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Model RFIII – 8.0 K-factor Flat Plate Concealed Horizontal Extended Coverage Quick Response Light Hazard Sidewall Sprinkler

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.

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docs.jci.com/tycofire/tfp270

General Description

The TYCO Model RFIII, 8.0 K-factor, Extended Coverage Light Hazard, Concealed Horizontal Sidewall Quick Response Sprinkler is a decorative, link type, sprinkler featuring a unique flat cover designed to conceal the sprinkler within a wall. The sprinkler is the best choice for architecturally sensitive areas such as dormitories, hotel rooms, reception areas, office buildings, banquet facilities, conference rooms, and hospitals.

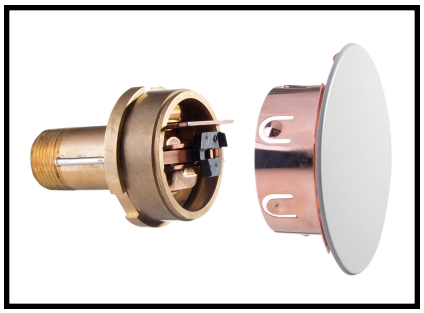
The flat profile of the cover plate design easily conforms to the surrounding surfaces leaving a very clean look. The plate, while being aesthetically appealing, also helps to prevent objects such as garment bags and clothes hangers from being hung from the sprinkler that may otherwise cause an inadvertent operation.

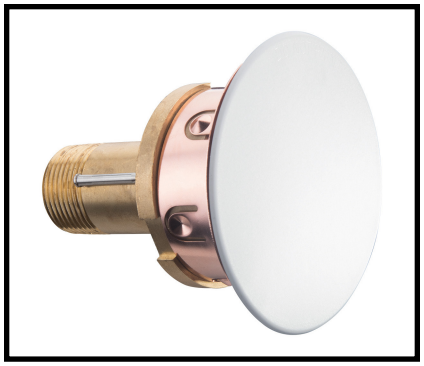
The Model RFIII ECLH Concealed HSW Sprinklers are designed for installation along a wall or the side of a beam, and beneath a smooth level ceiling. Horizontal sidewall sprinklers are commonly used in lieu of pendent or upright sprinklers because of aesthetics or building construction considerations where piping across the ceiling is not desirable.

The Model RFIII ECLH Concealed HSW Sprinklers are intended to be used in automatic sprinkler systems designed in accordance with standard installation rules, for example, NFPA 13, for light hazard occupancies. The thermal sensitivity rating of the Model RFIII Sidewall Sprinklers provides for a quick response extended coverage rating up to a 16 ft x 24 ft (4,9 m x 7,3 m) and 18 ft x 22 ft (5,9 m x 6,7 m).

Cover Plate Assemblies are available in a variety of colors and ordered separately. When properly installed, cover plates conceal operational parts of the sprinklers. Together, the sprinkler and cover plate form a complete assembly. The separable two-piece design of the sprinkler provides for 1/4 in. (6,4 mm) horizontal adjustment of the push-on and pull-off cover plate. With sprinklers installed but before cover plates are attached, pressure testing of the fire protection system may be performed prior to completing wall assemblies such as installation of gypsum board over stud framing, and surface finishing such as painting or wallpapering.

The Model RFIII ECLH Concealed HSW Sprinkler is factory assembled and shipped with a Protective Cap. The Protective Cap must remain in place to protect the sprinkler during installation (see Figure 4) and wall installation and finishing. The cap may be





temporarily removed to verify proper orientation of the sprinkler deflector as necessary, but must be reinstalled and remain attached until the wall is finished. The cap features a convenient center marking tip. With the sprinkler installed and cap attached (see Figure 3), align the wall covering material with the framing studs and gently press against the cap tip. The indentation left by this action marks the center for cutting a 2-5/8 in. (66,7 mm) diameter clearance hole for the sprinkler. After the wall installation and finishing are complete, the Protective Cap must be removed and the Cover Plate Assembly installed. Removal of the Protective Cap is crucial to ensure proper performance of the sprinkler.

