Reliable®

Model F3-80 Dry K8.0 (115 metric) Standard-Response, Standard Spray Sprinklers

Bulletin 060 Rev. A

Features

1. Available in the following configurations:
   - Pendent with standard escutcheon
   - Pendent with Model HB extended escutcheon
   - Pendent with Model FP recessed escutcheon
   - Concealed Pendent with Model CCP cover plate
   - Horizontal Sidewall with Standard escutcheon
   - Horizontal Sidewall with Model HB extended escutcheon
   - Horizontal Sidewall with Model FP recessed escutcheon
2. Available with 1" NPT or ISO7-1R1 inlet fitting.
3. Sprinklers, escutcheons, and cover plates are available in a wide variety of standard and special application finishes.
4. White polyester and black polyester finish sprinklers are cULus Listed as Corrosion Resistant.

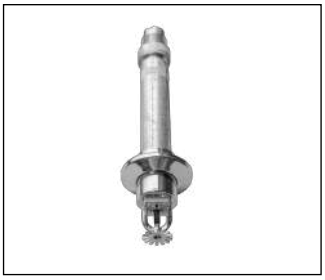
Product Description

Model F3-80 Dry sprinklers are standard-response, standard coverage sprinklers with a nominal K-Factor of 8.0 (115 metric). Model F3-80 Dry sprinklers all use a 5 mm glass bulb operating element. See the Temperature Ratings table in this Bulletin for available temperature ratings. Model F3-80 Dry sprinklers are intended for installation on wet-pipe, dry-pipe, or preaction sprinkler systems in accordance with NFPA 13.

Model F3-80 Dry sprinklers are available with a variety of escutcheon options as illustrated in Figs. 1 through 3 and Figs. 5 through 7. In addition, Model F3-80 Dry Pendent sprinklers are also available with the Model CCP conical concealed cover plate as illustrated in Fig. 4. Available sprinkler, escutcheon, and cover plate finishes are identified in the Finishes table in this Bulletin. The Model FP escutcheon, and Model CCP cover plate are the only recessed escutcheons and cover plate listed for use with Model F3-80 Dry sprinklers; the use of any other recessed escutcheon or cover plate with Model F3-80 Dry sprinklers will void all guarantees, warranties, listings and approvals.

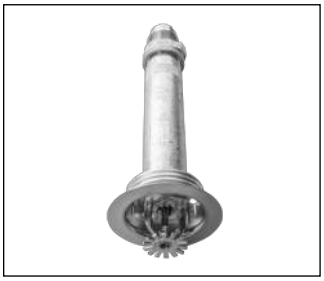
Inlet fittings are available with 1" NPT or ISO 7-1R1 threads.

See the Available Configurations, Listings, and Approvals table in this Bulletin for further information on Model F3-80 Dry sprinklers.

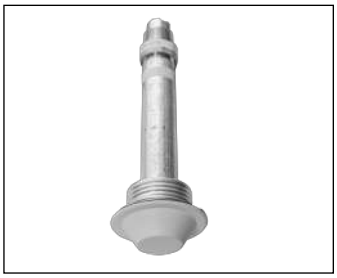


Standard Escutcheon
(See Fig. 1)

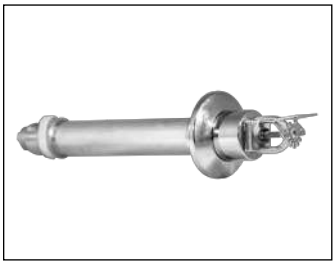
HB Escutcheon
(See Fig. 2)



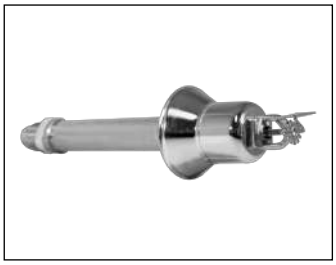
FP Recessed Escutcheon
(See Fig. 3)



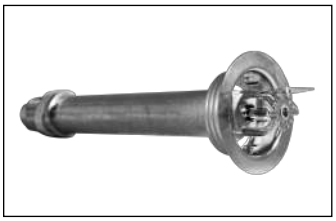
CCP Cover Plate
(See Fig. 4)



Horizontal Sidewall
(See Fig. 5)



Horizontal Sidewall / HB
(See Fig. 6)



Recessed FP
Horizontal Sidewall
(See Fig. 7)

Available Configurations, Listings, and Approvals

Sprinkler Model	Escutcheon or Cover Plate	Available Length (See Figs. 1 - 7)	Listings and Approvals[1]	Inlet Threads	Sprinkler Identification Number (SIN)
F3-80 Dry Pendent	Standard Escutcheon	2" to 36" (50 to 914 mm)	cULus, NYC	1" NPT or ISO7-1R1	RA6012
	HB Extended Escutcheon	3-1/2" to 36" (90 to 914 mm)			
	FP Recessed Escutcheon				
	CCP Cover Plate				
F3-80 Dry Horizontal Sidewall	Standard Escutcheon	2" to 36" (50 to 914 mm)	cULus[2], NYC[2]	1" NPT or ISO7-1R1	RA6032
	HB Extended Escutcheon	3-1/2" to 36" (90 to 914 mm)			
	FP Recessed Escutcheon				

[1] For available temperature ratings and finishes see the Temperature Ratings and Finishes tables, respectively, in this Bulletin.
[2] cULus Listing and NYC for Light Hazard (existing) and Ordinary Hazard only.

Patents

Model F3-80 Dry series sprinklers may be covered by one or more of the following patents:
US Patent No. 5,775,431
US Patent No. 5,967,240

Listing and Approval Agencies

See the Available Configurations, Listings, and Approvals table in this Bulletin for listings and approvals applicable to each available configuration.

1. Listed by Underwriters Laboratories, Inc. and UL Certified for Canada (cULus)
2. Permitted in New York City based on UL Listing per Local Law 33/2007 (NYC)

Technical Data

Maximum Listed and Approved Working Pressure: 175 psi (12 bar)
Nominal K-Factor: 8.0 gpm/psi$^{1/2}$ (115 L/min/bar$^{1/2}$)

Temperature Classification	Glass Bulb Color	Sprinkler Temperature Rating	Cover Plate Temperature Rating	Maximum Ceiling Temperature	Listings and Approvals[1]
Ordinary	Orange	135°F (57°C)	135°F (57°C)	100°F (38°C)	cULus, NYC
	Red	155°F (68°C)			
Intermediate	Yellow	175°F (79°C)	165°F (74°C)	150°F (66°C)	
Intermediate	Green	200°F (93°C)	165°F (74°C)	150°F (66°C)	
High	Blue	286°F (141°C)	None	225°F (107°C)	
			165°F (74°C)	150°F (66°C)	

[1] For listed and approved sprinkler, escutcheon, and inlet configurations see the Available Configurations, Listings, and Approvals table in this Bulletin.

Finishes

Component	Sprinkler	Escutcheon[1]	Cover Plate
Standard Finishes	Bronze	Brass[3]	White Paint
	White Polyester[2]	White Polyester	Chrome
	Chrome	Chrome	
Special Application Finishes	Electroless Nickel PTFE[2]	Electroless Nickel PTFE Black Polyester Customer Color Polyester	Satin Chrome Black Paint Custom Color Paint Black Plating
	Black Polyester[2]		
	Custom Color Polyester		
	Wax Coated[4]		
	High Temp. Wax Coated[5]		
	Lead Plated[4]		
	Wax Over Lead[4]		
	High Temp. Wax Over Lead[5]		

[1] Standard and Model HB escutcheons are supplied with both the can and escutcheon finished. Model FP escutcheons are supplied with the escutcheon finished; the cup is galvanized steel with no further finish.
[2] cULus Listed as a Corrosion Resistant Sprinkler.
[3] Brass finish available for standard Model FP escutcheons only.
[4] Wax coating, lead plating, and wax over lead finishes are Listed and available for 155°F (68°C), 175°F (79°C), and 200°F (93°C) activation temperature sprinklers only.
[5] High temperature wax coating and high temperature wax over lead finishes are Listed and available for 286°F (141°C) activation temperature sprinklers only and shall only be installed where maximum ceiling temperature does not exceed 150°F (66°C).

