

Series LFII Residential Sprinklers 4.2K Horizontal and Recessed Horizontal Sidewall Wet Pipe and Dry Pipe Systems

General Description

The TYCO RAPID RESPONSE Series LFII Residential Horizontal Sidewall Sprinklers (TY1334) are decorative, fast response, frangible bulb sprinklers designed for use in residential occupancies such as homes, apartments, dormitories, and hotels. When aesthetics and optimized flow characteristics are the major consideration, the Series LFII Residential Sidewall Sprinklers should be the first choice.

The Series LFII Residential Sprinklers are intended for use in the following scenarios:

- wet and dry pipe residential sprinkler systems for one- and two-family dwellings and mobile homes per NFPA 13D
- wet and dry pipe residential sprinkler systems for residential occupancies up to and including four stories in height per NFPA 13R
- wet and dry pipe sprinkler systems for the residential portions of any occupancy per NFPA 13

Historically residential sprinklers, based on their Listing, have been limited to wet pipe sprinkler systems to assure speed of water delivery for a given prescribed design area (number of design sprinklers).

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.

The Listing for the Series LFII Residential Horizontal and Recessed Horizontal Sidewall Sprinklers now offers the laboratory approved option of designing dry pipe residential sprinkler systems.

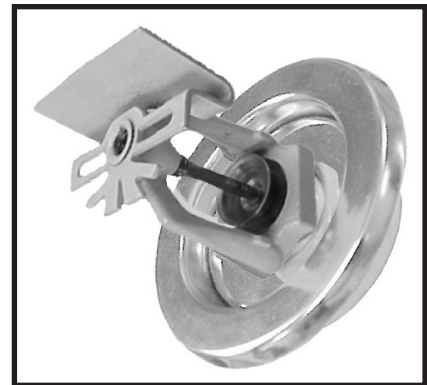
Through extensive testing, it has been determined that the number of design sprinklers (hydraulic design area) for the Series LFII Residential Sprinklers need not be increased over the number of design sprinklers (hydraulic design area) as specified for wet pipe sprinkler systems, as is accustomed for density/area sprinkler systems designed per NFPA 13.

Consequently, the Series LFII Residential Sprinklers offer the features of non-water filled pipe in addition to not having to increase the number of design sprinklers (hydraulic design area) for systems designed to NFPA 13, 13D, or 13R. Non-water filled pipe will permit options for areas sensitive to freezing

The Series LFII Residential Sprinklers has a 4.2 (60,5) K-Factor that provides the required residential flow rates at reduced pressures, enabling smaller pipe sizes and water supply requirements.

The recessed version of the Series LFII Residential Sprinklers is intended for use in areas with finished walls. It employs a two-piece Style 20 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 mounting surface position. The adjustment provided by the Recessed Escutcheon reduces the accuracy to which the pipe nipples to the sprinklers must be cut.

The Series LFII Residential Sprinklers has been designed with heat sensitivity and water distribution characteristics proven to help in the control of residential fires and to improve the chance for occupants to escape or be evacuated.



NOTICE

The Series LFII Residential Horizontal Sidewall Sprinklers described herein must be installed and maintained in compliance with this document and the applicable standards of the National Fire Protection Association, in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.

Owners are 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 Number (SIN)

TY1334

Components:

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

* Temperature rating is indicated on top of Deflector.

