

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

### General Description

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

The recessed version of the Series TY-L Pendent Sprinkler, where applicable, is intended for use in areas with a finished ceiling. It uses a two-piece Style 20 (1/2 inch NPT) or Style 30 (3/4 inch 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 that which would otherwise 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 with respect to 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 TYCO Series TY-L, 5.6 and 8.0 K-factor, Upright and 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, 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.*

### Sprinkler Identification Number (SIN)

TY3111 . . . . .Upright 5.6K, 1/2" NPT  
TY3211 . . . . .Pendent 5.6K, 1/2" NPT  
TY4111 . . . . .Upright 8.0K, 3/4" NPT  
TY4211 . . . . .Pendent 8.0K, 3/4" NPT  
TY4811 . . . . .Upright 8.0K, 1/2" NPT  
TY4911 . . . . .Pendent 8.0K, 1/2" NPT

TY3111 is a re-designation for S1800 and G3111.

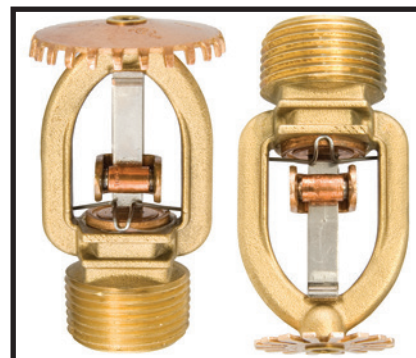
TY3211 is a re-designation for S1801 and G3112.

TY4111 is a re-designation for S1810 and G3101.

TY4211 is a re-designation for S1811 and G3102.