Model F3-80 Dry Pendent Sprinkler with Standard Escutcheon (SIN RA6012)

"A" Dim.	2" to 36" (51mm to 914mm) in 1/4" (6mm) increments

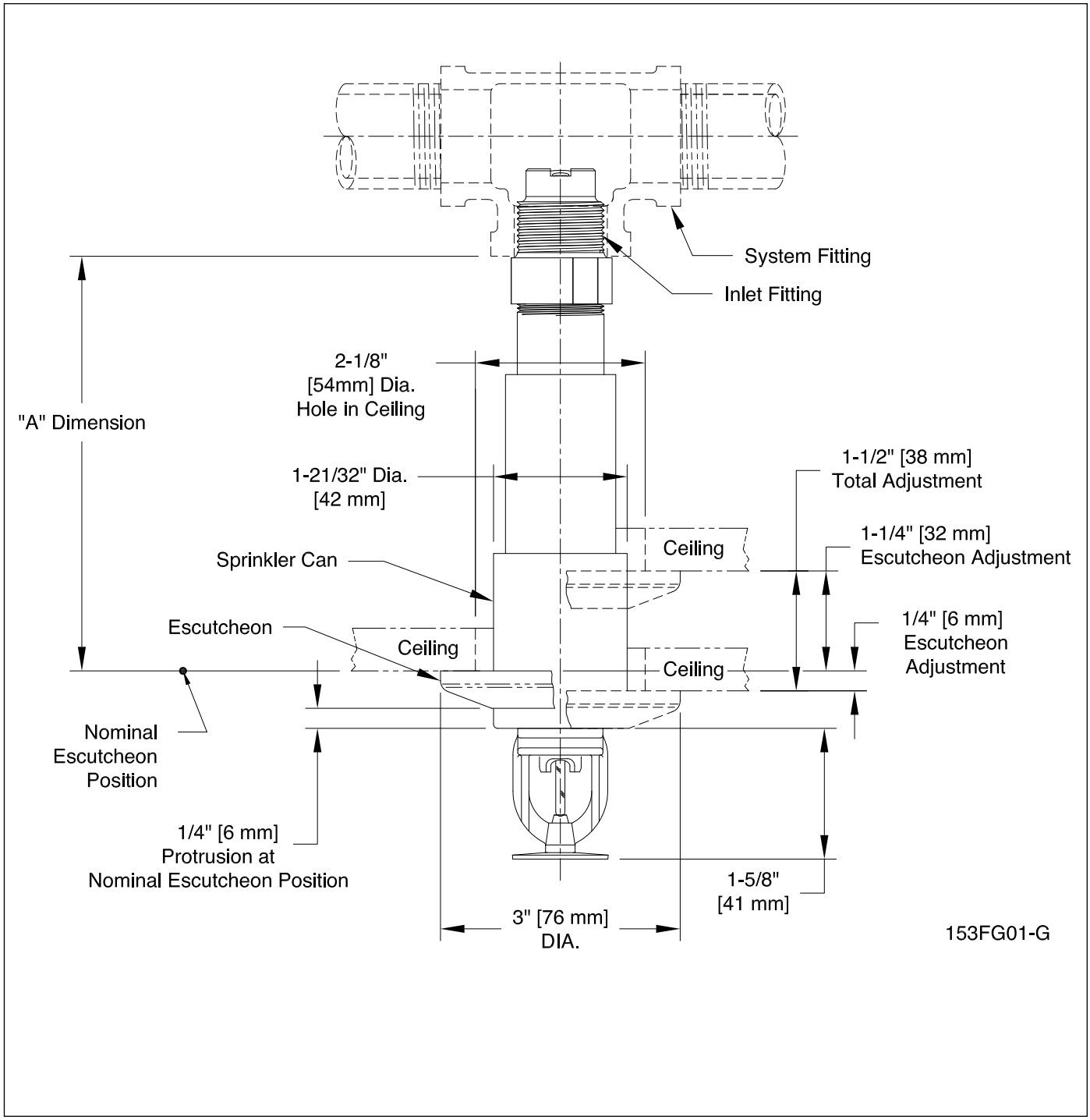


Fig. 1

Note: The sprinkler can protrudes ¼" when escutcheon is in nominal position. Escutcheon adjustment provides -¼" (-6mm) to +1¼" (+32mm) "A" dimension adjustment range.

Sprinkler Guard: Model C2

Model F3-80 Dry Pendent Sprinkler with Model HB Extended Escutcheon (SIN RA6012)

