

Series TY-FRL — 2.8, 5.6, and 8.0 K-factor Upright, Pendent, and Recessed Pendent Sprinklers Quick Response, Standard Coverage

General Description

The Series TY-FRL, 2.8, 5.6, and 8.0 K-factor, Upright and Pendent Sprinklers described in this data sheet are quick response - standard coverage, solder type spray sprinklers designed for use in light and ordinary hazard, commercial occupancies such as banks, hotels, shopping malls, schools, hospitals, etc.

The recessed version of the 2.8 and 5.6 K-factor, Series TY-FRL Pendent Sprinkler, where applicable, is intended for use in areas with a finished ceiling. It uses a two-piece Style 20 (1/2 inch NPT) Recessed Escutcheon. The Recessed Escutcheon provides 1/4 inch (6,4 mm) of recessed adjustment or up to 1/2 inch (12,7 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

An intermediate level version of the 5.6 and 8.0 K-factor, Series TY-FRL Pendent Sprinkler can be obtained by utilizing the Series TY-FRL Pendent Sprinkler in combination with the Model S4 Shield.

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.

WARNINGS

The Series TY-FRL 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.

Model/Sprinkler Identification Numbers

TY1121 - Upright 2.8K, 1/2"NPT
TY1221 - Pendent 2.8K, 1/2"NPT
TY3121 - Upright 5.6K, 1/2"NPT
TY3221 - Pendent 5.6K, 1/2"NPT
TY4121 - Upright 8.0K, 3/4"NPT
TY4221 - Pendent 8.0K, 3/4"NPT

TY1121 is a redesignation for S1879 and G8973.

TY1221 is a redesignation for S1880 and G8971.

