

## Series TY-B – 5.6 K-factor Horizontal and Vertical Sidewall Sprinklers Standard Response, Standard Coverage

### General Description

The TYCO Series TY-B, 5.6 K-factor, Horizontal and Vertical Sidewall Sprinklers described in this data sheet are standard response - standard coverage, decorative 5 mm glass bulb type spray sprinklers designed for use in light and ordinary hazard, commercial occupancies such as banks, hotels, and shopping malls.

They are designed for installation along a wall or the side of a beam and just beneath a smooth ceiling. Sidewall sprinklers are commonly used instead of pendent or upright sprinklers due to aesthetics or building construction considerations, where piping across the ceiling is not desirable.

The recessed version of the Series TY-B Horizontal Sidewall Sprinkler is intended for use in areas with a finished wall. It uses a two-piece Style 10 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 sidewall position. The adjustment provided by the Recessed Escutcheon reduces the accuracy to which the fixed pipe nipples 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.

#### 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, 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 Numbers

TY3351 . . . . . Horizontal Sidewall  
TY3451 . . . . . Vertical Sidewall

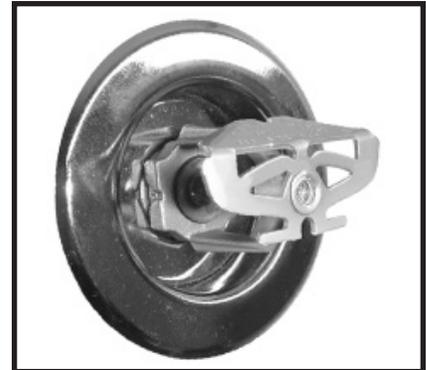
### Technical Data

#### Approvals

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

#### Maximum Working Pressure

Refer to Table B



#### Discharge Coefficient

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

#### 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

#### Physical Characteristics

Frame . . . . .	Bronze
Button . . . . .	Brass/Copper
Sealing Assembly . . . . .	Beryllium Nickel w/ TEFLON
Bulb . . . . .	Glass
Compression Screw . . . . .	Bronze
HSW Deflector . . . . .	Bronze
VSW Deflector . . . . .	Copper

**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.

## 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.

## Design Criteria

The TYCO Series TY-B, 5.6 K-factor, Horizontal and Vertical Sidewall Sprinklers are intended for fire protection systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency (for example, UL Listing is based on the requirements of NFPA 13, and FM Approval is based on the requirements of the FM Loss Prevention Data Sheets). Only the Style 10 Recessed Escutcheon, as applicable, is to be used for recessed horizontal installations.

## Installation

The TYCO Series TY-B, 5.6 K-factor, Horizontal and Vertical Sidewall Sprinklers must be installed in accordance with this section.

