

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

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.

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General Description

The TYCO 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, and hospitals.

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 in. NPT) Recessed Escutcheon. The recessed escutcheon provides 1/4 in. (6,4 mm) of recessed adjustment or up to 1/2 in. (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.

NOTICE

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. Contact the installing contractor or product manufacturer with any questions.



Sprinkler Identification Numbers

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

Note:

- 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 Approved
LPCB Approved
NYC Approved

Note: For complete approval information, see Table A.

Maximum Working Pressure

175 psi (12,1 bar)

Discharge Coefficient

K = 2.8 gpm/psi^{1/2} (40,3 Lpm/bar^{1/2})
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
- 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

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 TYCO Series TY-FRL Pendant 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 - for example, the 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.

K	Type	Temperature Rating	Frame Color Code	Sprinkler Finish				
				Natural Brass	Chrome Plated			
2.8 1/2 in. 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					
5.6 1/2 in. 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, 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					
8.0 3/4 in. 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: 1. Listed by Underwriters Laboratories, Inc. (UL) as Quick Response Sprinklers. 2. Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL) as Quick Response Sprinklers. 3. Approved by Factory Mutual Research Corporation (FM) as Quick Response Sprinklers. 4. Approved by the Loss Prevention Certification Board (LPCB Ref. No. 094a/03) as Quick Response Sprinklers. 5. Approved by the City of New York under MEA 112-04-E.							
	TABLE A LABORATORY LISTINGS AND APPROVALS							

Installation

The TYCO Series TY-FRL Sprinklers must be installed in accordance with this section.

A leak tight 1/2 in. NPT sprinkler joint should be obtained with a torque of 7 ft-lb to 14 ft-lb (9,5 N·m to 19,0 N·m). A leak tight 3/4 in. NPT sprinkler joint should be obtained with a torque of 10 ft-lb to 20 ft-lb (13,4 N·m to 26,8 N·m). 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.

Series TY-FRL Pendant and Upright Sprinkler Installation

The Series TY-FRL Pendant and Upright Sprinklers must be installed in accordance with this section.

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.

Step 3. Tighten the sprinkler into the sprinkler fitting using only the W-Type 9 Sprinkler Wrench as shown in Figure 6. Apply the wrench to the wrench area as shown in Figures 1, 2, and 3.