NOTICE

The TYCO Model RFIII, 8.0 K-factor, Extended Coverage Light Hazard, Concealed Horizontal Sidewall Quick Response Sprinkler described herein must be installed and maintained in compliance with this document and with the applicable standards of the

1 – Body
2 – 3/4 Inch NPT
3 – Wrenching Notch
4 – Sprinkler Waterway
5 – Deflector
6 – Deflector Guide Pin
7 – Deflector Nose Cone
8 – Button
9 – Sealing Assembly
10 – Bridge
11 – Plug
12 – Lever
13 – Compression Screw
14 – Link
15 – Protective Cap
16 – Retainer
17 – Retainer Friction Grip
18 – Cover Plate Solder Tab
19 – Cover Plate
20 – Cover Plate Ejection Spring

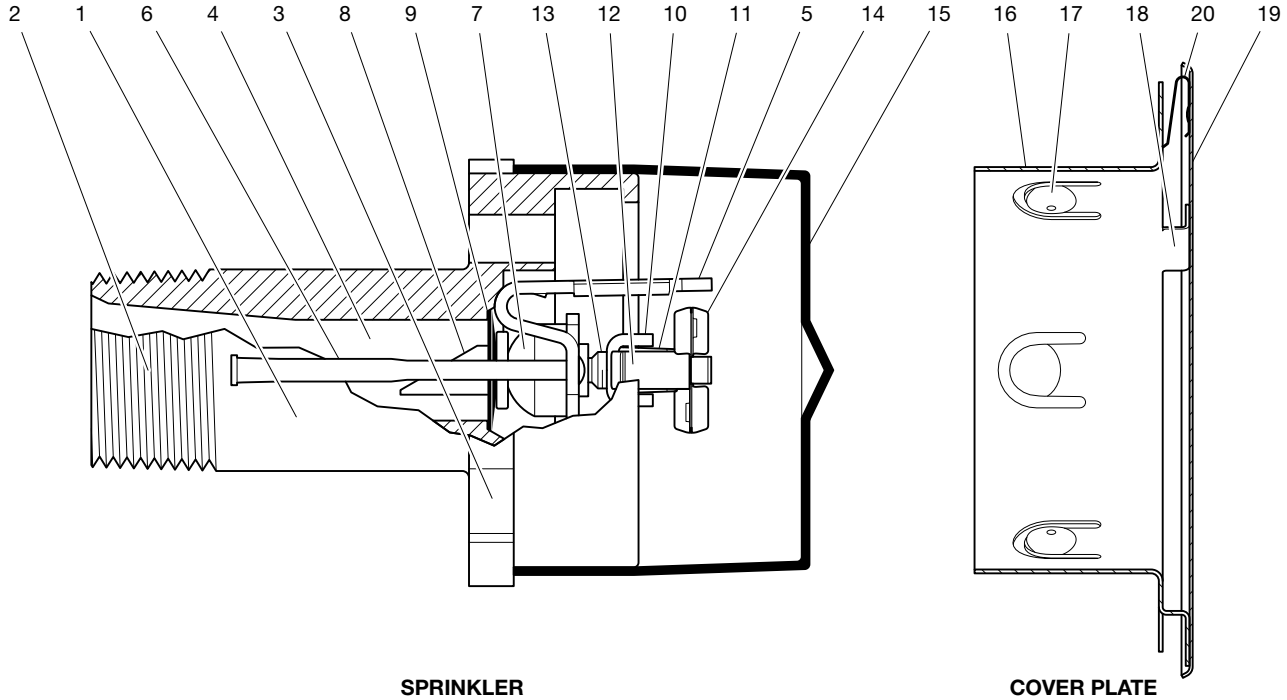


FIGURE 1
MODEL RFIII ECLH CONCEALED HSW SPRINKLER ASSEMBLY AND FEATURES

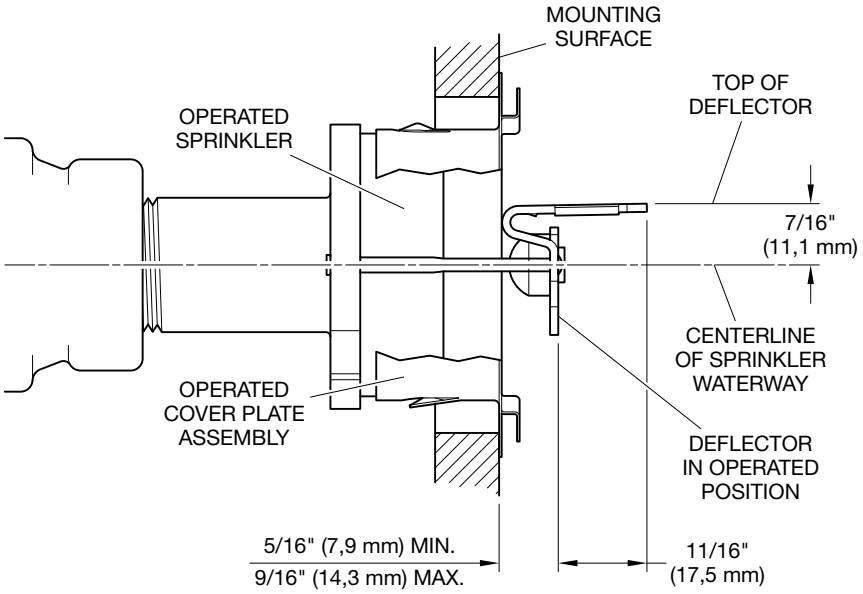


FIGURE 2
MODEL RFIII ECLH CONCEALED HSW SPRINKLER OPERATED CONDITION

Response Rating	Coverage Area[1], ft x ft (m x m)	Minimum Flow[2], GPM (LPM)	Minimum Pressure[2], PSI (BAR)	Deflector-To-Ceiling Distance[3] in. (mm)	Sprinkler Temperature Rating°F (°C)	Minimum Spacing[4], ft (m)
Quick	14 x 22 (4,3 x 6,7)	31 (117)	15 (1,03)	4 to 6 (101,6 to 152,4)	160 (71)	8 (2,44)
Quick	14 x 22 (4,3 x 6,7)	36 (136)	20.3 (1,40)	6 to 12 (152,4 to 304,8)	160 (71)	8 (2,44)
Quick	14 x 24 (4,3 x 7,3)	34 (129)	18 (1,24)	4 to 6 (101,6 to 152,4)	160 (71)	8 (2,44)
Quick	14 x 24 (4,3 x 7,3)	38 (144)	22.6 (1,56)	6 to 12 (152,4 to 304,8)	160 (71)	8 (2,44)
