

## Series TY-L – 5.6 and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers Standard Response, Standard Coverage

### 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.

Scan the QR code or enter the URL in a web browser to access the most up-to-date electronic version of this document. Data rates may apply.



[docs.jci.com.tycofire/TFP110](http://docs.jci.com.tycofire/TFP110)

### General Description

The TYCO Series TY-L 5.6 and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers described herein are standard response, standard coverage, solder type spray sprinklers. They are designed for use in light, ordinary, and extra-hazard commercial occupancies such as banks, hotels, shopping malls, factories, refineries, and chemical plants.

The Series TY-L Recessed Pendent Sprinkler, where applicable, is intended for use in areas with a finished ceiling. It uses a two-piece Style 20 (1/2 in. NPT) Recessed Escutcheon. The recessed escutcheon provides 1/4 in. (6,4 mm) of recessed adjustment or up to 1/2 in. (12,7 mm) of total adjustment from the flush pendent position. The adjustment provided by the recessed escutcheon reduces the accuracy to which the fixed pipe drops to the sprinklers must be cut.

Corrosion-resistant coatings, where applicable, are utilized to extend the life of copper alloy sprinklers beyond what would be obtained when exposed to corrosive atmospheres. Although corrosion-resistant coated sprinklers have passed the standard corrosion tests of the applicable approval agencies, the testing is not representative of all possible corrosive atmospheres. Consequently, it is recommended that the end-user be consulted about the suitability of these coatings for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered as a minimum, along with the corrosive nature of the chemical to which the sprinklers will be exposed.

An intermediate level version of the Series TY-L Pendent Sprinkler can be obtained by utilizing the Series TY-L Pendent Sprinkler in combination with the Model S Shield.

### NOTICE

The Series TY-L 5.6 and 8.0 K-factor Upright, Pendent, and Recessed Pendent 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 (NFPA), 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. Contact the installing contractor or product manufacturer with any questions.

