

ILLUSION™ — 11.2 K-factor Extra Large Orifice Concealed Pendent Sprinklers Quick Response, Standard Coverage

General Description

The Tyco® ILLUSION™, 11.2 K-factor, Standard Coverage, Extra Large Orifice Concealed Pendent Sprinklers are decorative, fast response solder type sprinklers featuring a flat cover plate designed to conceal the sprinkler. When limited water pressure is available and a higher applied water density is necessary, the ILLUSION is the best choice for architecturally sensitive areas such as casinos, hotel lobbies, office buildings, churches, and restaurants.

Each unit includes a Cover Plate Assembly that conceals the sprinkler operating components above the ceiling. The separable two-piece design of the Cover Plate and Support Cup Assemblies 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.

Also, the separable two-piece design of the Sprinkler provides for 3/4 inch (19,1 mm) of vertical adjustment to

provide a measure of flexibility with regard to which the length of fixed pipe drops to the sprinklers must be cut.

The ILLUSION Sprinklers are shipped with a Disposable Protective Cap. The Protective Cap is temporarily removed for installation, and it can be replaced to help protect the sprinkler while the ceiling is being installed or finished. The tip of the Protective Cap can also be used to mark the center of the ceiling hole into plaster board, ceiling tiles, etc. by gently pushing the ceiling product against the Protective Cap. When the ceiling installation is complete, the Protective Cap is removed and the Cover Plate Assembly installed.

As an option, the ILLUSION Pendent Sprinklers may be fitted with a silicone Air and Dust Seal (Ref. Fig. 4). The Air and Dust Seal is intended for sensitive areas where it is desirable to stop air and dust travel through the cover plate from the area above the ceiling.

NOTICE

The ILLUSION Concealed Pendent Sprinklers described herein must be installed and maintained in compliance with this document and 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 performance of these devices.

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



Sprinkler Identification Number

TY5521

IMPORTANT

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.

Technical Data

Approvals

UL and C-UL Listed.
(The listings apply only to the service conditions indicated in the Design Criteria section.)

Approvals for Air & Dust Seal

UL and C-UL Listed for use with the ILLUSION (TY5521); however, use of the Air & Dust Seal changes the sprinkler response rating from quick to standard.

Maximum Working Pressure

175 psi (12,1 bar)

Discharge Coefficient

$K = 11.2 \text{ GPM/psi}^{1/2}$
(161,3 LPM/bar^{1/2})

Temperature Ratings

160°F/71°C Sprinkler/
139°F/59°C Plate
212°F/100°C Sprinkler/
165°F/74°C Plate

Adjustment

3/4 inch (19,1 mm)

Finishes

Cover Plate: Refer to Ordering Procedure section.

Physical Characteristics

Body	Brass
Cap	Bronze
Saddle	Brass
Sealing Assembly	Beryllium Nickel w/Teflon*
Solder Link Halves	Nickel
Lever	Bronze
Compression Screw	Brass
Deflector	Bronze/Brass
Guide Pin Housing	Bronze
Guide Pins	Stainless Steel
Support Cup	Plated Steel
Cover Plate	Brass
Retainer	Brass
Cover Plate Ejection Spring	Stainless Steel

* DuPont registered trademark.

Patents

U.S.A. Patent No. 4,014,388.