Quick	16 x 16 (4,9 x 4,9)	26 (98)	10.6 (0,73)	4 to 6 (101,6 to 152,4)	160 (71)	8 (2,44)
Quick	16 x 16 (4,9 x 4,9)	27 (102)	11.4 (0,79)	6 to 12 (152,4 to 304,8)	160 (71)	8 (2,44)
Quick	16 x 18 (4,9 x 5,5)	29 (110)	13.1 (0,90)	4 to 12 (101,6 to 304,8)	160 (71)	8 (2,44)
Quick	16 x 20 (4,9 x 6,1)	32 (121)	16 (1,10)	4 to 12 (101,6 to 304,8)	160 (71)	8 (2,44)
Quick	16 x 22 (4,9 x 6,7)	36 (136)	20.3 (1,40)	4 to 12 (101,6 to 304,8)	160 (71)	8 (2,44)
Quick	16 x 24 (4,9 x 7,3)	39 (147)	23.8 (1,64)	4 to 12 (101,6 to 304,8)	160 (71)	8 (2,44)
Quick	18 x 18 (5,5 x 5,5)	33 (125)	17 (1,17)	4 to 12 (101,6 to 304,8)	160 (71)	8 (2,44)
Quick	18 x 20 (5,5 x 6,1)	36 (136)	20.3 (1,40)	4 to 12 (101,6 to 304,8)	160 (71)	8 (2,44)
Quick	18 x 22 (5,5 x 6,7)	40 (151)	25 (1,72)	4 to 12 (101,6 to 304,8)	160 (71)	8 (2,44)

NOTES
1. Backwall (where sprinkler is located) by sidewall (length of throw).
2. Requirement is based on minimum flow in GPM from each sprinkler. The indicated residual pressures are based on the nominal K-factor.
3. The centerline of the sprinkler waterway is located 7/16 in. (11,1 mm) below the deflector (see Figure 2).
4. Minimum spacing is for lateral distance between sprinklers located along a single wall. Otherwise adjacent sprinklers (i.e., sidewall sprinklers on an adjacent wall, on an opposite wall, or pendent sprinklers) must be located outside of the maximum listed protection area of the extended coverage sidewall sprinkler being utilized.