### General Instructions

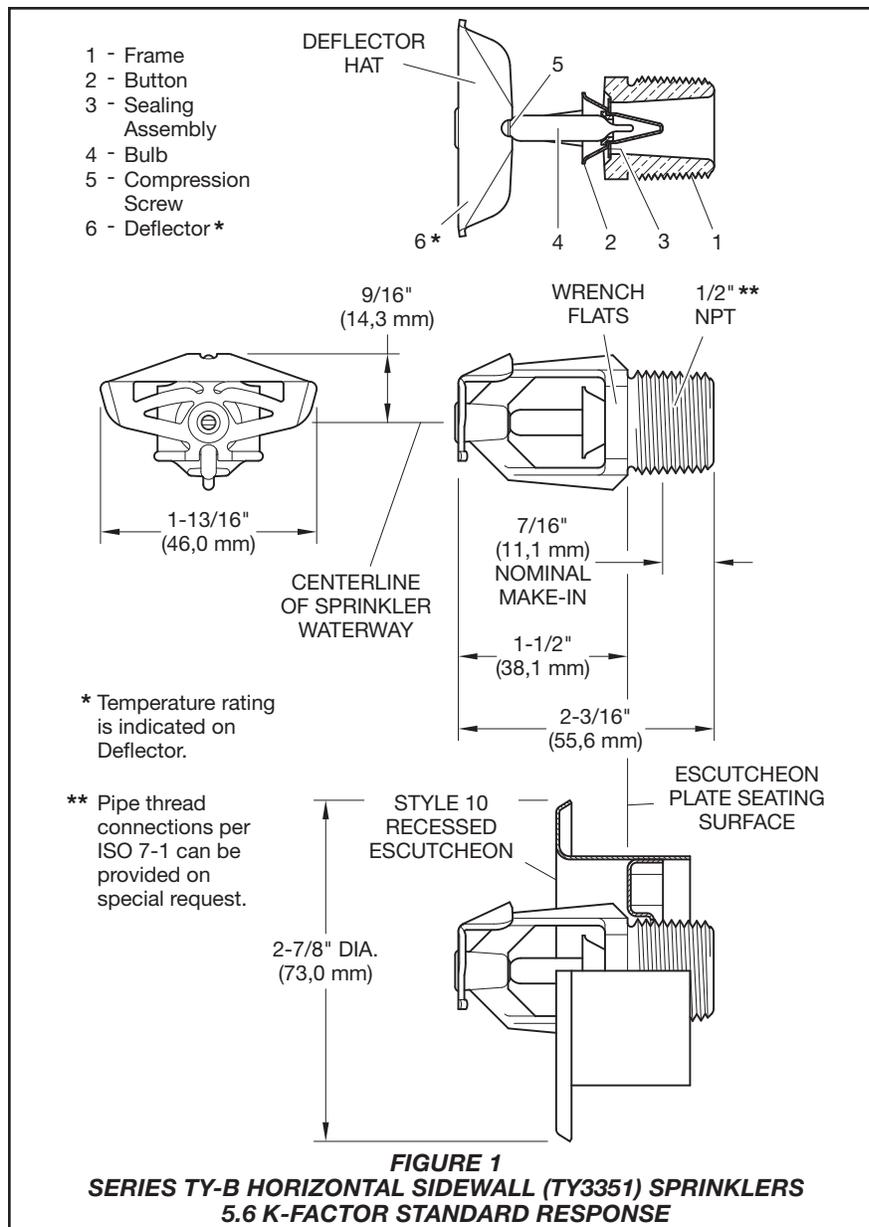
Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm) for the 135°F (57°C) to 3/32 inch (2,4 mm) for the 360°F (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). 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.

### Vertical Sidewall Sprinklers

The Series TY-B Horizontal and Vertical Sidewall Sprinklers must be installed in accordance with the following instructions.



**Step 1.** Horizontal sidewall sprinklers install in the horizontal position with their centerline of waterway perpendicular to the back wall and parallel to the ceiling. The word "TOP" on the Deflector is to face towards the ceiling.

