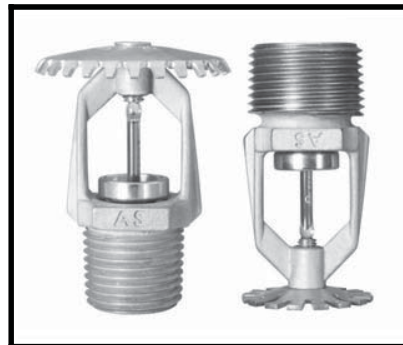


## Series TY-B and TY-FRB Sprinklers Alternate Materials Of Construction Stainless Steel, SMO, and Titanium

### General Description

Series TY-B and TY-FRB Sprinklers described in this data sheet are corrosion resistant sprinklers designed for use in commercial occupancies where corrosive atmospheres may exist. The TY-B with its 5 mm diameter heat sensitive glass bulb is rated standard response, whereas the TY-FRB with its 3 mm diameter heat sensitive glass bulb is rated quick response.

The alternate materials of construction for the TY-B and TY-FRB Sprinklers, i.e. Stainless Steel, SMO, or Titanium are utilized to extend the life of a sprinkler beyond that which might be expected of copper alloy sprinklers exposed to corrosive atmospheres. Although corrosion resistant 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 alternate materials of construction 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



**Upright and Pendent**



**Conventional**



**Horizontal Sidewall**



**Vertical Sidewall**



**Recessed Pendent**



**Recessed Horizontal Sidewall**

#### **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.

chemical to which the sprinklers will be exposed.

#### Pendent and Upright Sprinklers:

The pendent and upright sprinklers are standard coverage spray sprinklers available in either 5.6 or 8.0 K-factor. The recessed version is intended for use in areas with a finished ceiling. The two-piece Style 10 (1/2 inch NPT) or Style 40 (3/4 inch NPT) Recessed Escutcheons provide 1/2 inch (12,7 mm) of recessed adjustment or 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.

#### Conventional Sprinklers:

The 5.6 or 8.0 K-factor conventional sprinklers are intended to be installed either pendent or upright, and in either position, they produce a spherical water discharge pattern with approximately 50% of the discharge upwards and approximately 50% of the discharge directed downwards

Conventional sprinklers are generally used with Ordinary and Extra High hazard Class Systems as defined by the automatic sprinkler system installation rules of the country and authority having jurisdiction. The NFPA permits the use of conventional sprinklers (old style sprinklers) where special construction features require a unique water distribution; for fur vaults; or, replacement of similar sprinklers that had been installed prior to 1955.

#### Sidewall Sprinklers:

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

A recessed version of the horizontal sidewall sprinkler can be achieved by using the Style 10 Recessed Escutcheon.

#### WARNINGS

*The Series TY-B and TY-FRB 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 maintain-*

*ing 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

#### Stainless Steel-Standard Response

TY8191 - Upright 5.6K, 1/2"NPT  
 TY8291 - Pendent 5.6K, 1/2"NPT  
 TY9191 - Upright 8.0K, 3/4"NPT  
 TY9291 - Pendent 8.0K, 3/4"NPT  
 TY8691 - C/UP 5.6K, 1/2" NPT  
 TY9691 - C/UP 8.0K, 3/4" NPT  
 TY8391 - HSW 5.6K, 1/2" NPT  
 TY8491 - VSW 5.6K, 1/2" NPT

#### Stainless Steel-Quick Response

TY8181 - Upright 5.6K, 1/2"NPT  
 TY8281 - Pendent 5.6K, 1/2"NPT  
 TY9181 - Upright 8.0K, 3/4"NPT  
 TY9281 - Pendent 8.0K, 3/4"NPT  
 TY8681 - C/UP 5.6K, 1/2" NPT  
 TY9681 - C/UP 8.0K, 3/4" NPT  
 TY8381 - HSW 5.6K, 1/2" NPT  
 TY8481 - VSW 5.6K, 1/2" NPT