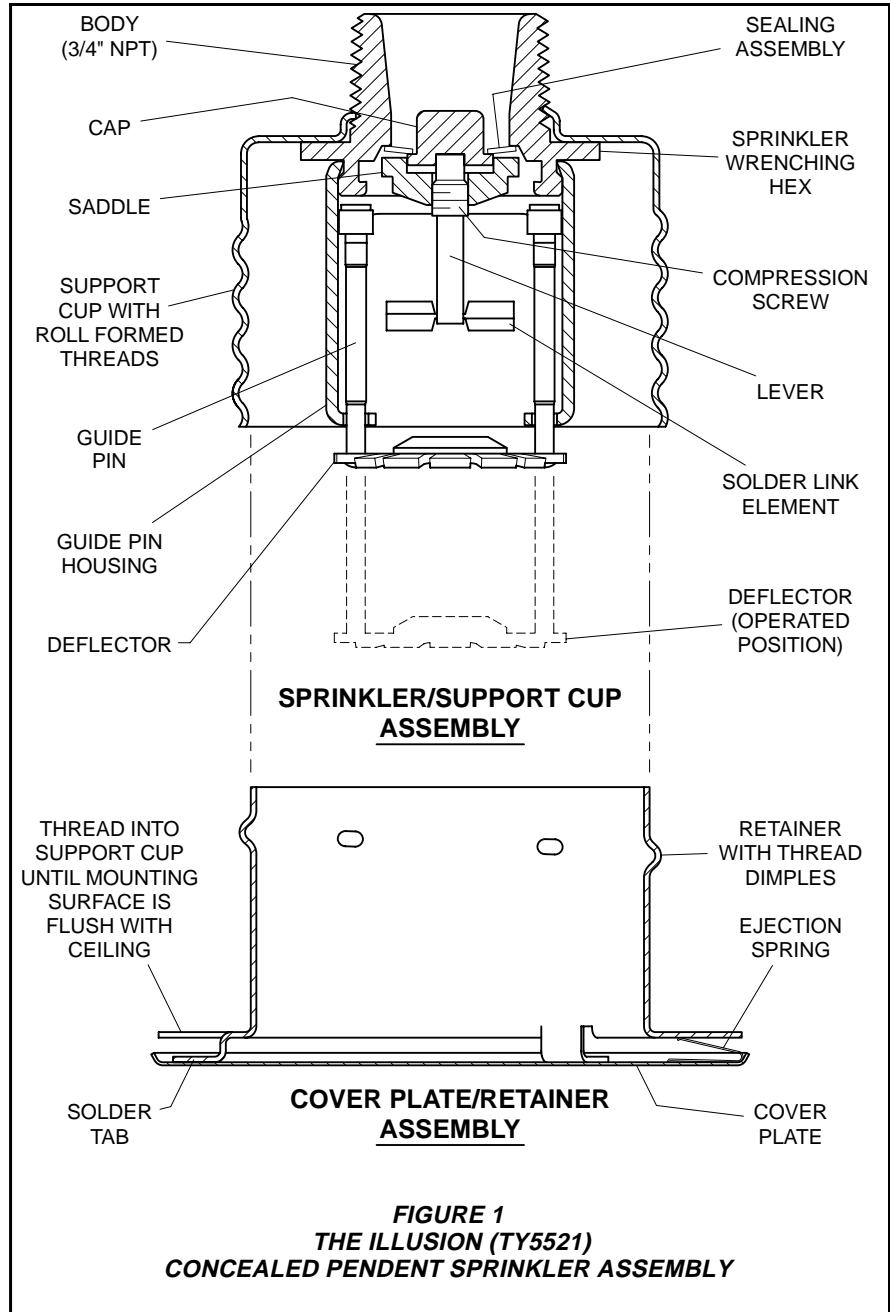
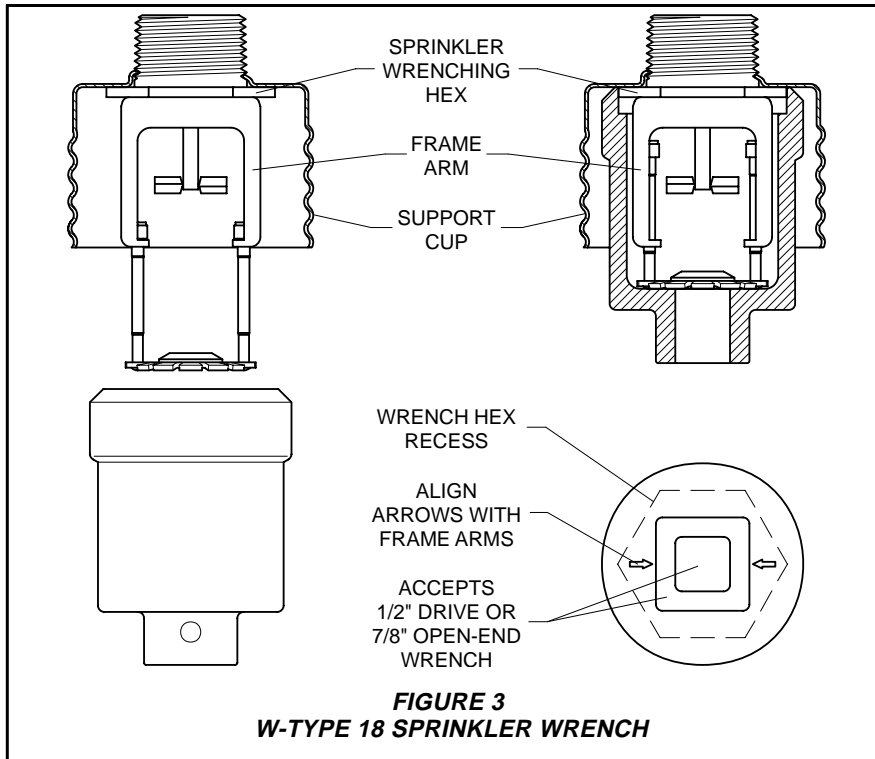