"A" Dim.	3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments

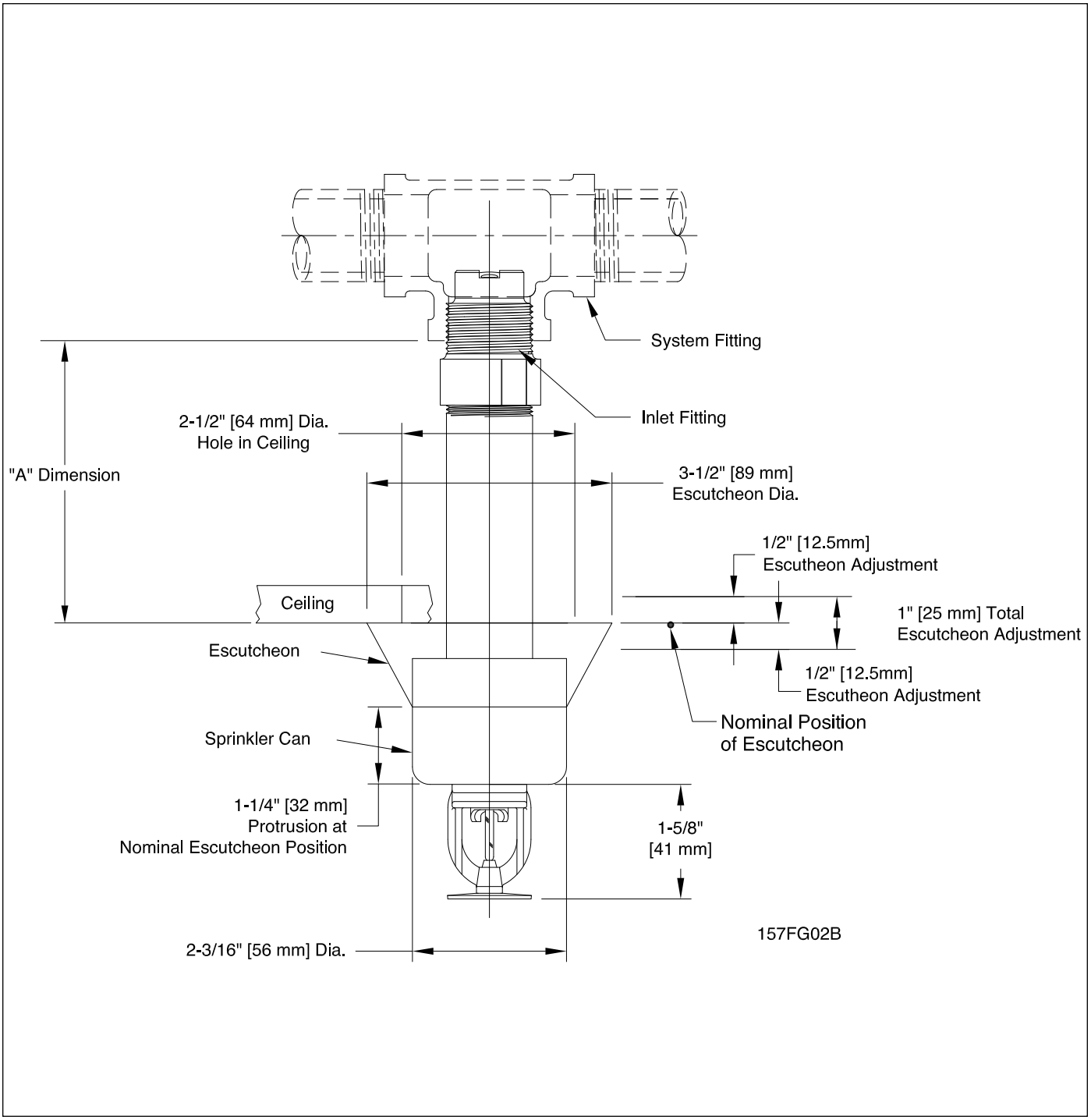


Fig. 2

Note: The sprinkler can protrudes 1¼" when escutcheon is in nominal position. Escutcheon adjustment provides -½" (-12.7mm) to +½" (+12.7mm) "A" dimension adjustment range.

Model F3-80 Dry Pendent Sprinkler with Model FP Recessed Escutcheon (SIN RA6012)

"A" Dim.	3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments

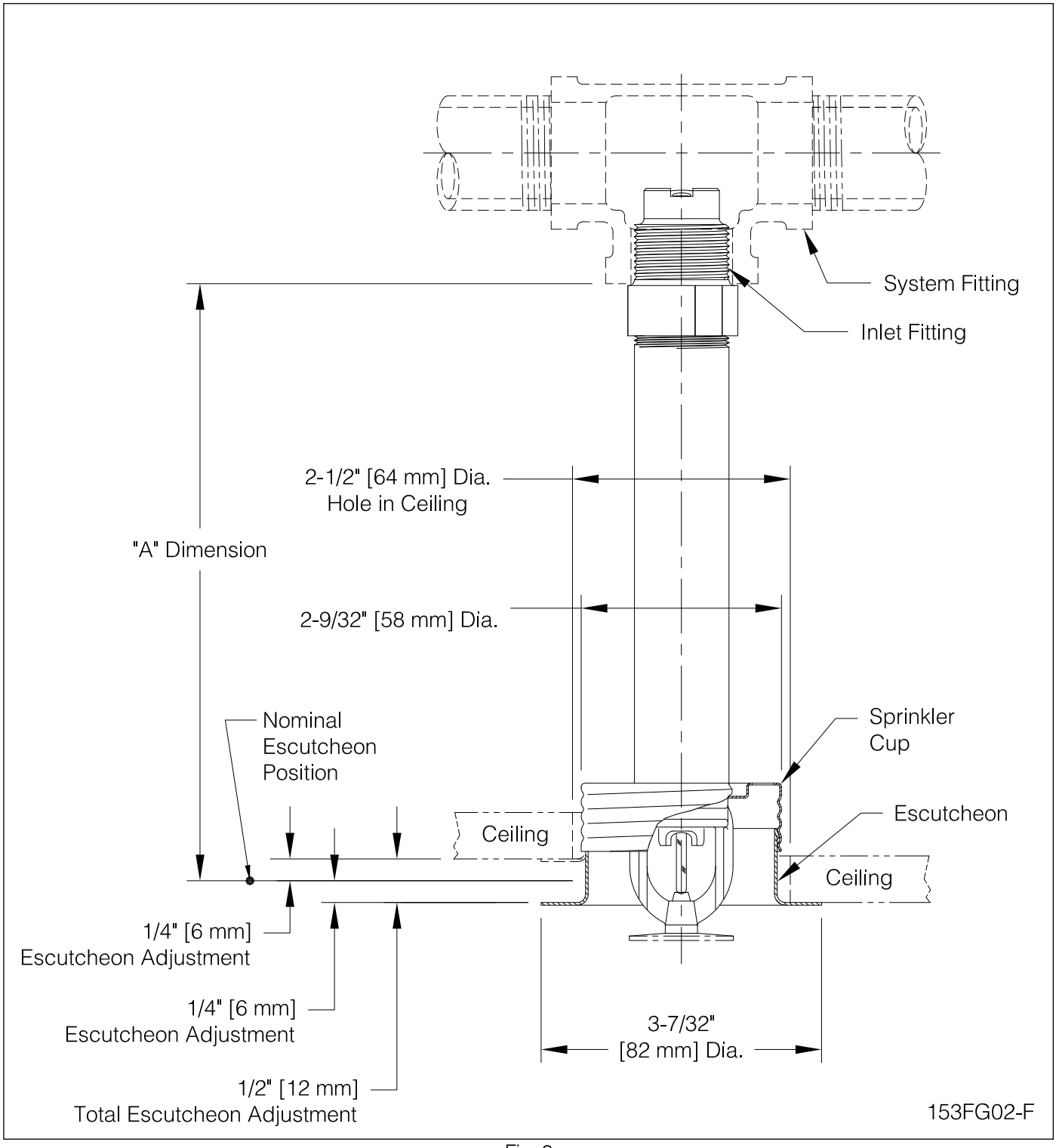


Fig. 3

Note: Do not install the Model F3-80 Dry Pendent sprinkler with the Model FP escutcheon in ceilings which have positive pressure in the space above.

Model F3-80 Dry Pendent Sprinkler with Model CCP Cover Plate (SIN RA6012)