#### SMO-Standard Response

TY8192 - Upright 5.6K, 1/2"NPT  
 TY8292 - Pendent 5.6K, 1/2"NPT  
 TY8692 - C/UP 5.6K, 1/2" NPT  
 TY8392 - HSW 5.6K, 1/2" NPT  
 TY8492 - VSW 5.6K, 1/2" NPT

#### SMO-Quick Response

TY8182 - Upright 5.6K, 1/2"NPT  
 TY8282 - Pendent 5.6K, 1/2"NPT  
 TY8682 - C/UP 5.6K, 1/2" NPT  
 TY8382 - HSW 5.6K, 1/2" NPT  
 TY8482 - VSW 5.6K, 1/2" NPT

#### Titanium-Standard Response

TY8193 - Upright 5.6K, 1/2"NPT  
 TY8293 - Pendent 5.6K, 1/2"NPT  
 TY8693 - C/UP 5.6K, 1/2" NPT  
 TY8393 - HSW 5.6K, 1/2" NPT  
 TY8493 - VSW 5.6K, 1/2" NPT

#### Titanium-Quick Response

TY8183 - Upright 5.6K, 1/2"NPT  
 TY8283 - Pendent 5.6K, 1/2"NPT  
 TY8683 - C/UP 5.6K, 1/2" NPT  
 TY8383 - HSW 5.6K, 1/2" NPT  
 TY8483 - VSW 5.6K, 1/2" NPT

## Technical Data

#### Approvals

Refer to Table A, B, C, and D.

#### 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, B, C, and D.

#### Physical Characteristics

##### • Stainless Steel

The frame is free machining ANC4A Stainless Steel, per BS 3146 PT 2. The Deflector is Type 316L (UNS 31603) Stainless Steel per ASTM A479/479M or BS EN 10088 WN1.4401/4404. The Compression Screw and Button are Type 316L (UNS 31603) Stainless Steel per ASTM A479/479M or BS EN 10088 WN1.4404. The Sealing Assembly consists of a Disc Spring that is sealed on both its inside and outside faces with a Teflon\*Gasket. The Disc Spring is 1/2 Hard Beryllium Nickel (UNS NO3360) Gold Plated per MIL G-45204, Type 3, Class 2. The Bulb is Glass.

