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Series TY-FRB – 5.6 and 8.0 K-factor Conventional (Old Style) Sprinklers Quick Response

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information. 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.

Scan the QR code or enter the URL in a web browser to access the most up-to-date electronic version of this document. Data rates may apply.



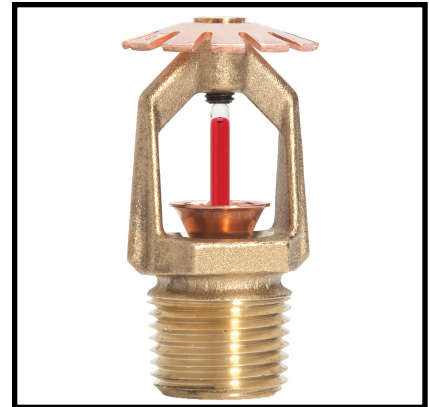
docs.jci.com/tycofire/TFP666

General Description

The TYCO Series TY-FRB, 5.6 and 8.0 K-factor, Conventional Sprinklers described in this technical data sheet are Quick Response, Standard Coverage, decorative 3 mm glass bulb type spray sprinklers. These sprinklers are intended to be installed either pendent or upright and, in either position, produce a spherical water discharge pattern with approximately 50% of the discharge directed 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 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) permits the use of “Old Style Sprinklers” where special construction features require a unique water distribution, for the protection of fur vaults, or to replace similar sprinklers that had been installed prior to 1955.

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 TYCO Series TY-FRB Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the 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)

TY3631 5.6K, 1/2 in. NPT
TY4631 8.0K, 3/4 in. NPT

* Temperature rating is indicated on Deflector or adjacent to orifice seat on Frame.

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

- Components:
- | | |
|----------------------|-----------------------|
| 1 - Frame | 4 - Bulb |
| 2 - Button | 5 - Compression Screw |
| 3 - Sealing Assembly | 6 - Deflector* |

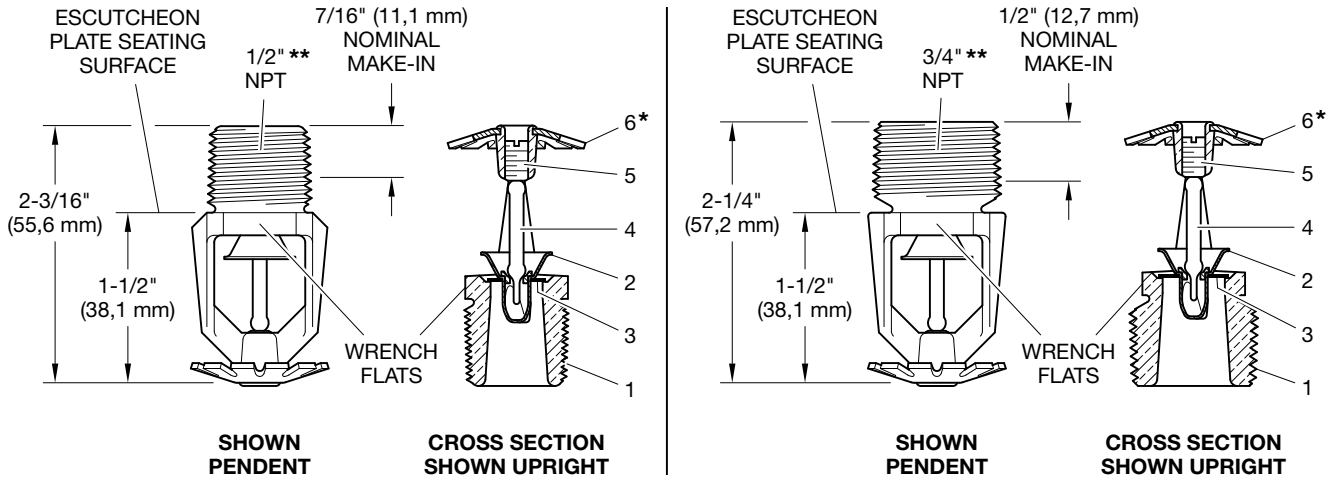


FIGURE 1
SERIES TY-FRB 5.6 K-FACTOR (TY3631) AND 8.0 K-FACTOR (TY4631)
QUICK RESPONSE CONVENTIONAL SPRINKLERS

Technical Data

Approvals

UL and C-UL Listed
 LPCB Approved
 VdS Approved
 NYC Approved
 EAC Approved

(See Table A for complete approval information.)

Sprinklers with Polyester Finish are UL and C-UL Listed as Corrosion-Resistant Sprinklers.

Maximum Working Pressure

175 psi (12,1 bar)

Discharge Coefficient

K=5.6 gpm/psi^{1/2} (80,6 Lpm/bar^{1/2})

K=8.0 gpm/psi^{1/2} (115,2 Lpm/bar^{1/2})

Temperature Ratings

See Table A

Finishes

Sprinkler: See Table A

Physical Characteristics

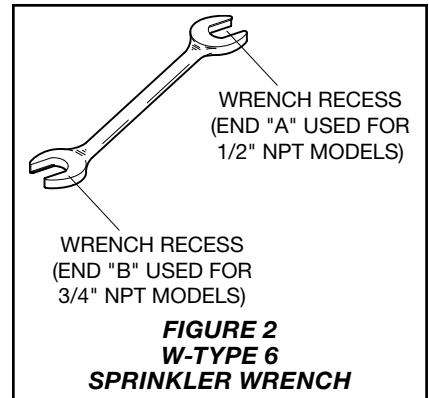
| | | |
|-------------------|-------|---------------------------|
| Frame | | Bronze |
| Button | | Brass/Copper |
| Sealing Assembly | .. | Beryllium Nickel w/TEFLON |
| Bulb | | Glass |
| Compression Screw | | Bronze |
| Deflector | | Copper |