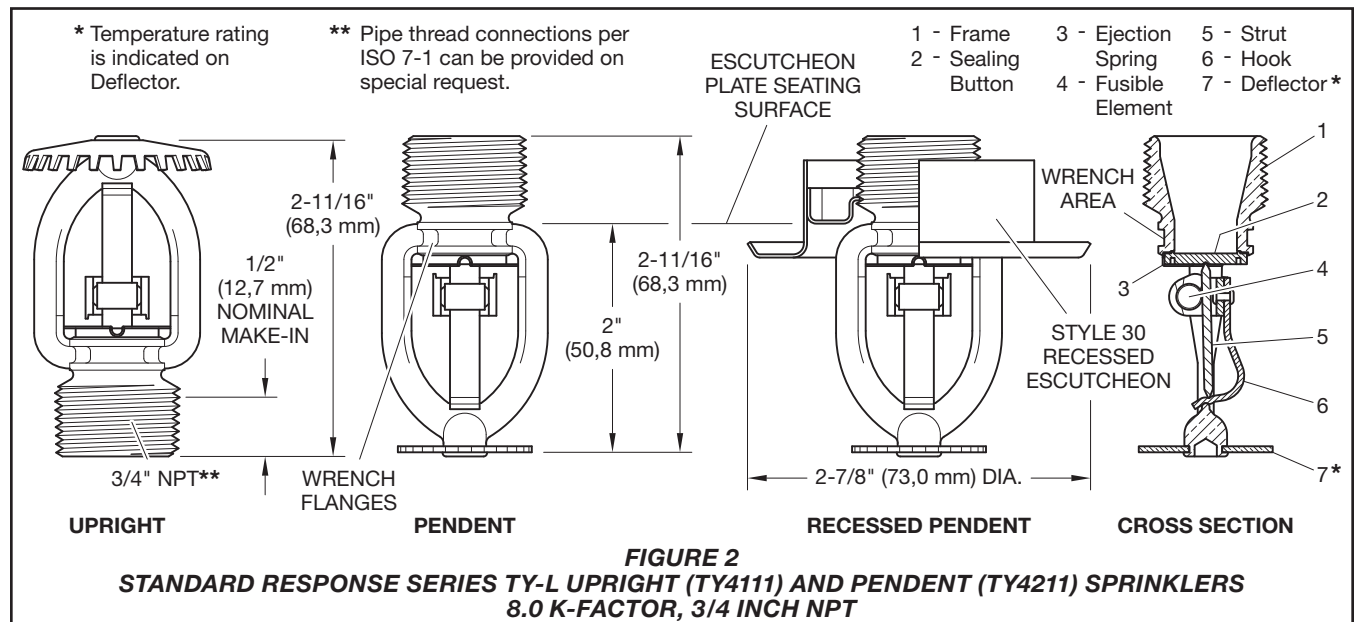
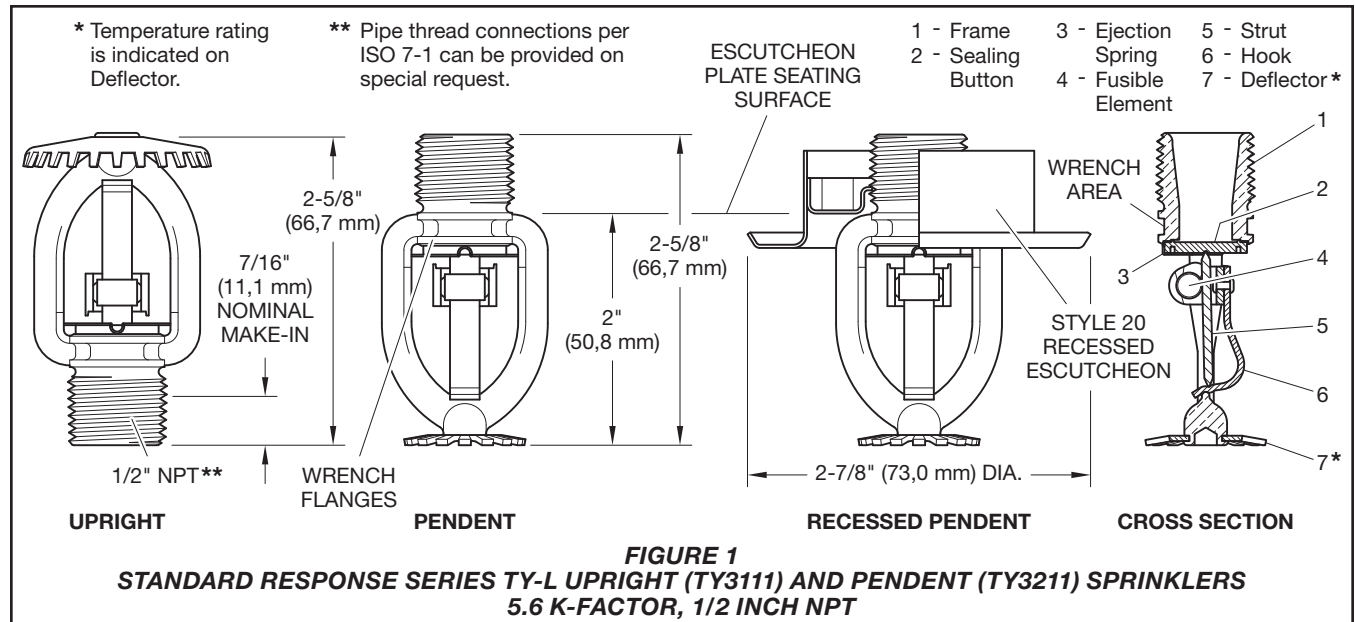
TY4811 is a re-designation for S1805.