TABLE A
MODEL RFIII ECLH CONCEALED HSW SPRINKLER
UL AND C-UL LISTING COVERAGE AND FLOW RATE CRITERIA

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

Sprinkler Identification Number

TY4522

Technical Data

Approvals
UL and C-UL Listed

The listings apply only to the service conditions indicated in the Design Criteria section.

The Model RFIII ECLH Concealed HSW Sprinkler is only listed and approved with the LFII/RFIII Concealed Cover Plates having a factory applied finish.

Sprinkler and Cover Plates are separately ordered. See the Ordering Procedure section for more information.

Maximum Working Pressure
175 psi (12,1 bar)

Discharge Coefficient
K=8.0 GPM/psi$^{1/2}$ (115,2 LPM/bar$^{1/2}$)

Temperature Rating
160°F (71°C) Sprinkler with
139°F (59°C) Cover Plate

Horizontal Adjustment
1/4 in. (6,4 mm)

Finishes
See the Ordering Procedure section

Physical Characteristics

Body	Brass
Bridge	Bronze
Button	Bronze
Sealing Assembly	Beryllium Nickel w/TEFLON
Soldered Link Halves	Nickel
Compression Screw	Stainless Steel
Deflector Guide Pins	Stainless Steel
Plug	Polyethylene
Lever	Bronze
Retainer	Copper Plated Steel
Cover Plate	Copper
Cover Plate Ejection Spring	Stainless Steel

Operation

When exposed to heat from a fire, the Cover Plate, which is soldered to the Retainer Ring at three points, falls away to expose the Sprinkler Assembly as shown in Figure 2. The link's solder melts when exposed to heat. When the rated temperature is reached, the melted solder releases the link, activating the sprinkler and allowing water to flow.

Design Criteria

The TYCO Model RFIII, 8.0 K-factor, Extended Coverage Light Hazard, Concealed Horizontal Sidewall Quick Response Sprinkler is UL and C-UL Listed for use in light hazard occupancies, using the design criteria in Table A, in addition to the requirements specified in the current NFPA 13 for extended coverage sidewall sprinklers.

