**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)**

<table>
<thead>
<tr>
<th>SIN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TY3631...</td>
<td>5.6K, 1/2 in. NPT</td>
</tr>
<tr>
<td>TY4631...</td>
<td>8.0K, 3/4 in. NPT</td>
</tr>
</tbody>
</table>

**Technical Data**

**Approvals**

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

**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.

### TABLE A

<table>
<thead>
<tr>
<th>Type</th>
<th>Temperature Rating</th>
<th>Bulb Liquid Color</th>
<th>Sprinkler Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Natural Brass</td>
</tr>
<tr>
<td><strong>5.6K CONVENTIONAL</strong></td>
<td>135°F (57°C)</td>
<td>Orange</td>
<td>1, 2, 4, 5</td>
</tr>
<tr>
<td>(TY3631)</td>
<td>155°F (68°C)</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td></td>
<td>175°F (79°C)</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200°F (93°C)</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td></td>
<td>286°F (141°C)</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td><strong>8.0K CONVENTIONAL</strong></td>
<td>135°F (57°C)</td>
<td>Orange</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td>(TY4631)</td>
<td>155°F (68°C)</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td></td>
<td>175°F (79°C)</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200°F (93°C)</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td></td>
<td>286°F (141°C)</td>
<td>Blue</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. UL Listed
2. C-UL Listed
3. LPCB Approved (LPCB Ref. No. 094a/08 & 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
**Limited Warranty**

For warranty terms and conditions, visit [www.tyco-fire.com](http://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

### TABLE B
SERIES TY-FRB CONVENTIONAL SPRINKLERS
PART NUMBER SELECTION

<table>
<thead>
<tr>
<th>SIN</th>
<th>SPRINKLER FINISH</th>
<th>TEMPERATURE RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>373</td>
<td>5.6K CONVENTIONAL (1/2 in. NPT) TY3631</td>
<td>135 135°F (57°C)</td>
</tr>
<tr>
<td>393</td>
<td>8.0K CONVENTIONAL (3/4 in. NPT) TY4631</td>
<td>155 155°F (68°C)</td>
</tr>
<tr>
<td></td>
<td>PURE WHITE (RAL9010)* POLYESTER</td>
<td>175 175°F (79°C)</td>
</tr>
<tr>
<td></td>
<td>SIGNAL WHITE (RAL9003) POLYESTER</td>
<td>200 200°F (93°C)</td>
</tr>
<tr>
<td></td>
<td>JET BLACK (RAL9005)** POLYESTER</td>
<td>286 286°F (141°C)</td>
</tr>
<tr>
<td></td>
<td>CHROME PLATED</td>
<td></td>
</tr>
</tbody>
</table>

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

* Available only for temperature ratings of 155°F (68°C) or 200°F (93°C)