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-FRB Conventional Sprinklers are intended for fire protection systems designed in accordance with the standard installation rules recognized by the applicable Listing or Approval agency such as UL Listing is based on NFPA 13 requirements. The Series TY-FRB Conventional Sprinklers are only for non-recessed applications.



| Type | Temperature Rating | Bulb Liquid Color | Sprinkler Finish | | | |
|----------------------------------|--------------------|-------------------|------------------|---------------|------------|-------------|
| | | | Natural Brass | Chrome Plated | Polyester* | Lead Coated |
| 5.6K CONVENTIONAL (TY3631) | 135°F (57°C) | Orange | 1, 2, 4, 5, 7 | | | 1, 2, 4, 7 |
| | 155°F (68°C) | Red | | | | |
| | 175°F (79°C) | Yellow | | | | |
| | 200°F (93°C) | Green | | | | |
| | 286°F (141°C) | Blue | | | | |
| 8.0K CONVENTIONAL (TY4631) | 135°F (57°C) | Orange | 1, 2, 3, 4, 5, 7 | | | 1, 2, 4, 7 |
| | 155°F (68°C) | Red | | | | |
| | 175°F (79°C) | Yellow | | | | |
| | 200°F (93°C) | Green | | | | |
| | 286°F (141°C) | Blue | | | | |

Notes:

1. UL Listed
2. C-UL Listed
3. LPCB Approved (LPCB Ref. No. 094a/06 & 007k/04)
4. Approved by the City of New York under MEA 354-01-E
5. VdS Approved (For details, contact Johnson Controls, Enschede, Netherlands, Tel. +31-53-428-4444 / Fax +31-53-428-3377.)
6. Where polyester-coated and lead-coated sprinklers are noted to be UL and C-UL Listed, the sprinklers are UL and C-UL Listed as Corrosion-Resistant Sprinklers
- * Frame and deflector only
7. EAC Approved

**TABLE A
LABORATORY LISTINGS AND APPROVALS**

Installation

The Series TY-FRB 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 in. (1,6 mm) for the 135°F (57°C) to 3/32 in. (2,4 mm) for the 286°F (141°C) temperature ratings.

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

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 (See. Figure 2). With reference to Figure 1, the W-Type 6 Sprinkler Wrench is to be applied to the Wrench Flats.

Care and Maintenance

The TYCO Series TY-FRB 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.

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 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. Refer to the Installation section for additional information.

Frequent visual inspections are recommended to be initially performed for corrosion resistant coated sprinklers, after the installation has been 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.

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| | | SIN | SPRINKLER FINISH | TEMPERATURE RATING |
|-----|---------------------------------|--------|------------------------------------|--------------------|
| 373 | 5.6K CONVENTIONAL (1/2 in. NPT) | TY3631 | 1 NATURAL BRASS | 135 135°F (57°C) |
| 393 | 8.0K CONVENTIONAL (3/4 in. NPT) | TY4631 | 3 PURE WHITE (RAL9010)* POLYESTER | 155 155°F (68°C) |
| | | | 4 SIGNAL WHITE (RAL9003) POLYESTER | 175 175°F (79°C) |
| | | | 5 JET BLACK (RAL9005)** POLYESTER | 200 200°F (93°C) |
| | | | 9 CHROME PLATED | 286 286°F (141°C) |

Notes:
 * Eastern Hemisphere sales only
 ** Available only for temperature ratings of 155°F (68°C) or 200°F (93°C)

TABLE B
SERIES TY-FRB CONVENTIONAL SPRINKLERS
PART NUMBER SELECTION

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: (specify) SIN, Series TY-FRB Conventional Sprinkler Quick Response, (specify) SIN, K=(specify), (specify) temperature rating, with (specify) finish, P/N (specify from Table B)

Sprinkler Wrench:

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



TFP666 Change History Appendix

| ISSUE DATE | NOTES |
|------------|--|
| 08-22 | Page 1, updated QR code and URL; Page 4, changed corporate address and telephone number to 1467 Elmwood Avenue, Cranston, RI 02910 Telephone +1-401-781-8220, formerly 1400 Pennbrook Parkway, Lansdale, PA 19446 Telephone +1-215-362-0700. |
| 04-22 | Page 1, added QR code and URL to allow convenient access to electronic version from printed document; Page 2, Approvals sub-section, added EAC Approved; Page 3, Table A, added EAC Approved for all finishes and temperature ratings. |
| 03-20 | Removed LPCB certification from TY4631 5.6 K sprinkler. |
| 08-18 | Updated Tyco® branding and document format; Added Johnson Controls copyright; Added disclaimer stating specifications and information subject to change without notice; Added reference to Regulatory and Health Warning Technical Data Sheet TFP2300. |
| 01-17 | Corrected Table B caption to Series TY-FRB, formerly shown as Series TY-B. |
| 10-14 | Corrected K-factors and Temperature Ratings in Table B Part Number Selection. |
| 06-14 | Corrected SIN numbers in Table A Laboratory Listings and Approvals and Table B Part Number Selection. |
| 05-14 | Clarified Polyester finish; Updated and standardized RAL color finishes. |
| 07-04 | Added reference to Installer Warning data sheet TFP700; Added LPCB Reference Numbers; Added White (RAL9010) finish for Eastern Hemisphere sales. |
| 01-03 | Added new Tyco Fire & Building Products masthead. |
| 09-02 | New Technical Data Sheet TFP666 describes Series TY-FRB Conventional Sprinklers. |