



RECESSED SPRINKLER w/ ADJUSTABLE ESCUTCHEON

MODEL F972 DESIGNER, BULB TYPE, 1/2" ORIFICE

Dim.	Inches	MM
A-	3	76.2
B-	1/8	3.2
C-	2-1/2	63.5
D-Min.	5/8	15.9
D-Nom.	7/8	22.2
D-Max.	1-1/8	28.6
E-Nom.	7/8	22.2
F-Min.	7/16	11.1

- 1—Closure
- 2—Mounting Plate
- 3—1/2" Orifice Model F982 Pendent Sprinkler

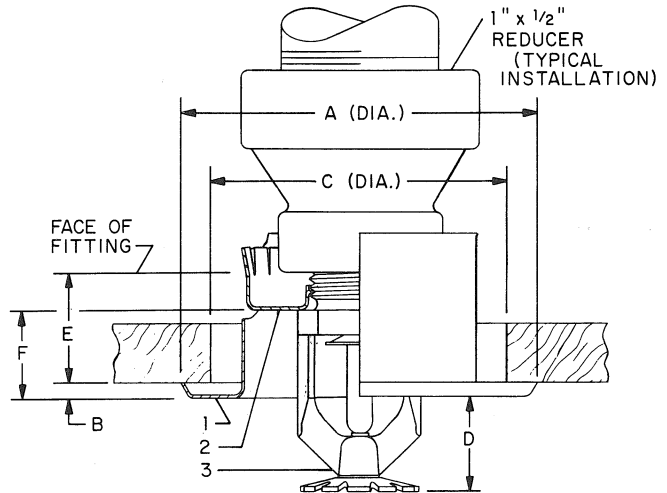
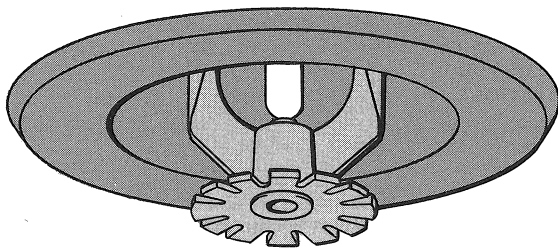


FIGURE A
MODEL F972 RECESSED SPRINKLER ASSEMBLIES

GENERAL DESCRIPTION

The 1/2 inch orifice Model F972 Designer Recessed Sprinklers (Ref. Figure A) are pendent automatic sprinklers of the frangible bulb type. They are "standard sprinklers" and produce a hemispherical water distribution pattern below the deflector. Each sprinkler includes a Closure as well as a separate Mounting Plate which is provided assembled to the sprinkler.

The separable two-piece design of the Closure and Mounting Plate allows installation of the sprinklers and pressure testing of the fire protection system prior to installation of a suspended ceiling or application of the finish coating to a fixed ceiling. They also permit removal of suspended ceiling panels for access to building service equipment, without having to first shut down the fire protection system and remove sprinklers.

The 1/2 inch adjustment for the F972 Recessed Sprinklers provides a minimum 7/16 inch of sprinkler recess and substantially reduces the accuracy to which the length of fixed pipe drops to the sprinklers must be cut. Also, the Closure has a 1/2 inch wide flange which provides ample clearance for covering the ceiling hole.

The F972 may also be used as a high adjustment escutcheon sprinkler, with the Closure providing up to 1 inch of adjustment from the flush pendent position. Refer to Figure C for installation dimensions when using the F972 as a high adjustment escutcheon sprinkler.

APPROVALS AND STANDARDS

The 1/2 inch orifice Model F972 Recessed Sprinklers are listed by Underwriters Laboratories Inc. and Underwriters' Laboratories of Canada.

The 1/2 inch orifice Model F972 Recessed Sprinklers are approved by Factory Mutual Research Corporation for use in Hazard Occupancies up to and including Ordinary, Group II. The Ordinary Hazard Occupancy approval is limited to use in wet pipe systems and preaction systems qualifying as wet pipe systems.

The 1/2 inch orifice Model F972 Recessed Sprinklers are accepted by the City of New York under MEA 39-92M.

The laboratory listings and approval only apply to the temperature ratings and finishes indicated in Tables A and B, respectively.