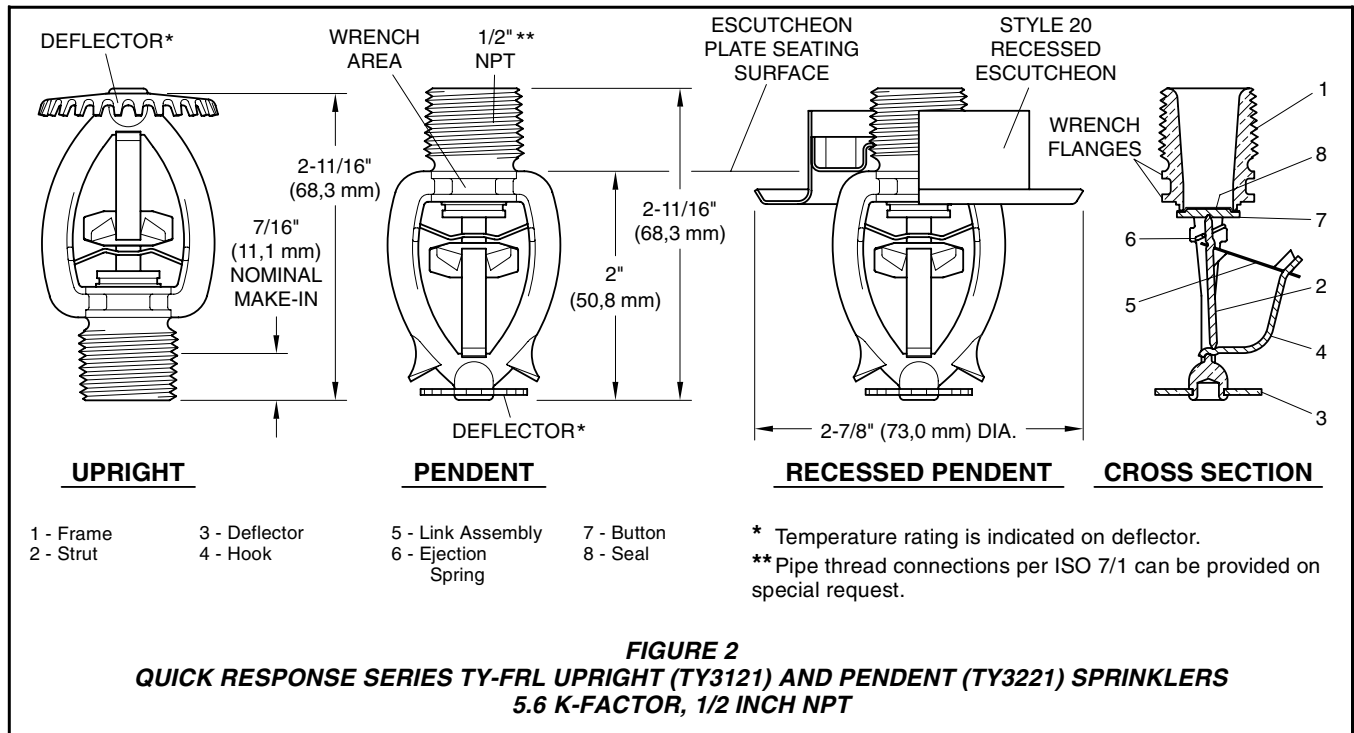
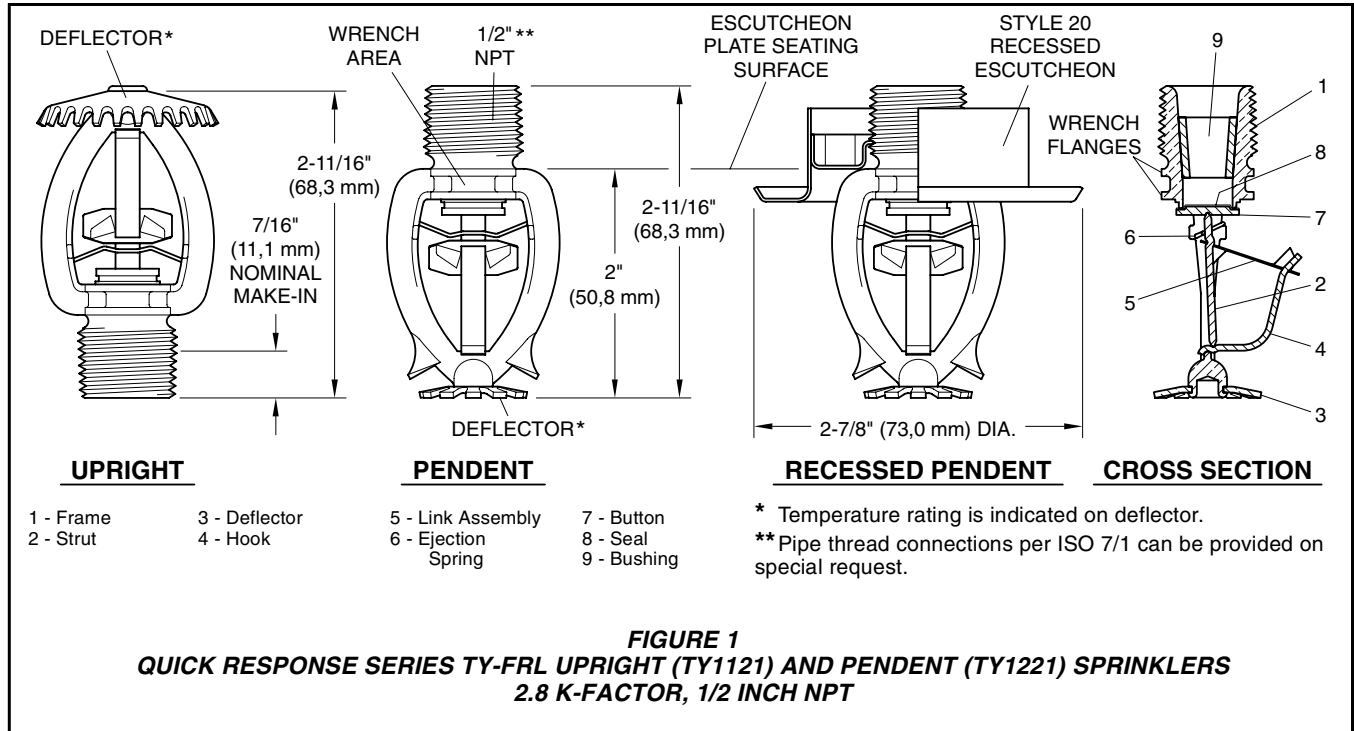
TY3121 is a redesignation for S1864 and G8974.