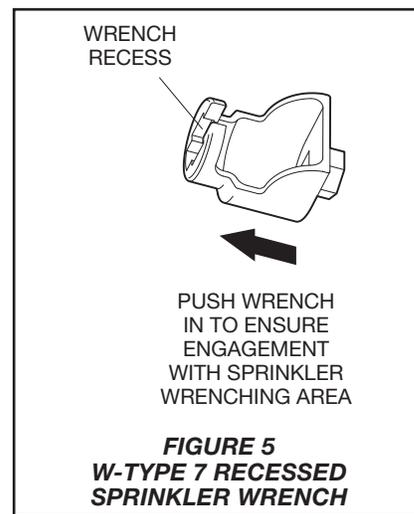
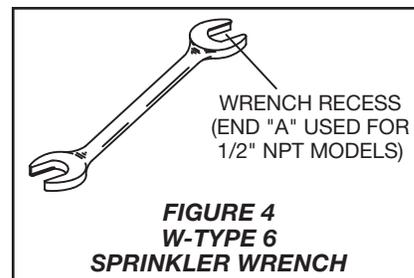
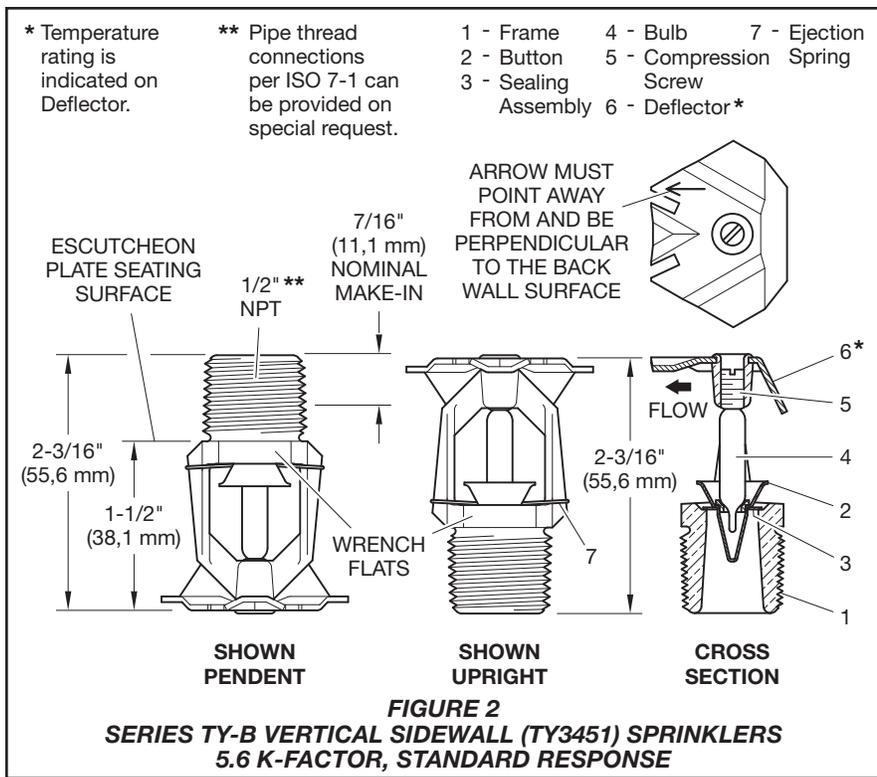
Vertical sidewall sprinklers install in the pendent or upright position with the arrow on the Deflector pointing away from the wall.

**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 6 Sprinkler Wrench (Figure 4). For wax-

coated sprinklers, use an 8 or 10 inch adjustable Crescent wrench. With reference to Figure 1 or 2, apply the W-Type 6 Sprinkler Wrench or the Crescent wrench, as applicable, to the wrench flats.

When installing wax-coated sprinklers with the adjustable Crescent 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

