Reliable®

Model F3Res44 Dry (SIN RA5231) K4.4 (63 metric) Residential Dry Horizontal Sidewall Sprinkler

Bulletin 052 April 2026

UL Listed Residential Sprinkler Coverage area up to 16 ft. x 20 ft. (4.9m x 6.1m)

Important! Reliable fire sprinklers must be handled, stored, and installed in accordance with the guidelines in Caution Sheet 310 and this bulletin. Failure to follow these instructions may result in unintended operation or nonoperation of the fire protection system.

Features

1. Available in Ordinary, 155°F (68°C), or Intermediate, 175°F (79°C), temperature classification.
2. Flush, recessed, and extended installation options.
3. Standard inlet with 1-inch NPT threads. Optional inlets with 3/4-inch NPT, ISO 7-R1 or ISO 7-R3/4 threads.
4. Standard escutcheon version is available in lengths from 2" to 24" (51mm to 610mm) in 1/4" (6.35mm) increments.
5. HB style and F2 recessed versions are available in lengths from 3-1/2" to 24" (89mm to 610mm) in 1/4" (6.35mm) increments.

Approvals & Listings

1. Listed by Underwriters Laboratories and Certified for Canada (cULus) as a Residential sprinkler. UL Guide Number VKKW, Residential Automatic Sprinklers.

Patents

Model F3Res44 Dry sprinklers may be covered by one or more of the following patents:
U.S. 7,353,882

Application

The Model F3Res44 Dry sprinkler is a cULus Listed Residential sprinkler intended for use in accordance with NFPA 13, NFPA 13R, or NFPA 13D. The Model F3Res44 Dry sprinkler is cULus Listed for use in residential occupancies and residential portions of any occupancy, where permitted by NFPA 13, NFPA 13R, or NFPA 13D. For NFPA 13R and NFPA 13D applications, the design flow and pressure shall not be less than the minimum flow and pressure specified in the Listed Design Criteria table in this Bulletin. For NFPA 13 applications, the design density shall be a minimum of 0.1 gpm/sf (4.1 mm/min), but in no case shall the flow and pressure be less than the minimum flow and pressure specified in the Listed Design Criteria table in this Bulletin. See Bulletin 140, Residential Sprinkler Design and Installation Guide, for additional guidance on hydraulic design requirements.

The Model F3Res44 Dry sprinkler is typically used in situations where a wet-pipe sprinkler system in a temperature-controlled space is used to protect an adjacent space that is subject to freezing temperatures. The sprinkler must be installed on a wet-pipe sprinkler system.



Fig. 1
Model F3Res44 Dry sprinkler with standard escutcheon

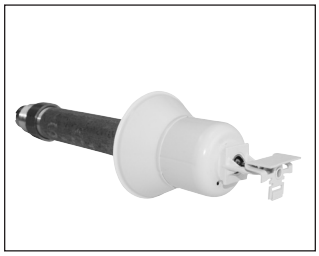


Fig. 2
Model F3Res44 Dry sprinkler with Model HB extended escutcheon

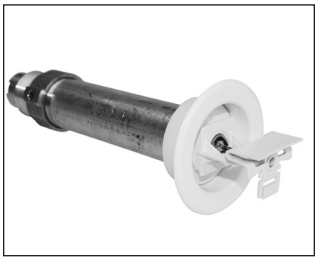


Fig. 3
Model F3Res44 Dry sprinkler with Model F2 recessed escutcheon

Product Description

The Reliable Model F3Res44 Dry sprinkler is a Dry Horizontal Sidewall sprinkler, where the sealing washer is located at the inlet end of the sprinkler assembly. The position of the sealing washer is controlled by a fluid-filled glass bulb thermal element at the opposite end of the sprinkler assembly. The sprinkler is installed with the thermal element in a protected space that may be subject to freezing temperatures and the inlet orifice located in a heated area that is separated from the protected space. Operation of thermal element allows the sealing washer to move out of the inlet orifice admitting water from the supply piping. The sprinkler uses a fast-response thermal element with an Ordinary, 155°F (69°C), or Intermediate, 175°F (79°C), temperature classification.

The Model F3Res44 Dry Sprinkler is listed for surface-mount installation (standard escutcheon), recessed installation (F2 escutcheon) and extended installation (HB escutcheon). The standard escutcheon includes up to 1-1/2-inch (38 mm) of adjustment and extends the base of the wrench boss of the sprinkler up to 2 inches (51 mm) beyond the surface of the wall. The Model HB escutcheon includes up to 1-inch (26 mm) of adjustment and extends to base of the wrench boss up to 3 inches (76 mm) beyond the surface of the wall.

The Model F2 escutcheon is the only recessed escutcheon listed for use with the Model F3Res44 sprinkler. The Model F2 escutcheon includes up to 1/2-inch (13 mm) of adjustment and permits the base of the wrench boss to be recessed a maximum of 1/2-inch (13 mm) inside the wall.

The Model F3Res44 Dry Sprinkler with standard escutcheon is available in lengths from 2" to 24" (51mm to 610mm) in 1/4" (6.35mm) increments. The recessed (F2) and extended (HB) versions are available lengths from 3-1/2" to 24" (89mm to 610mm) in 1/4" (6.35mm) increments. The length of the sprinkler selected must allow for the Exposed Minimum Barrel Length in a Heated Area required by NFPA 13 and Figure 7.