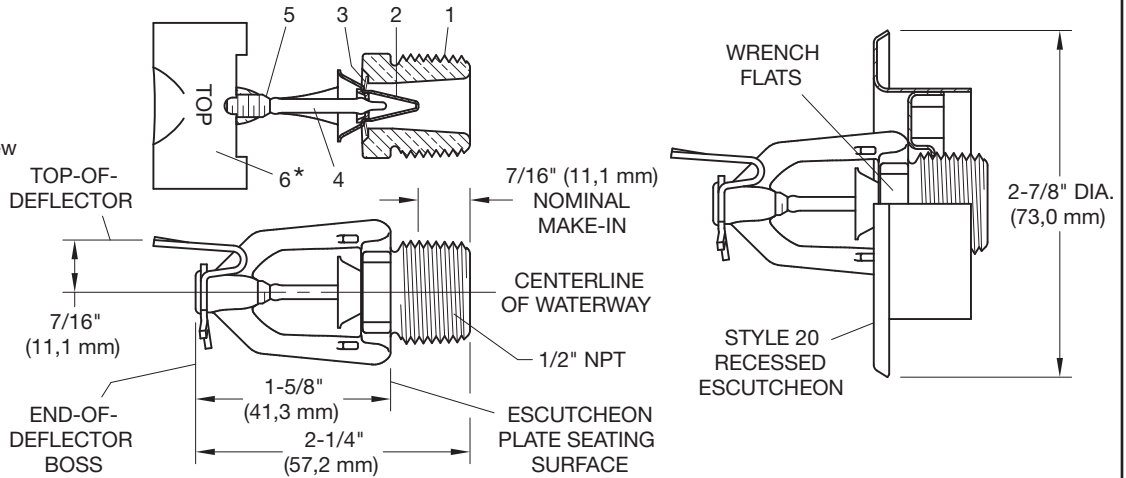


FIGURE 1
RAPID RESPONSE SERIES LFII RESIDENTIAL
HORIZONTAL SIDEWALL AND RECESSED HORIZONTAL SIDEWALL SPRINKLERS (TY1334)

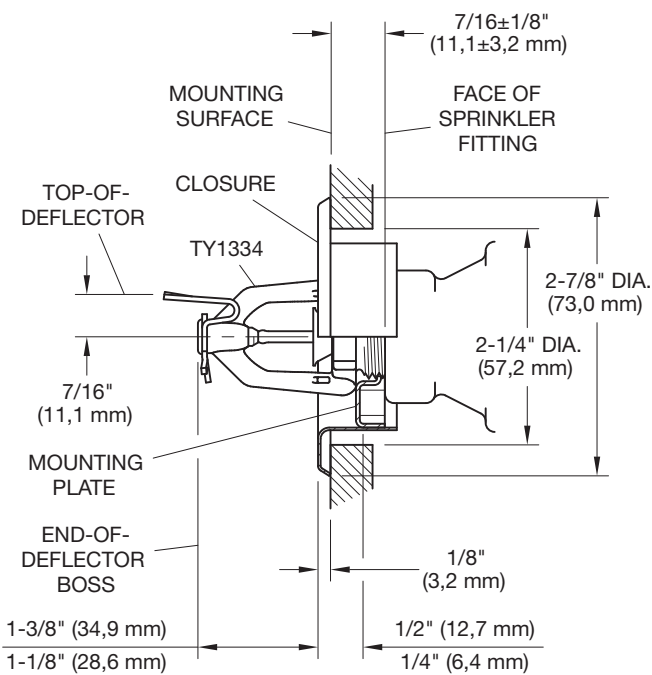


FIGURE 2
STYLE 20 RECESSED ESCUTCHEON
FOR USE WITH THE RAPID RESPONSE SERIES LFII RESIDENTIAL
HORIZONTAL SIDEWALL SPRINKLER (TY1334)

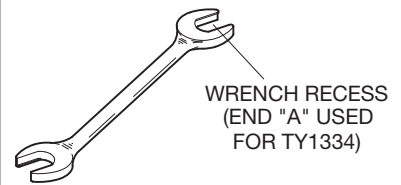
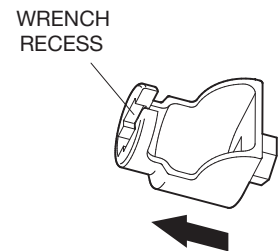


FIGURE 3
W-TYPE 6
SPRINKLER WRENCH



PUSH WRENCH
 IN TO ENSURE
 ENGAGEMENT
 WITH SPRINKLER
 WRENCHING AREA

FIGURE 4
W-TYPE 7 RECESSED
SPRINKLER WRENCH

Technical Data

Approvals

- UL Listed for use with wet pipe and dry pipe systems
- C-UL Listed for use only with wet pipe systems
- NYC Approved under MEA 44-03-E

For details on these approvals, refer to the Design Criteria section.