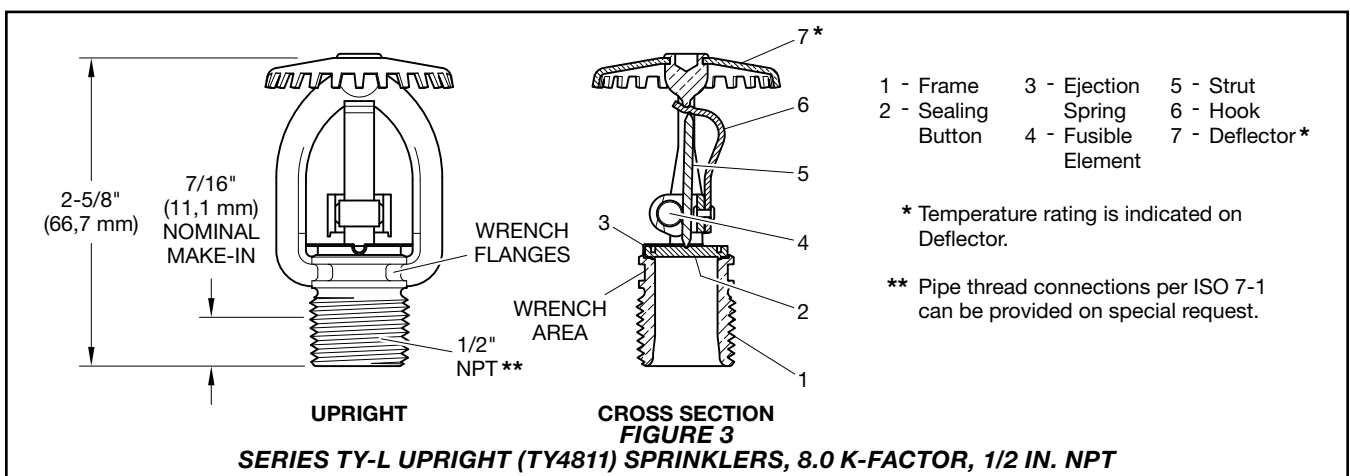
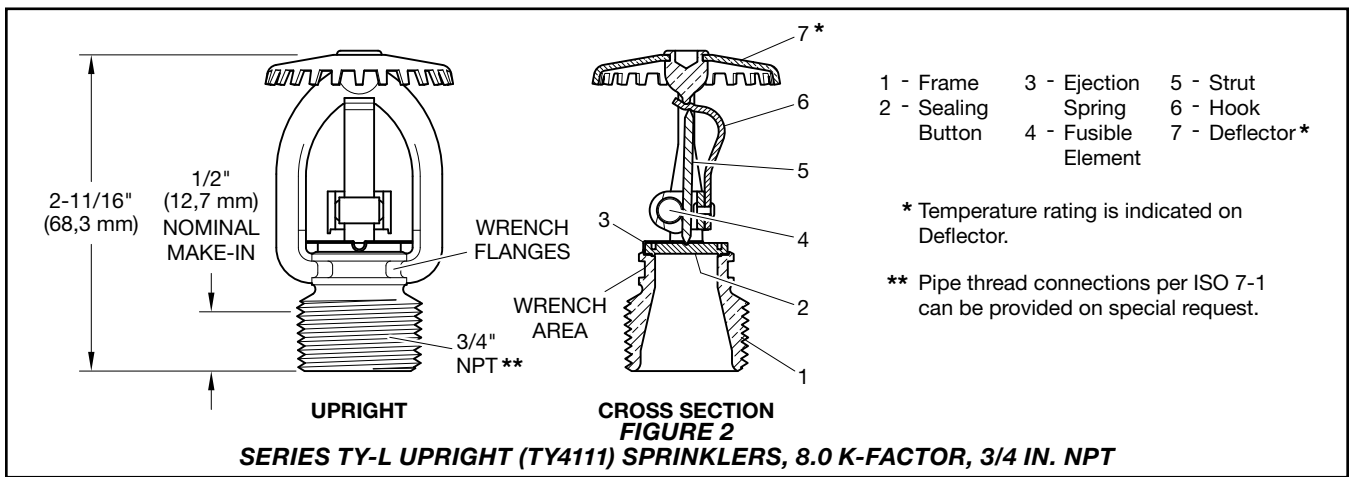
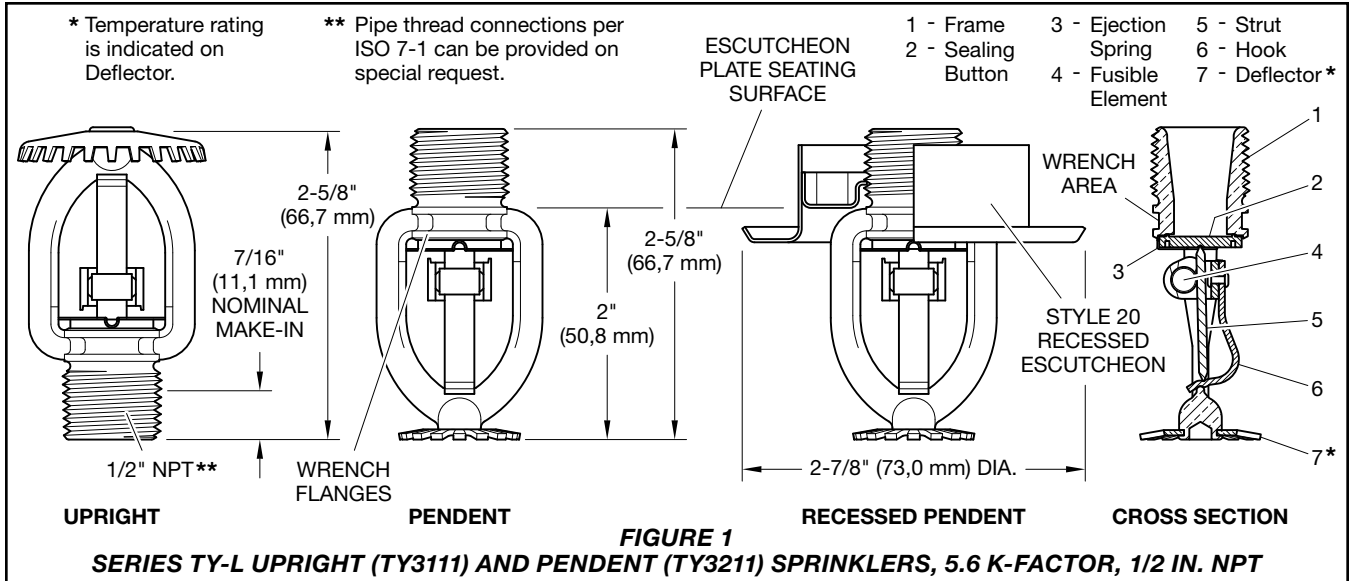
NFPA 13 prohibits installation of 1/2 in. NPT sprinklers with K-factors greater than 5.6 in new construction. They are intended for retrofit in existing sprinkler systems only.

