Series TY-B – 2.8, 5.6, and 8.0 K-factor
Upright, Pendent, and Recessed Pendent Sprinklers
Standard Response, Standard Coverage

General Description
TYCO Series TY-B, 2.8, 5.6, and 8.0 K-factor, Upright and Pendent Sprinklers described in this technical data sheet are standard response, standard coverage decorative 5 mm glass bulb type spray sprinklers designed for use in light, ordinary, or extra hazard, commercial occupancies such as banks, hotels, shopping malls, factories, refineries, and chemical plants.

The recessed version of the Series TY-B Pendent Sprinkler, where applicable, is intended for use in areas with a finished ceiling. It uses a two-piece Style 10 (1/2 inch NPT) or Style 40 (3/4 inch NPT) Recessed Escutcheon. The Recessed Escutcheon provides 1/2 inch (12.7 mm) of recessed adjustment or up to 3/4 inch (19.1 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-B Pendent Sprinkler can be obtained by utilizing the Series TY-B Pendent Sprinkler in combination with the Model S2 Shield.

NOTICE
The Series TY-B 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.

Sprinkler Identification Numbers (SINs)
TY1151 – Upright 2.8K, 1/2˝ NPT
TY1251 – Pendent 2.8K, 1/2˝ NPT
TY3151 – Upright 5.6K, 1/2˝ NPT
TY3251 – Pendent 5.6K, 1/2˝ NPT
TY4151 – Upright 8.0K, 3/4˝ NPT
TY4251 – Pendent 8.0K, 3/4˝ NPT
TY4851 – Upright 8.0K, 1/2˝ NPT
TY4951 – Pendent 8.0K, 1/2˝ NPT

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.
FIGURE 1
SERIES TY-B UPRIGHT (TY1151) AND PENDENT (TY1251) SPRINKLERS
2.8 K-FACTOR, 1/2 INCH NPT, STANDARD RESPONSE

* Temperature rating is indicated on Deflector.

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

FIGURE 2
SERIES TY-B UPRIGHT (TY3151) AND PENDENT (TY3251) SPRINKLERS
5.6 K-FACTOR, 1/2 INCH NPT, STANDARD RESPONSE
Pipe thread connections per ISO 7-1 can be provided on special request.

Temperature rating is indicated on Deflector.

FIGURE 3
SERIES TY-B UPRIGHT (TY4151) AND PENDENT (TY4251) SPRINKLERS
8.0 K-FACTOR, 3/4 INCH NPT, STANDARD RESPONSE

FIGURE 4
SERIES TY-B UPRIGHT (TY4851) AND PENDENT (TY4951) SPRINKLERS
8.0 K-FACTOR, 1/2 INCH NPT, STANDARD RESPONSE
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<th>BULB LIQUID COLOR</th>
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</table>

**Notes:**
1. Listed by Underwriters Laboratories, Inc. (UL)
2. Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL)
3. Approved by FM Global (FM Approvals)
4. Approved by the Loss Prevention Certification Board (LPCB Ref. No. 007k/03)
5. Approved by the City of New York under MEA 354-01-E
6. VdS Approved (For details contact Tyco Fire Suppression & Building Products, Enschede, Netherlands, Tel. 31-53-428-4444 / Fax 31-53-428-3377)
7. Approved by the Loss Prevention Certification Board (LPCB Ref. No. 094a/05)
8. Where Polyester Coated, Lead Coated, Wax Coated, and Wax-over-Lead Coated Sprinklers are noted to be UL and C-UL Listed, the sprinklers are UL and C-UL Listed as Corrosion-Resistant Sprinklers. Where Lead Coated, Wax Coated, and Wax-over-Lead Coated Sprinklers are noted to be FM Approved, the sprinklers are FM Approved as Corrosion-Resistant Sprinklers.
9. Installed with Style 10 (1/2” NPT) or Style 40 (3/4” NPT) 3/4” Total Adjustment Recessed Escutcheon, as applicable
10. 150°F (66°C) maximum ceiling temperature
11. Frame and deflector only
12. N/A = Not Applicable

**TABLE A**
SERIES TY-B UPRIGHT AND PENDENT SPRINKLERS
LABORATORY LISTINGS AND APPROVALS
### Technical Data

#### Approvals
- UL and C-UL Listed
- FM Approved
- LPCB Approved
- VdS Approved
- NYC Approved

(Refer to Table A for complete approval information, including corrosion-resistant status.)

#### Maximum Working Pressure
Refer to Table B.

#### Discharge Coefficient
- $K = 2.8 \text{ gpm/psi}^{1/2}$ (40.3 lpm/bar$^{1/2}$)
- $K = 5.6 \text{ gpm/psi}^{1/2}$ (80.6 lpm/bar$^{1/2}$)
- $K = 8.0 \text{ gpm/psi}^{1/2}$ (115.2 lpm/bar$^{1/2}$)

#### Temperature Ratings
Refer to Table A.

#### Finishes
- Sprinkler: Refer to Table C.
- Recessed Escutcheon: Signal or Pure White, Jet Black, Chrome Plated, or Natural Brass

### Design Criteria
TYCO Series TY-B, 2.8, 5.6, and 8.0 K-factor, Upright and Pendant 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 the FM Global Loss Prevention Data Sheets). Only the Style 10 or 40 Recessed Escutcheon, as applicable, is to be used for recessed pendant installations.