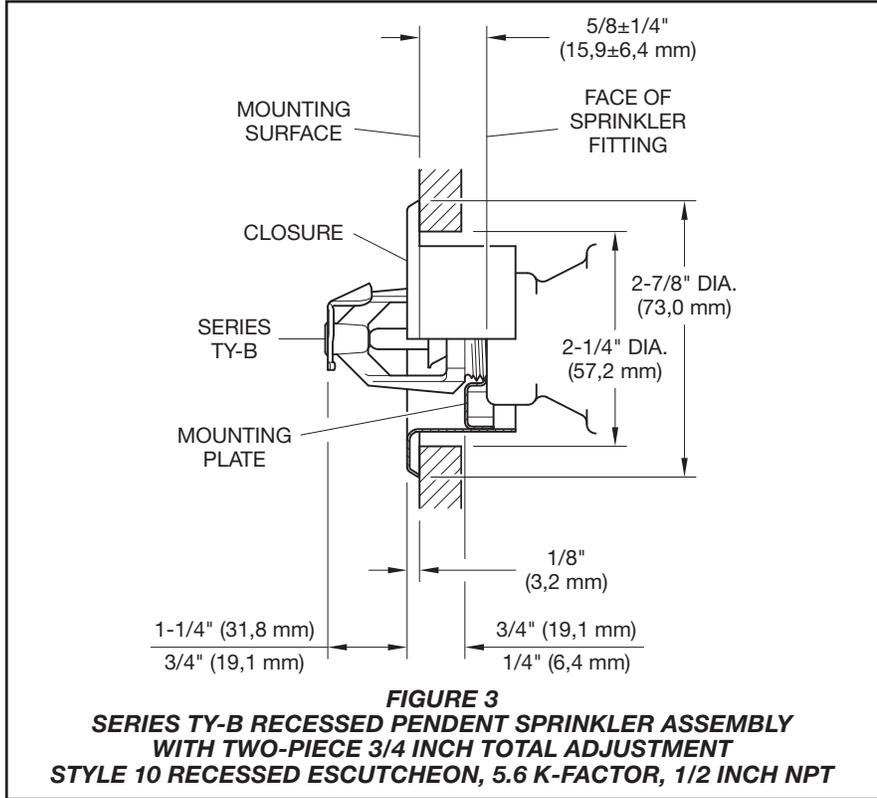


wrench to contact only the sprinkler wrench flats. After wrench tightening the sprinkler, loosen the wrench jaws before removing the wrench.

After installation, inspect the sprinkler wrench flats and frame arms and re-touch (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.



K	TYPE	TEMP.	BULB LIQUID	SPRINKLER FINISH (See Note 10)					
				NATURAL BRASS	CHROME PLATED	POLYESTER***	LEAD COATED	WAX COATED	WAX OVER LEAD COATED
5.6 1/2" NPT	<b>HORIZONTAL SIDEWALL (TY3351) Figure 1</b>	135°F (57°C)	Orange	1, 2, 3, 4, 9		1, 2, 3, 9	1, 2, 3, 9	1, 2, 3, 9	
		155°F (68°C)	Red						
		175°F (79°C)	Yellow						
		200°F (93°C)	Green						
		286°F (141°C)	Blue						
		360°F (182°C)	Mauve						1, 2, 4, 9
	<b>RECESSED HORIZONTAL SIDEWALL (TY3351)* Figure 3</b>	135°F (57°C)	Orange	1, 2, 3, 9				N/A	
		155°F (68°C)	Red						
		175°F (79°C)	Yellow						
		200°F (93°C)	Green						
5.6 1/2" NPT	<b>VERTICAL SIDEWALL (TY3451) PENDENT or UPRIGHT Figure 2</b>	135°F (57°C)	Orange	4, 5, 6, 7, 8, 9			5, 6, 7, 9	5, 6, 7, 9	
		155°F (68°C)	Red						
		175°F (79°C)	Yellow						
		200°F (93°C)	Green						
		286°F (141°C)	Blue						
		360°F (182°C)	Mauve						4, 5, 6, 8, 9

**NOTES**

- Listed by Underwriters Laboratories, Inc. (UL) for use in Light and Ordinary Hazard Occupancies at a 4 to 12 inch (100 to 300 mm) top of deflector to ceiling distance.
- Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL) for use in Light and Ordinary Hazard Occupancies at a 4 to 12 inch (100 to 300 mm) top of deflector to ceiling distance.
- Approved by Factory Mutual Research Corporation (FM) for use in Light Hazard Occupancies at a 4 to 12 inch (100 to 300 mm) top of deflector to ceiling distance.
- Approved by the Loss Prevention Certification Board (LPCB Ref. No. 094a/05 & 007k/03) at a 4 to 6 inch (100 to 150 mm) deflector to ceiling distance.
- Listed by Underwriters Laboratories, Inc. (UL) for use in Light and Ordinary Hazard Occupancies.
- Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL) for use in Light and Ordinary Hazard Occupancies.
- Approved by Factory Mutual Research Corporation (FM) for use in Light Hazard Occupancies.
- Approved by the Loss Prevention Certification Board (LPCB Ref. No. 094a/05 & 007k/03).
- Approved by the City of New York under MEA 354-01-E.
- 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.

\* Installed with Style 10 (1/2" NPT) or Style 40 (3/4" NPT) 3/4" Total Adjustment Recessed Escutcheon, as applicable.  
 \*\* 150°F (66°C) Maximum Ceiling Temperature.  
 \*\*\* Frame and deflector only.