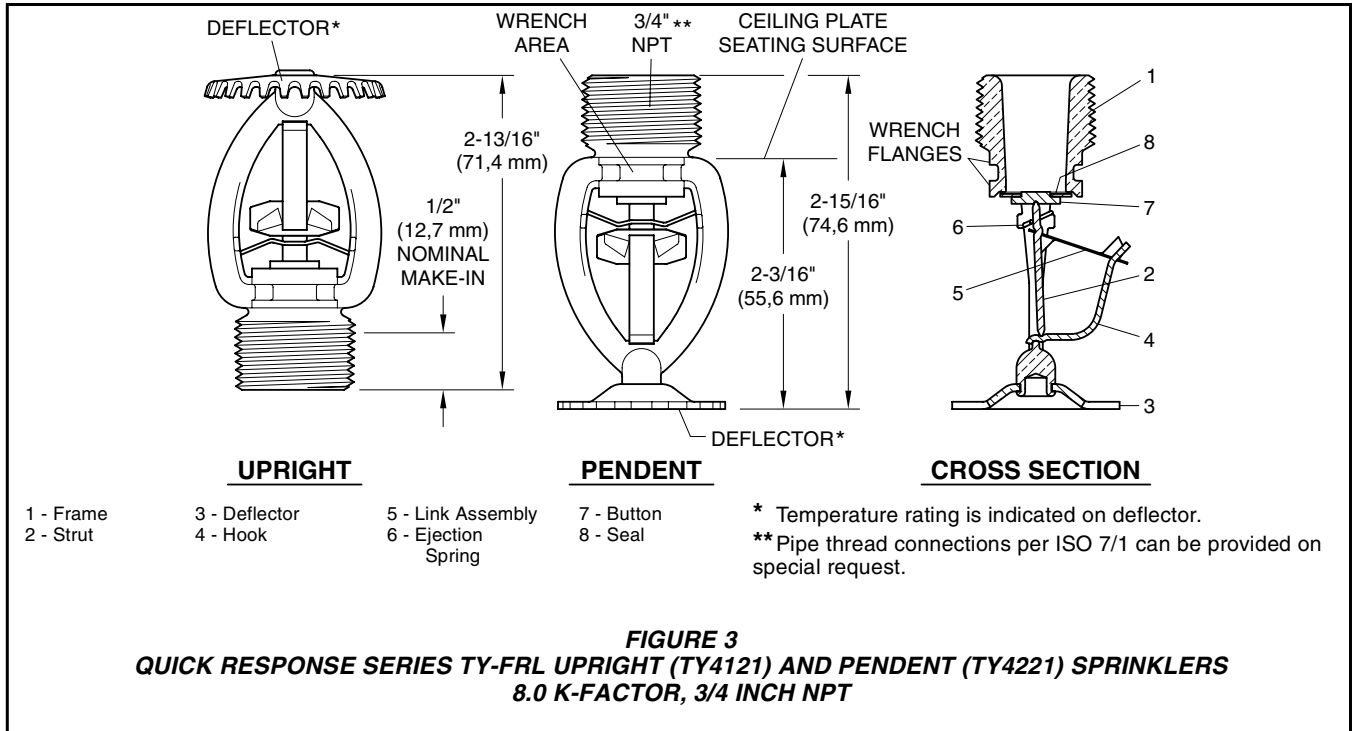
TY3221 is a redesignation for S1865 and G8972.

TY4121 is a redesignation for S1866 and G8174.

TY4221 is a redesignation for S1867 and G8172.







