

## Series TY-L — 5.6 and 8.0 K-factor Upright and Pendent Intermediate Level Sprinklers Standard Response

### General Description

The Series TY-L, 5.6 and 8.0 K-factor Upright and Pendent Intermediate Level Sprinklers described in this data sheet are automatic sprinklers of the "standard response" solder type. They are "standard spray" sprinklers intended for use in fire sprinkler systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency (e.g., UL Listing is based on NFPA requirements). Both the Pendent and Upright Sprinklers produce a hemispherical water distribution pattern below the deflector.

Intermediate Level Sprinklers are primarily designed for use in rack storage sprinkler systems where their thermally sensitive elements must be shielded from the water spray of higher elevation sprinklers that could operate earlier during a fire. Intermediate Level Sprinklers are also used in other applications such as beneath open gridded catwalks.

#### WARNINGS

*The Series TY-L Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable*

#### 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.*

*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.*

### Model/Sprinkler Identification Numbers

TY3113 - Upright 5.6K, 1/2"NPT  
TY3211 - Pendent 5.6K, 1/2"NPT  
TY4113 - Upright 8.0K, 3/4"NPT  
TY4211 - Pendent 8.0K, 3/4"NPT

TY3113 is a redesignation for S1809 and G3253.

TY3211 is a redesignation for S1801 and G3112.

TY4113 is a redesignation for S1822 and G3153.

TY4211 is a redesignation for S1811 and G3102.



### Technical Data

#### Approvals

UL and C-UL Listed.  
FM Approved.  
(Refer to Table A for complete approval information including corrosion resistant status.)

#### Maximum Working Pressure

175 psi (12,1 bar)

#### Discharge Coefficient

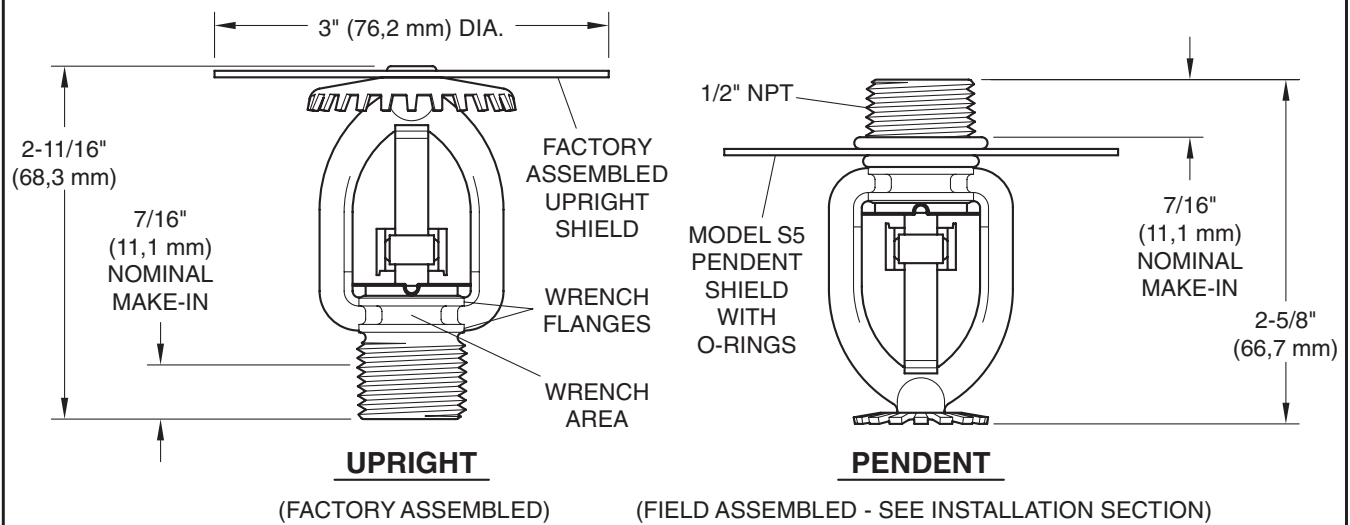
K = 5.6 GPM/psi<sup>1/2</sup> (80,6 LPM/bar<sup>1/2</sup>)  
K = 8.0 GPM/psi<sup>1/2</sup> (115,2 LPM/bar<sup>1/2</sup>)