### Physical Characteristics
- Frame: Bronze
- Button: Brass/Copper
- Sealing Assembly: Beryllium Nickel w/TEFLON
- Bulb: Glass
- Compression Screw: Bronze
- Deflector: Copper
- Bushing ($K=2.8$): Bronze

### Operation
The glass bulb contains a fluid which expands when exposed to heat. When the rated temperature is reached, the fluid expands sufficiently to shatter the glass bulb, allowing the sprinkler to activate and water to flow.
**Installation**

TYCO Series TY-B, 2.8, 5.6, and 8.0 K-factor, Upright and Pendent Sprinklers must be installed in accordance with this section.

**General Instructions**

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1.6 mm) for the 135°F (57°C) to 3/32 inch (2.4 mm) for the 360°F (182°C) temperature ratings.

A leak-tight 1/2 inch NPT sprinkler joint should be obtained by applying a minimum-to-maximum torque of 7 to 14 ft.-lbs. (9.5 to 19.0 Nm). Obtain a leak-tight 3/4 inch NPT sprinkler joint by applying 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 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.
Upright and Pendent Sprinklers

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

**Note:** Install pendent sprinklers in the pendent position; install upright sprinklers 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 6 Sprinkler Wrench (Figure 7). For wax-coated sprinklers, use an 8 or 10 inch adjustable wrench. With reference to Figures 1 through 4, the W-Type 7 Recessed Sprinkler Wrench or an adjustable wrench, as applicable, is to be applied to the sprinkler wrench flats.

When installing wax-coated sprinklers with an adjustable wrench, exercise 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 contact only the sprinkler wrench flats. After wrench tightening the sprinkler, loosen the wrench jaws before removing the wrench.

After installation, 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 inch diameter steel rod to the damaged areas of 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 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.

Recessed Pendent Sprinklers

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

**Step A.** After installing the Style 10 or 40 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 7 Recessed Sprinkler Wrench (Figure 8). With reference to Figure 3 or 4, the W-Type 7 Recessed Sprinkler Wrench is to be applied to the sprinkler wrench flats.

**Step C.** After the ceiling is installed or the finish coat is applied, slide on the Style 10 or 40 Closure over the Series TY-B Sprinkler and push the Closure over the Mounting Plate until its flange contacts the ceiling.

Care and Maintenance

**TYCO Series TY-B, 2.8, 5.6, and 8.0 K-factor, Upright and 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, obtain permission to shut down the affected fire protection system from the proper authorities and notify all personnel who may be affected by this action.

The owner must assure that the sprinklers are not used for hanging objects and that the sprinklers are only cleaned by means of gently dusting with a feather duster; otherwise, non-operation in the event of a fire or inadvertent operation may result.

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

Sprinklers which are found to be leaking or exhibiting visible signs of corrosion must be replaced.

Automatic sprinklers are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

Care must be exercised to avoid damage to the sprinklers before, during, and after installation. Sprinklers damaged by dropping, striking, wrench twist/slipage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb. (Refer to Installation Section.)

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.

Automatic sprinklers are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

**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.

Recessed Pendent Sprinklers

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

**Step A.** After installing the Style 10 or 40 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 7 Recessed Sprinkler Wrench (Figure 8). With reference to Figure 3 or 4, the W-Type 7 Recessed Sprinkler Wrench is to be applied to the sprinkler wrench flats.

**Step C.** After the ceiling is installed or the finish coat is applied, slide on the Style 10 or 40 Closure over the Series TY-B Sprinkler and push the Closure over the Mounting Plate until its flange contacts the ceiling.

Care and Maintenance

**TYCO Series TY-B, 2.8, 5.6, and 8.0 K-factor, Upright and 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, obtain permission to shut down the affected fire protection system from the proper authorities and notify all personnel who may be affected by this action.

The owner must assure that the sprinklers are not used for hanging objects and that the sprinklers are only cleaned by means of gently dusting with a feather duster; otherwise, non-operation in the event of a fire or inadvertent operation may result.

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Automatic sprinklers are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

**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.
### 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-B (specify SIN), (specify K-factor), (specify Upright or Pendent) Sprinkler with (specify) temperature rating, (specify) finish or coating, P/N (Refer to Table C)

#### Recessed Escutcheon

Specify: Style (10 or 40) Recessed Escutcheon with (specify) finish, P/N*  
* Refer to Technical Data Sheet TFP770

#### Sprinkler Wrenches

Specify: W-Type 6 Sprinkler Wrench, P/N 56-000-6-387  
Specify: W-Type 7 Sprinkler Wrench, P/N 56-850-4-001

#### Wax Sticks

Specify: (for retouching wrench-damaged wax coating)  
Specify: (specify color, below) Colored Coded Wax Stick for retouching (specify temperature rating) temperature-rated Series TY-B Sprinklers, P/N (specify)

- Black for 135°F (57°C)  
- Red for 155°F (68°C)  
- Yellow for 175°F (79°C)  
- Blue for 200°F (93°C)  
- 286°F (141°C) MAX  
- 360°F (182°C) MAX

Note: Each wax stick is suitable for retouching up to 25 sprinklers.

Note: The wax used for 286°F (141°C) sprinklers is the same as for 200°F (93°C) sprinklers, and therefore, the 286°F (141°C) sprinkler is limited to the same maximum ceiling temperature as the 200°F (93°C) sprinkler (i.e., 150°F [66°C]).

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**TABLE C**

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

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**Notes:**  
* Available only in 8.0, 150°F (68°C) or 200°F (93°C); requires lead time to manufacture  
** Available only for 8.0 K-factor TY4151 and TY4251 for use in deluge systems (*OPEN* indicates sprinkler assembly without glass bulb, button, and sealing assembly)  
*** Available only for 8.0 K-factor TY4151 and TY4251 for use in deluge systems