##### • SMO

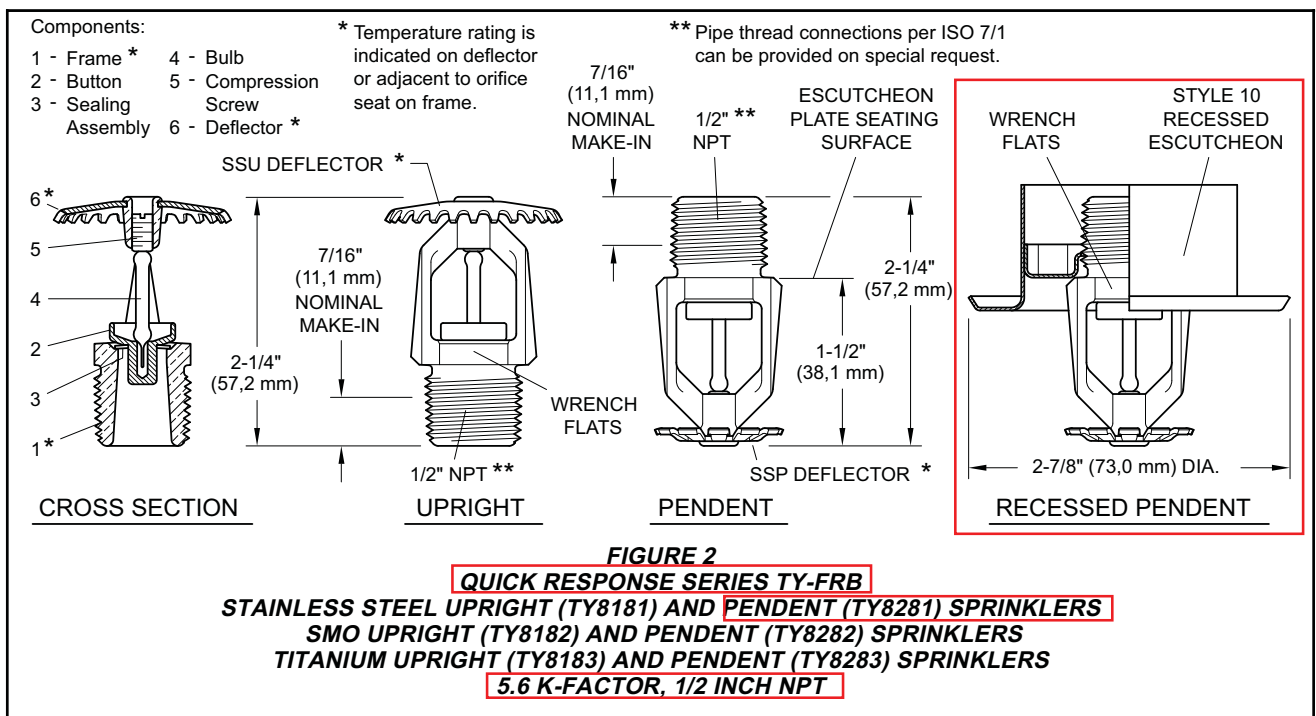
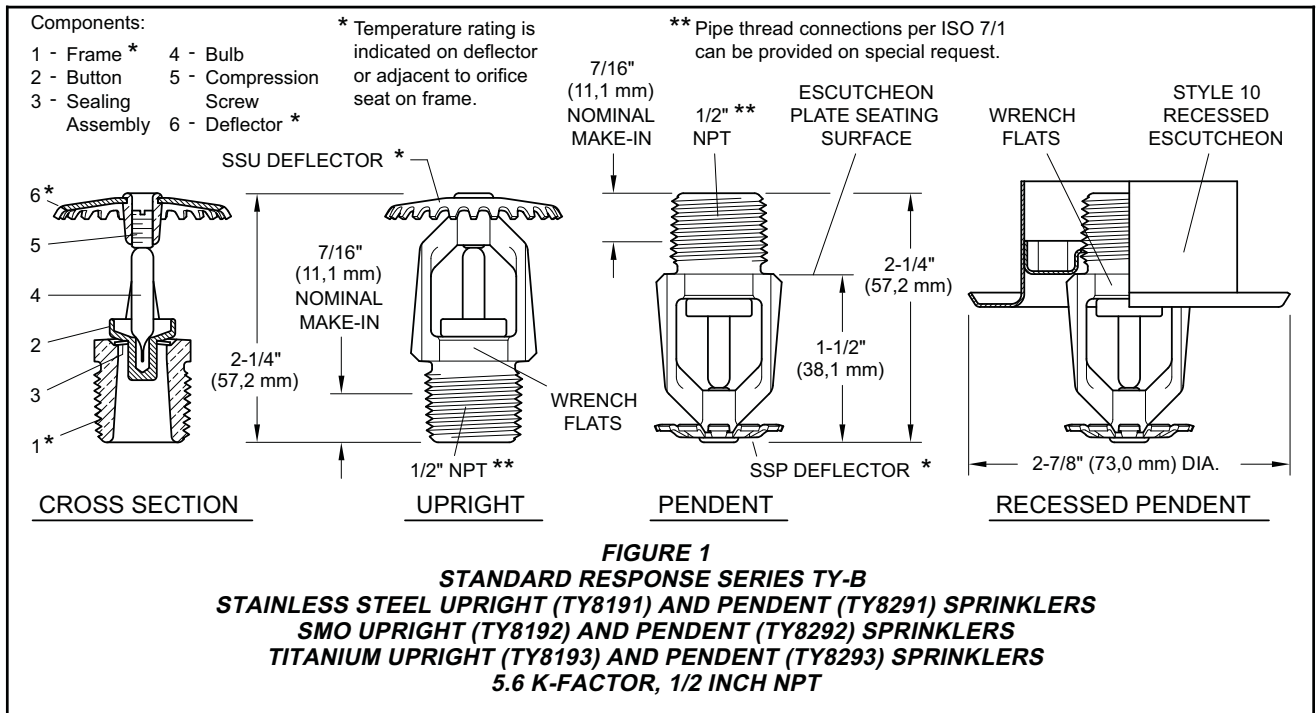
The Frame, Deflector, Compression Screw, and Button are 254 SMO\*\* Duplex Stainless Steel per UNS S31254. The Sealing Assembly consists of a Disc Spring that is sealed on both its inside and outside faces with a Teflon\* Gasket. The Disc Spring is 1/2 Hard Beryllium Nickel (UNS NO3360) Gold Plated per MIL G-45204, Type 3, Class 2. The Bulb is Glass.