The Model F3Res44 Dry sprinkler has a standard 1-inch NPT threaded inlet. Threaded inlet fittings in 3/4-inch NPT, ISO 7-R1, or ISO 7-R3/4 are also available. The standard inlet fitting includes a long inlet designed to minimize the potential for water, scale, and sediment to accumulate on the sprinkler inlet. For applications where the standard inlet interferes with installation into existing pipe fittings, an inlet fitting is available with a short ("PL") inlet. See Fig. 8 for further information.

Technical Data:

Nominal K-factor		Temperature Rating		Max. Ceiling Temperature		Sensitivity	Inlet Thread Size	Sprinkler Identification Number (SIN)
gpm/(psi)$^{1/2}$	L/min/(bar)$^{1/2}$	°F	°C	°F	°C			
4.4	63	155	69	100	38	Fast-Response	1-inch NPT ISO 7-R1 3/4-inch NPT ISO 7-R3/4	RA5231
		175	79	150	66			

Minimum spacing between sprinklers: 8 ft (2.44 m)
Maximum spacing between sprinklers: 16 ft (4.9 m), see Listed Design Criteria table for minimum flow rate and pressure requirements based on spacing.
Maximum Working Pressure: 175 psi (12 bar) – 100% factory hydrostatically tested to 500 psi (34.5 bar)
Sprinkler Installation Wrenchs: Model F3R wrench for sprinklers with standard and HB escutcheons (Note: Model F3 wrenches are not compatible with the F3Res44 Dry sprinkler) and Model XLO2 for sprinklers with Model F2 recessed escutcheons.

Materials: See Fig. 9

*For NFPA 13 systems calculate for a minimum design density of 0.1 gpm/sf (4.1 mm/min), but in no case shall the flow and pressure be less than the Listed Design Criteria.

Listed Design Criteria*							
Max. Coverage Area Width x Length		Deflector to Ceiling Distance		Min. Flow Rate		Min. Pressure	
ft. x ft.	m x m	inches	mm	gpm	l/min	psi	Bar
14 x 14	4.3 x 4.3	4 - 6	102 - 152	14	53	10.1	0.70
		6 - 12	152 - 305	18	68	16.7	1.15
16 x 16	4.9 x 4.9	4 - 6	102 - 152	17	64	14.9	1.03
		6 - 12	152 - 305	21	80	22.8	1.57
16 x 18	4.9 x 5.5	4 - 6	102 - 152	18	68	16.7	1.15
		6 - 12	152 - 305	21	80	22.8	1.57
16 x 20	4.9 x 6.1	4 - 6	102 - 152	25	95	32.3	2.23
		6 - 12	152 - 305	26	98	34.9	2.41

Finish Notes
1. Finishes vary with type of trim selected. See table provided with each sprinkler detail for finish combinations.
2. Paint or any other coating applied over the factory finish will void all approvals and warranties.
3. Other finishes and colors may be available on special order. Please contact your Reliable sales representative for details.
4. For Standard, Model HB, and Model F1 trims, both components of escutcheon are finished.