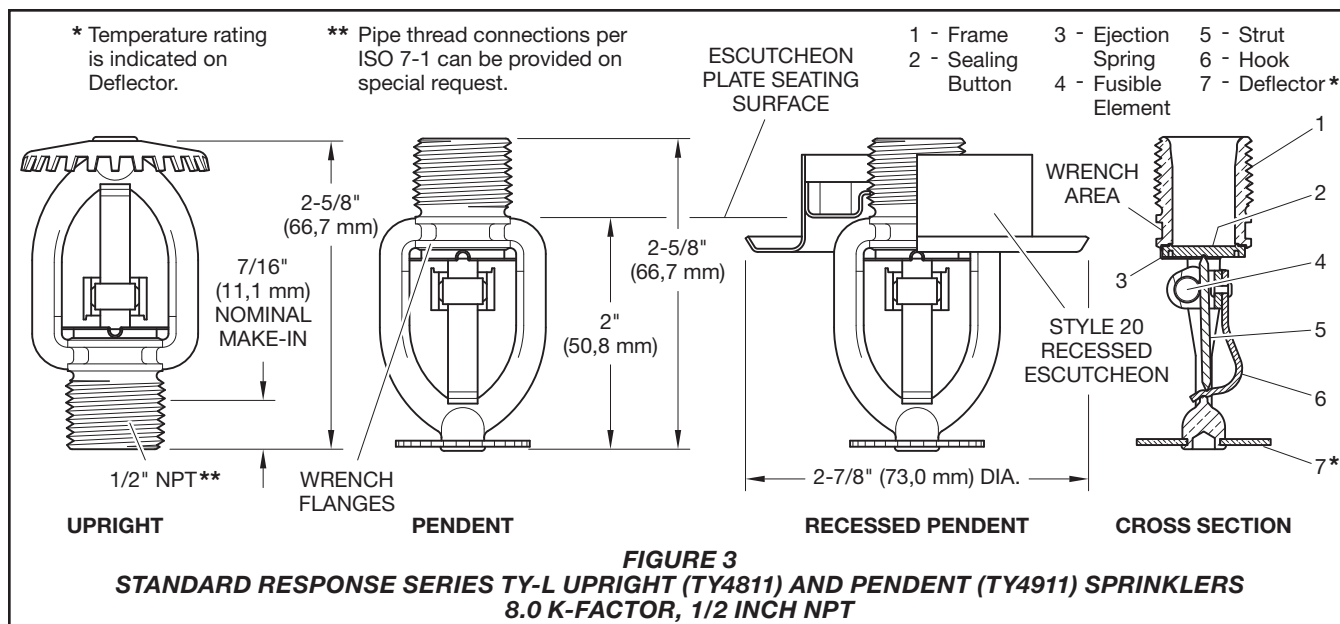
TY4911 is a re-designation for S1806.



#### 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. FM, and LPCB Approved. (Refer to Table A for complete approval information including corrosion resistant status.)

### 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

Refer to Table A

### Finishes

Sprinkler: Refer to Table A 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, the balls are forced toward each other releasing the tension mechanism, allowing 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 (e.g., UL Listing is based on the requirements of NFPA 13, and FM Approval is based on the requirements of FM's Loss Prevention Data Sheets). Only the Style 20 or 30 Recessed Escutcheon, as applicable, are to be used 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:

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

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

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

The Series TY-L Pendent and Upright Sprinklers must be installed in accordance with this section.

Pendent sprinklers are to be installed in the pendent position, and upright sprinklers are to be installed in the upright position.

**Step 1.** 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 9 Sprinkler Wrench (Ref. Figure 7), except that an 8 or 10 inch adjustable Crescent wrench is to be used for wax coated sprinklers. With reference to Figures 1, 2, and 3, the W-Type 9 Sprinkler Wrench is to be applied to the wrench area, or as applicable, the adjustable Crescent wrench is to be applied to the wrenching flanges.

When installing wax coated sprinklers with the adjustable Crescent wrench, additional care needs to be exercised 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. The jaws of the wrench should be opened sufficiently wide to pass over the wrench flats without damaging the wax coating. Before wrench tightening the sprinkler, the jaws of the wrench are to be adjusted to just contact the sprinkler wrench flats. After wrench tightening the sprinkler, loosen the wrench jaws before removing the wrench.

K	Type	Temp. Rating	Frame Color Code	Sprinkler Finish				
				Natural Brass	Chrome Plated	Lead Coated	Wax Coated	Wax Over Lead Coated
5.6 1/2” NPT	Pendent (TY3211) and Upright (TY3111)	165°F (74°C)	Unpainted	1, 2, 3, 5	1, 2, 3			
		212°F (100°C)	White		1, 2	4	N/A	
		280°F (138°C)	Blue					
	Recessed Pendent (TY3211 w/Style 20)	165°F (74°C)	Unpainted	1, 2, 3, 5	N/A			
		212°F (100°C)	White	1, 2, 3, 5				
8.0 3/4” NPT	Pendent (TY4211)	165°F (74°C)	Unpainted	1, 2, 3	1, 2, 3			
		212°F (100°C)	White		1, 2	4	N/A	
		280°F (138°C)	Blue					
	Upright (TY4111)	165°F (74°C)	Unpainted	1, 2, 3, 5	1, 2, 3			
		212°F (100°C)	White		1, 2	4	N/A	
		280°F (138°C)	Blue					
	Recessed Pendent (TY4211 w/Style 30)	165°F (74°C)	Unpainted	1, 2, 5	N/A			
		212°F (100°C)	White					
8.0 1/2” NPT	Pendent (TY4911) and Upright (TY4811)	165°F (74°C)	Unpainted	1, 2, 3, 5	1, 2, 3			
		212°F (100°C)	White		1, 2	N/A		
		280°F (138°C)	Blue					
	Recessed Pendent (TY4911 w/Style 20)	165°F (74°C)	Unpainted	1, 2	N/A			
		212°F (100°C)	White					