Temperature Rating	Bulb Liquid Color
135F / 57C	Orange
155F / 68C	Red
175F / 79C	Yellow
200F / 93C	Green

TABLE A
TEMPERATURE RATINGS
FOR F972

Escutcheon Finish	Sprinkler Finish
Chrome Plated	Chrome Plated
Off-White Polyester	Chrome Plated
Off-White Polyester	Off-White Polyester*
Bright Brass	Bright Brass
Special Color Painted	Chrome Plated
Special Color Painted	Natural Brass

* ULI and ULC Listed only. All others ULI Listed, ULC Listed, and FM Approved.

TABLE B
COMBINATIONS OF
FINISHES FOR F972

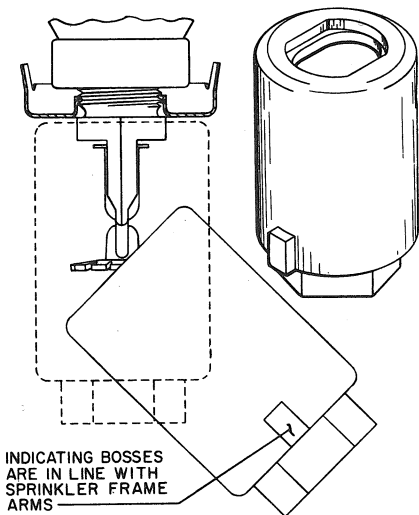


FIGURE B
MODELS F87 AND F870
SPRINKLER WRENCHES

Dim.	Inches	MM
D-Min.	5/8	15.9
D-Nom.	1-1/8	28.6
D-Max.	1-5/8	41.3
E-Nom.	5/8	15.9
F-Max.	1	25.4

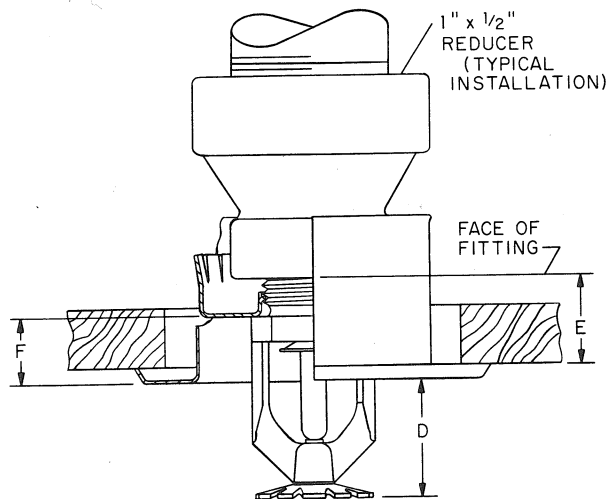


FIGURE C
INSTALLATION DIMENSIONS FOR F972
WHEN USED AS A HIGH ADJUSTABLE ESCUTCHEON SPRINKLER
WITH UP TO 1 INCH ADJUSTMENT
FROM THE FLUSH PENDENT POSITION

WARNING

The Model F972 Recessed Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of these devices.

The occupancy limitations for FM Approval apply to the F972 whether it is used as a recessed sprinkler or as a high adjustment escutcheon sprinkler.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or manufacturer should be contacted relative to any questions.

TECHNICAL DATA

The Model F972 Recessed Sprinklers are rated for use at a maximum service pressure of 175 psi and they are available in temperature ratings as indicated in Table A. Their nominal installation dimensions are given in Figure A and Figure C.

The combinations of available finishes for the sprinkler and the two pieces of the escutcheon are indicated in Table B. A painted finish for the sprinkler is not available.

The nominal discharge "Q" in U.S. gal-

lons per minute (GPM) for an F972 sprinkler is determined by the formula:

$$Q = K \sqrt{p}$$

where the nominal sprinkler discharge coefficient "K" = 5.6 and "p" = pressure in pounds per square inch (psi). Listing standards permit the actual value of "K" to vary from 5.3 to 5.8.

The 1/2 inch orifice, 5mm bulb Model F982 Pendent Sprinklers used in the F972 assemblies have a bronze Frame per ASTM B176 (C87800). The Button (bulb retainer) is phosphor bronze per ASTM B103 (C51000, C52000, or C54400). The Gasketed Spring Plate consists of an Inconel (per ASTM B168) disc spring that is sealed on both its inside and outside edges with a Teflon[†] gasket. The Compression Screw is a plated bronze per ASTM B140 (C31400) and the Deflector is brass per ASTM B36 (C24000).