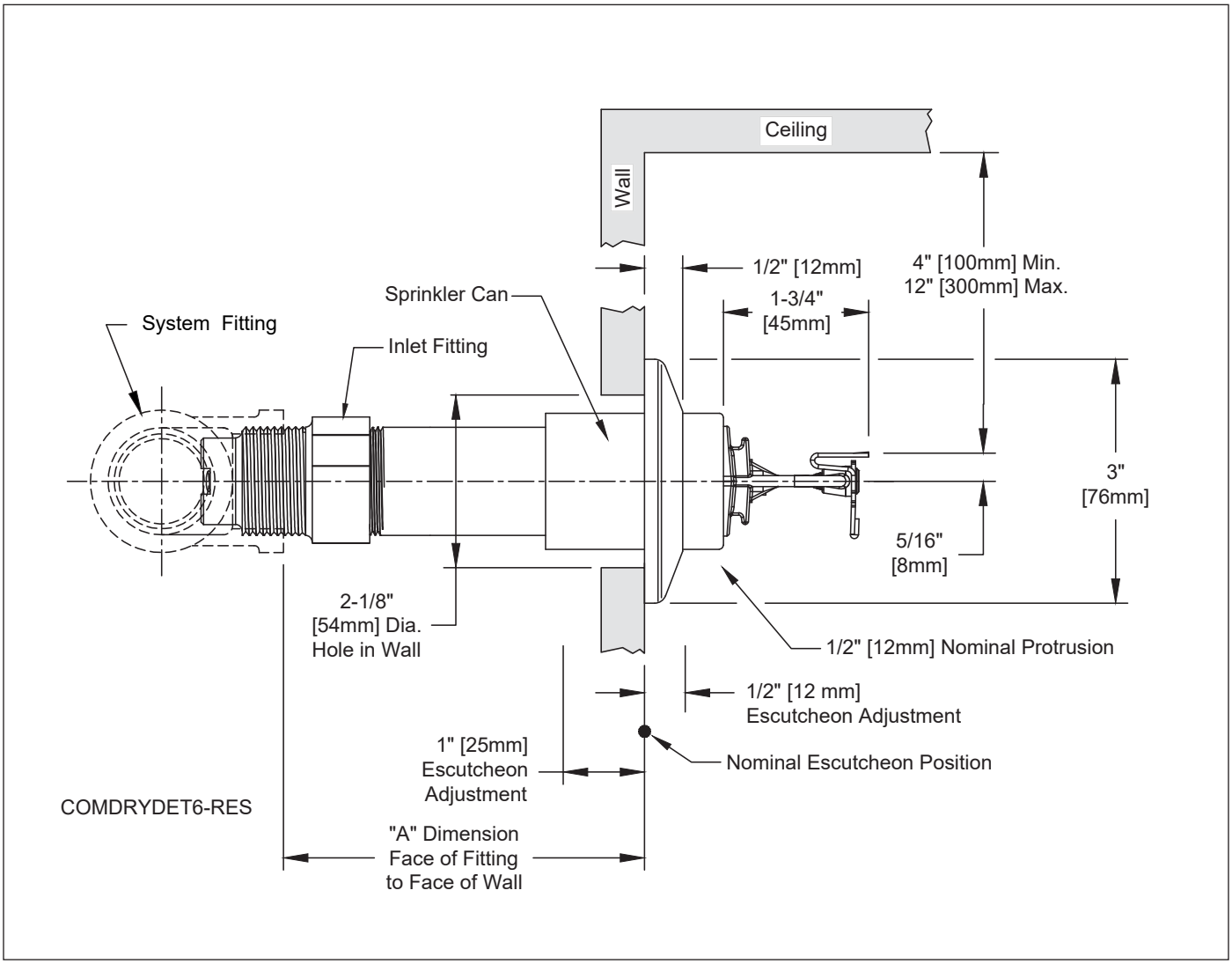


Fig. 4 - Standard Escutcheon
"A" Dimension = 2" - 24" (51mm - 610mm)

Finish Combinations: Standard Escutcheon	
Sprinkler	**Escutcheon[2][3]**
Bronze with Polished Stainless Steel	
Bronze with Brass	
Chrome with Polished Stainless Steel	
White Polyester[1] with White Polyester	
Black Polyester[1] with Black Polyester	
Custom Color Polyester[1] with Custom Color Polyester	
Electroless Nickel PTFE[1] with Polished Stainless Steel	

Notes:
1. UL Listed as Corrosion Resistant.
2. Escutcheons do not carry corrosion resistant listings.
3. Base material is 316 stainless steel.