Maximum Working Pressure

175 psi (12,1 bar)

Discharge Coefficient

$K=4.2 \text{ GPM/psi}^{1/2}$ (60,5 LPM/bar^{1/2})

Temperature Rating

155°F (68°C) or 175°F (79°C)

Finishes

- White Polyester
- Chrome Plated
- Natural Brass

Physical Characteristics

Frame	Brass
Button	Bronze
Sealing Assembly	Beryllium Nickel w/Teflon*
Bulb (3 mm)	Glass
Compression Screw	Bronze
Deflector	Copper

Operation

The glass Bulb contains a fluid that 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 flow water.

Design Criteria

The RAPID RESPONSE Series LFII Residential Horizontal and Recessed Horizontal Sidewall Sprinklers (TY1334) are UL and C-UL Listed for installation in accordance with the following criteria.

Note: When conditions exist that are outside the scope of the provided criteria, refer to the Residential Sprinkler Design Guide TFP490 for the manufacturer's recommendations that may be acceptable to the local authority having jurisdiction.

System Types

Per the UL Listing, wet pipe and dry pipe systems may be utilized. Per the C-UL Listing, only wet pipe systems may be utilized.

- For dry systems corrosion-resistant or internally galvanized pipe shall be utilized with the sprinklers described in this data sheet.
- For dry systems not using CPVC, pendent sprinklers shall be installed on return bends, where the sprinklers, return bends, and branch line piping (that is, potential areas for trapped water) are in areas at or above 40°F (4°C).

Refer to technical data sheet TFP485 about the use of Residential Sprinklers in residential dry pipe systems.

NOTICE

When corrosion-resistant or internally galvanized pipe and fittings with a potable water supply is utilized, return bends need not be installed. However, any portion of the piping that has the potential to trap water must be maintained at or above 40°F (4°C) unless provision to drain such areas is provided and maintained dry.

Water Delivery

When using the Series LFII Residential Horizontal Sidewall Sprinklers (TY1334) in dry pipe sprinkler systems, the requirements for "Dry System Water Delivery" per the Section 8.3.4.3 of the 2010 edition of NFPA 13D apply. For a residential hazard, in no case shall the time of water delivery exceed 15 seconds for the most remote operating sprinkler.

Hydraulic Design (NFPA 13D and 13R)

The minimum required sprinkler flow rate for systems designed to NFPA 13D or NFPA 13R are given in Tables A, B, C, D and E as a function of temperature rating and the maximum allowable coverage areas. The sprinkler flow rate is the minimum required discharge from each of the total number of "design sprinklers" as specified in NFPA 13D or NFPA 13R.

NOTICE

The number of "design sprinklers" specified in NFPA 13D and 13R for wet pipe systems is to be applied when designing dry pipe systems. There is no need to increase the design area, as is the case for density/area systems, in accordance with U.S. Patent 7,712,543.

Hydraulic Design (NFPA 13)

For systems designed to NFPA 13, the number of design sprinklers is to be the four most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in Tables A or B for NFPA 13D and 13R as a function of temperature rating and the maximum allowable coverage area.
- A minimum discharge of 0.1 GPM/sq. ft. over the "design area" comprised of the four most hydraulically demanding sprinklers for actual coverage areas protected by the four sprinklers.

NOTICE

The number of "design sprinklers" specified in NFPA 13 for wet pipe systems is to be applied when designing dry pipe systems. There is no need to increase the design area, as is the case for density/area systems, in accordance with U.S. Patent 7,712,543.

Obstruction to Water Distribution

Sprinklers are to be located in accordance with the obstruction rules defined by NFPA 13 for residential sprinklers.

Operational Sensitivity

The sprinklers are to be installed with an end-of-deflector-boss to wall distance of 1-3/8 to 6 inches or in the recessed position using only the Style 20 Recessed Escutcheon as shown in Figure 2.