The Closure is fabricated from 0.021 inch thick low carbon steel and the Mounting Plate is fabricated from 0.021 inch thick high carbon steel. There are 16 prongs extending outward from the outer side of the Mounting Plate, as shown in Figure A. The prongs, which are compressed back into the Mounting Plate as the Closure is pushed over it, maintain a tight friction fit between the two pieces. The Mounting Plate and Closure can also

swivel relative to each other and compensate for minor non-perpendicularity between the sprinkler and ceiling.

INSTALLATION

For best over-all appearance, as a recessed sprinkler (Ref. Figure A), the pipe connected to the sprinkler fitting should be cut so that the bottom face of the fitting is between 3/4 and 1 inch above the ceiling line. By using a 1/4 inch range for the "E" dimension, the remaining 1/4 inch Closure adjustment can be used to compensate for the possible manufacturing variations in the make-in of the sprinklers and the take-out of fittings (as permitted by ANSI B1.20.1).

When the F972 is used as a high adjustment escutcheon sprinkler, with up to 1 inch of adjustment from the flush pendent position, then the pipe connected to the sprinkler fitting should be cut so that the bottom face of the fitting is between 1/4 and 1 inch above the ceiling line. This will leave the remaining 1/4 inch of adjustment to be used for compensating for variations in the make-in of the sprinkler and the take-out of the fittings.

In suspended ceiling installations, either an 8 or 10 inch type adjustable wrench or the F870 Sprinkler Wrench shown in Figure B may be used for installing all but polyester finish sprinklers. A sprinkler wrench is required for installing sprinklers in fixed

[†] DuPont Registered Trademark

ceiling applications, and the F870 may be used with all but polyester finish sprinklers.

The Model F87 Sprinkler Wrench is identical in appearance to the F870, however, it has a black nylon coating; and, it must be used for installing polyester coated sprinklers, in order to prevent damage to the finish.

NOTES

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontal, a small air bubble should be present. The diameter of the air bubble varies from approximately 1/16 inch for the 135F/57C rating to 3/32 inch for the 200 F/93C rating.

If the ceiling-to-bottom of deflector distance is less than 3/4 inch, then the Closure may disengage from the Mounting Plate either immediately or at some later time due to building vibration.

Do not attempt to make-up for insufficient adjustment in the Closure by under- or over-tightening the sprinkler. Readjust the position of the sprinkler fitting to suit.

A leak tight 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft. lbs. More than 21 ft. lbs. of torque may distort the sprinkler orifice seat with consequent leakage.

Proceed with the installation as follows:

For a suspended ceiling:

1. Apply pipe thread sealant sparingly to the sprinkler threads only. Use of a Teflon[®] based pipe joint sealant is recommended.
2. Hand tighten the sprinkler with the attached Mounting Plate (as shipped), into the sprinkler fitting.
3. Select the proper wrench and tighten the sprinkler into the fitting.

An 8 or 10 inch Crescent type adjustable wrench or the F870 Sprinkler Wrench may be used for all but the polyester finish sprinklers. Sprinklers with a white polyester finish must be installed using the Model F87 Nylon Coated Sprinkler Wrench, in order to prevent damage to the the finish.

Refer to Fixed Ceiling instructions 3. through 6 for information on the use of the F87 and F870 Wrench.

4. After the suspended ceiling has

been installed, slide the Closure over the sprinkler and push it up over the Mounting Plate until its flange comes in contact with the ceiling. Do not push on the Closure such that it will lift the ceiling panel out of its normal position.

For a fixed ceiling:

1. Apply pipe thread sealant sparingly to the sprinkler threads only. Use of a Teflon[®] based pipe joint sealant is recommended.
2. Select the proper wrench.

Sprinklers with finishes other than polyester are to be installed using the Model F870 Sprinkler Wrench. Sprinklers with a polyester finish must be installed using the Model F87 Nylon Coated Sprinkler Wrench, in order to prevent damage to the finish.