Technical Data

Approvals

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

Maximum Working Pressure

175 psi (12,1 bar)

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 A
Recessed Escutcheon: White Coated, Chrome Plated, or Brass Plated

Physical Characteristics

Frame	Bronze
Strut	Monel
Deflector	Bronze
Hook	Monel
Link Assembly	Nickel
Ejection Spring	Inconel
Button	Bronze
Seal	Teflon†
Bushing (2.8K only)	Brass

† DuPont Registered Trademark

Operation

The fusible link (heat collector) assembly is comprised of two halves that are joined together by a thin layer of solder. When the rated temperature is reached, the solder melts and the two link halves separate, allowing the sprinkler to operate.

Design Criteria

The Series TY-FRL Pendent and Upright 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 FM's Loss Prevention Data Sheets). Only the Style 20 Recessed Escutcheon, as applicable, is to be used for recessed pendent installations.

Installation

The Series TY-FRL Sprinklers must be installed in accordance with the following instructions:

NOTES

A leak tight 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft.lbs. (9,5 to 19,0 Nm). A maximum of 21 ft. lbs. (28,5 Nm) of torque may be used to install sprinklers with 1/2 NPT connections. A leak tight 3/4 inch NPT sprinkler joint should be obtained with a torque of 10 to 20 ft.lbs. (13,4 to 26,8 Nm). A maximum of 30 ft.lbs. (40,7 Nm) of torque is to be used to install sprinklers with 3/4 NPT connections. 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.

The **Series TY-FRL Pendent and Upright Sprinklers** must be installed in accordance with the following instructions.

Step 1. Pendent sprinklers are to be installed in the pendent position, and upright sprinklers are to be installed in the upright position.

Step 2. With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

K	TYPE	TEMP. RATING	FRAME COLOR CODE	SPRINKLER FINISH	
				NATURAL BRASS	CHROME PLATED
2.8 1/2" NPT	PENDENT (TY1221)	165°F/74°C	Unpainted	1, 2, 5	
		212°F/100°C	White		
	UPRIGHT (TY1121)	165°F/74°C	Unpainted		
		212°F/100°C	White		
	RECESSED PENDENT (TY1221 w/ Style 20)	165°F/74°C	Unpainted		
		212°F/100°C	White		

Step 3. Tighten the sprinkler into the sprinkler fitting using only the W-Type 9 Sprinkler Wrench (Ref. Figure 6). With reference to Figures 1, 2, and 3, the W-Type 9 Sprinkler Wrench is to be applied to the wrench area.

The **Series TY-FRL Recessed Pendant Sprinklers** must be installed in accordance with the following instructions.

Step A. After installing the Style 20 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 12 Recessed Sprinkler Wrench (Ref. Figure 7). With reference to Figure 1, or 2, the W-Type 12 Recessed Sprinkler Wrench is to be applied to the sprinkler wrenching flanges.

Step C. After the ceiling has been installed or the finish coat has been applied, slide on the Style 20 Closure over the Series TY-FRL Sprinkler and push the Closure over the Mounting Plate until its flange comes in contact with the ceiling.