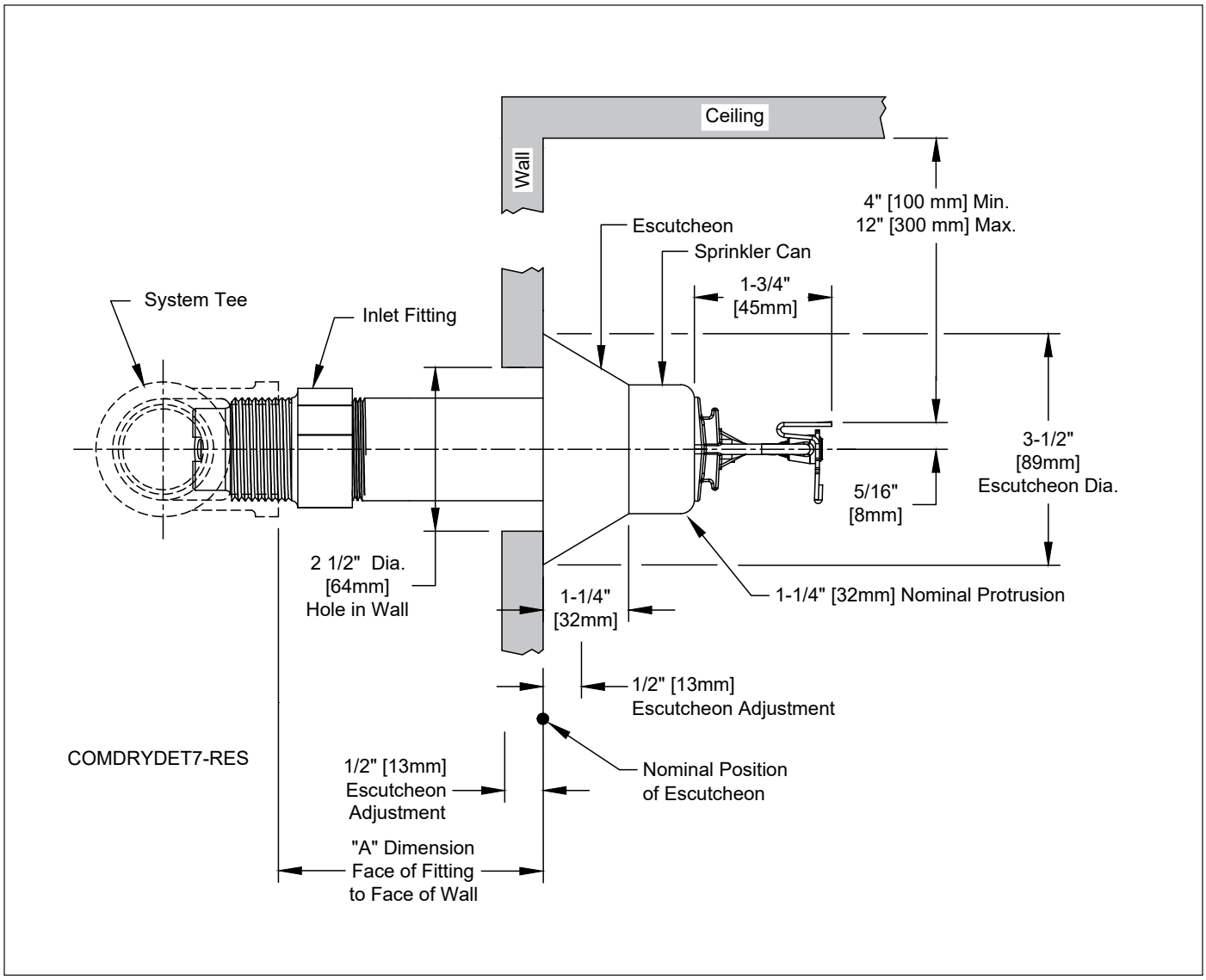


Fig. 5 - HB Extended Escutcheon
"A" Dimension = 3-1/2" - 24" (89mm - 610mm)

Finish Combinations: HB Escutcheon	
Sprinkler	**Escutcheon[2][3]**
Bronze with Chrome	
Chrome with Chrome	
White Polyester[1] with White Polyester	
Black Polyester[1] with Black Polyester	
Custom Color Polyester[1] with Custom Color Polyester	
Electroless Nickel PTFE[1] with Stainless Steel	

Notes:
1. UL Listed as Corrosion Resistant.
2. Escutcheons do not carry corrosion resistant listings.
3. Base material is cold rolled steel unless noted.

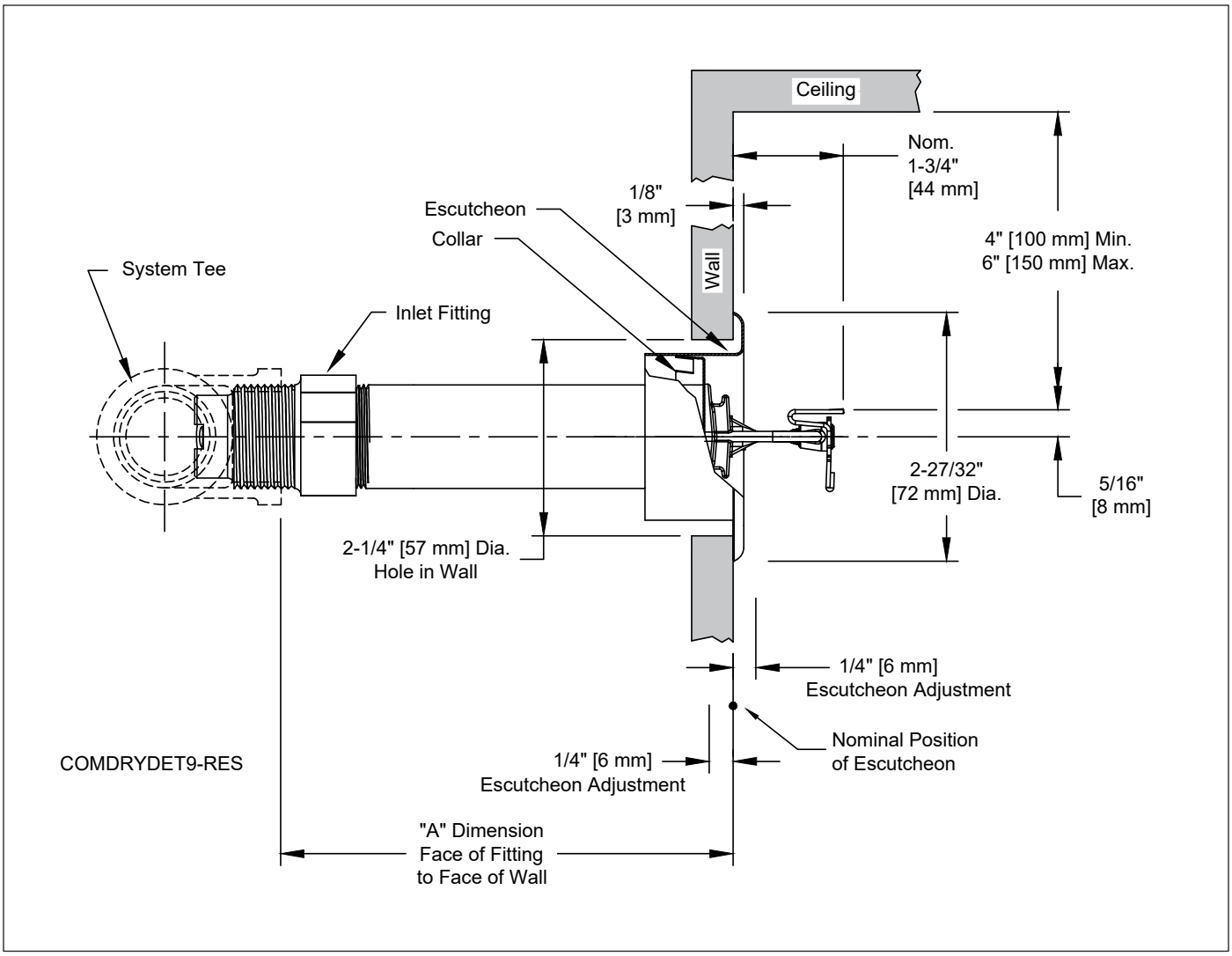


Fig. 6 - F2 Recessed Escutcheon
"A" Dimension = 3-1/2" - 24" (89mm - 610mm)

Finish Combinations: F2 Recessed	
Sprinkler	**Escutcheon[2][3]**
Bronze with Brass	
Chrome with Chrome	
White Polyester[1] with White Polyester	
Black Polyester[1] with Black Polyester	
Custom Color Polyester[1] with Custom Color Polyester	
Electroless Nickel PTFE[1] with Stainless Steel	

Notes:
1. UL Listed as Corrosion Resistant.
2. Escutcheons do not carry corrosion resistant listings.
3. Base material is cold rolled steel unless noted.