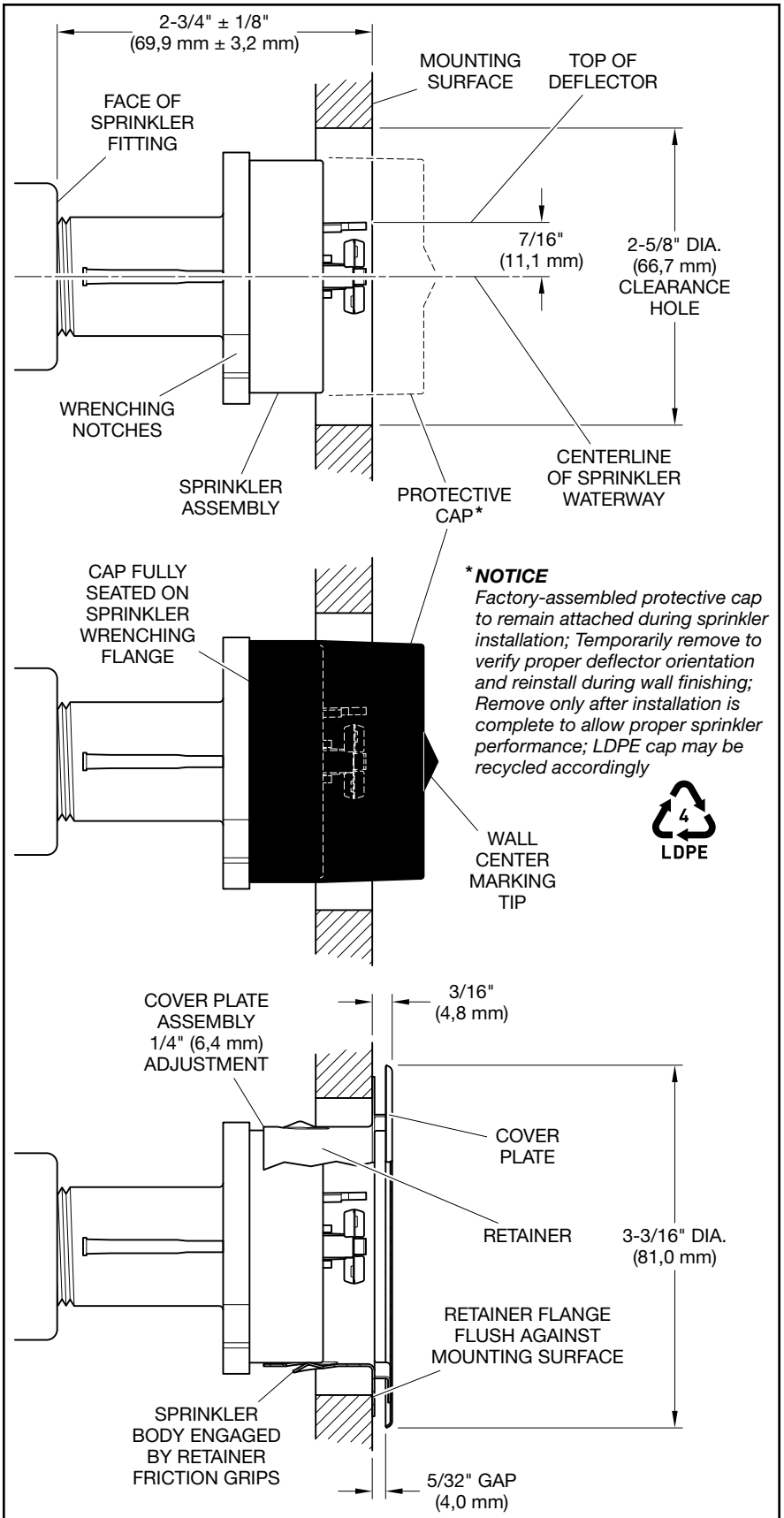


FIGURE 3
MODEL RFIII ECLH CONCEALED HSW SPRINKLER INSTALLATION CRITERIA

Installation

The TYCO Model RFIII, 8.0 K-factor, Extended Coverage Light Hazard, Concealed Horizontal Sidewall Quick Response Sprinkler must be installed in accordance with this section.

A 3/4 in. (19,1 mm) NPT sprinkler joint should be obtained with a minimum to maximum torque of 10 to 20 lb-ft (13,4 to 26,8 N·m). Higher levels of torque may distort the sprinkler with consequent leakage or impairment of the sprinkler. Do not attempt to compensate for insufficient adjustment in the Sprinkler Assembly by under-or over-tightening the sprinkler. Readjust the position of the sprinkler fitting to suit.

Step 1. The sprinkler must only be installed with its centerline perpendicular to the back wall and parallel to the ceiling. Use a W-Type 37 Wrench for installation. The wrench contains an outer flat surface reference that correlates with the sprinkler deflector orientation. The word “UP” on the installation wrench is to face towards the ceiling to ensure proper alignment as shown in Figure 4.

NOTICE

Do not remove the Protective Cap (see Figure 1) until the Cover Plate Assembly is installed and/or the fire protection sprinkler system is ready to be placed in service.

Step 2. With pipe thread sealant applied to the sprinkler threads, and ensuring that no pipe thread sealant is in contact with the Deflector Guide Pins, align the sprinkler alignment slot with the W-Type 37 Sprinkler Wrench alignment slot as shown in Figure 4, and engage by inserting the sprinkler into the wrench cavity, fully seating the wrench shoulder against the sprinkler wrenching flange. Hand tighten the sprinkler into the sprinkler fitting.