### Sprinkler Identification Number (SIN)

TY3111 . . . Upright 5.6K, 1/2 in. NPT  
TY3211 . . . Pendent 5.6K, 1/2 in. NPT  
TY4111 . . . Upright 8.0K, 3/4 in. NPT  
TY4811 . . . Upright 8.0K, 1/2 in. NPT

#### Note:

- TY3111 is a re-designation for S1800 and G3111.
- TY3211 is a re-designation for S1801 and G3112.
- TY4111 is a re-designation for S1810 and G3101.
- TY4811 is a re-designation for S1805.



K-Factor	Type	Temperature Rating	Frame Color Code	Sprinkler Finish				
				Natural Brass	Chrome Plated	Lead Coated	Wax Coated	Wax-Over-Lead Coated
5.6 1/2 in. NPT	Upright (TY3111)	165°F (74°C)	Unpainted	1, 2, 3, 6			1, 2, 3, 6	
		212°F (100°C)	White					
		280°F (138°C)	Blue					
	Pendent (TY3211)	165°F (74°C)	Unpainted	1, 2, 3, 6			1, 2, 3, 6	
		212°F (100°C)	White					
		280°F (138°C)	Blue					
	Recessed Pendent (TY3211 w/Style 20)	165°F (74°C)	Unpainted	1, 2, 3, 6			5	
		212°F (100°C)	White	1, 2, 3, 6			5	

**NOTES:**  
1. UL Listed  
2. C-UL Listed  
3. FM Approved  
4. FM Approved for maximum 150°F (68°C) ambient temperatures  
5. Not Available (N/A)  
6. EAC Approval

**TABLE A**  
**SERIES TY-L 5.6 K-FACTOR SPRINKLERS**  
**LABORATORY LISTINGS AND APPROVALS**

K-Factor	Type	Temperature Rating	Frame Color Code	Sprinkler Finish				
				Natural Brass	Chrome Plated	Lead Coated	Wax Coated	Wax-Over-Lead Coated
8.0 3/4 in. NPT	Upright (TY4111)	165°F (74°C)	Unpainted	1, 2, 3			1, 2, 3	
		212°F (100°C)	White					
		280°F (138°C)	Blue					
8.0 1/2 in. NPT	Upright (TY4811)	165°F (74°C)	Unpainted	1, 2, 3			1, 2, 3	
		212°F (100°C)	White					
		280°F (138°C)	Blue					

**NOTES:**  
1. UL Listed  
2. C-UL Listed  
3. FM Approved  
4. FM Approved for maximum 150°F (68°C) ambient temperatures  
5. Not Available (N/A)

**TABLE B**  
**SERIES TY-L 8.0 K-FACTOR SPRINKLERS**  
**LABORATORY LISTINGS AND APPROVALS**

## Technical Data

### Approvals

UL and C-UL Listed  
FM Approved  
EAC Approved

**Note:** For complete approval information including corrosion resistant status, see Tables A and B.

### Maximum Working Pressure

175 psi (12,1 bar)

### Discharge Coefficient

K=5.6 gpm/psi<sup>1/2</sup> (80,6 Lpm/bar<sup>1/2</sup>)  
K=8.0 gpm/psi<sup>1/2</sup> (115,2 Lpm/bar<sup>1/2</sup>)