Installation Instructions

Reliable Model F3Res44 dry sidewall sprinklers may be installed in ductile or malleable cast iron threaded tees, or CPVC tees and adapters upon verification that the sprinkler inlet fitting does not interfere with the interior of the fitting (see Figure 8).

DO NOT install Reliable dry sprinklers into elbows or couplings, welded outlets, mechanical tees, or gasket sealed CPVC fittings.

Dry sprinklers connected to wet pipe systems must be installed as indicated in Figure 7 and as required by NFPA 13 with the Exposed Minimum Barrel Length located in a heated area.

The following steps must be followed for installation:

1. The centerline of the Model F3Res44 Dry sprinkler must be installed between 4-5/6 inches (110 mm) and 12-5/16 inches (312 mm) vertically below the finished ceiling and as required to comply with the Listed Design Criteria provided in this Bulletin based on a 5/16-inch (8 mm) deflector to centerline of sprinkler distance. A hole must be cut in the wall directly in-line with the outlet of the tee. For installations with the standard or Model HB escutcheon, cut a 2-1/8-inch (54 mm) diameter hole. For recessed installations with the Model F2 escutcheon, cut a 2-1/2-inch (63 mm) diameter hole.
2. Apply pipe joint compound or Polytetrafluoroethylene (PTFE) tape to the threads of the sprinkler's inlet fitting. A red cap is factory installed on the sprinkler's inlet. Remove the red cap prior to installation by pulling the cap from the sprinkler by hand.
3. A clip is provided to protect the glass bulb thermal element from damage. The clip is factory installed on the sprinkler. The clip should remain in place during installation of the sprinkler and be removed when the sprinkler system is placed in service.
4. Install the sprinkler in the tee using the appropriate installation wrench (Model F3R wrench for sprinklers with standard and Model HB escutcheons; Model XLO2 wrench for sprinklers with Model F2 escutcheons). The Model F3R wrench is inserted into grooves in the sprinkler's wrench boss. Do NOT wrench any part of the sprinkler assembly other than the wrench boss. The sprinkler is then tightened into the pipe fitting to achieve a leak free connection. The recommended minimum to maximum installation torque is 22-30 lb-ft (30 – 40 N-m) for 1-inch NPT and ISO 7-R1 inlet sprinklers, and 14 – 20 lb-ft (19 – 27 N-m) for 3/4-inch NPT and ISO 7-R3/4 sprinklers. When inserting or removing the wrench from the sprinkler, care should be taken to prevent damage to the sprinkler.

4a. Alternatively, where access to the outer tube of the sprinkler is available, the Model F3Res44 Dry sprinkler may be installed using a pipe wrench. The pipe wrench shall only be permitted to interface with the steel outer tube portion of the sprinkler (Item #8 in Fig. 9). Do NOT wrench any other portion of the sprinkler assembly. A pipe wrench can install the sprinkler into the fitting with a large amount of torque; consideration should be given to the need for future removal of the sprinkler because the installation torque will have to be matched or exceeded to remove the sprinkler.

5. Remove the protective clip when placing the sprinkler system in service.

Maintenance

The Model F3Res44 Dry sprinkler should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Replace any sprinkler that has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow for quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Engineering Specification

Model F3Res44 Residential Dry Horizontal Sidewall Sprinkler

Dry Horizontal Sidewall sprinklers shall be cULus Listed as Residential sprinklers. Sprinkler length shall be selected to provide the Exposed Minimum Barrel Length based on the minimum design temperature in the protected area and the minimum temperature in the conditioned space where the barrel is located in accordance with the Manufacturer's written installation instructions. Sprinklers shall have [1-inch NPT][ISO 7-1 R1][3/4-inch NPT][ISO 7-R3/4] threaded inlet fittings with [standard length inlets][short length inlets designed for use with existing pipe fittings having internal obstructions]. Sprinklers shall have a PTFE coated beryllium nickel Belleville spring washer inlet seal and brass alloy cap that prevent water entry from the sprinkler system piping into the sprinkler prior to actuation. Sprinklers shall have a fast-response glass bulb thermal element that controls the movement of the inlet seal and cap through a mechanism consisting of link arms, a seat adapter, an orifice adapter, an inner tube, and a yoke. Sprinklers shall be [Ordinary temperature classification, 155°F (68°C)][Intermediate temperature classification, 175°F (79°C)]. Sprinklers finish shall be [Bronze][White] [Chrome][Special Application – Specify] finish. Residential Dry Horizontal Sidewall sprinklers shall be Reliable Model F3Res44 Dry (SIN RA5231).