In addition the top-of-deflector-to-ceiling distance is to be within the range (Tables A, B, C, D or E) being hydraulically calculated.

Sprinkler Spacing

The minimum spacing between sprinklers is 8 feet (2,4 m). The maximum spacing between sprinklers cannot exceed the width of the coverage area (Tables A and B) being hydraulically calculated; (maximum 12 feet for a 12 ft. x 12 ft. coverage area, or 16 feet for a 16 ft. x 20 ft. coverage area).

*Registered trademark of Dupont



ELEVATION

Maximum Coverage Area ^(a) Width x Length ^(b) Ft. x Ft. (m x m)	Maximum Spacing Ft. (m)	WET PIPE SYSTEM Minimum Flow ^(c) and Residual Pressure			
		Top-of-Deflector-to-Ceiling: 4 to 6 Inches (100 to 150 mm)		Top-of-Deflector-to-Ceiling: 6 to 12 Inches (150 to 300 mm)	
		155°F (68°C)	175°F (79°C)	155°F (68°C)	175°F (79°C)
12 x 12 (3,7 x 3,7)	12 (3,7)	12 GPM (45,4 LPM) 8.2 psi (0,57 bar)	12 GPM (45,4 LPM) 8.2 psi (0,57 bar)	13 GPM (49,2 LPM) 9.6 psi (0,66 bar)	13 GPM (49,2 LPM) 9.6 psi (0,66 bar)
14 x 14 (4,3 x 4,3)	14 (4,3)	14 GPM (53,0 LPM) 11.1 psi (0,77 bar)	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	17 GPM (64,3 LPM) 16.4 psi (1,13 bar)	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)
16 x 16 (4,9 x 4,9)	16 (4,9)	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)
16 x 18 (4,9 x 5,5)	16 (4,9)	19 GPM (71,9 LPM) 20.5 psi (1,41 bar)	19 GPM (71,9 LPM) 20.5 psi (1,41 bar)	21 GPM (79,5 LPM) 25.0 psi (1,72 bar)	21 GPM (79,5 LPM) 25.0 psi (1,72 bar)
16 x 20 (4,9 x 6,1)	16 (4,9)	23 GPM (87,1 LPM) 30.0 psi (2,07 bar)	23 GPM (87,1 LPM) 30.0 psi (2,07 bar)	26 GPM (98,4 LPM) 38.3 psi (2,64 bar)	26 GPM (98,4 LPM) 38.3 psi (2,64 bar)

Sidewall sprinklers, where installed under a ceiling with a slope greater than a 0-inch rise for a 12-inch run to a slope up to a 2-inch rise for a 12-inch run, must be located per one of the following:

- At the high positioned to discharge down the slope.
 - Along the slope and positioned to discharge across the slope.
- (a). For coverage area dimensions less than or between those indicated, use the minimum required flow for the next highest coverage area for which hydraulic design criteria are stated.
- (b). The Width x Length dimension refers to Width (backwall where sprinkler is located) times Length (horizontal throw of sprinkler).
- (c). The Minimum Flow Requirement is based on minimum flow in GPM (LPM) from each sprinkler. The associated residual pressures are calculated using the nominal K-Factor. Refer to Hydraulic Design in the Design Criteria section for details.

TABLE A
SERIES LFII RESIDENTIAL HORIZONTAL AND RECESSED HORIZONTAL SIDEWALL SPRINKLERS (TY1334)
FOR HORIZONTAL CEILINGS
NFPA 13D AND 13R HYDRAULIC DESIGN CRITERIA
WET PIPE SYSTEMS
(Maximum 2-Inch Rise for 12-Inch Run)