"A" Dim.	3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments

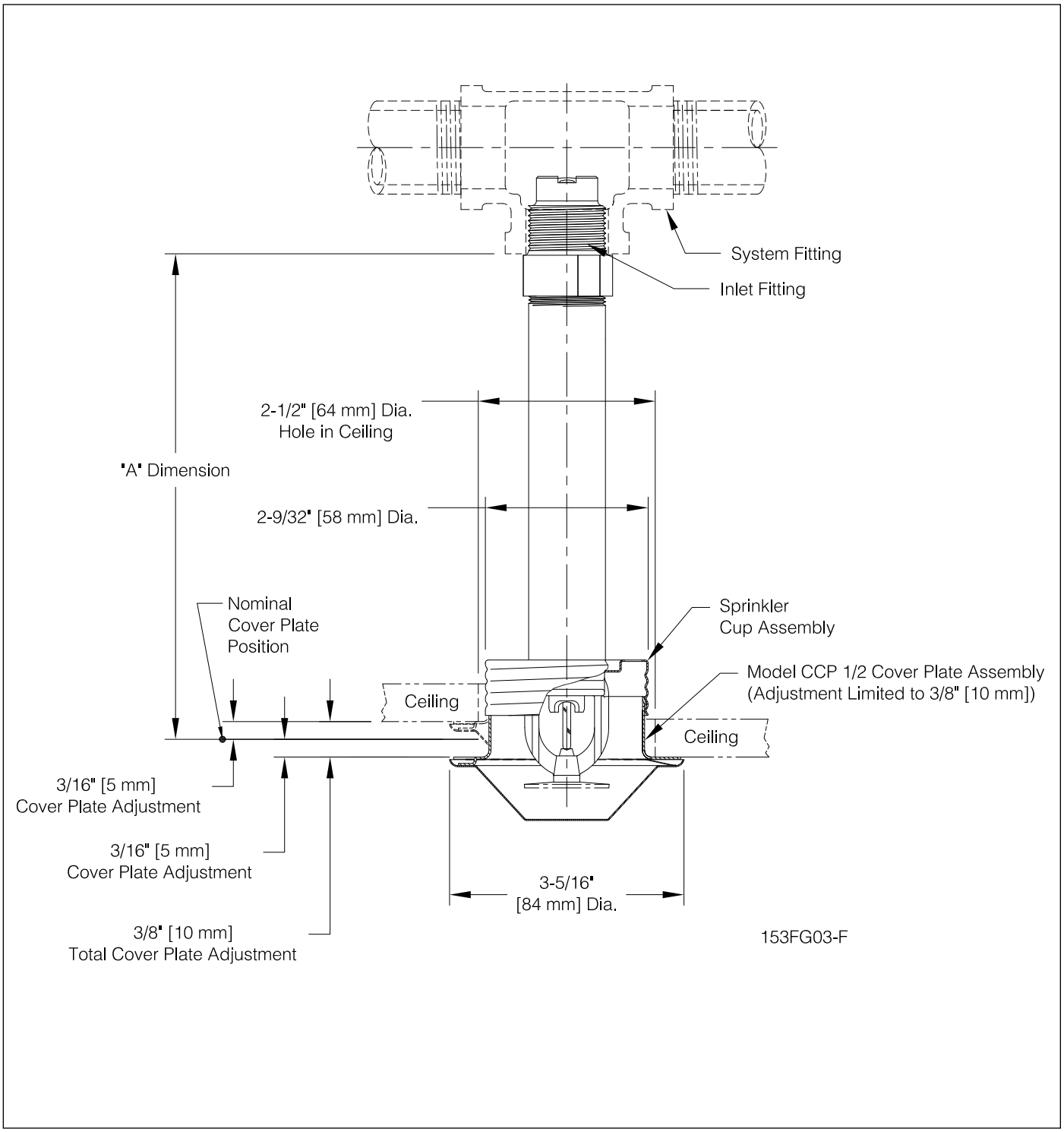


Fig. 4

Note: Do not install the Model F3-80 Dry Pendent sprinkler with the Model CCP cover plate in ceilings which have positive pressure in the space above.

Model F3-80 Dry Horizontal Sidewall Sprinkler with Standard Escutcheon (SIN RA6032)

"A" Dim.	2" to 48" (51mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 2" to 36" (51mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

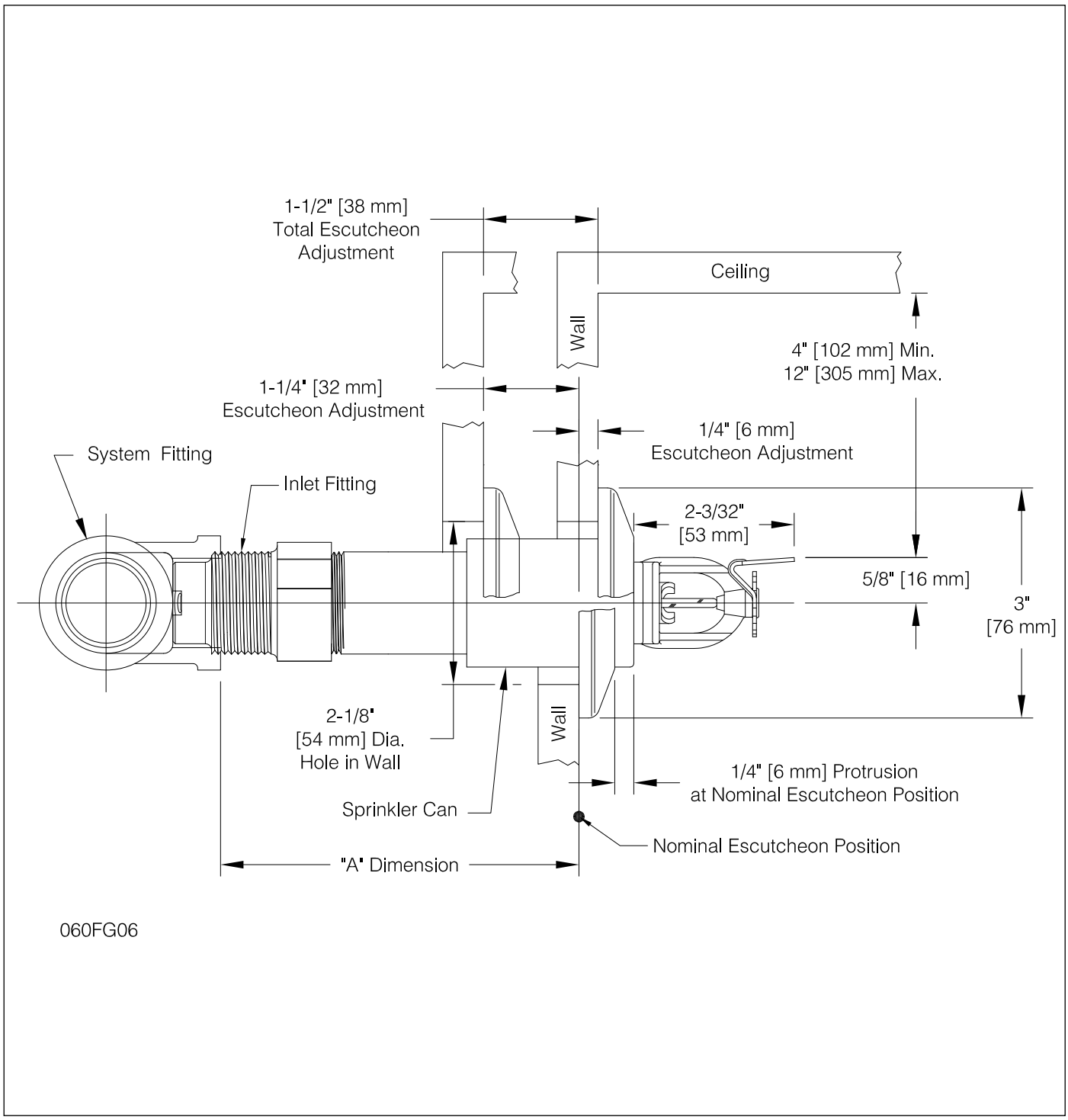


Fig. 5

Note: The sprinkler can protrudes ¼" when escutcheon is in nominal position. Escutcheon adjustment provides -¼" (-6mm) to +1¼" (+32mm) "A" dimension adjustment range.

Model F3-80 Dry Horizontal Sidewall Sprinkler with Model HB Escutcheon (SIN RA6032)

