2-1/2", self-tapping.

Stainless steel

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

Part Number	Compatible Viking Sprinkler models
22087M/W	Dry Sprinklers: VK160, VK184, VK150, VK154, VK158, VK152, VK156, VK162, VK166, VK163, VK164, VK250, VK252, VK254, VK153, VK157, VK161, VK168, VK169, VK172, VK176, VK180, VK174, VK178, VK182, VK173, VK177, VK181, VK275, VK277, VK279, VK282, VK286, VK290, VK284, VK288, VK292, VK186, VK188, VK482
22089M/W	ELO and ESFR Dry Sprinklers: VK502, VK504, VK544, VK545, VK546, VK547, VK548, and VK549

NOTE: ELO and ESFR Dry Sprinklers include at least 1 Insulating Boot; additional boots can be ordered separately.



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4. INSTALLATION

- Prepare the sprinkler installation opening as indicated in the installation instructions on Form No. F_080614 and the appropriate sprinkler technical data page. Then install the dry sprinkler through the clearance opening.
 - Install the dry sprinkler on the piping per the instructions on page Form No. F_080614 and the dry sprinkler data page for the sprinkler model being used, taking care not to over-tighten or damage the sprinkler.
 - Clean the contact surfaces of the dry sprinkler seal and the surface of the wall or ceiling.
 - Slide the dry sprinkler boot over the dry sprinkler barrel and to the ceiling, deck, or wall until the seal rests against the surface of the ceiling, deck, or wall.
 - Assemble the ring onto the seal, hold in place, and tighten the four screws through the holes provided in the assembly.
- NOTE: A #29 drill is required for a pilot hole in metallic ceilings, decks, or walls.

5. INSPECTIONS, TESTS AND MAINTENANCE

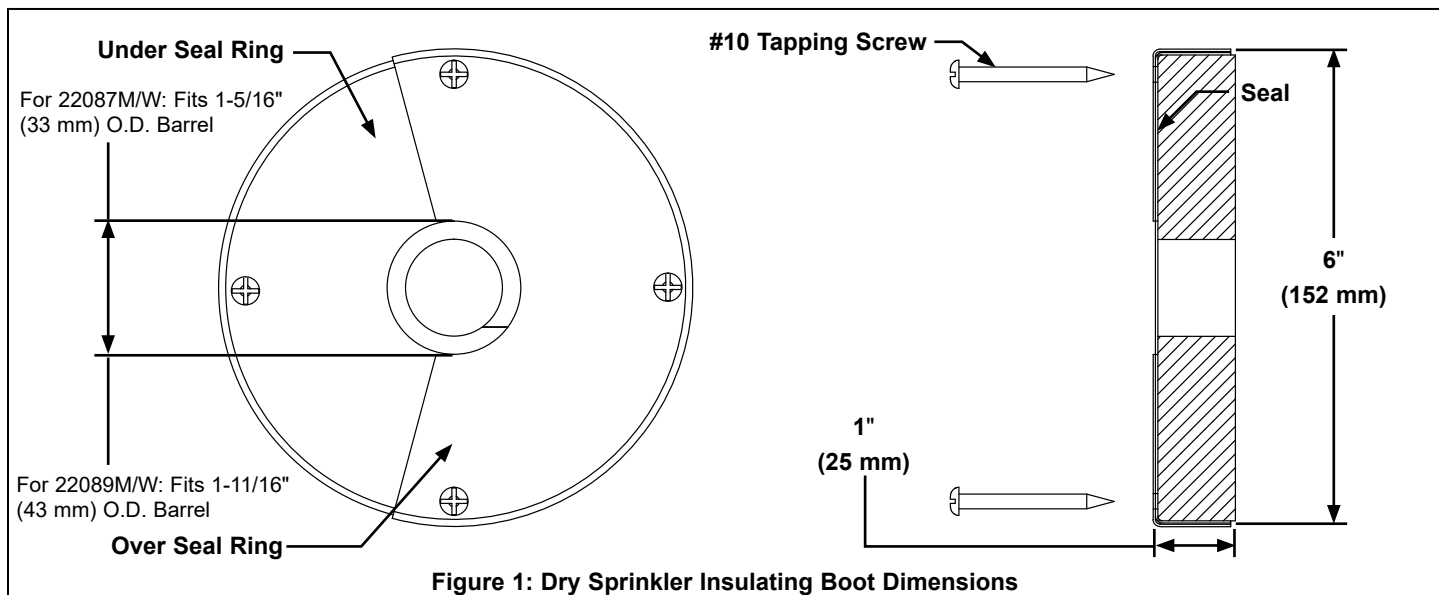
- When replacing existing sprinklers, the system must be removed from service. Refer to the appropriate system description and/or valve instructions. Prior to removing the system from service, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.
 - Remove the system from service, drain all water, and relieve all pressure on the piping.
 - Remove the dry sprinkler boot assembly.
 - Using the special sprinkler wrench, remove the old sprinkler and install the new unit. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the correct orifice size, temperature rating, and response characteristics. A fully stocked spare sprinkler cabinet should be provided for this purpose.
 - Install a new Dry Sprinkler Boot Assembly.
 - Place the system back in service and secure all valves. Check the replaced sprinklers and repair all leaks.
- Sprinkler systems that have been subject to a fire must be returned to service as soon as possible. The entire system must be inspected for damage and repaired or replaced as necessary. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced. Refer to the Authorities Having Jurisdiction for minimum replacement requirements.