#### Temperature Ratings

Refer to Table A

#### Finishes

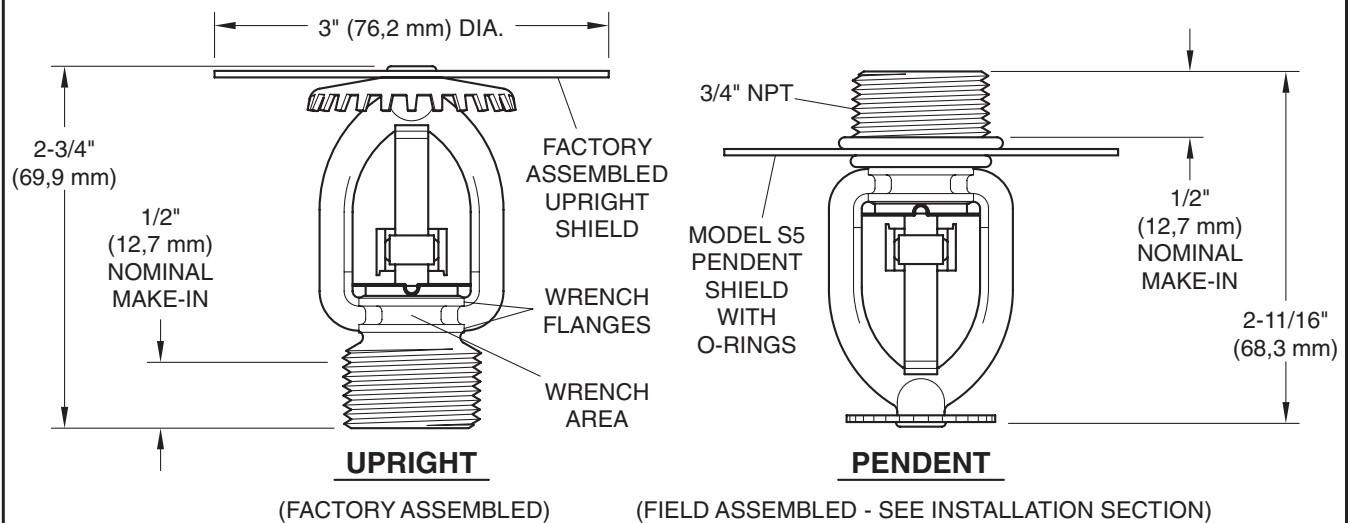
Natural Brass



\* Temperature rating is indicated on the deflector or shield.

\*\* Pipe thread connections per ISO 7/1 can be provided on special request.

**FIGURE 1**  
**STANDARD RESPONSE SERIES TY-L UPRIGHT (TY3113) AND PENDENT (TY3211) SPRINKLERS**  
**INTERMEDIATE LEVEL SPRINKLERS, 5.6 K-FACTOR, 1/2 INCH NPT**



\* Temperature rating is indicated on the deflector or shield.

\*\* Pipe thread connections per ISO 7/1 can be provided on special request.

**FIGURE 1**  
**STANDARD RESPONSE SERIES TY-L UPRIGHT (TY4113) AND PENDENT (TY4211) SPRINKLERS**  
**INTERMEDIATE LEVEL SPRINKLERS, 8.0 K-FACTOR, 3/4 INCH NPT**

		SPRINKLER FINISH	
		K = 5.6, UPRIGHT TY3113 K = 5.6, PENDENT TY3211	K = 8.0, UPRIGHT TY4113 K = 8.0, PENDENT TY4211
TEMP. RATING	FRAME COLOR CODE	NATURAL BRASS	NATURAL BRASS
165°F/74°C	Unpainted	1, 2, 3	
212°F/100°C	White		
280°F/138°C	Blue		

**NOTES:**

- NOTES:
1. Listed by Underwriters Laboratories, Inc. (UL).
  2. Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL).
  3. Approved by Factory Mutual Research Corporation (FM).

**TABLE A**  
**LABORATORY LISTINGS AND APPROVALS**

### Physical Characteristics

Frame	Brass
Sealing Button	Bronze w/Teflon†
Ejection Spring	Stainless Steel
Fusible Element	Solder, Copper
	Stainless Steel
Strut	Monel
Hook	Bronze/Monel
Deflector	Bronze
Shield	Brass

† DuPont Registered Trademark

## 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 Series TY-L Pendant and Upright Intermediate Level 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).