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

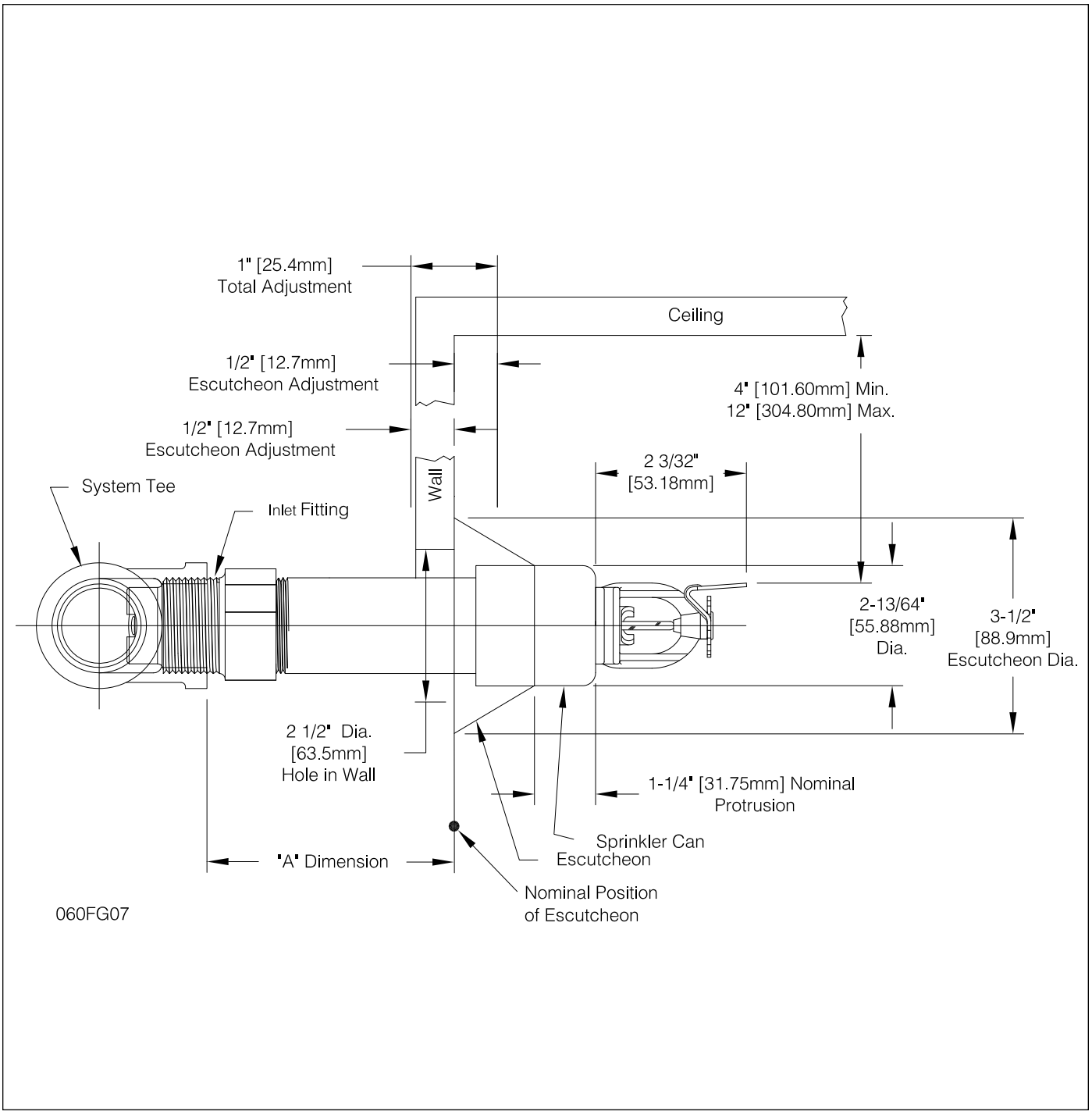


Fig. 6

Note: The sprinkler can protrudes 1¼" when escutcheon is in nominal position. Escutcheon adjustment provides -½" (-12.7mm) to +½" (+12.7mm) "A" dimension adjustment range.

Model F3-80 Dry Horizontal Sidewall Sprinkler with Model FP Recessed Escutcheon (SIN RA6032)

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

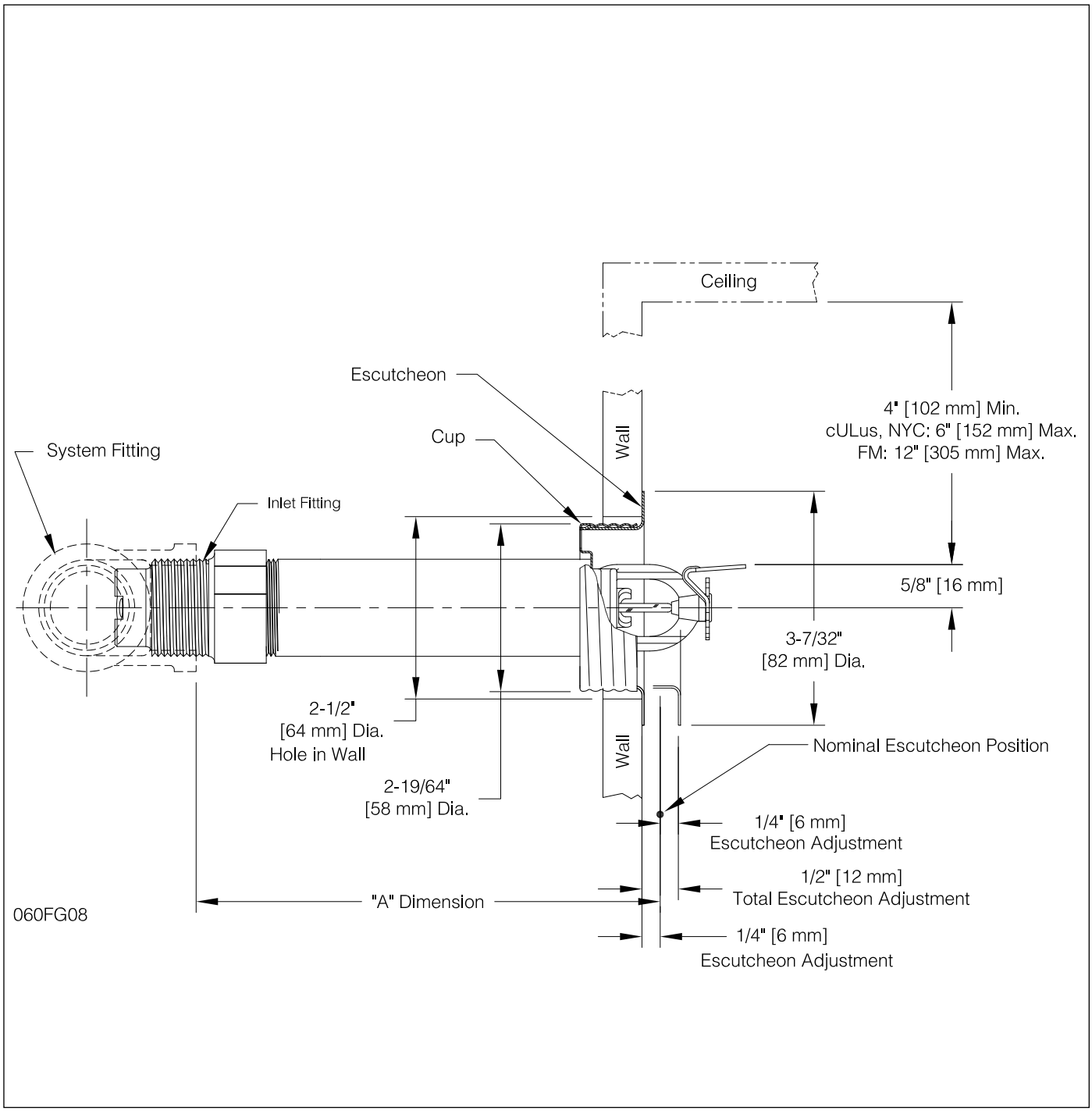


Fig. 7

Note: Do not install the Model F3-80 Dry Horizontal Sidewall sprinkler with the Model FP escutcheon in walls which are positively pressurized with respect to the protected space.