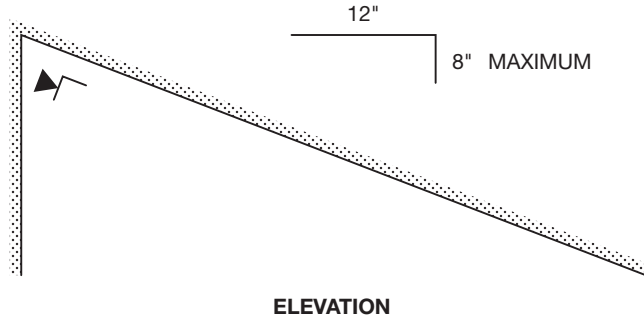
ELEVATION

Maximum Coverage Area ^(a) Width x Length ^(b) Ft. x Ft. (m x m)	Maximum Spacing Ft. (m)	DRY PIPE SYSTEM Minimum Flow ^(c) and Residual Pressure			
		Top-of-Deflector-to-Ceiling: 4 to 6 Inches (100 to 150 mm)		Top-of-Deflector-to-Ceiling: 6 to 12 Inches (100 to 150 mm)	
		155°F (68°C)	175°F (79°C)	155°F (68°C)	175°F (79°C)
12 x 12 (3,7 x 3,7)	12 (3,7)	12 GPM (45,4 LPM) 8.2 psi (0,57 bar)	12 GPM (45,4 LPM) 8.2 psi (0,57 bar)	13 GPM (49,2 LPM) 9.6 psi (0,48 bar)	13 GPM (49,2 LPM) 9.6 psi (0,48 bar)
14 x 14 (4,3 x 4,3)	14 (4,3)	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)
16 x 16 (4,9 x 4,9)	16 (4,9)	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)	21 GPM (79,5 LPM) 25.0 psi (1,72 bar)
16 x 18 (4,9 x 5,5)	16 (4,9)	19 GPM (71,9 LPM) 20.5 psi (1,41 bar)	Not Applicable	21 GPM (79,5 LPM) 25.0 psi (1,72 bar)	21 GPM (79,5 LPM) 25.0 psi (1,72 bar)
16 x 20 (4,9 x 6,1)	16 (4,9)	23 GPM (87,1 LPM) 30.0 psi (2,07 bar)	Not Applicable	Not Applicable	Not Applicable

Sidewall sprinklers, where installed under a ceiling with a slope greater than a 0-inch rise for a 12-inch run to a slope up to a 2-inch rise for a 12-inch run, must be located per one of the following:

- At the high positioned to discharge down the slope.
 - Along the slope and positioned to discharge across the slope.
- (a). For coverage area dimensions less than or between those indicated, use the minimum required flow for the next highest coverage area for which hydraulic design criteria are stated.
- (b). The Width x Length dimension refers to Width (backwall where sprinkler is located) times Length (horizontal throw of sprinkler).
- (c). The Minimum Flow Requirement is based on minimum flow in GPM (LPM) from each sprinkler. The associated residual pressures are calculated using the nominal K-Factor. Refer to Hydraulic Design in the Design Criteria section for details.

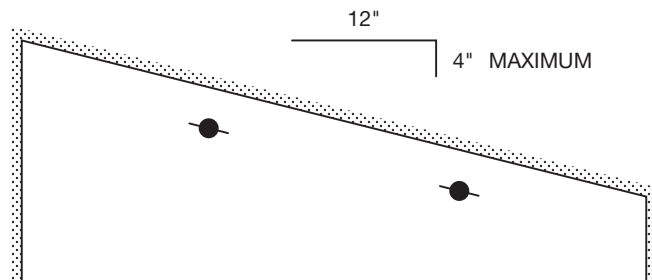
TABLE B
SERIES LFII RESIDENTIAL HORIZONTAL AND RECESSED HORIZONTAL SIDEWALL SPRINKLERS (TY1334)
FOR HORIZONTAL CEILINGS
NFPA 13D HYDRAULIC DESIGN CRITERIA
DRY PIPE SYSTEMS
(Maximum 2-Inch Rise for 12-Inch Run)