### Temperature Ratings

See Tables A and B

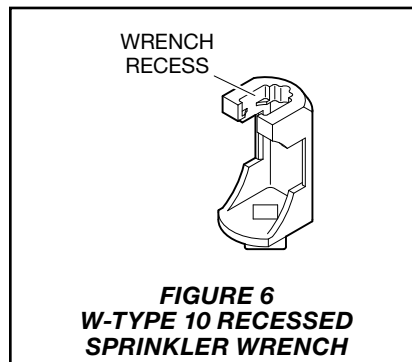
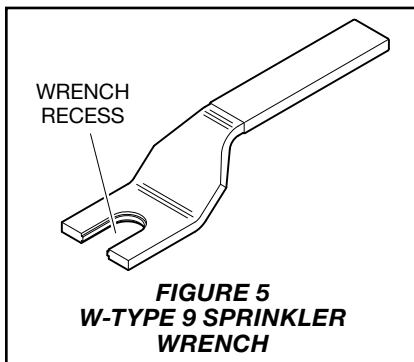
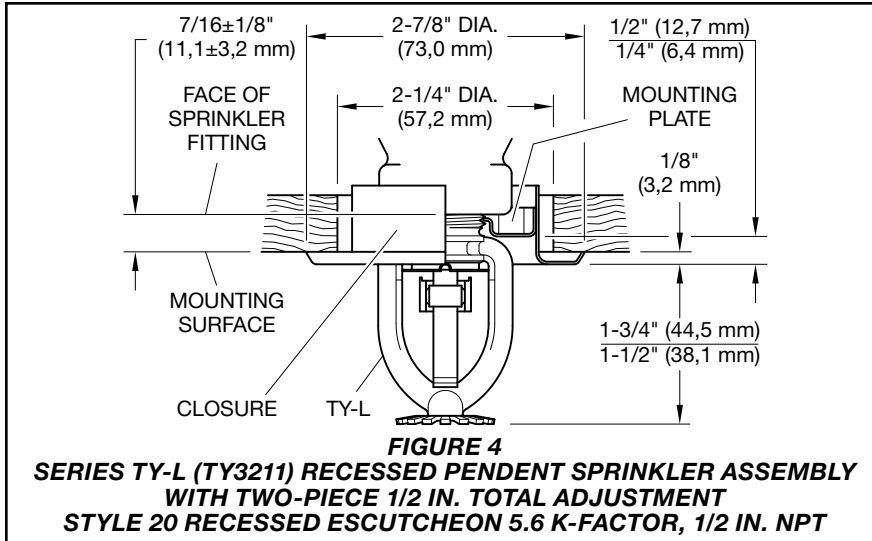
### Finishes

Sprinkler: See Tables A and B Recessed

Escutcheon: White Coated, Chrome Plated, or Brass Plated

### Physical Characteristics

Frame .....Brass  
Sealing Button ..... Bronze w/TEFLON  
Ejection Spring ..... Stainless Steel  
Strut ..... MONEL  
Hook .....Bronze/MONEL  
Deflector .....Bronze  
Fusible Element .....Solder, Copper,  
Stainless Steel



## Operation

A copper tube sealed by two stainless steel balls holds a fusible alloy. When the rated temperature is reached, the alloy melts and the balls are forced toward each other. This releases the tension mechanism and allows the sprinkler to operate.

## Design Criteria

The TYCO Series TY-L 5.6 and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers are intended for fire protection systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency, such as the UL Listing based on the requirements of NFPA 13 and FM Approval based on the requirements of FM Loss Prevention Data Sheets. Use only the style 20 recessed escutcheon, as applicable, for recessed pendent installations.

## Installation

The TYCO Series TY-L 5.6 and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers must be installed in accordance with this section.

### General Instructions

A leak tight 1/2 in. NPT sprinkler joint should be obtained with a torque of 7 ft-lb to 14 ft-lb (9,5 N·m to 19,0 N·m). A leak-tight 3/4 in. NPT sprinkler joint should be obtained with a torque of 10 ft-lb to 20 ft-lb (13,4 N·m to 26,8 N·m). Higher levels of torque may distort the sprinkler inlet and cause leakage or impairment of the sprinkler.

Do not attempt to compensate for insufficient adjustment in the escutcheon plate by under- or over-tightening the sprinkler. Re-adjust the position of the sprinkler fitting to suit.

### Series TY-L Upright and Pendent Sprinklers Installation

The Series TY-L Pendent and Upright Sprinklers must be installed in accordance with the following instructions:

**Step 1.** Install pendent sprinklers in the pendent position. Install upright sprinklers in the upright position.

**Step 2.** With pipe thread sealant applied to the pipe threads, hand-tighten the sprinkler into the sprinkler fitting.

**Step 3.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 9 Sprinkler Wrench as shown in Figure 5. For wax coated sprinklers, use an 8 or 10 in. adjustable Crescent wrench. Apply the W-Type 9 Sprinkler Wrench to the wrench area as shown in Figures 1, 2, or 3, or as applicable, apply the adjustable Crescent wrench to the wrenching flanges.