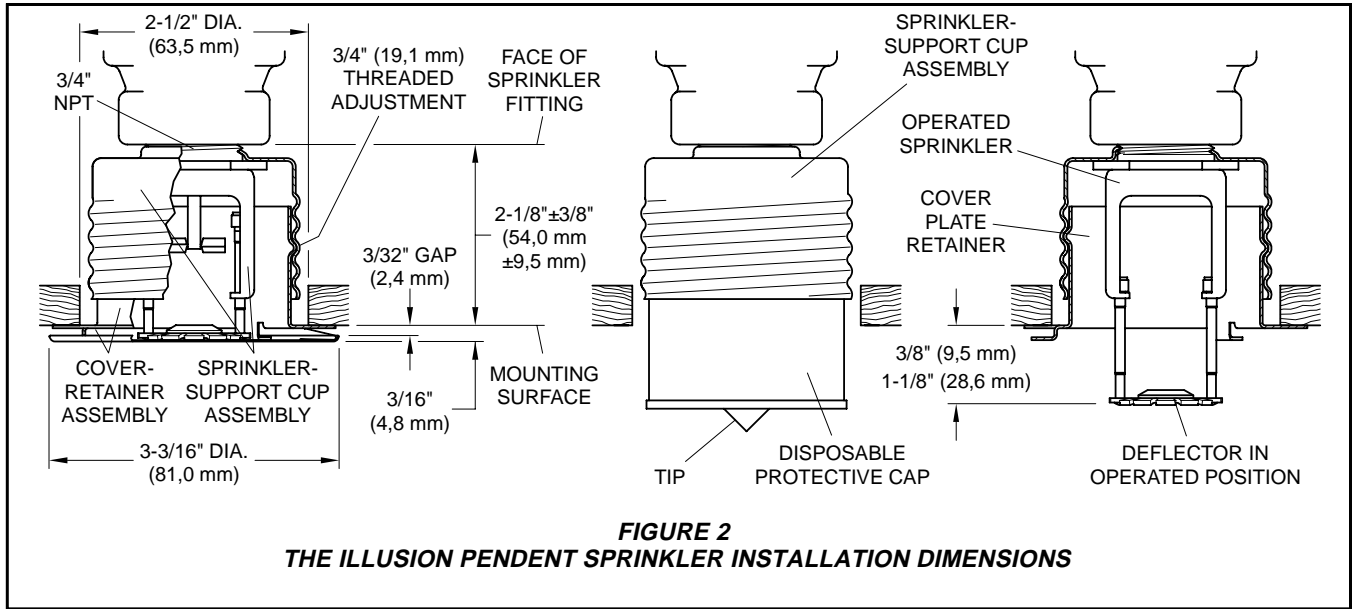