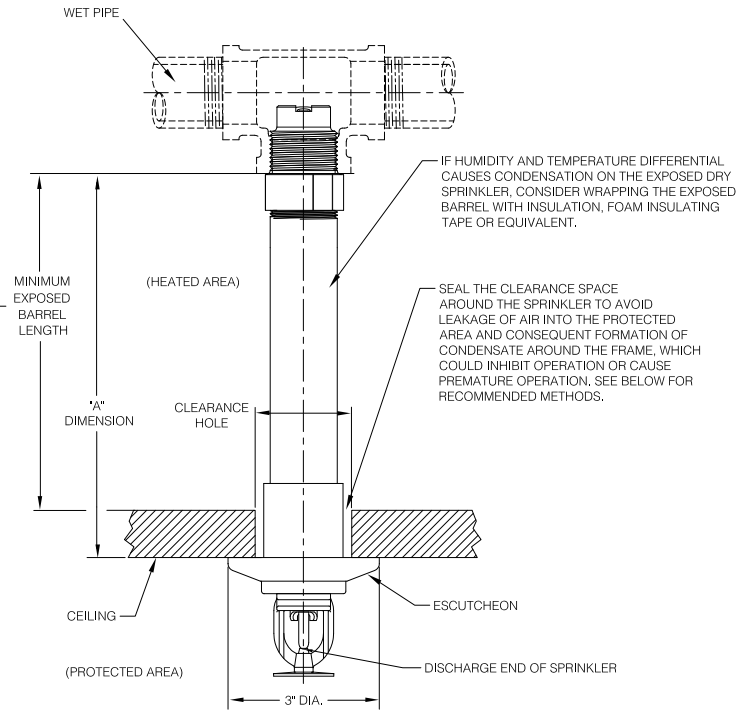
RECOMMENDED EXPOSED MINIMUM BARREL LENGTH WHEN CONNECTED TO WET PIPE SPRINKLER SYSTEM (DRY PENDENT SPRINKLER WITH STANDARD ESCUTCHEON SHOWN)

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 PN THE EXPOSED SPRINKLER OF 30 MPH (48 KM/H). LONGER EXPOSED BARREL LENGTHS WILL HELP AVOID FREEXING 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 WALL FOR DRY HORIZONTAL SIDEWALL SPRINKLER