## Installation

The Series TL-B Sprinklers must be installed in accordance with the following instructions:

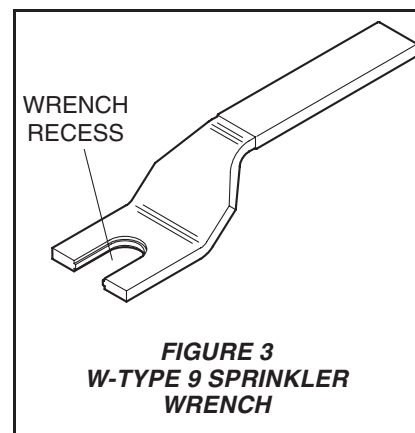
**NOTE**

**NOTE**  
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 maximum of 21 ft. lbs. (28,5 Nm) of torque may be used to install sprinklers with 1/2 NPT connections. 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). A maximum of 30 ft.lbs. (40,7 Nm) of torque is to be used to install sprinklers with 3/4 NPT connections. Higher levels of torque may distort the sprinkler inlet and cause leakage or impairment of the sprinkler.

— Upright Sprinklers —

The Series TY-L Intermediate Level Upright Sprinklers must be installed in accordance with the following instructions.

**Step 1.** With pipe thread sealant ap-



plied 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 3). With reference to Figure 1 or 2, the W-Type 9 Sprinkler Wrench is to be applied to the wrenching area.

— Pendent Sprinklers —

The Series TY-L Intermediate Level Pendent Sprinklers must be installed in accordance with the following instructions.

**Step 1.** Roll one of the two required O-Rings over the sprinkler threads until it seats against the sprinkler wrenching area flange as shown in Figure 1 or 2, as applicable.

**Step 2.** Install the Shield over the sprinkler threads, and then roll the second O-Ring over the sprinkler threads until it is seated firmly against the Shield.

**Step 3.** With pipe thread sealant ap-

plied, hand tighten the sprinkler into the sprinkler fitting.

**Step 4.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 9 Sprinkler Wrench (Ref. Figure 3). The wrench is to be applied to the sprinkler wrenching area shown in Figure 1 or 2, as applicable.

When installed correctly, the O-Rings will be slightly compressed and the Shield will be held firmly in place.

## Care and Maintenance

The Series TY-L Sprinklers must be maintained and serviced in accordance with the following instructions:

### NOTES

*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.

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.

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

Products manufactured by Tyco Fire Products 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 Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products 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 Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products 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 TYCO FIRE PRODUCTS 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 TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' 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.**

P/N 53 — XXX — X — XXX			TEMPERATURE RATING	
			165	165°F/74°C
253	5.6K UPRIGHT (1/2"NPT)	TY3113	212	212°F/100°C
153	8.0K UPRIGHT (3/4"NPT)	TY4113	280	280°F/138°C

TABLE B  
PART NUMBER SELECTION  
SERIES TY-L UPRIGHT INTERMEDIATE LEVEL SPRINKLERS  
(UPRIGHT SHIELD INCLUDED WITH SPRINKLER)

P/N 53 — XXX — X — XXX			TEMPERATURE RATING	
			165	165°F/74°C
112	5.6K PENDENT (1/2"NPT)	TY3211	212	212°F/100°C
102	8.0K PENDENT (3/4"NPT)	TY4211	280	280°F/138°C

TABLE C  
PART NUMBER SELECTION  
SERIES TY-L PENDENT SPRINKLERS  
(MODEL S2 PENDENT SHIELD & O-RING MUST BE SEPARATELY ORDERED)

Ordering Procedure

When placing an order, indicate the full product name. Refer to the Price List for complete listing of Part Numbers.  
Contact your local distributor for availability.

**Upright Sprinkler Assemblies with Shield and NPT Thread Connections:**  
Specify: (Specify Model/SIN), Standard Response, (specify K-factor), (specify temperature rating), Series TY-L Upright Intermediate Level Sprinkler with natural brass finish, P/N (specify from Table B).

**Pendent Sprinkler Assemblies with (Shield Ordered Separately) and NPT Thread Connections:**  
Specify: (Specify Model/SIN), Standard Response, (specify K-factor), (specify temperature rating), Series TY-L Pendent Sprinkler with natural brass finish, P/N (specify from Table C)

**Model S5 Pendent Shield Package:**  
Specify: S5 Pendent Shield Package (one shield / two o-rings) for use with (specify 1/2" NPT or 3/4" NPT) Series TY-L Pendent Sprinklers, P/N (specify).

- 1/2" NPT S5 Pendent Shield Package ..... P/N 56-015-6-802
- 3/4" NPT S5 Pendent Shield Package ..... P/N 56-015-6-803

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