NOTES:

1. UL Listed

2. C-UL Listed

3. FM Approved

4. FM Approved for maximum 150°F (68°C) ambient temperatures

5. LPCB Approved (LPCB Ref. No. 094a/03)

N/A: Not Available

TABLE A

LABORATORY LISTINGS AND APPROVALS

After installation, the sprinkler wrench flats and frame arms must be inspected and the wax coating retouched (repaired) whenever the coating has been damaged and bare metal is exposed. The wax coating on the wrench flats can be retouched by gently applying a heated 1/8 in. diameter steel rod to the areas of wax that have been damaged, 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 at which it can begin to melt the wax, and appropriate precautions need to be taken, when handling the heated rod, in order 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. 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 one-half inch away from the area requiring retouching. The wax will melt and run down onto the sprinkler.

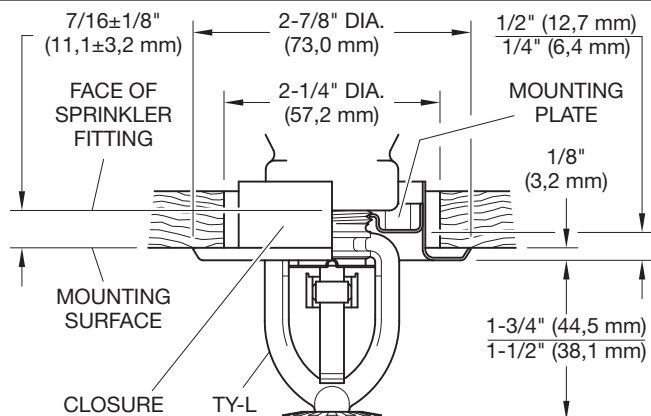
**Series TY-L Recessed Pendent Sprinklers Installation**

The Series TY-L Recessed Pendent Sprinklers must be installed in accordance with this section.

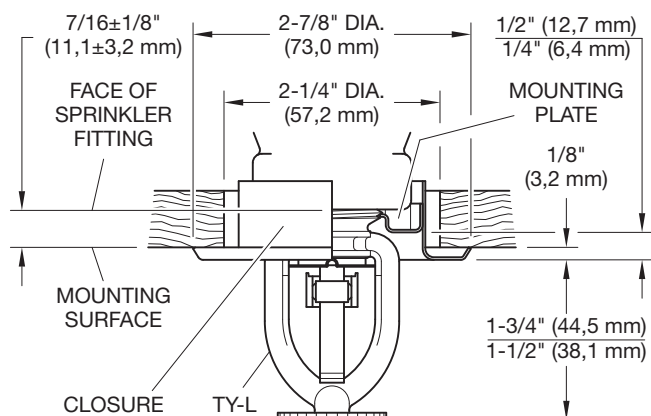
**Step A.** After installing the Style 20 or 30 Mounting Plate, as applicable, over the sprinkler threads and with pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

**Step B.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 10 Recessed Sprinkler Wrench (Ref. Figure 8). With reference to Figure 1, 2, or 3, the W-Type 10 Recessed Sprinkler Wrench is to be applied to the sprinkler wrenching flanges.

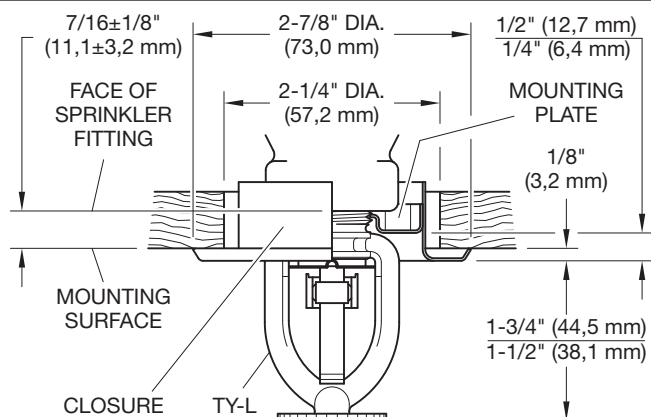
**Step C.** After the ceiling has been installed or the finish coat has been applied, slide on the Style 20 or 30 Closure over the Series TY-L Sprinkler and push the Closure over the Mounting Plate until its flange comes in contact with the ceiling.