6. AVAILABILITY

The Viking products are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

7. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.





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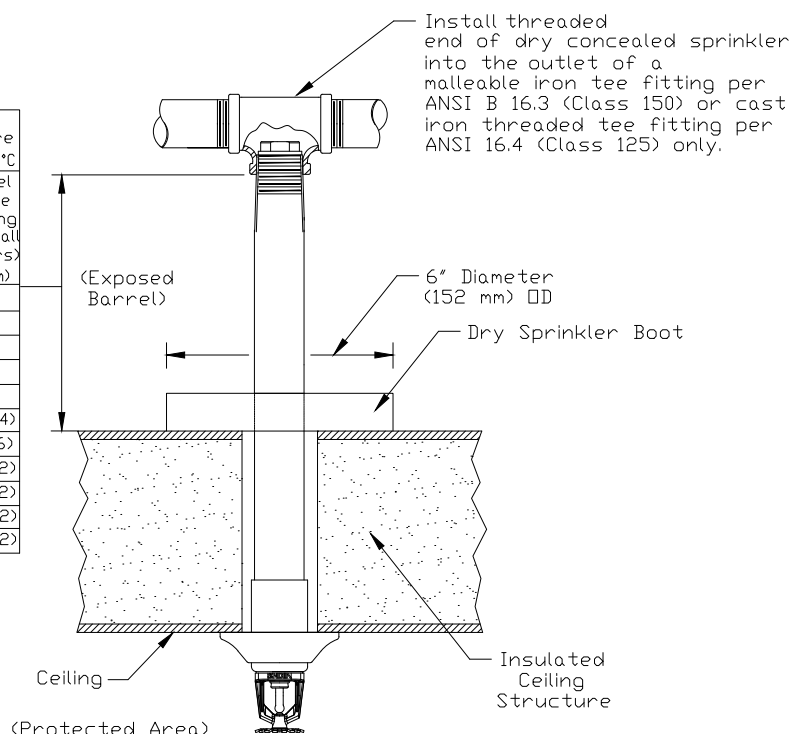
DESIGN CRITERIA

Installation Requirements:

- Dry Sprinkler Boot Assembly 22087M/W is designed for use with all Viking dry sprinklers, except Dry Concealed Sprinklers. NOT for use with Viking dry concealed sprinklers or any non-dry type sprinkler.
- Dry Sprinkler Boot Assembly 22089M/W is designed for use with Viking Dry ELO and ESFR Sprinklers.
- **Minimum Barrel Length:** Refer to Figures 2 and 3 for the required minimum dry sprinkler barrel exposure length between the face of the sprinkler tee to the outside surface of the ceiling or wall.
- **Clearance Opening Diameter:** Refer to Figures 2 and 3. NOTE: The dry sprinkler boot must seat and seal against the smooth surface of the wall, ceiling, or deck in order to close the air gap.
- **Sprinkler Fitting:** Install the dry sprinkler into the outlet of malleable iron tee fittings per ANSI B 16.3 (Class 150) or cast iron threaded tee fittings per ANSI 16.4 (Class 125) only.
- Install in accordance with applicable NFPA standards.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Form No. F_080614 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.

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 Tee to Top of the Ceiling or Surface of the Wall for Dry HSW Sprinklers		
	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)



*The protected area refers to the area below the ceiling (for pendent and HSW sprinklers). 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" or "B" dimension. Refer to the figures in the dry sprinkler data pages for the "A" or "B" dimension.
NOTE: Exposed minimum barrel lengths are inclusive up to 30 mph wind velocities.