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

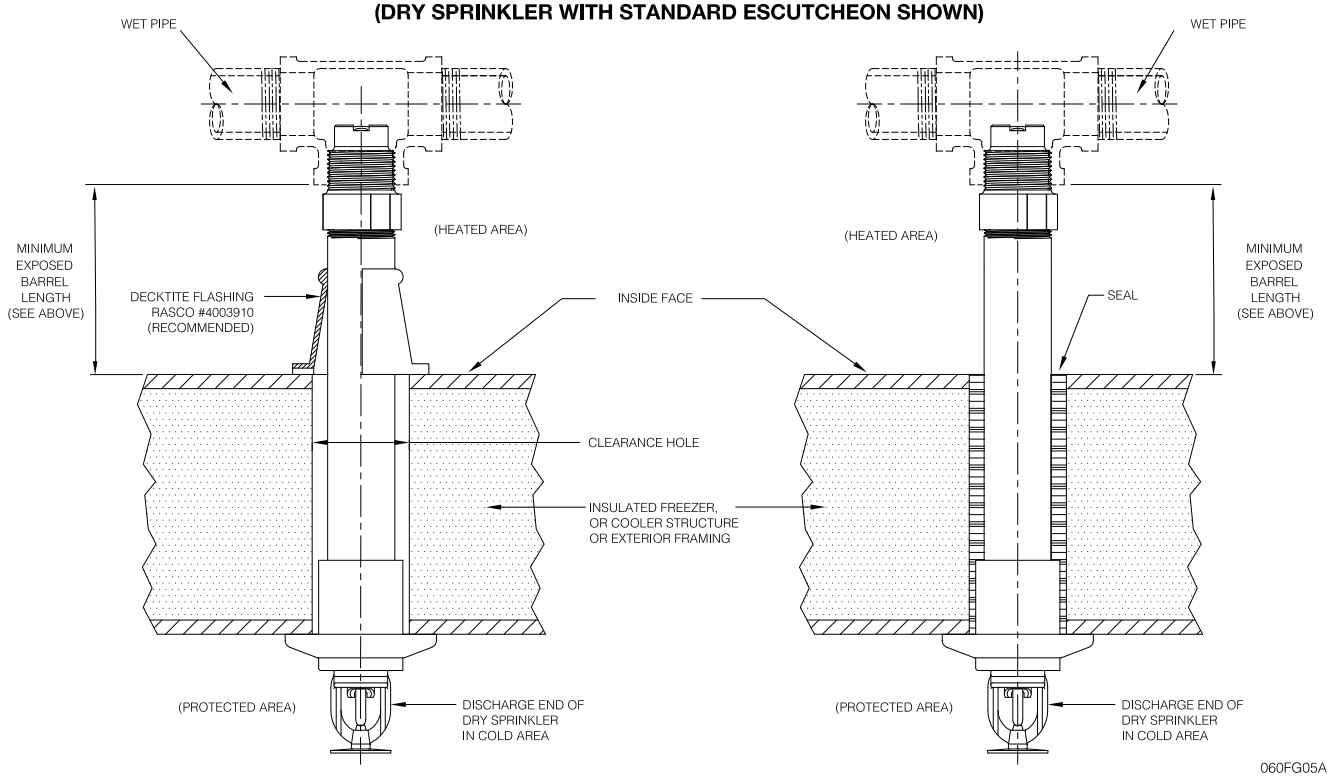


Fig. 8

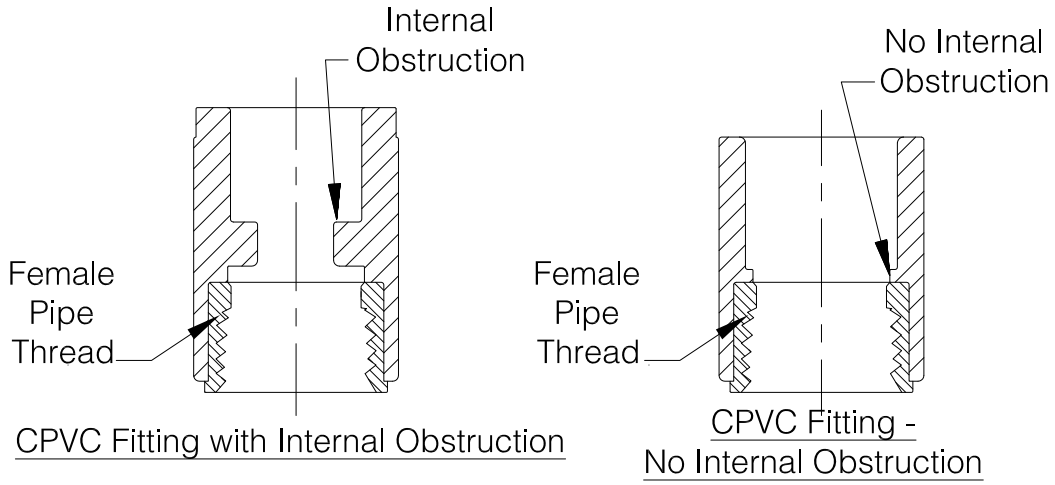
CAUTION

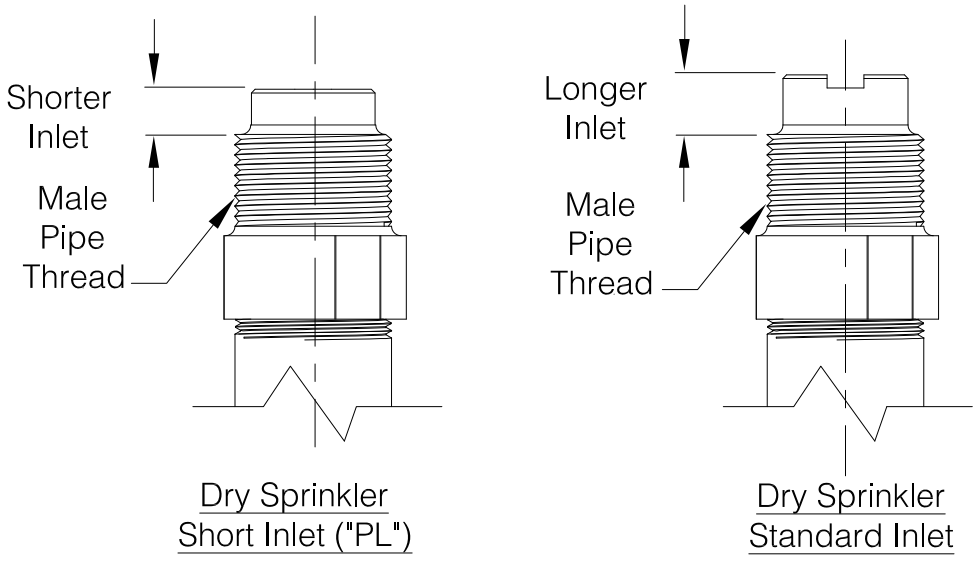
RELIABLE DRY PENDENT AND DRY HORIZONTAL SIDEWALL SPRINKLERS MAY BE INSTALLED IN A LISTED CPVC SPRINKLER FITTING, ONLY UPON VERIFICATION THAT THE FITTING DOES NOT INTERFERE WITH THE SPRINKLER'S INLET.

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.





BE SURE TO ORDER THE CORRECT SPRINKLERS FOR YOUR APPLICATION

016FG08C

Fig. 9

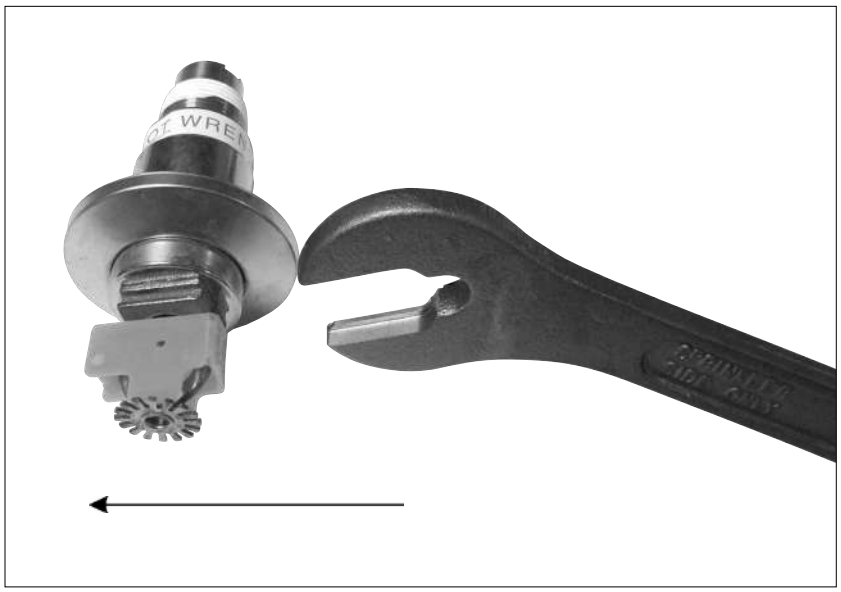


Fig. 10 - Model F3 or Model F3R Wrench

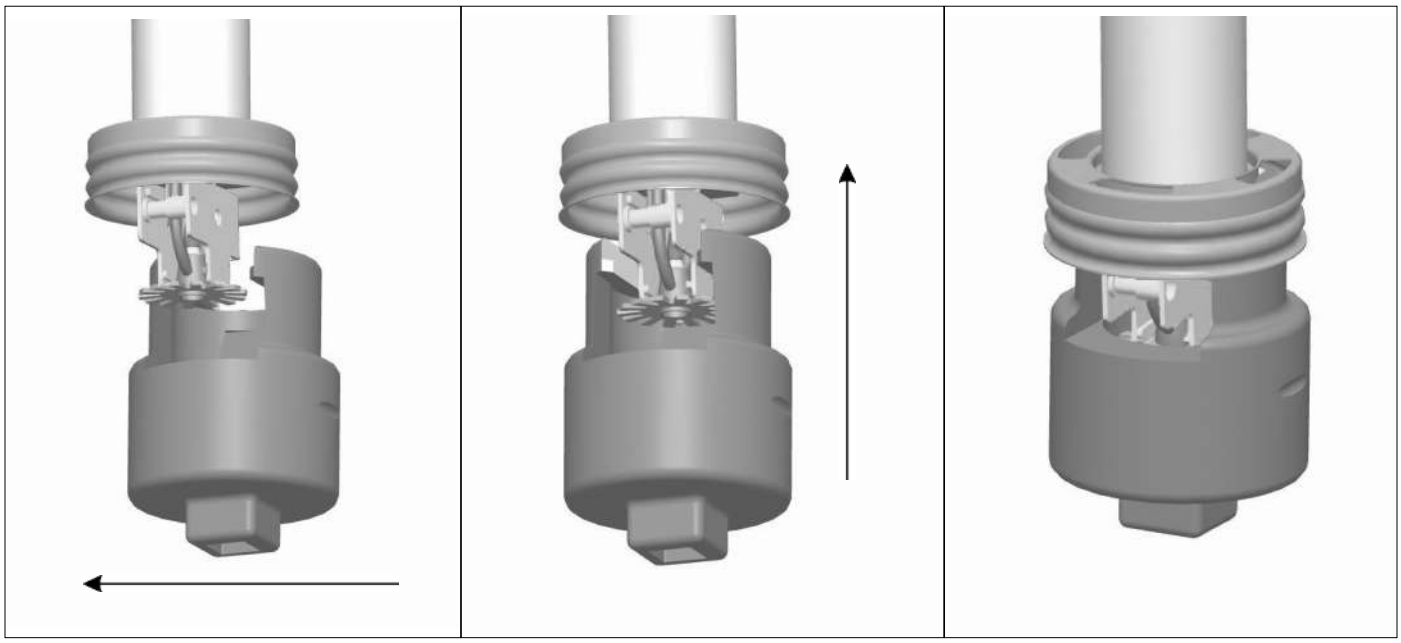
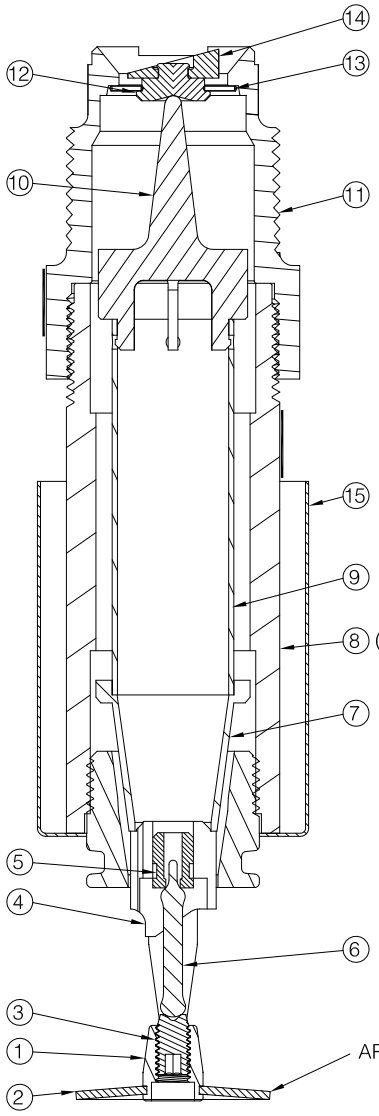


