

# Model RFII - 5.6 K-factor Horizontal Sidewall Flat Plate Concealed Sprinklers

## Quick Response, Standard Coverage

### General Description

The TYCO Model RFII, 5.6 K-factor, Horizontal Sidewall (HSW), Flat Plate Concealed Sprinkler, Quick Response Standard Coverage 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 RFII HSW Concealed Sprinkler is 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 RFII HSW Sprinklers are intended to be used in automatic sprinkler systems designed in accor-

dance with standard installation rules, for example, NFPA 13, for ordinary and light hazard occupancies.

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 RFII HSW Concealed 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 RFII HSW Concealed Sprinkler described herein must be installed and maintained in compliance with this document and with the applicable standards of the 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

TY3521

### Technical Data

#### Approvals

UL and C-UL Listed  
FM Approved\*

\*Standard response only, FM does not approve concealed sprinklers for quick response.

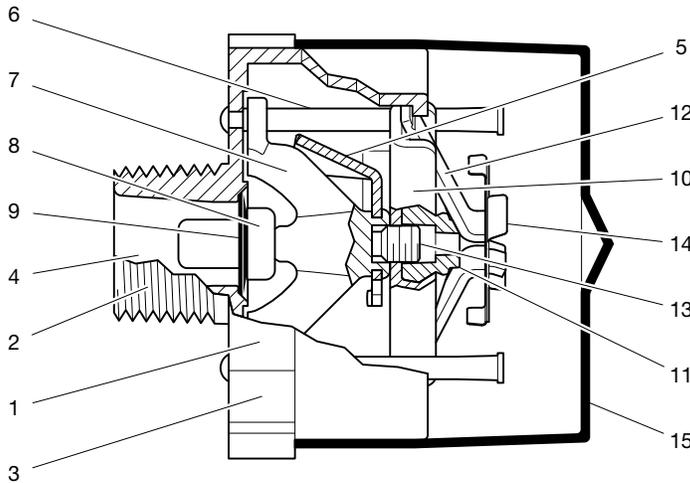
**Note:** The listings and approvals apply only to the service conditions indicated in the Design Criteria section.

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

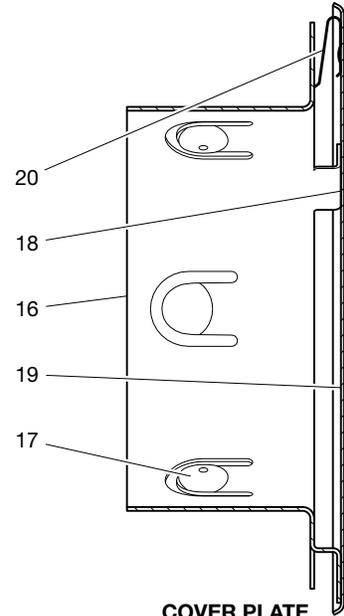
Sprinkler and Cover Plates are separately ordered. See the Ordering Procedure section for more information.