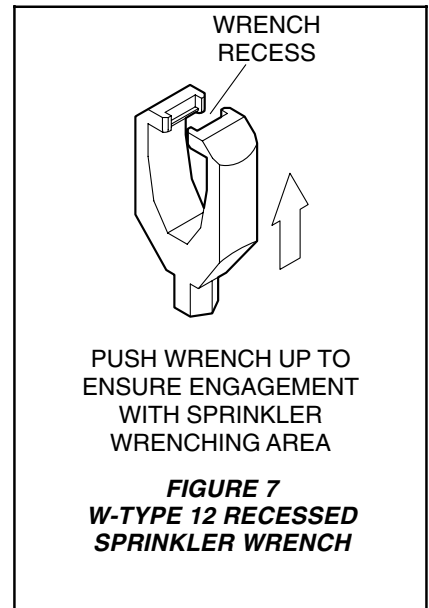
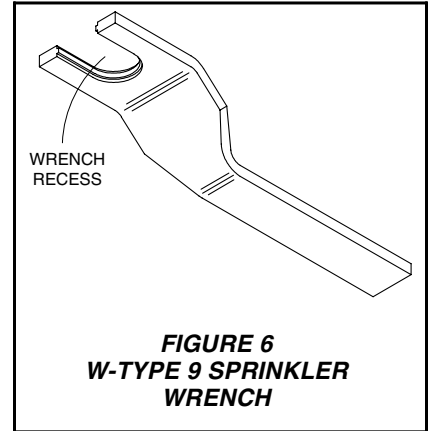
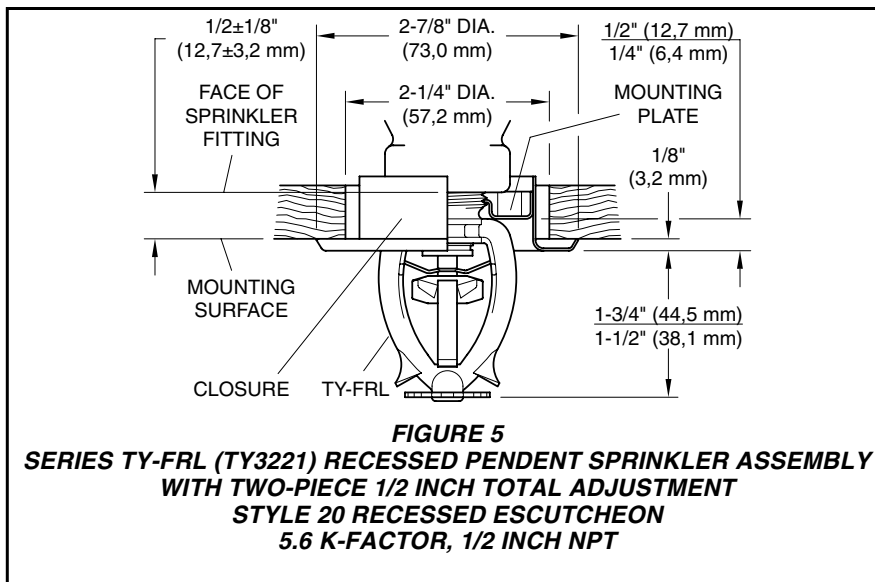
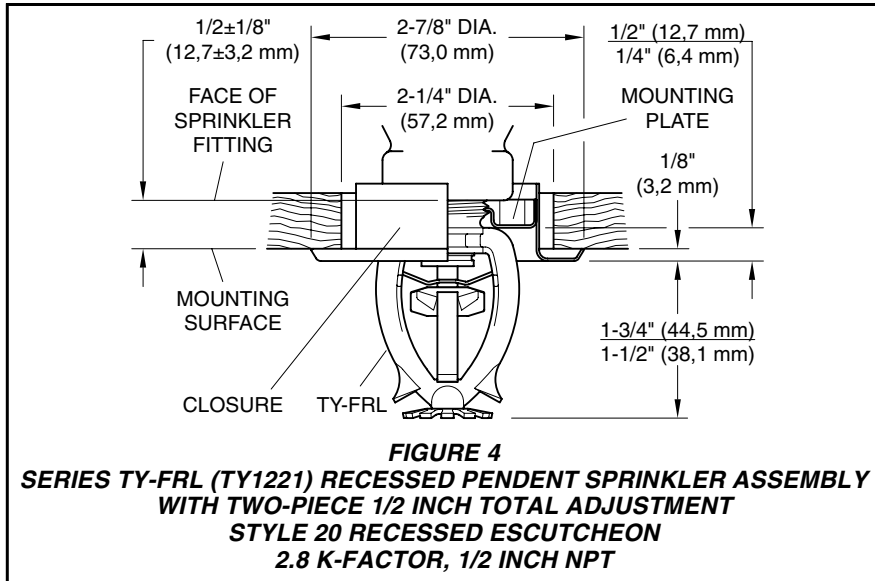
K	TYPE	TEMP. RATING	FRAME COLOR CODE	SPRINKLER FINISH	
				NATURAL BRASS	CHROME PLATED
5.6 1/2" NPT	PENDENT (TY3221)	165°F/74°C	Unpainted	1, 2, 3, 4, 5	
		212°F/100°C	White	1, 2, 3, 5	
	UPRIGHT (TY3121)	165°F/74°C	Unpainted	1, 2, 3, 4, 5	
		212°F/100°C	White	1, 2, 3, 5	
	RECESSED PENDENT (TY3221 w/ Style 20)	165°F/74°C	Unpainted	1, 2, 5	
		212°F/100°C	White		