FIGURE 1
THE ILLUSION (TY5521)
CONCEALED PENDENT SPRINKLER ASSEMBLY

Operation

When exposed to heat from a fire, the Cover Plate, soldered to the Retainer at three points, falls away to expose the Sprinkler Assembly. At this point the Deflector supported by the Guide Pins drops down to its operational position.

When the rated temperature of the Solder Link Element is reached, the Link Element separates, allowing the sprinkler to activate and flow water.



Installation

The Tyco® ILLUSION™ must be installed in accordance with the following instructions:

NOTICE

A 3/4 inch NPT sprinkler joint should be obtained with a minimum to maximum torque of 10 to 20 ft.lbs. (13,4 to 26,8 Nm). Higher levels of torque may distort the sprinkler inlet 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/Support Cup Assembly. Readjust the position of the sprinkler fitting to suit.

Step 1. The sprinkler must only be installed in the pendent position and with the centerline of the sprinkler perpendicular to the mounting surface.

Step 2. Remove the Protective Cap.

Step 3. With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

Step 4. Wrench tighten the sprinkler using only the W-Type 18 Sprinkler Wrench (Ref. Figure 3). The W-Type 18 Sprinkler Wrench is to be applied to the Sprinkler as shown in Figure 3.

Step 5. Replace the Protective Cap (Ref. Figure 2) by pushing it upwards until it bottoms out against the Support Cup. The Protective Cap helps prevent

Design Criteria

The Tyco® ILLUSION™ (TY5521) Concealed Pendent Sprinklers are UL and C-UL Listed as quick response - standard spray sprinklers for use in accordance with the current NFPA standard; however, in accordance with its UL and C-UL Listing it cannot be used for the protection of storage.

The ILLUSION Concealed Pendent

Sprinklers are only listed and approved with the ILLUSION Concealed Cover Plates having a factory applied finish.

The ILLUSION must not be used in applications where the air pressure above the ceiling is greater than that below. Down drafts through the Support Cup could delay sprinkler operation in a fire situation.

damage to the Deflector and Arms during ceiling installation and/or during application of the finish coating of the ceiling. It may also be used to locate the center of the clearance hole by gently pushing the ceiling material against the center point of the Protective Cap.

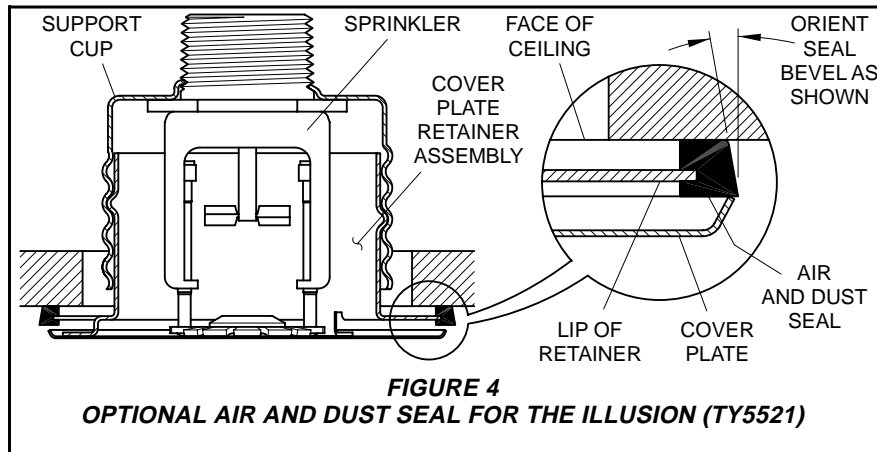
NOTICE

As long as the Protective Cap remains in place, the system is considered to be "Out of Service".