Maximum Coverage Area ^(a) Width x Length ^(b) Ft. x Ft. (m x m)	Maximum Spacing Ft. (m)	WET PIPE SYSTEM Minimum Flow ^(c) and Residual Pressure							
		(I) Two sprinkler design with the sprinklers at the high point of the slope and positioned to discharge down the slope.							
		Top-of-Deflector-to-Ceiling: 4 to 6 Inches (100 to 150 mm)				Top-of-Deflector-to-Ceiling: 6 to 12 Inches (150 to 300 mm)			
		155°F (68°C)		175°F (79°C)		155°F (68°C)		175°F (79°C)	
12 x 12 (3,7 x 3,7)	12 (3,7)	I	12 GPM (45,4 LPM) 8.2 psi (0,57 bar)	I	12 GPM (45,4 LPM) 8.2 psi (0,57 bar)	I	13 GPM (49,2 LPM) 9.6 psi (0,66 bar)	I	13 GPM (49,2 LPM) 9.6 psi (0,66 bar)
14 x 14 (4,3 x 4,3)	14 (4,3)	I	14 GPM (53,0 LPM) 11.1 psi (0,77 bar)	I	14 GPM (53,0 LPM) 11.1 psi (0,77 bar)	I	17 GPM (64,3 LPM) 16.4 psi (1,13 bar)	I	17 GPM (64,3 LPM) 16.4 psi (1,13 bar)
16 x 16 (4,9 x 4,9)	16 (4,9)	I	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	I	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	I	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)	I	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)
16 x 18 (4,9 x 5,5)	16 (4,9)	I	19 GPM (71,9 LPM) 20.5 psi (1,41 bar)	I	19 GPM (71,9 LPM) 20.5 psi (1,41 bar)	I	21 GPM (79,5 LPM) 25.0 psi (1,72 bar)	I	21 GPM (79,5 LPM) 25.0 psi (1,72 bar)
16 x 20 (4,9 x 6,1)	16 (4,9)	I	24 GPM (90,8 LPM) 32.7 psi (2,25 bar)	I	24 GPM (90,8 LPM) 32.7 psi (2,25 bar)	I	26 GPM (98,4 LPM) 38.3 psi (2,64 bar)	I	26 GPM (98,4 LPM) 38.3 psi (2,64 bar)

- (a). For coverage area dimensions less than or between those indicated, use the minimum required flow for the next highest coverage area for which hydraulic design criteria are stated.
- (b). The Width x Length dimension refers to Width (backwall where sprinkler is located) times Length (horizontal throw of sprinkler).
- (c). The Minimum Flow requirement is based on minimum flow in GPM (LPM) from each sprinkler. The associated residual pressures are calculated using the nominal K-Factor. Refer to Hydraulic Design in the Design Criteria section for details.

TABLE C
SERIES LFII RESIDENTIAL HORIZONTAL AND RECESSED HORIZONTAL SIDEWALL SPRINKLERS (TY1334)
AT THE HIGH POINT OF THE SLOPE AND DISCHARGING DOWN THE SLOPE
NFPA 13D AND 13R HYDRAULIC DESIGN CRITERIA
WET PIPE SYSTEMS
(Greater Than 2-Inch Rise for 12-Inch Run Up To 8-Inch Rise for 12-Inch Run)