**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.

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

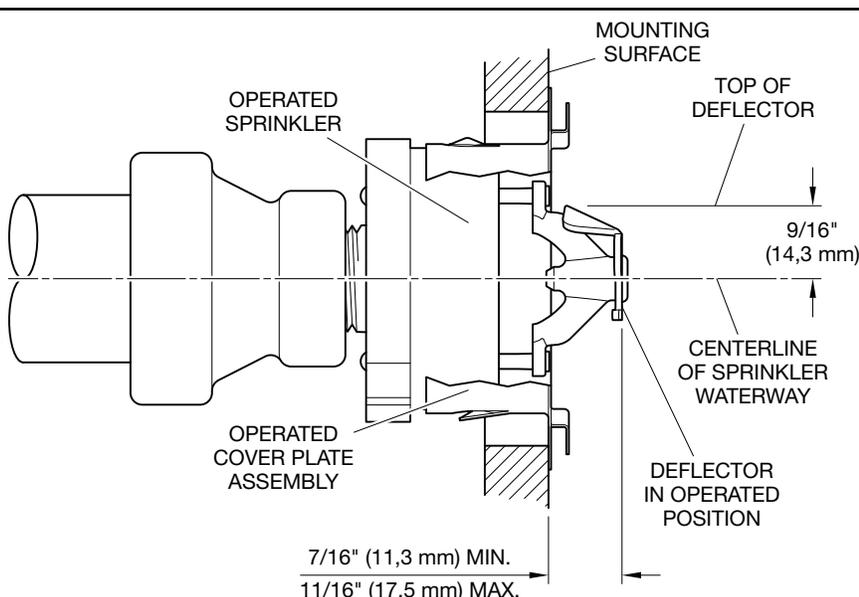


**SPRINKLER ASSEMBLY**



**COVER PLATE ASSEMBLY**

**FIGURE 1**  
**MODEL RFII HSW CONCEALED SPRINKLER ASSEMBLY AND FEATURES**



**Notes:**

1. UL Listed for Light and Ordinary Hazard Occupancies at a 4 to 12 in. (100mm to 300mm) top of deflector-to-ceiling distance.
2. FM Approved as standard response for Light Hazard Occupancies (HC-1) at a 4 to 12 in (100mm to 300mm) top of deflector-to-ceiling distance.

**FIGURE 2**  
**MODEL RFII HSW CONCEALED SPRINKLER OPERATED CONDITION**

**Maximum Working Pressure**

250 psi (17,2 bar)\*  
 175 psi (12,1 bar)

\*The maximum working pressure of 250 PSI (17,2 bar) only applies to UL and C-UL listings.

**Discharge Coefficient**

K=5.6 gpm/psi<sup>1/2</sup> (80,6 lpm/bar<sup>1/2</sup>)

**Temperature Rating**

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

212°F (100°C) Sprinkler with  
 165°F (74°C) Cover Plate

**Horizontal Adjustment**

1/4 in. (6,4 mm)

**Finishes**

See the Ordering Procedure section

**Physical Characteristics**

Body	.....	Brass
Frame	.....	Brass
Deflector	.....	Bronze
Bridge	.....	Bronze
Button	.....	Bronze
Sealing Assembly	.....	Beryllium Nickel w/TEFLON
Soldered Link Halves	.....	Nickel
Compression Screw	.....	Stainless Steel
Deflector Guide Pins	.....	Stainless Steel
Plug	.....	Bronze
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 RFII HSW Concealed Sprinkler is UL and C-UL Listed for use in ordinary and light hazard occupancies, using the requirements specified in the current NFPA 13 for standard coverage sidewall sprinklers and FM Approved as standard response for light hazard occupancies (HC-1).

## Installation

The TYCO Model RFII HSW Concealed Sprinkler must be installed in accordance with this section.