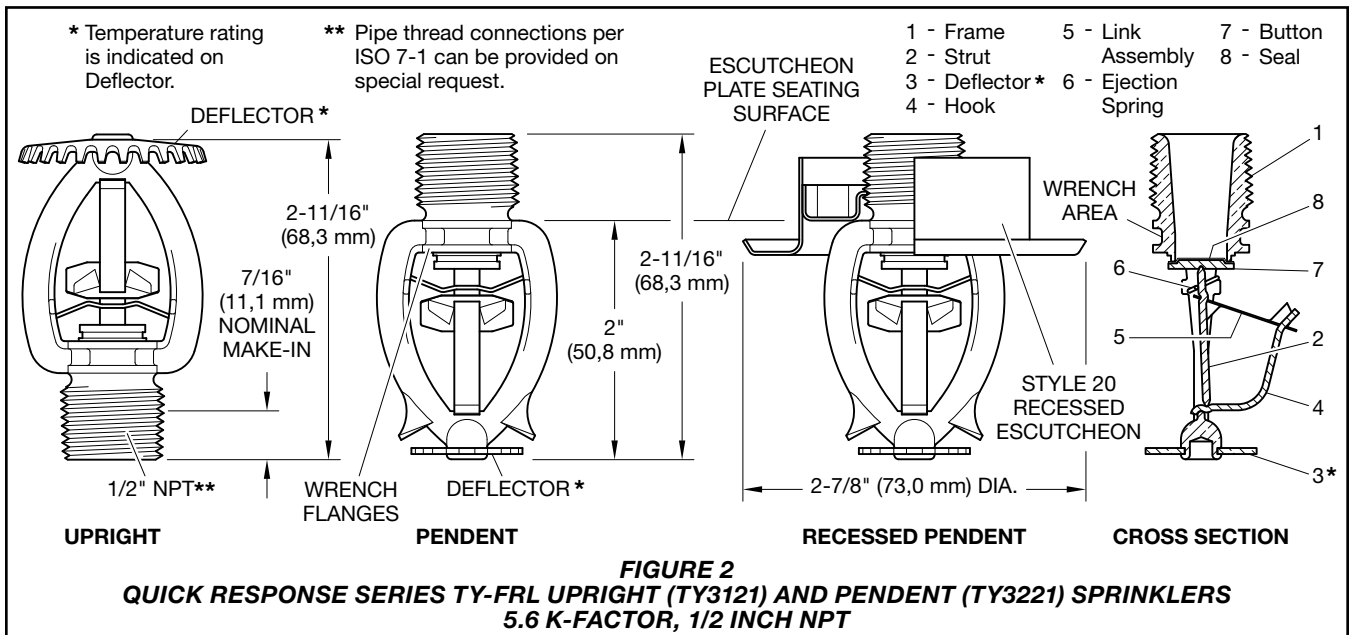
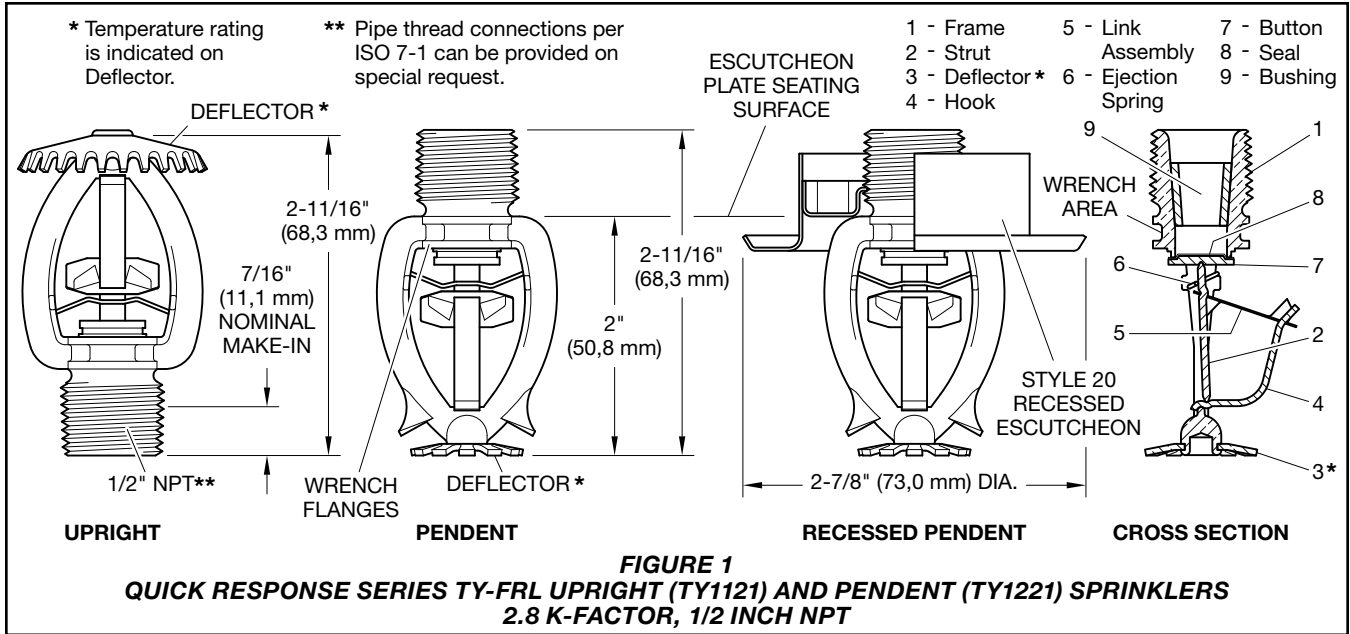
Series TY-FRL Recessed Pendent Sprinkler Installation