##### • Titanium

The Frame is Titanium, Grade 2 per UNS R50400. The Deflector is Titanium, Grade 2 per ASTM B265-03. The Compression Screw is Titanium, Grade 5 per ASTM B348-03. The Button is Titanium, Grade 2 per ASTM B348. The Sealing Assembly consists of a Disc Spring that is sealed on both its inside and outside faces with a Teflon\* Gasket. The Disc Spring is Titanium 6AL4V Ti per AMS4911J. The Bulb is Glass.

\* Teflon is a DuPont registered trademark.

\*\* 254 SMO is a Avesta Sheffield registered trademark.



MODEL K RESPONSE	TYPE	TEMP. RATING	BULB LIQUID COLOR	SPRINKLER MATERIAL		
				STAINLESS STEEL	SMO	TITANIUM
TY-B 5.6 1/2" NPT QR	PENDENT and UPRIGHT	135°F/57°C	Orange	1, 2, 3, 4		3, 4
		155°F/68°C	Red			
		175°F/79°C	Yellow			
		200°F/93°C	Green			
		286°F/141°C	Blue			
	RECESSED PENDENT* Figure 13	135°F/57°C	Orange	1, 2		NAS
		155°F/68°C	Red			
		175°F/79°C	Yellow			
		200°F/93°C	Green			
		286°F/141°C	Blue			
TY-B 8.0 3/4" NPT QR	PENDENT and UPRIGHT	135°F/57°C	Orange	1, 2, 3, 4		N/A
		155°F/68°C	Red			
		175°F/79°C	Yellow			
		200°F/93°C	Green			
		286°F/141°C	Blue			
	RECESSED PENDENT* Figure 14	135°F/57°C	Orange	1, 2		
		155°F/68°C	Red			
		175°F/79°C	Yellow			
		200°F/93°C	Green			
		286°F/141°C	Blue			

**NOTES:**

1. Listed by Underwriters Laboratories, Inc. (UL).
2. Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL).
3. Loss Prevention Certification Board Approved (LPCB Ref. No. 007q/01 & 007q/02).  
Loss Prevention Certification Board EC Certificate of Conformity — 0832-CPD-2020.
4. Lloyd's Register Certificate of Fire Approval — SAS F060123.  
Lloyd's Register EC Type Examination (Module B) Certificate — MED0650147.  
Lloyd's Register EC (Module D) Certificate of Conformity — MED 0750238.