3. Position the sprinkler/Mounting Plate assembly in the Sprinkler Wrench as illustrated in Figure B. The Sprinkler Wrench is slipped over the deflector end of the sprinkler by tilting it at about a 45° angle to the plane of the sprinkler frame arms.
4. Using the Wrench, hand tighten the sprinkler into the sprinkler fitting.
5. Using a 1/2 inch ratchet drive or by applying an 8 or 10 inch Crescent wrench to the hex end of the Sprinkler Wrench, tighten the sprinkler into the fitting. The two lugs located on opposite sides of the Wrench indicate the orientation of the sprinkler frame arms.

NOTE

Push up on the Sprinkler Wrench while it is being turned to ensure that the Wrench recess stays fully engaged with the sprinkler wrenching area.

6. Carefully remove the Sprinkler Wrench by lowering it, rotating it approximately 45° from vertical, and then slipping it over the sprinkler deflector.
7. After the final coat has been applied to the ceiling, slide the Closure over the sprinkler and push it up over the Mounting Plate until its flange comes in contact with the ceiling.

CARE AND MAINTENANCE

Automatic sprinklers must never be shipped or stored where their tempera-

ture will exceed 100F/38C and they must never be painted, plated, coated or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage to the sprinklers - both before and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb. (Ref. Installation Section).

If a sprinkler must be removed for some reason, do not reinstall it or a replacement without reinstalling the Closure and Mounting Plate. If a Closure becomes dislodged during service, replace it immediately.

NOTES

Absence of a Mounting Plate and/or Closure may delay the time to sprinkler operation in a fire situation.

Before closing a fire protection system main control valve for maintenance work on the fire protection system which it controls, permission to shut down the affected fire protection system must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

It is recommended that automatic sprinkler systems be inspected quarterly by a qualified Inspection Service.

WARRANTY

Seller warrants for a period of one year from the date of shipment (warranty period) that the products furnished hereunder will be free from defects in material and workmanship.

For further details on Warranty, see Price List.

ORDERING PROCEDURE

Sprinkler Assemblies:

Orders for F972 Recessed Sprinklers must include the description and Product Symbol Number (PSN), where applicable.

Specify: 1/2 inch orifice, (specify temperature rating), Model F972 Recessed Sprinkler with (specify type) finish sprinkler and (specify type) finish escutcheon, PSN (specify from Table C).

Contact your local distributor for availability.

Product Symbol Numbers are not specified when ordering escutcheons with special painted finishes. It is suggested that a color chip be provided when ordering special painted finishes. Otherwise, responsibility for duplication of the desired finish cannot be accepted.

Separately Ordered Parts:

Specify: Model F870 Sprinkler Wrench, PSN 56-870-1-001.

Specify: Model F87 Nylon Coated Sprinkler Wrench for installing Model F972 Recessed Sprinklers with polyester finish, PSN 56-874-1-001.

Replacement Parts:

To order replacement Recessed Closures, specify descriptions and Product Symbol Numbers. Mounting Plates are not available as replacement parts.

- Bright Brass
 - Model F972
 - ClosurePSN 56-972-2-001
- Off-White Polyester
 - Model F972
 - ClosurePSN 56-972-0-001
- Chrome Plated
 - Model F972
 - ClosurePSN 92-972-9-001

Product Symbol Numbers are not specified for replacement Closures with special painted finishes. Records are not maintained of previously ordered special painted finishes. Therefore, it is suggested that a color chip be provided when ordering replacement parts with special painted finishes. Otherwise, responsibility for duplication of the desired finish cannot be accepted.

PSN 5 1 - 9 7 2 - X - X X X

	ESCUTCHEON FINISH	SPRINKLER FINISH
0	Off-White Polyester	Chrome Plated
2	Bright Brass	Bright Brass
4	Off-White Polyester	Off-White Polyester
9	Chrome Plated	Chrome Plated

TEMPERATURE RATING	
135	135F/57C
155	155F/68C
175	175F/79C
200	200F/93C

**TABLE C
PRODUCT SYMBOL NUMBER SELECTION**

CONVERSION FACTORS

Parenthetical metric conversions cited herein are approximate.

- 1 inch = 25.400 mm
- 1 ft.lb. = 1.356 Nm
- 1 lb. = 0.4536 kg

WEIGHT

The nominal weight of the Model F972 Recessed Sprinkler is 0.20 pounds.