MINIMUM EXPOSED BARREL LENGTH WHEN CONNECTED TO WET PIPE SPRINKLER SYSTEM

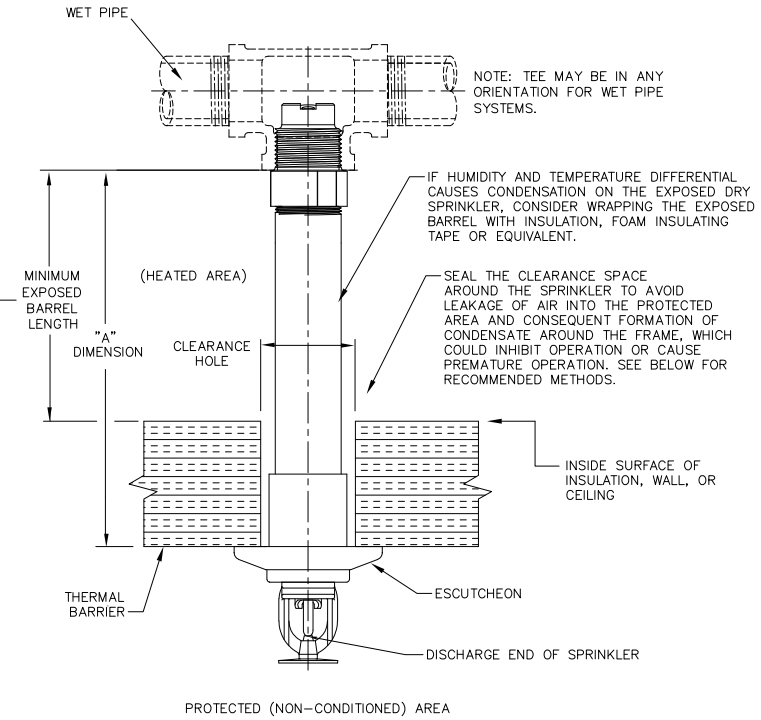
NOTE: STANDARD DRY PENDENT IS SHOWN, HOWEVER, MINIMUM EXPOSED BARREL LENGTH APPLIES TO ALL STYLES OF DRY SPRINKLERS CONNECTED TO A WET PIPE SYSTEM.

AMBIENT TEMPERATURE EXPOSED TO DISCHARGE END OF SPRINKLER*	EXPOSED BARREL AMBIENT TEMPERATURE		
	40°F/4°C	50°F/10°C	60°F/16°C
	EXPOSED MINIMUM BARREL LENGTH** (FACE OF FITTING TO TOP OF CEILING)***		
	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 (200)	1 (25)	0
0°F (−18°C)	12 (300)	3 (75)	0
−10°F (−23°C)	14 (350)	4 (100)	1 (25)
−20°F (−29°C)	14 (350)	6 (150)	3 (75)
−30°F (−34°C)	16 (400)	8 (200)	4 (100)
−40°F (−40°C)	18 (450)	8 (200)	4 (100)
−50°F (−46°C)	20 (500)	10 (250)	6 (150)
−60°F (−51°C)	20 (500)	10 (250)	6 (150)

* FOR AMBIENT TEMPERATURES EXPOSED TO THE DISCHARGE END OF THE SPRINKLER THAT OCCUR BETWEEN THE VALUES LISTED, USE THE NEXT COOLER TEMPERATURE.

** THE MINIMUM EXPOSED BARREL LENGTH IS NOT THE SAME AS THE "A" DIMENSION. THE MINIMUM EXPOSED BARREL LENGTH IS BASED ON A PROPERLY SEALED PENETRATION WITH A MAXIMUM WIND VELOCITY ON THE EXPOSED SPRINKLER OF 30 MPH (48 KM/H). LONGER EXPOSED BARREL LENGTHS WILL HELP AVOID FREEZING OF THE WET PIPING WHERE HIGHER WIND VELOCITY IS EXPECTED.

*** THE MINIMUM EXPOSED BARREL LENGTH IS MEASURED FROM THE FACE OF THE FITTING TO THE INSIDE FACE OF THE INSULATION, WALL, OR CEILING LEADING TO THE COLD SPACE, WHICHEVER IS CLOSEST TO THE FITTING.



RECOMMENDED DRY SPRINKLER SEAL ARRANGEMENTS
(DRY SPRINKLER WITH STANDARD ESCUTCHEON SHOWN)