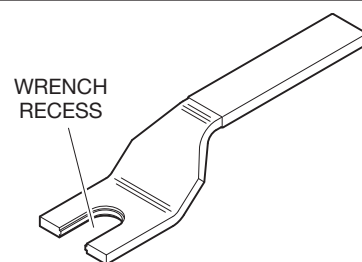
**FIGURE 4**  
**SERIES TY-L (TY3211) RECESSED PENDENT SPRINKLER ASSEMBLY**  
**WITH TWO-PIECE 1/2 INCH TOTAL ADJUSTMENT**  
**STYLE 20 RECESSED ESCUTCHEON 5.6 K-FACTOR, 1/2 INCH NPT**



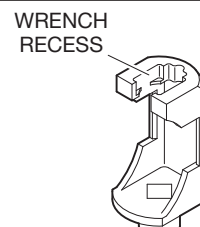
**FIGURE 5**  
**SERIES TY-L (TY4211) RECESSED PENDENT SPRINKLER ASSEMBLY**  
**WITH TWO-PIECE 1/2 INCH TOTAL ADJUSTMENT**  
**STYLE 30 RECESSED ESCUTCHEON 8.0 K-FACTOR, 3/4 INCH NPT**



**FIGURE 6**  
**SERIES TY-L (TY4911) RECESSED PENDENT SPRINKLER ASSEMBLY**  
**WITH TWO-PIECE 1/2 INCH TOTAL ADJUSTMENT**  
**STYLE 20 RECESSED ESCUTCHEON 8.0 K-FACTOR, 1/2 INCH NPT**



**FIGURE 7**  
**W-TYPE 9 SPRINKLER WRENCH**



**FIGURE 8**  
**W-TYPE 10 RECESSED SPRINKLER WRENCH**

## 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



P/N 53 - XXX - X - XXX						
		SIN	SPRINKLER FINISH		TEMPERATURE RATING	
111	5.6K UPRIGHT (1/2"NPT)	TY3111	1	NATURAL BRASS	165	165°F (74°C)
112	5.6K PENDENT (1/2"NPT)	TY3211	6	WAX COATED 165°F TO 280°F ONLY	212	212°F (100°C)
101	8.0K UPRIGHT (3/4"NPT)	TY4111	7	LEAD COATED	280	280°F (138°C)
102	8.0K PENDENT (3/4"NPT)	TY4211	8	WAX OVER LEAD 165°F TO 212°F ONLY		
106	8.0K UPRIGHT (1/2"NPT)	TY4811	9	CHROME PLATED		
107	8.0K PENDENT (1/2"NPT)	TY4911				

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

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 (e.g., 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](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 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 B)

### Recessed Escutcheon

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

1/2" (15 mm)  
Style 20  
Brass Plated. . . . . P/N 56-705-2-010  
1/2" (15 mm)  
Style 20  
Signal White (RAL9003). . . . P/N 56-705-4-010  
1/2" (15 mm)  
Style 20  
Chrome Plated. . . . . P/N 56-705-9-010  
3/4" (20 mm)  
Style 30  
Brass Plated. . . . . P/N 56-705-2-011  
3/4" (20 mm)  
Style 30  
Signal White (RAL9003). . . . P/N 56-705-4-011  
3/4" (20 mm)  
Style 30  
Chrome Plated. . . . . P/N 56-705-9-011

### 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 for 165°F (74°C) . . . . . P/N 56-065-1-155  
Blue for 212°F (100°C)  
and 280°F (138°C) . . . . . P/N 56-065-1-286

### NOTES:

*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, and, therefore, the 280°F (138°C) sprinkler is limited to the same maximum ceiling temperature as the 212°F (100°C) sprinkler (i.e., 150°F (65°C)).*