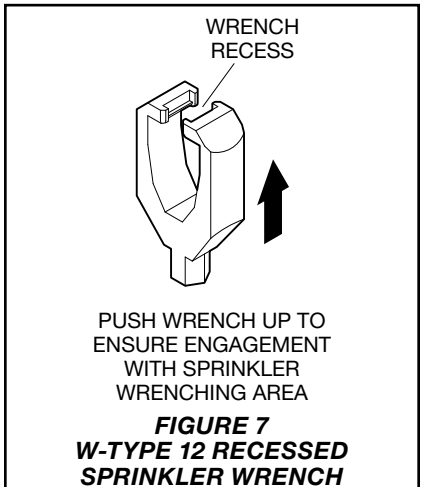
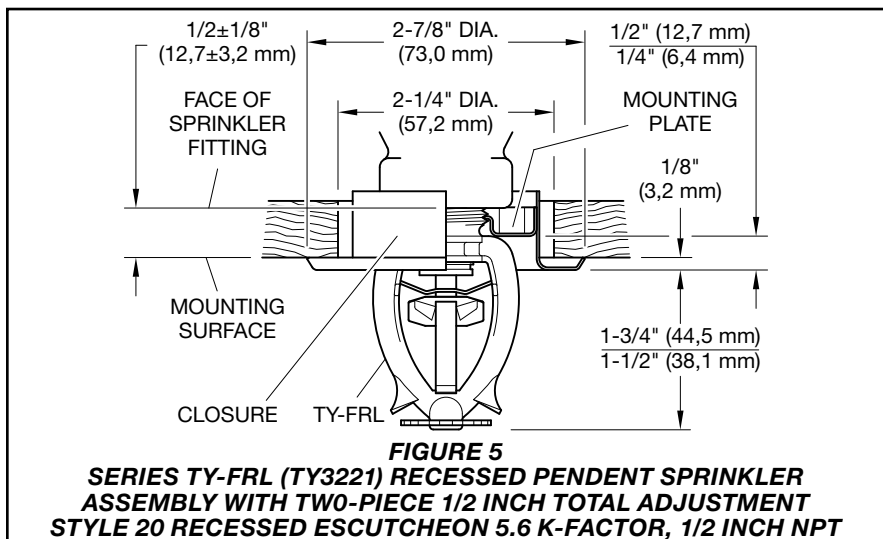
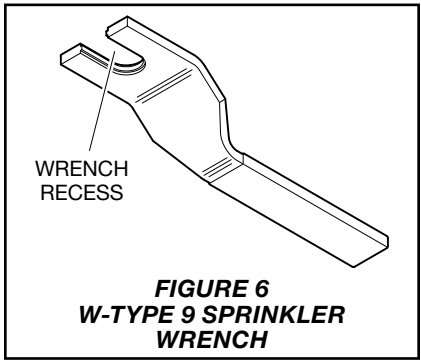
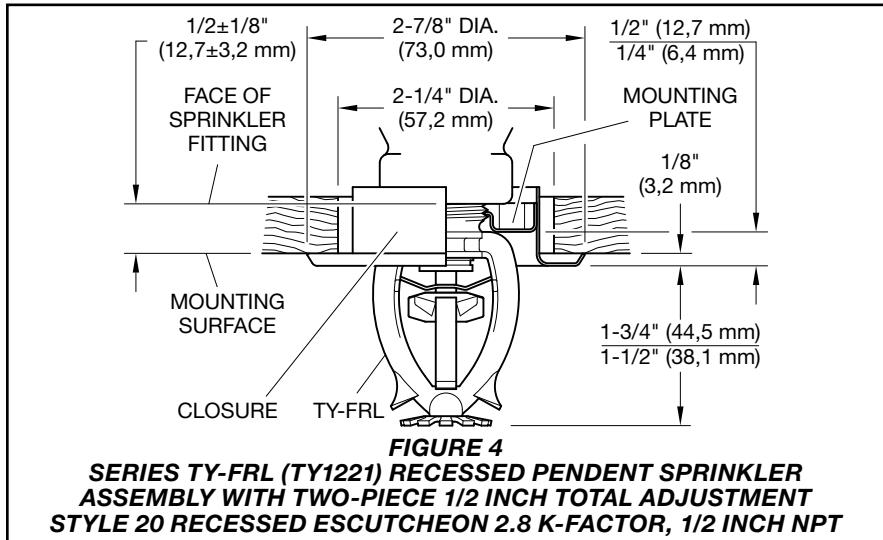
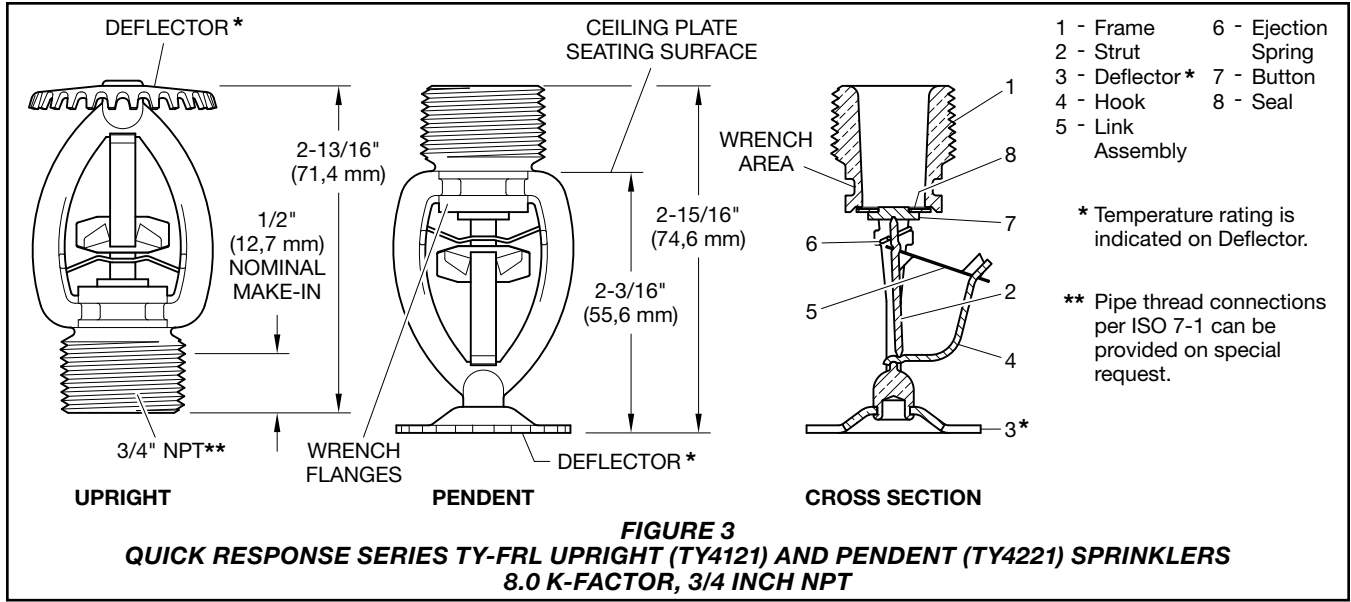
The Series TY-FRL Recessed Pendent Sprinklers must be installed in accordance with the following instructions.