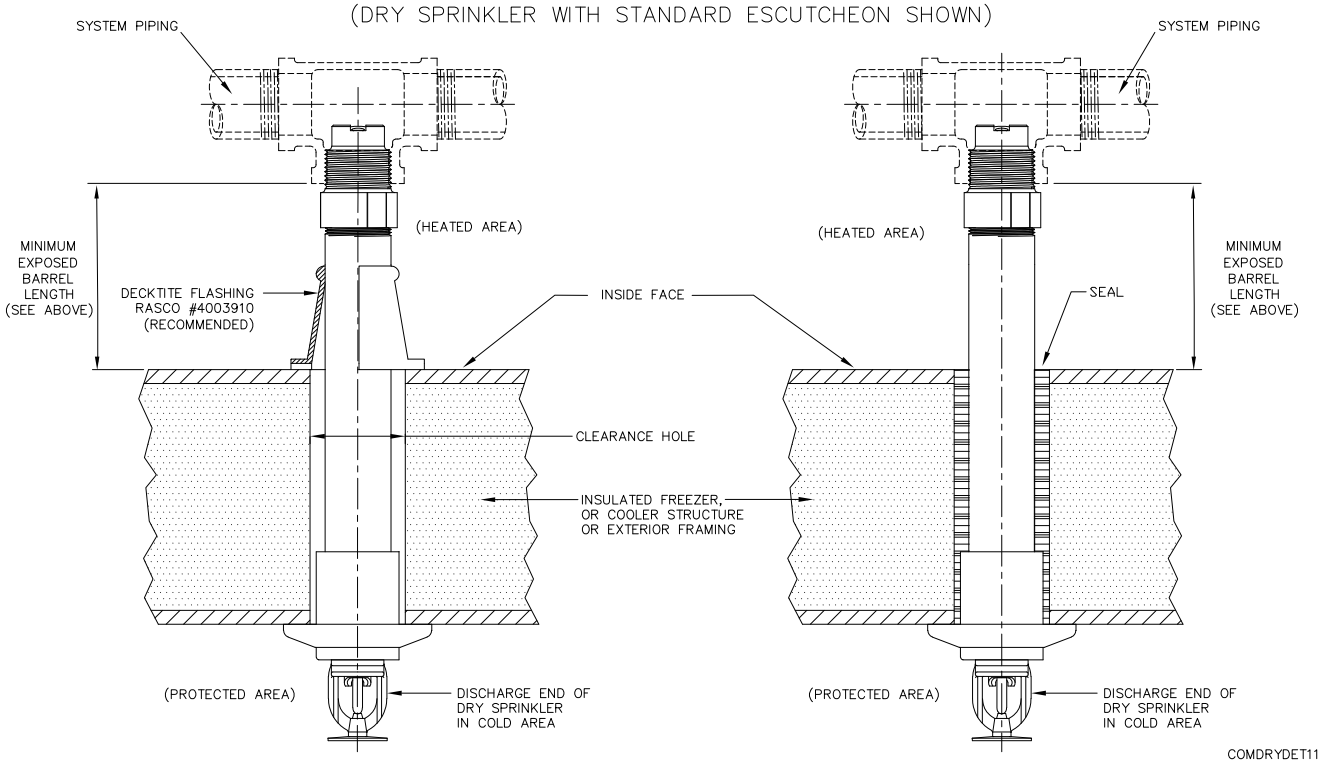


Fig. 7

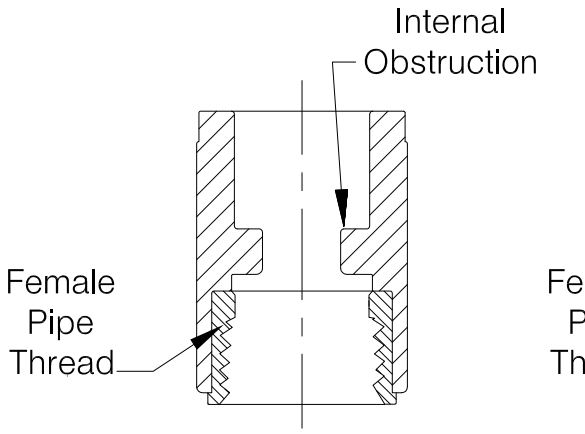
CAUTION

RELIABLE DRY SPRINKLERS MAY BE INSTALLED IN A LISTED CPVC SPRINKLER FITTING, ONLY UPON VERIFICATION THAT THE FITTING DOES NOT INTERFERE WITH THE SPRINKLER'S INLET.

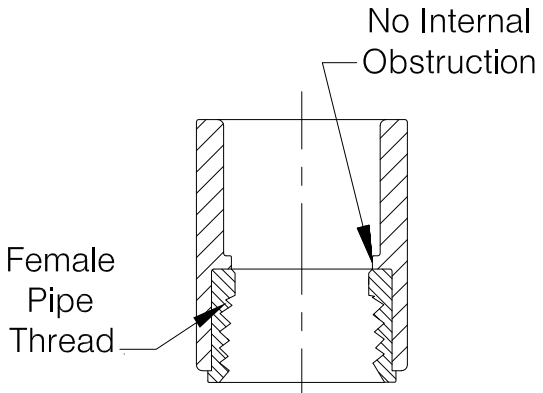
Do not install dry sprinklers with standard inlets into CPVC fittings that have an internal obstruction; this will damage the sprinkler, the fitting, or both.

Short inlet ("PL") versions of Reliable dry sprinklers are available that may or may not be compatible with fittings having internal obstructions in existing installations. Sprinklers with the short inlet ("PL") should only be installed in CPVC fittings of wet-pipe systems.

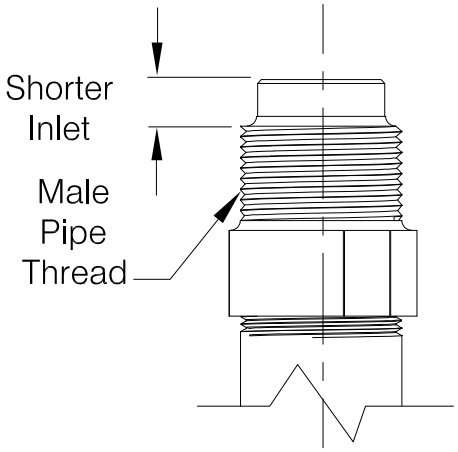
In all cases, verify sprinkler and fitting dimensions prior to installation to avoid interference.