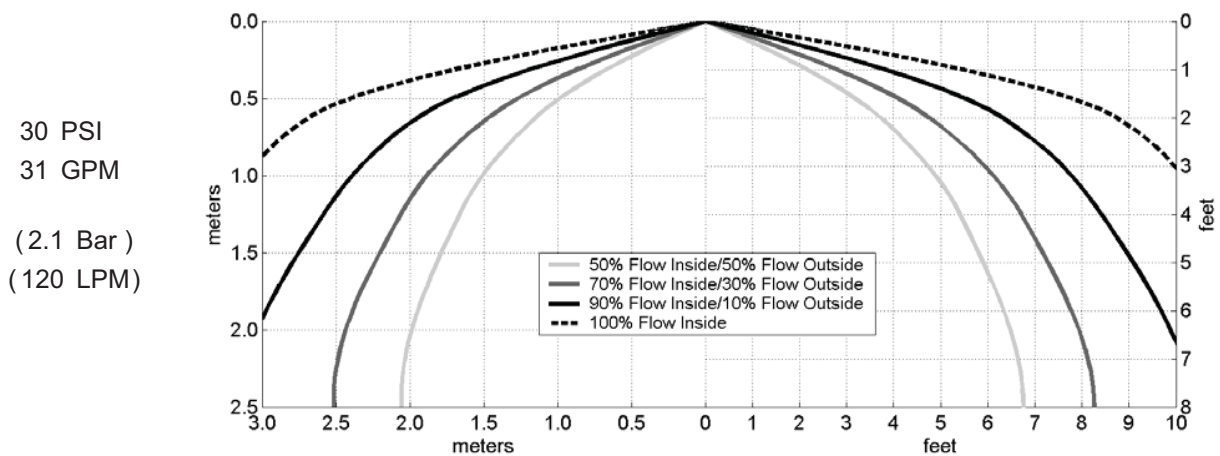
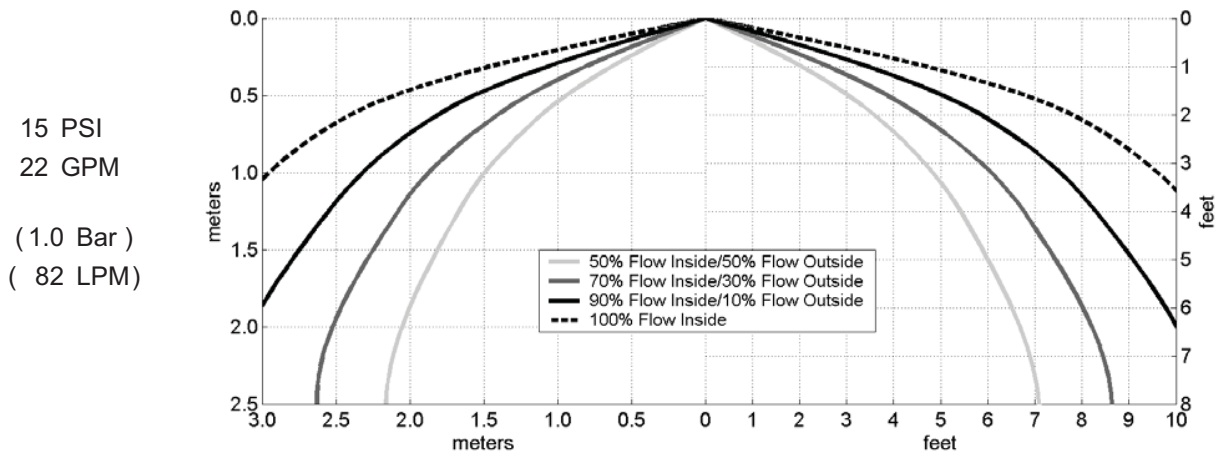
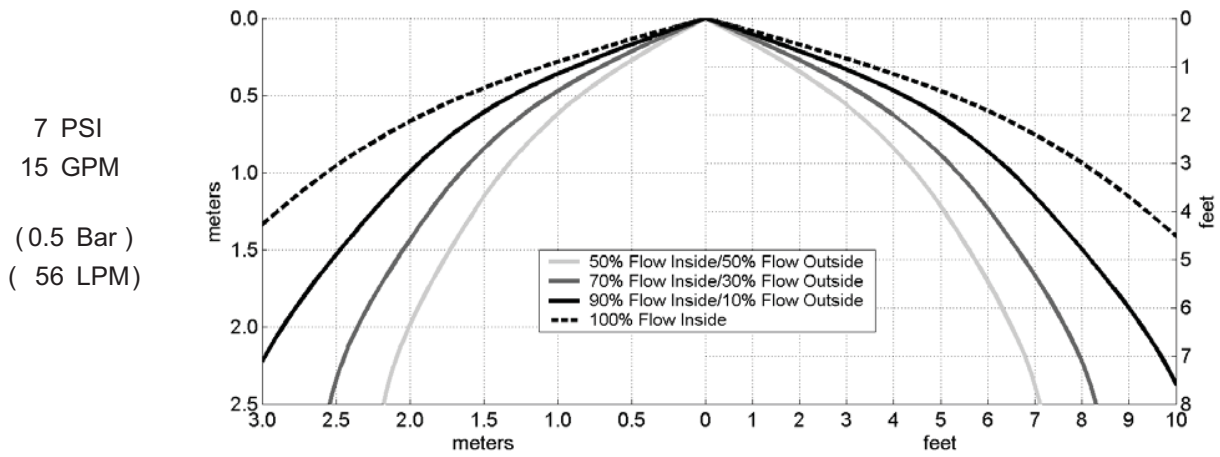
\* Installed with Style 10 (1/2" NPT) Recessed Escutcheon.