**TABLE A**  
**SERIES TY-B HORIZONTAL AND VERTICAL SPRINKLERS**  
**LABORATORY LISTINGS AND APPROVALS**

**Horizontal Sidewall Sprinklers**

The TYCO Series TY-B Recessed Horizontal Sidewall Sprinklers must be installed in accordance with the following instructions.

**Step A.** Install recessed horizontal sidewall sprinklers in the horizontal position with their centerline of waterway perpendicular to the back wall and parallel to the ceiling. The word "TOP" on the Deflector is to face towards the ceiling.

**Step B.** After installing the Style 10 Mounting Plate over the sprinkler threads, hand-tighten the sprinkler into the sprinkler fitting.

**Step C.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 7 Recessed Sprinkler Wrench (Figure 5). With reference to Figure 1, apply the W-Type 7 Recessed Sprinkler Wrench to the sprinkler wrench flats.

**Step D.** After the ceiling is installed or the finish coat is applied, slide on the Style 10 Closure over the Series TY-B Sprinkler and push the Closure over the Mounting Plate until its flange comes in contact with the ceiling.

K	TYPE	SPRINKLER FINISH					
		NATURAL BRASS	CHROME PLATED	POLYESTER	LEAD COATED	WAX COATED	WAX OVER LEAD COATED
5.6 1/2" NPT	HORIZONTAL SIDEWALL (TY3351)	250 PSI (17,2 BAR) OR 175 PSI (12,1 BAR) (SEE NOTE 1)					
	RECESSED HORIZONTAL SIDEWALL (TY3351)						
	VERTICAL SIDEWALL (TY3451)	175 PSI (12,1 BAR)					
<p><b>NOTE</b></p> <p>1. The maximum working pressure of 250 psi (17,2 bar) only applies to the Listing by Underwriters Laboratories, Inc. (UL); the Listing by Underwriters Laboratories, Inc. for use in Canada (C-UL); and, the Approval by the City of New York.</p> <p style="text-align: center;"><b>TABLE B</b> <b>SERIES TY-B HORIZONTAL AND VERTICAL SPRINKLERS</b> <b>MAXIMUM WORKING PRESSURE</b></p>							

## Care and Maintenance

The TYCO Series TY-B, 5.6 K-factor, Horizontal and Vertical Sidewall 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 any 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 must never be painted, plated, coated, or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

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.)

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 sprinkler manufacturer regarding 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.

P/N 57 - XXX - X - XXX

		SIN
578	HORIZONTAL SIDEWALL	TY3351
575	VERTICAL SIDEWALL	TY3451

SPRINKLER FINISH	
1	NATURAL BRASS
3	PURE WHITE (RAL9010)* POLYESTER
4	SIGNAL WHITE (RAL9003) POLYESTER
5	Jet Black (RAL9005)** POLYESTER
6	WAX COATED 286°F (141°C) MAX
7	LEAD COATED
8	WAX OVER LEAD 286°F (141°C) MAX
9	CHROME PLATED

TEMPERATURE RATINGS	
135	135°F (57°C)
155	155°F (68°C)
175	175°F (79°C)
200	200°F (93°C)
286	286°F (141°C)
360	360°F (182°C)
000	OPEN***

\* Eastern Hemisphere sales only.  
 \*\* Available only for 155°F (68°C) or 200°F (93°C) temperature rated sprinklers

\*\*\*Available only for horizontal sidewall TY3351 for use in Deluge Systems. (*OPEN* indicates sprinkler assembly without glass bulb, button, and sealing assembly.)

**TABLE C**  
**SERIES TY-B HORIZONTAL AND VERTICAL SPRINKLERS**  
**PART NUMBER SELECTION**

## 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 Horizontal or Vertical Sidewall ) Sprinklers with (specify) temperature rating, (specify) finish or coating, P/N (Refer to Table C)

### Recessed Escutcheon

Specify: Style 10 Recessed Escutcheon with (specify) finish, P/N (specify\*)

\* Refer to Technical Data Sheet TFP770

### Sprinkler Wrench

Specify: W-Type 6 Sprinkler Wrench, P/N 56-000-6-387

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