Fig. 11 - Model XLO2 Wrench

MATERIAL SPECIFICATIONS



ITEM #	DESCRIPTION	MATERIAL SPECIFICATION
1	FRAME	BRASS PER UNS C83600
2	DEFLECTOR	BRONZE PER UNS C51000
3	LOAD SCREW	BRASS PER UNS C22000
4	SEAT ADAPTOR	BRASS ALLOY PER UNS C36000
5	BULB INSERT	COPPER ALLOY PER UNS C31400
6	GLASS BULB	GLASS W/GLYCERIN SOLUTION
7	ORIFICE ADAPTOR	BRASS ALLOY PER UNS C36000
8	OUTER TUBE	GALVANIZED STEEL
9	INNER TUBE	BRASS ALLOY PER UNS C23000
10	YOKE	BRASS ALLOY PER UNS C38000
11	INLET	BRASS ALLOY PER UNS C35330
12	CAP	BRASS ALLOY PER UNS C54400
13	SPRING WASHER/SEAL	PTFE COATED BERYLLIUM NICKEL
14	FLIP DISK	BRASS ALLOY PER UNS C54400
15	CAN/ESCUTCHEON	PAINTED OR PLATED MILD STEEL

(8) (PIPE WRENCH MAY ONLY BE USED ON OUTER STEEL PIPE OF SPRINKLER)

016fg10
153fg16
157fg16

APPEARANCE OF DEFLECTOR MAY VARY DEPENDING ON MODEL

Fig. 12

Installation Instructions

Model F3-80 Dry sprinklers must only be installed in the following fittings:

1. The side outlet of an ANSI B 16.3 class 150 (malleable or ductile) or ANSI B16.4 class 125 (cast) iron pipe tee
2. The run outlet of an ANSI B 16.3 class 150 (malleable or ductile) or ANSI B16.4 class 125 (cast) iron pipe tee, with the side outlet plugged (wet-pipe systems only)
3. Spears Manufacturing Company Brass Thread Insert Style or Special Reinforced Plastic Thread Style Listed adapter or tee (wet-pipe systems only) (gasket sealed outlets shall not be used)
4. Any Listed CPVC sprinkler adapter or tee only in accordance with Fig. 9 and upon verification that the CPVC adapter or tee does not interfere with the sprinkler's inlet (wet-pipe systems only) (gasket sealed outlets shall not be used)

Model F3-80 Dry sprinklers must not be installed into couplings, elbows, welded outlets, or gasket sealed outlets. Installation of the Model F3-80 Dry sprinkler is not recommend in copper pipe systems, as this may reduce the life expectancy of the sprinkler.

In all dry-pipe system installations, the Model F3-80 Dry sprinkler must be installed with protrusion into the fitting in accordance with Fig. 1 through Fig. 7 in this Bulletin. Do not install Model F3-80 Dry sprinklers with the standard (long) inlet fitting into CPVC fittings that have an internal obstruction (see Fig. 9); this will damage the sprinkler, the fitting, or both. Model F3-80 Dry sprinklers are available with a short "PL" inlet fitting for installation on CPVC fittings of wet-pipe sprinkler systems only.

Model F3-80 Dry sprinklers connected to wet-pipe systems must be installed with the Exposed Minimum Barrel Length required by Fig. 8 located in a Heated Area.

An orange protective clip is factory installed on the sprinkler to protect the glass bulb thermal element from damage. The clip should remain in place during installation of the sprinkler and be removed when the sprinkler system is placed in service.

Use the following steps for installation:

1. Cut a hole in the wall or ceiling directly in-line with the outlet of the fitting. See the Installation Data table for the recommended hole diameter based on the escutcheon or cover plate option selected.
2. Apply pipe joint compound or PTFE tape to the male threads of the sprinkler's inlet fitting.
3. Install the sprinkler in the fitting using the installation wrench specified in the Installation Data table. The Model F3 and F3R wrenches are designed to be inserted into the groves in the sprinkler's wrench boss as shown in Fig. 10. The Model XLO2 wrench is designed to fit into the cup and engage the wrench boss as shown in Fig. 11. Do NOT wrench any part of the sprinkler assembly other than the wrench boss. When inserting or removing the wrench from the sprinkler, care should be taken to prevent damage to the sprinkler. 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).

   3a. Alternatively, where access to the outer tube of the sprinkler is available, the Model F3-80 Dry sprinkler may be installed using a pipe wrench. The pipe wrench shall only be permitted to interface with the galvanized steel outer tube portion of the sprinkler (Item #8 in Fig. 12). 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. The recommended minimum to maximum installation torque is 22 - 30 lb-ft (30 – 40 N-m).

4. Standard and Model HB escutcheons can be installed by slipping the escutcheon over the can until the escutcheon is seated against the ceiling or wall. The Model FP escutcheon is installed by pressing or threading the escutcheon into the cup by hand; the escutcheon can be tightened against the ceiling or wall by turning the escutcheon in a clockwise direction and removed by turning the escutcheon in a counter-clockwise direction. To install the Model CCP cover plate, first remove the protective clip. Install the Model CCP cover plate on the sprinkler by pressing or threading the cover plate into the cup by hand; the cover plate can be tightened against the ceiling by turning the cover plate in a clockwise direction and removed by turning the cover plate in a counter-clockwise direction.
5. Remove the orange protective clip when placing the sprinkler system in service.

Installation Data

Sprinkler Model	Escutcheon or Cover Plate	Suggested Hole Diameter in Wall or Ceiling	Installation Wrench
F3-80 Dry	Standard Escutcheon	2-1/8" (54 mm)	F3 or F3R
	HB Extended Escutcheon	2-1/2" (64 mm)	
	FP Recessed Escutcheon	2-1/2" (64 mm)	XLO2
	CCP Cover Plate (Pendent Only)		

Maintenance

The Model F3-80 Dry Sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not remove the factory applied thermally sensitive wax fillet between the bulb supporting cup and the wrenching boss. Do not replace this wax with a substitute substance.

An Alternate substance may interfere with proper operation of the sprinkler. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gently vacuuming. Replace any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Ordering Information

Specify:

1. Sprinkler: [Model F3-80 Dry Pendent SIN RA6012] [Model F3-80 Dry Horizontal Sidewall SIN RA6032]
2. Escutcheon/Cover Plate: [None][Standard escutcheon][Model HB extended escutcheon][Model FP recessed escutcheon][Model CCP cover plate – pendent only]
3. Inlet Threads: [1" NPT][ISO7-1R1]
4. Inlet Fitting: [Long – Standard Inlet Fitting][Short "PL" – Wet Pipe Systems only]
5. Sprinkler Temperature Rating: See Temperature Ratings table
6. Sprinkler Finish: See Finishes Table
7. Escutcheon/Cover Plate Finish: See Finishes Table
8. Length: "A" Dimension (face of tee to face of ceiling or wall) in ¼" (6 mm) increments – See Fig. 1 through Fig. 7

Note:

The "A" dimension is based on a nominally gauged pipe thread "make-up" of .600" (15mm) per ANSI B2.1 [approximately 7 ½ threads].

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- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retarding chambers
- Dry pipe valves
- Accelerators for dry pipe valves
- Mechanical sprinkler alarms
- Electrical sprinkler alarm switches
- Water flow detectors
- Deluge valves
- Detector check valves
- Check valves
- Electrical system
- Sprinkler emergency cabinets
- Sprinkler wrenches
- Sprinkler escutcheons and guards
- Inspectors test connections
- Sight drains
- Ball drips and drum drips
- Control valve seals
- Air maintenance devices
- Air compressors
- Pressure gauges
- Identification signs
- Fire department connection

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 almost 100 years.

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