NAS: No Approval Status.

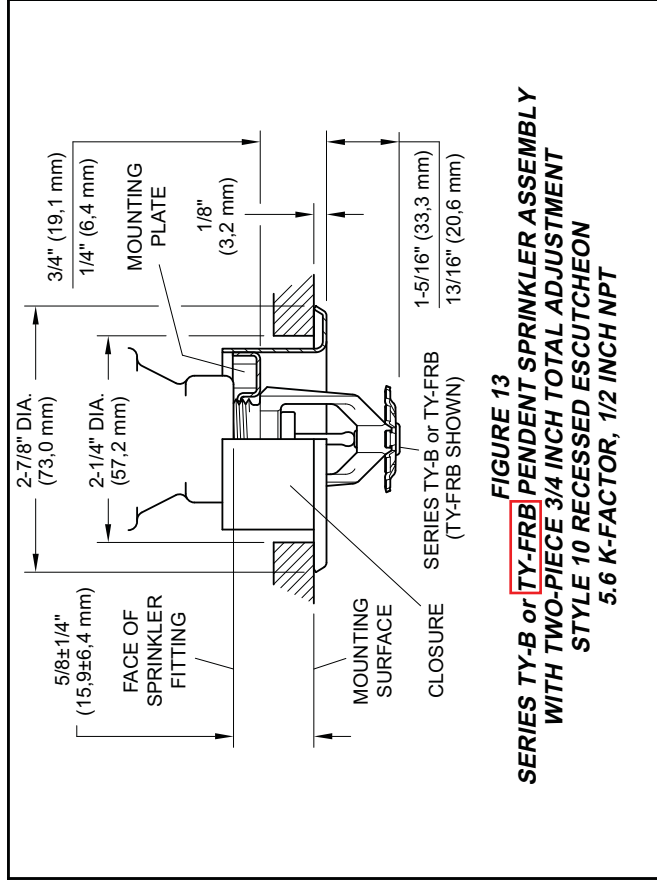
N/A: Not Available.

**TABLE B  
LABORATORY LISTINGS AND APPROVALS  
SERIES TY-FRB QUICK RESPONSE  
5.6 & 8.0 K-FACTOR PENDENT AND UPRIGHT SPRINKLERS**

(Read the General Description section on Page 1 before applying the spray pattern data.)



Standard CoveragePendent  
K= 5.6 (K 80 ), 7 inches (178 mm) Deflector to Ceiling



**FIGURE 13**  
**SERIES TY-B or TY-FRB PENDENT SPRINKLER ASSEMBLY**  
**WITH TWO-PIECE 3/4 INCH TOTAL ADJUSTMENT**  
**STYLE 10 RECESSED ESCUTCHEON**  
**5.6 K-FACTOR, 1/2 INCH NPT**