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 as shown in Figure 7. Apply the wrench to the sprinkler wrenching flanges as shown in Figures 1 and 2.

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





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		SIN			SPRINKLER			TEMPERATURE RATING	
973	2.8K UPRIGHT (1/2 in. NPT)	TY1121		1	NATURAL BRASS		165	165°F (74°C)	
981	2.8K PENDENT (1/2 in. NPT)	TY1221		9	CHROME PLATED		212	212°F (100°C)	
974	5.6K UPRIGHT (1/2 in. NPT)	TY3121							
982	5.6K PENDENT (1/2 in. NPT)	TY3221							
174	8.0K UPRIGHT (3/4 in. NPT)	TY4121							
172	8.0K PENDENT (3/4"NPT)	TY4221							

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

Care and Maintenance

The TYCO Series TY-FRL 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.

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 such as 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.

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

Recessed Escutcheon

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

*Refer to technical data sheet TFP770

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



TFP130 Change History Appendix

ISSUE DATE	NOTES
12-22	Page 1, added QR code and URL to allow convenient access to electronic version from printed document; Page 2, Table A, removed LPCB Approved from Upright TY3121; Page 6, 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.
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.
04-17	Updated limited warranty information.
10-13	Thread sizes for 8.0K models shown in Part Number Selection table have been corrected to 3/4" NPT.
03-13	Updated and standardized applicable RAL color finishes.
07-04	Added reference to Installer Warning data sheet TFP700; Changed shape of frame adjacent to deflector for 2.8 and 5.6 K-factor pendent sprinklers in Figures 1 and 2; Changed part number code for 2.8 and 5.6 K-factor pendent sprinklers in Table B Part Number Selection to 981 and 982 respectively, formerly shown as 971 and 972; Added NYC Approval.
01-03	Added new Tyco Fire & Building Products masthead.
11-02	New Technical Data Sheet TFP130 describing Series TY-FRL Upright, Pendent, and Recessed Pendent Quick Response Standard Coverage Sprinklers.