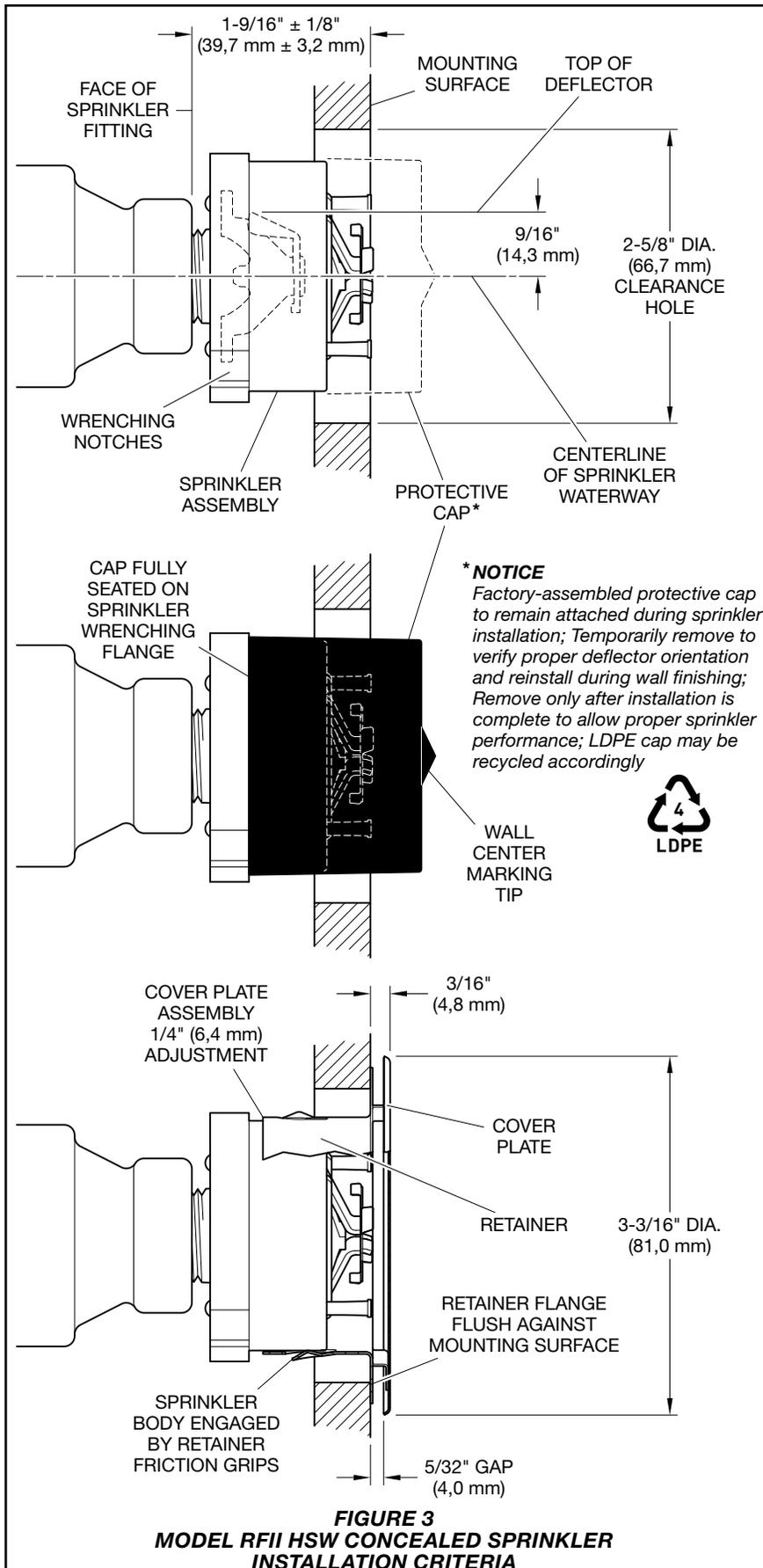
A 1/2 in. (12,7 mm) NPT sprinkler joint should be obtained with a minimum to maximum torque of 10 to 20 lb-ft (13,6 to 27,1 N·m). Higher levels of torque may distort the sprinkler with consequent leakage or impairment of the sprinkler. Do not attempt to compensate for insufficient adjustment in the Sprinkler 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, shown in 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. 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 ½ in. (12,7 mm) drive to the sprinkler wrench, as shown in Figure 4. 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.