Step 6. After the ceiling has been completed with the 2-1/2 inch (63,5 mm) diameter clearance hole and in preparation for installing the Cover Plate Assembly, remove and discard the Protective Cap, and verify that the Deflector moves up and down freely. If the Sprinkler has been damaged and the Deflector does not move up and down freely, replace the entire Sprinkler assembly. Do not attempt to modify or repair a damaged sprinkler.

Step 7. When installing an Air and Dust Seal, refer to Figure 4, otherwise proceed to Step 8. To attach the Air and Dust Seal, verify the angle of the outside edge of the seal is oriented according to Figure 4. Start the edge of the Retainer in the grooved slot of the Air and Dust Seal and continue around the retainer until the entire Air and Dust Seal is engaged.

Step 8. Screw on the Cover Plate/Retainer Assembly until the Retainer - Figure 2 (or Air and Dust Seal - Figure 4) makes contact with the ceiling. Do not continue to screw on the Cover Plate/Retainer Assembly such that it lifts a ceiling panel out of its normal position. If the Cover Plate/Retainer Assembly cannot be engaged with the Support Cup or the Cover Plate/Retainer Assembly cannot be engaged sufficiently to contact the ceiling, the Sprinkler Fitting must be repositioned.



Care and Maintenance

The Tyco® ILLUSION™ must be maintained and serviced in accordance with the following instructions:

NOTICE

Absence of the Cover Plate Assembly may delay sprinkler operation in a fire situation.

When properly installed, there is a nominal 3/32 inch (2,4 mm) air gap between the lip of the Cover Plate and the ceiling, as shown in Figure 2. This air gap is necessary for proper operation of the sprinkler by allowing heat flow from a fire to pass below and above the Cover Plate to help assure appropriate release of the Cover Plate in a fire situation. If the ceiling 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 paint may adversely delay or prevent sprinkler operation in the event of a fire.

Do not pull the Cover Plate relative to the Enclosure. Separation may result.

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.

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. 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, 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.

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 (e.g., NFPA 25), in addition to the standards of any other authorities having jurisdiction. The installing contractor or sprinkler manufacturer should be contacted relative to 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.

Limited Warranty

Products manufactured by Tyco Fire & Building Products (TFBP) are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by TFBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFBP or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by TFBP to be defective shall be either repaired or replaced, at TFBP's sole option. TFBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFBP shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

In no event shall TFBP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether TFBP was informed about the possibility of such damages, and in no event shall TFBP's liability exceed an amount equal to the sales price.

The foregoing warranty is made in lieu of any and all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

Ordering Procedure

When placing an order, indicate the full product name. Contact your local distributor for availability.

Sprinkler Assembly:

Specify: TY5521, (specify temperature rating) ILLUSION Pendent Sprinkler, P/N (specify).

	160°F/71°C	212°F/100°C
TY5521	50-711-1-160	50-711-1-212

Separately Ordered Cover Plate:

Specify: (specify temperature rating) ILLUSION Cover Plate with (specify finish), P/N (specify).

	139°F/59°C(a)	165°F/74°C(b)
Brass	56-892-1-135	56-892-1-165
Chrome	56-892-9-135	56-892-9-165
Signal White (c) (RAL 9003)	56-892-4-135	56-892-4-165
Grey White (d) (RAL 9002)	56-892-0-135	56-892-0-165
Pure White (e) (RAL 9010)	56-892-3-135	56-892-3-165
Custom	56-892-X-135	56-892-X-165

(a) For use with 160°F/71°C sprinklers.

(b) For use with 212°F/100°C sprinklers.

(c) Previously known as Bright White.

(d) Previously known as Standard White.

(e) Eastern Hemisphere sales only.

Sprinkler Wrench:

Specify: W-Type 18 Sprinkler Wrench, P/N 56-000-1-265.

Air and Dust Seal:

Specify: Air and Dust Seal, P/N 56-908-1-001.