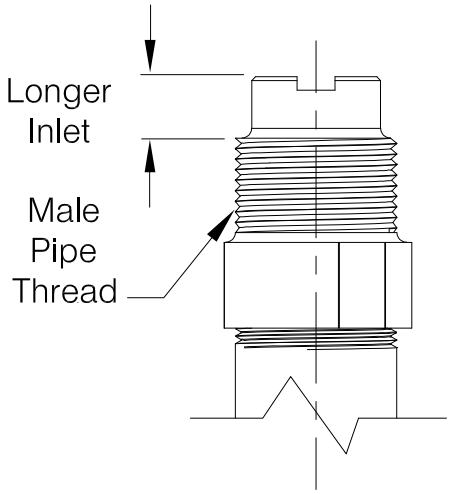
CPVC Fitting with Internal Obstruction



CPVC Fitting -
No Internal Obstruction



Dry Sprinkler
Short Inlet ("PL")

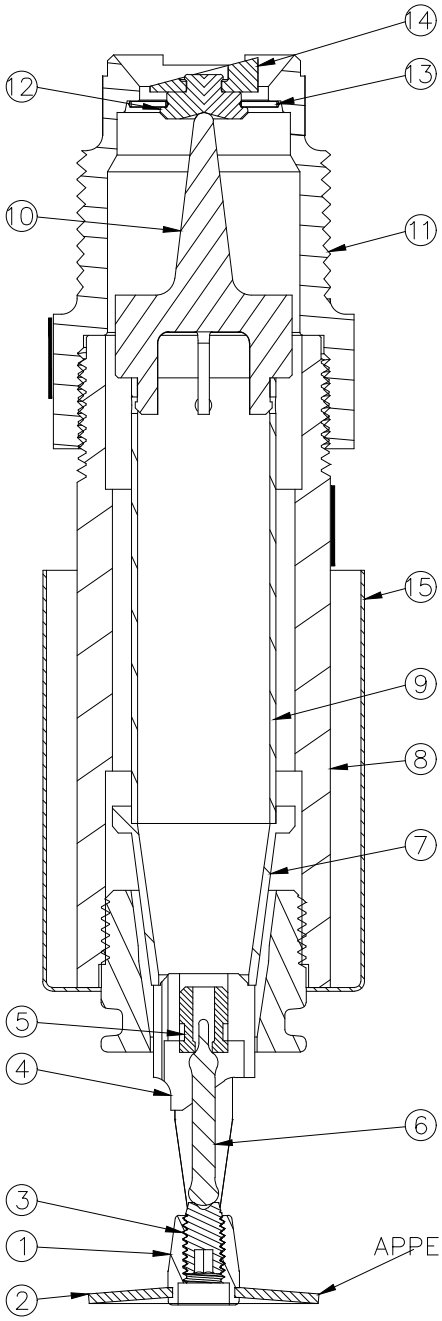


Dry Sprinkler
Standard Inlet

BE SURE TO ORDER THE CORRECT SPRINKLERS FOR YOUR APPLICATION

COMDRYDET2

Fig. 8



Item	Description	Material
1	Frame	UNS C83600 Brass
2	Deflector	UNS C51000 Bronze
3	Load Screw	UNS C22000 Brass
4	Seat Adapter	UNS C36000 Brass
5	Bulb Insert	UNS C31400 Copper
6	Glass Bulb	Glass/Glycerin Solution
7	Orifice Adapater	UNS C36000 Brass
8	Outer Tube	Galvanized Steel
9	Inner Tube	UNS C23000 Brass
10	Yoke	UNS C38000 Brass
11	Inlet	UNS C35330 Brass
12	Cap	UNS C54400 Brass
13	Spring Washer/Seal	PTFE Coated Beryllium Nickel
14	Flip Disk	UNS C54400 Brass
15	Can/Escutcheon	Varies (Not used on all models)

NOTE: PIPE WRENCH MAY ONLY BE USED ON OUTER STEEL BARREL OF SPRINKLER

COMDRYDET13

APPEARANCE OF DEFLECTOR WILL VARY DEPENDING ON MODEL

Fig. 9

Ordering Information

Specify:

1. Sprinkler: Model F3Res44 Dry
2. Threads:
   a. [1-inch NPT - standard]
   b. [ISO 7-R1]
   c. [3/4-inch NPT – for existing installations only]
   d. O 7-R3/4]
3. Inlet Length:
   a. [Standard]
   b. [Short]
4. Escutcheon type:
   a. [Standard]
   b. [HB Extended]
   c. [F2 Recessed]
5. Sprinkler/Escutcheon Finish:
   See finish combination tables for each trim style.
6. Sprinkler Temperature Classification:
   a. [Ordinary, 155°F (69°C)]
   b. [Intermediate, 175°F (79°C)]
7. "A" Dimension = [Specify length].
8. Wrench:
   a. [F3R (Standard and HB Escutcheons)]
   b. [XLO2 (FP Recessed and CCP Concealed)]

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable.

Products manufactured and distributed by Reliable have been protecting life and property for over 100 years.

Manufactured by

Reliable®

Reliable Automatic Sprinkler Co., Inc.
(800) 431-1588 Sales Offices
(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
www.reliablesprinkler.com Internet Address

Recycled Paper

Revision lines indicate updated or new data.

EG. Printed in U.S.A. 04/26 P/N 9999970484