K	TYPE	TEMP. RATING	FRAME COLOR CODE	SPRINKLER FINISH	
				NATURAL BRASS	CHROME PLATED
8.0 3/4" NPT	PENDENT (TY4221)	165°F/74°C	Unpainted	1, 2, 3, 5	
		212°F/100°C	White		
	UPRIGHT (TY4121)	165°F/74°C	Unpainted		
		212°F/100°C	White		

NOTES:

- Listed by Underwriters Laboratories, Inc. (UL) as Quick Response Sprinklers.
 - Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL) as Quick Response Sprinklers.
 - Approved by Factory Mutual Research Corporation (FM) as Quick Response Sprinklers.
 - Approved by the Loss Prevention Certification Board (LPCB Ref. No. 094a/03) as Quick Response Sprinklers.
 - Approved by the City of New York under MEA112-04-E.
- N/A: Not Available

**TABLE A
LABORATORY LISTINGS AND APPROVALS**



Care and Maintenance

The Series TY-FRL Sprinklers must be maintained and serviced in accordance with the following instructions:

NOTES

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.

Absence of an escutcheon, which is used to cover a clearance hole, may

delay the time to sprinkler operation in a fire situation.

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 or over-heated sprinklers must be replaced.

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.

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. The installing contractor or sprinkler manufacturer should be contacted relative to 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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		MODEL/SIN			TEMPERATURE RATING	
973	2.8K UPRIGHT (1/2"NPT)	TY1121	SPRINKLER		165	165°F/74°C
981	2.8K PENDENT (1/2"NPT)	TY1221	1	NATURAL BRASS	212	212°F/100°C
974	5.6K UPRIGHT (1/2"NPT)	TY3121	9	CHROME PLATED		
982	5.6K PENDENT (1/2"NPT)	TY3221				
174	8.0K UPRIGHT (3/4"NPT)	TY4121				
172	8.0K PENDENT (3/4"NPT)	TY4221				

TABLE B
PART NUMBER SELECTION
SERIES TY-FRL PENDENT AND UPRIGHT SPRINKLERS

Limited Warranty

Products manufactured by Tyco Fire Products are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

IN NO EVENT SHALL TYCO FIRE PRODUCTS BE LIABLE, IN CONTRACT, TORT, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY, FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT

LIMITED TO LABOR CHARGES, REGARDLESS OF WHETHER TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' LIABILITY EXCEED AN AMOUNT EQUAL TO THE SALES PRICE.

THE FOREGOING WARRANTY IS MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Ordering Procedure

When placing an order, indicate the full product name. Refer to the Price List for complete listing of Part Numbers.

Contact your local distributor for availability.

Sprinkler Assemblies with NPT Thread Connections:

Specify: (Specify Model/SIN), Quick Response, (specify K-factor), (specify temperature rating), Series TY-FRL (specify Pendent or Upright) Sprinkler with (specify type of finish), P/N (specify from Table B).

Recessed Escutcheon:

Specify: Style 20 Recessed Escutcheon with (specify finish), P/N (specify).

- 1/2" (15 mm)
Style 20
Chrome Plated P/N 56-705-9-010
- 1/2" (15 mm)
Style 20
White Color
Coated P/N 56-705-4-010
- 1/2" (15 mm)
Style 20
Brass Plated P/N 56-705-2-010

Sprinkler Wrench:

Specify: W-Type 9 Sprinkler Wrench, P/N 56-000-1-849.

Specify: W-Type 12 Sprinkler Wrench, P/N 56-798-1-001.