### Wax Coated Sprinklers

When installing wax-coated sprinklers with the adjustable Crescent wrench, take care to prevent damage to the wax coating on the sprinkler wrench flats or frame arms and, consequently, exposure of bare metal to the corrosive environment:

- Open the jaws of the wrench sufficiently wide to pass over the wrench flats without damaging the wax coating.
- Before wrench tightening the sprinkler, adjust the jaws of the wrench to just contact the sprinkler flats.
- After wrench tightening the sprinkler, loosen the wrench jaws before removing the wrench.

### After Installation

After installation, complete the following:

- Inspect the sprinkler wrench flats and frame arms and retouch (repair) the wax coating whenever the coating has been damaged and bare metal is exposed.
- Retouch the wax coating on the wrench flats by gently applying a heated 1/8 in. diameter steel rod to the damaged areas of the wax, to smooth it back over areas where bare metal is exposed.

### NOTICE

*Only retouching of the wax coating applied to the wrench flats and frame arms is permitted, and the retouching is to be performed only at the time of the initial sprinkler installation.*

*The steel rod should be heated only to the point it can begin to melt the wax, and appropriate precautions need to be taken when handling the heated rod to prevent the installer from being burned.*

*If attempts to retouch the wax coating with complete coverage are unsuccessful, additional wax can be ordered in the form of a wax stick, the end of which is color coded. Only the correct color coded wax is to be used, and retouching of wrench flats and frame arms is only permitted at the time of initial sprinkler installation.*

P/N 53 - XXX - X - XXX

		SIN	SPRINKLER FINISH		TEMPERATURE RATING	
111	5.6K UPRIGHT (1/2 in. NPT)	TY3111	1	NATURAL BRASS	165	165°F (74°C)
112	5.6K PENDENT (1/2 in. NPT)	TY3211	6	WAX COATED <sup>1</sup>	212	212°F (100°C)
101	8.0K UPRIGHT (3/4 in. NPT)	TY4111	7	LEAD COATED <sup>1</sup>	280	280°F (138°C)
106	8.0K UPRIGHT (1/2 in. NPT)	TY4811	8	WAX OVER LEAD <sup>1</sup>		
			9	CHROME PLATED		

**TABLE C**  
**SERIES TY-L PENDENT AND UPRIGHT SPRINKLERS**  
**PART NUMBER SELECTION**

**NOTES:**  
1. 165°F (74°C) and 212°F (100°C) Temperature Ratings only.

With the steel rod heated as previously described, touch the rod to the area requiring additional wax with the rod angled downward, and then touch the wax stick to the rod approximately 1/2 in. (12,7 mm) away from the area requiring retouching. The wax will melt and run down onto the sprinkler.

**Series TY-L Recessed Pendent Sprinklers Installation**

The Series TY-L Recessed Pendent Sprinkler must be installed in accordance with the following instructions:

**Step 1.** After installing the style 20 mounting plate, as applicable, over the sprinkler threads and with pipe thread sealant applied to the pipe threads, hand-tighten the sprinkler into the sprinkler fitting.

**Step 2.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 10 recessed sprinkler wrench as shown in Figure 6. Apply the wrench to the sprinkler wrenching flanges as shown in Figures 1.

**Step 3.** After the ceiling has been installed or the finish coat has been applied, slide on the style 20 closure over the Series TY-L Recessed Pendent Sprinkler and push the closure over the mounting plate until its flange comes in contact with the ceiling.

## Care and Maintenance

The TYCO Series TY-L 5.6 and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers 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.

Absence of an escutcheon, which is used to cover a clearance hole, may delay the time to sprinkler operation in a fire situation.

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.

Frequent visual inspections are recommended to be initially performed for corrosion resistant coated sprinklers, after the installation has been completed, to verify the integrity of the corrosion-resistant coating. Thereafter, annual inspections per NFPA 25 should suffice; however, instead of inspecting from the floor level, a random sampling of close-up visual inspections should be made so as to better determine the exact sprinkler condition and the long-term integrity of the corrosion resistant coating, as it may be affected by the corrosive conditions present.