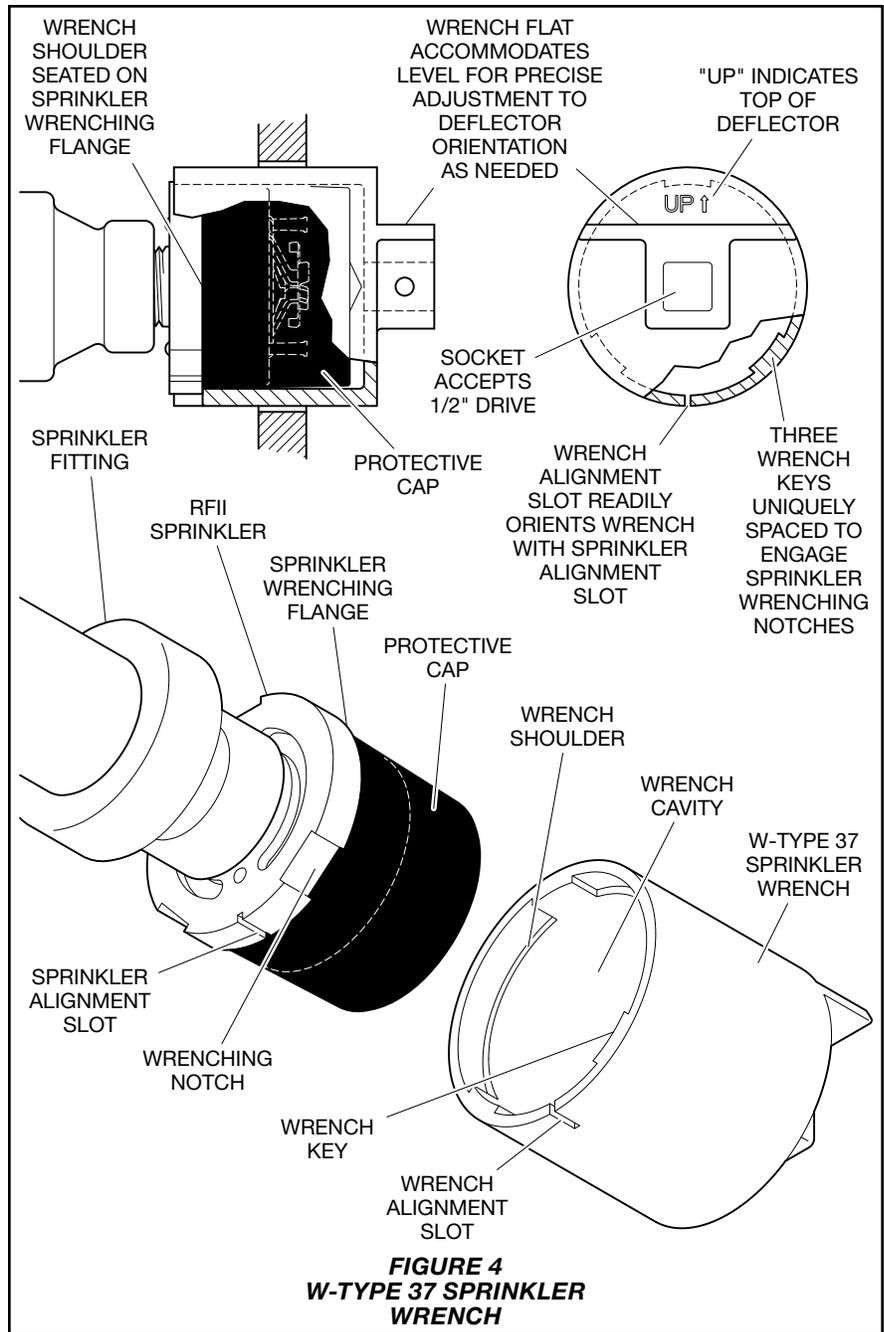
**Step 4.** After the wall has been completed with the nominal 2-5/8 in. (66,7 mm) diameter clearance hole and in preparation for installing the Cover Plate Assembly, remove and discard the Protective Cap. If the sprinkler has been damaged in any way including accidental over spray from finishing the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



## **Care and Maintenance**

The TYCO Model RFII HSW Concealed 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 applied 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](http://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 RFII, 5.6 K-factor, Horizontal Sidewall, Flat Plate Concealed Sprinkler, Standard Coverage, Quick Response, (specify) temperature rating, P/N (specify):

160°F (71°C) . . . . .	50-550-1-165
212°F (100°C) . . . . .	50-550-1-212

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

### Separately Ordered Cover Plate Assembly

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

#### 139°F (59°C)

Ivory (RAL1015) . . . . .	56-204-0-135
Beige (RAL1001) . . . . .	56-204-2-135
Pure White (RAL9010)* . . . . .	56-204-3-135
Signal White (RAL9003)** . . . . .	56-204-4-135
Grey White (RAL9002) . . . . .	56-204-5-135
Brown (RAL8028) . . . . .	56-204-6-135
Black (RAL9005) . . . . .	56-204-7-135
Brushed Brass . . . . .	56-204-8-135
Brushed Chrome . . . . .	56-204-9-135
Custom Paint . . . . .	56-204-X-135

#### 165°F (74°C)

Ivory (RAL1015) . . . . .	56-204-0-165
Bright Chrome . . . . .	56-204-1-165
Beige (RAL1001) . . . . .	56-204-2-165
Pure White (RAL9010)* . . . . .	56-204-3-165
Signal White (RAL9003)** . . . . .	56-204-4-165
Grey White (RAL9002) . . . . .	56-204-5-165
Brown (RAL8028) . . . . .	56-204-6-165
Black (RAL9005) . . . . .	56-204-7-165
Brushed Brass . . . . .	56-204-8-165
Brushed Chrome . . . . .	56-204-9-165
Custom Paint . . . . .	56-204-X-165

\* 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 56-320-1-015

### Pipe Guide Bracket

Pipe Guide Bracket accessory for sprinkler installation adjacent to framing member such as 2 x 4 within wall structure, includes mounting screws.

**Note:** The pipe guide bracket is required for CPVC installations only.

Specify: Pipe Guide Bracket, P/N 91-520-115