Figure 2: Dry Sprinkler Insulating Boot Assembly and Required Minimum Barrel Length Based on Ambient Temperature in the Protected Area (Shown with a Dry Pendent Sprinkler)



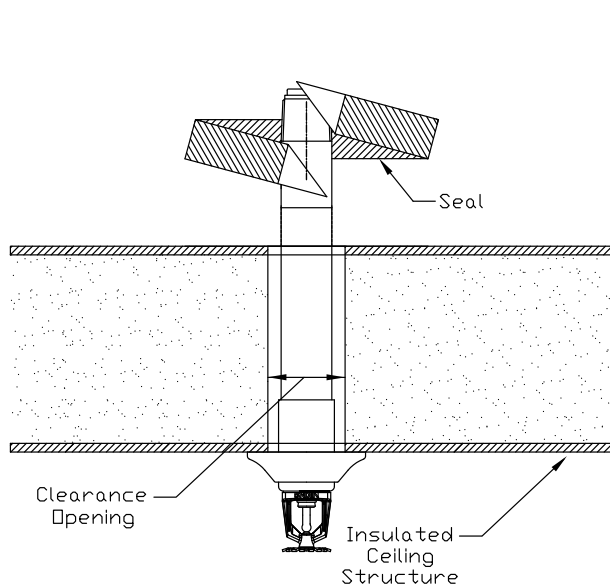
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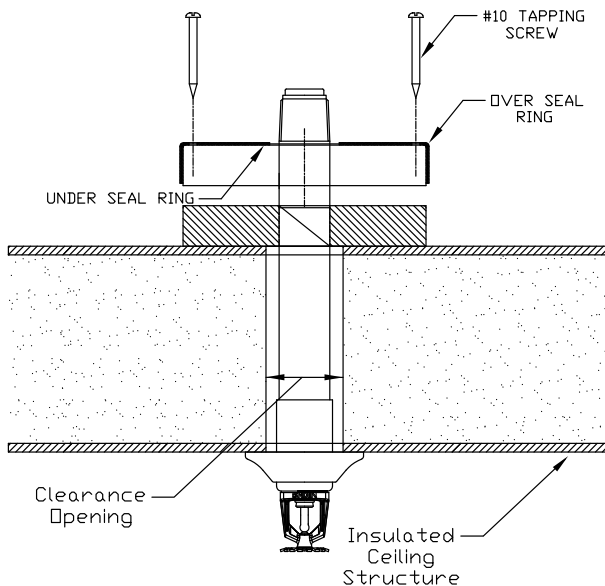
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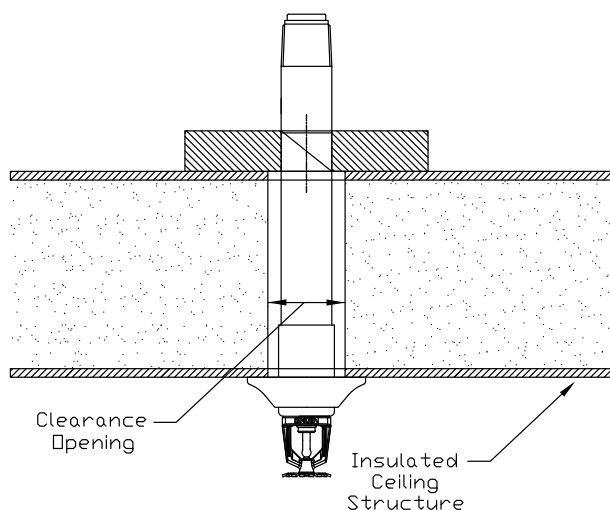
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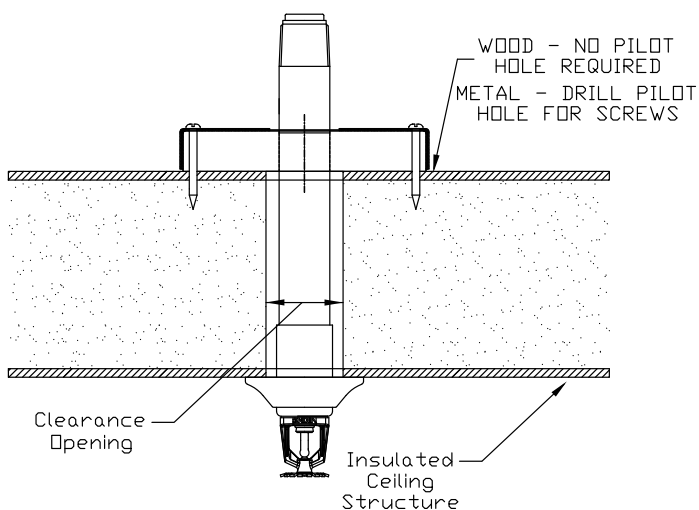
STEP 1
INSTALL SEAL AROUND BARREL
OF DRY SPRINKLER



STEP 3
INSTALL UNDERSEAL RING AND
OVERSEAL RING ONTO SEAL



STEP 2
PLACE SEAL FLUSH WITH TOP OF FREEZER
AND SECURE AROUND BARRELL



STEP 4
SECURE INSULATING RING TO TOP OF
FREEZER WITH #10 TAPPING SCREWS

Figure 3: Dry Sprinkler Insulating Boot Assembly - Installation Sequence (Dry Pendent Sprinkler Shown)