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 manufacturer with any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

## 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 Assemblies with NPT Thread Connections

Specify: Series TY-L (specify SIN), (specify K-factor), (specify Upright, Pendent, or Recessed Pendent) Sprinkler, Standard Response, Standard Coverage, (specify) temperature rating, (specify) finish or coating, P/N (specify from Table C)

### Recessed Escutcheon

Specify: Style (specify) Recessed Escutcheon, (specify material) with (specify\*) finish, P/N (specify\*)

\*Refer to Technical Data Sheet TFP770

### Sprinkler Wrench

Specify: W-Type 9 Sprinkler Wrench, P/N 56-000-1-849

Specify: W-Type 10 Sprinkler Wrench, P/N 56-000-1-948

### Wax Sticks (for retouching wrench-damaged wax coating)

Specify: Series TY-L Sprinklers, (specify color), color coded Wax Stick for retouching, (specify) temperature rated, P/N (specify):

#### Red

165°F (74°C) . . . . . 56-065-1-155

#### Blue

212°F (100°C) and 280°F (138°C) . . . 56-065-1-286

**Note:** Each wax stick is suitable for retouching up to twenty-five sprinklers. The wax used for 280°F (138°C) sprinklers is the same as for 212°F (100°C) sprinklers. Therefore, the 280°F (138°C) sprinkler is limited to the same maximum ceiling temperature as the 212°F (100°C) sprinkler, which is 150°F (65°C).



## TFP110 Change History Appendix

ISSUE DATE	NOTES
03-23	Removed TY4211 Pendent 8.0K, 3/4 in. NPT and TY4911 Pendent 8.0K, 1/2 in. NPT sprinklers from: Page 1, Sprinkler Identification Number (SIN) section; Page 2, Figures 2 and 3; Page 3, Tables A and B; Page 4, Figures 5 and 6; Page 6, Table C. (Figure number sequence and references to them have been updated as a consequence of eliminating Figures 5 and 6.)
12-22	Page 1, updated QR code and URL; Page 3, Tables A and B and Approvals sub-section, removed LPCB Approved; Page 6, changed corporate address and telephone number to 1467 Elmwood Avenue, Cranston, RI 02910   Telephone +1-401-781-8220, formerly 1400 Pennbrook Parkway, Lansdale, PA 19446   Telephone +1-215-362-0700.
04-22	Page 3, Approvals sub-section, added EAC Approved; Page 3, Table A, added EAC Approved for TY3111 and TY3211 in Natural Brass and Chrome Plated finishes for all temperature ratings and in Lead Coated, Wax Coated and Wax-Over-Lead Coated finishes for 165°F (74°C) and 212°F (100°C) temperature ratings; Page 3, Table A, removed UL and C-UL Listed and FM Approved from TY3111 and TY3211 in Lead Coated and Wax Coated finishes for 280°F (138°C) temperature rating.
11-21	Added QR code and URL to allow convenient access to electronic version from printed document.
05-20	Removed LPCB certification from TY3211 5.6K pendent sprinklers and from TY4911 1/2 in. NPT and TY4211 3/4 in. NPT 8.0K pendent sprinklers.
08-18	Updated Tyco® branding and document format; Added Johnson Controls copyright; Added disclaimer stating specifications and information subject to change without notice; Added reference to Regulatory and Health Warning Technical Data Sheet TFP2300.
09-17	Added statement prohibiting sprinklers featuring K-factors greater than 5.6 and 1/2 in. NPT thread size from installation in new construction, explicitly for retrofit applications only.
11-15	Restored sprinkler orientation instructions in Installation section: Install upright sprinkler in upright position only, install pendent sprinkler in pendent position only.
05-14	Changed Wax Coated to Wax Over Lead as finish associated with code 8 in Part Number Selection Table B.
03-13	Updated and standardized RAL color finishes.
07-04	Added reference to Installer Warning data sheet TFP700; Added LPCB Reference Number.
01-03	Added new masthead; Removed incorrect FM Approval for 8.0K 1/2" NPT sprinkler with recessed escutcheon application.
11-02	New Technical Data Sheet TFP110 describes Series TY-L Upright and Pendent Sprinklers.