Step 3. Once hand tight, attach 1/2 in. (12,7 mm) drive to the sprinkler wrench s shown in Figure 4, and wrench-tighten to ensure proper seal and alignment, taking care to ensure the Deflector Guide Pins do not come in contact with any foreign body or surface.

Step 4. After the wall has been completed with the nominal 2-5/8 in. (66,7 mm) diameter clearance hole and in preparation for installing the Cover Plate Assembly, remove and discard the Protective Cap. If the sprinkler has been damaged in any way including accidental over spray from finishing the wall, replace the entire sprinkler.

NOTICE

The sprinkler must be installed in the neutral or negative plenum only.

Step 5. Push the Cover Plate Assembly onto the Sprinkler, and as necessary, make the final adjustment of the Cover Plate with respect to the wall by pushing the Cover Plate Assembly until the retainer flange is flush against the wall. If it becomes necessary to remove the Cover Plate, it can be removed merely by gently pulling the Cover Plate Assembly away from the sprinkler body.

Note: *A Cover Plate Assembly not adequately engaging the sprinkler body, that is not securely attached, indicates the sprinkler is positioned at a distance from the mounting surface greater than is described in Figure 3. A Cover Plate Assembly fully engaged on the sprinkler body while the retainer flange is not in contact with the wall indicates the sprinkler is positioned at a distance from the mounting surface lesser than described in Figure 3. If either condition is encountered when attempting to install the Cover Plate Assembly, the sprinkler fitting must be repositioned.*

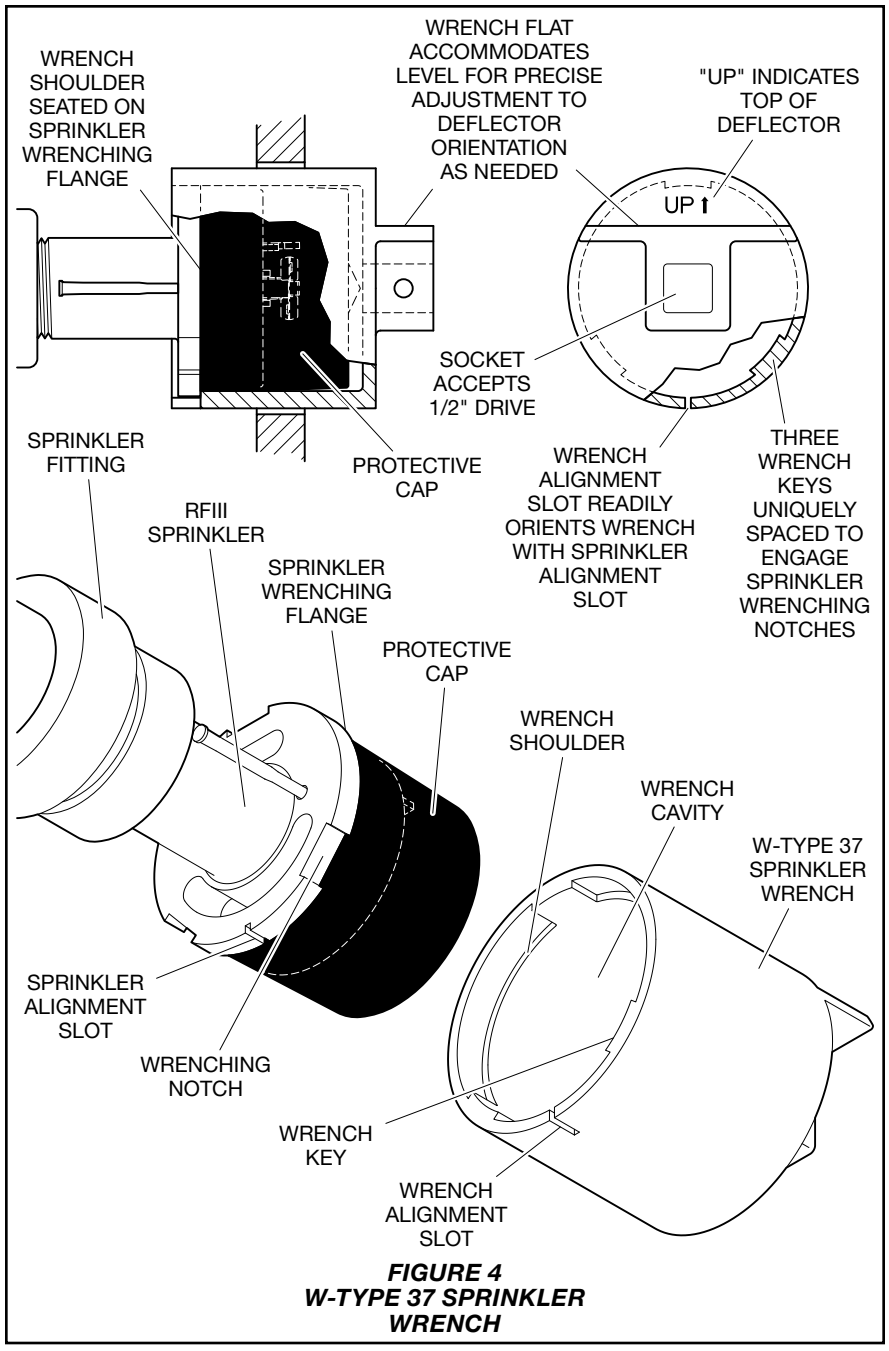


FIGURE 4
W-TYPE 37 SPRINKLER WRENCH

Care and Maintenance

The TYCO Model RFIII, 8.0 K-factor, Extended Coverage Light Hazard, Concealed Horizontal Sidewall Quick Response Sprinkler must be maintained and serviced in accordance with this section.

Before closing a fire protection system main control valve for maintenance work on the fire protection system that 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.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION such as NFPA 25, in addition to the standards of any other authorities having jurisdiction. Contact the installing contractor or product manufacture with any questions.

Automatic sprinkler systems should be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

When properly installed, there is a nominal 5/32 in. (4,0 mm) air gap between the lip of the Cover Plate and the wall, as shown in Figure 3. This air gap is necessary for proper operation of the sprinkler. If the wall is to be repainted after the installation of the sprinkler, care must be exercised to ensure that the new paint does not seal off any of the air gap.

Factory painted cover plates must not be repainted. They should be replaced if necessary, by factory painted units. Non-factory applies paints may adversely delay or prevent sprinkler operation in the event of a fire.

If removal of the Cover Plate is necessary relative to the Enclosure, be conscious not to be too forceful, where separation may result.

Sprinklers that are found to be leaking or exhibiting visible signs of corrosion must be replaced.

Automatic sprinklers must never be painted, plated, coated or otherwise altered after leaving the factory. Modified or over heated sprinklers must be replaced.

Care must be exercised to avoid damage to the sprinklers – before, during, and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced.

If a sprinkler must be removed, do not reinstall it or a replacement without reinstalling the Cover Plate Assembly. If a Cover Plate Assembly becomes dislodged during service, replace it immediately.

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

Sprinkler Assembly
Specify: Model RFIII, 8.0 K-factor, Extended Coverage Light Hazard, Concealed Horizontal Sidewall Quick Response Sprinkler, 160°F (71°C), P/N 511131160

Note: *Sprinkler and Cover Plates are separately ordered. See below for Cover Plate ordering information.*

Cover Plate Assembly (Separately Ordered)
Specify: LFII/RFIII Concealed Sprinkler Cover Plate Assembly, (specify finish), P/N (specify):

Ivory (RAL1015)	562040135
Bright Chrome	562041135
Beige (RAL1001)	562042135
Pure White (RAL9010)*	562043135
Signal White (RAL9003)**	562044135
Grey White (RAL9002)	562045135
Brown (RAL8028)	562046135
Black (RAL9005)	562047135
Brushed Brass	562048135
Brushed Chrome	562049135
Custom Paint	56204X135

* Eastern Hemisphere sales only
** Previously known as Bright White

Note: *All Custom Cover Plates are painted using SHERWIN-WILLIAMS Interior Latex Paint. Contact Johnson Controls Customer Service with any questions related to custom orders.*

Sprinkler Wrench
Specify: W-Type 37 Sprinkler Wrench, P/N 563201015

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