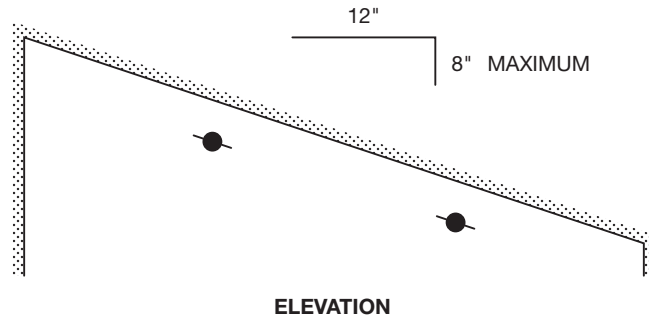


ELEVATION

Maximum Coverage Area ^(a) Width x Length ^(b) Ft. x Ft. (m x m)	Maximum Spacing Ft. (m)	WET PIPE SYSTEM Minimum Flow ^(c) and Residual Pressure							
		(II) Two sprinkler design with the sprinklers located along the slope and positioned to discharge across the slope. (III) Three sprinkler design when there are more than two sprinklers in a compartment and with the sprinklers located along the slope and positioned to discharge across the slope.							
		Top-of-Deflector-to-Ceiling: 4 to 6 Inches (100 to 150 mm)				Top-of-Deflector-to-Ceiling: 6 to 12 Inches (150 to 300 mm)			
		155°F (68°C)		175°F (79°C)		155°F (68°C)		175°F (79°C)	
12 x 12 (3,7 x 3,7)	12 (3,7)	II	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	II	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	II	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)	II	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)
14 x 14 (4,3 x 4,3)	14 (4,3)	II	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	II	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	II	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)	II	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)
16 x 16 (4,9 x 4,9)	16 (4,9)	II	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	II	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	II	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)	II	18 GPM (68,1 LPM) 18.4 psi (1,27 bar)
16 x 18 (4,9 x 5,5)	16 (4,9)	II	22 GPM (83,3 LPM) 27.4 psi (1,89 bar)	II	22 GPM (83,3 LPM) 27.4 psi (1,89 bar)	II	22 GPM (83,3 LPM) 27.4 psi (1,89 bar)	II	22 GPM (83,3 LPM) 27.4 psi (1,89 bar)
16 x 20 (4,9 x 6,1)	16 (4,9)	III	23 GPM (87,1 LPM) 30.0 psi (2,07 bar)	III	23 GPM (87,1 LPM) 30.0 psi (2,07 bar)	III	26 GPM (98,4 LPM) 38.3 psi (2,64 bar)	III	26 GPM (98,4 LPM) 38.3 psi (2,64 bar)

- (a). For coverage area dimensions less than or between those indicated, use the minimum required flow for the next highest coverage area for which hydraulic design criteria are stated.
- (b). The Width x Length dimension refers to Width (backwall where sprinkler is located) times Length (horizontal throw of sprinkler).
- (c). The Minimum Flow requirement is based on minimum flow in GPM (LPM) from each sprinkler. The associated residual pressures are calculated using the nominal K-Factor. Refer to Hydraulic Design in the Design Criteria section for details.

TABLE D
SERIES LFII RESIDENTIAL HORIZONTAL AND RECESSED HORIZONTAL SIDEWALL SPRINKLERS (TY1334)
LOCATED ALONG A SLOPE AND DISCHARGING ACROSS THE SLOPE
NFPA 13D AND 13R HYDRAULIC DESIGN CRITERIA
WET PIPE SYSTEMS
(Greater Than 2-Inch Rise for 12-Inch Run Up To 4-Inch Rise for 12-Inch Run)



Maximum Coverage Area ^(a) Width x Length ^(b) Ft. x Ft. (m x m)	Maximum Spacing Ft. (m)	WET PIPE SYSTEM Minimum Flow ^(c) and Residual Pressure			
		(III) Three sprinkler design when there are more than two sprinklers in a compartment and with the sprinklers located along the slope and positioned to discharge across the slope.			
		Top-of-Deflector-to-Ceiling: 4 to 6 Inches (100 to 150 mm)			
		155°F (68°C)		175°F (79°C)	
12 x 12 (3,7 x 3,7)	12 (3,7)	III	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	III	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)
14 x 14 (4,3 x 4,3)	14 (4,3)	III	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	III	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)
16 x 16 (4,9 x 4,9)	16 (4,9)	III	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)	III	16 GPM (60,6 LPM) 14.5 psi (1,00 bar)
16 x 18 (4,9 x 5,5)	16 (4,9)	N/A		N/A	
16 x 20 (4,9 x 6,1)	16 (4,9)	N/A		N/A	

- (a). For coverage area dimensions less than or between those indicated, use the minimum required flow for the next highest coverage area for which hydraulic design criteria are stated.
- (b). The Width x Length dimension refers to Width (backwall where sprinkler is located) times Length (horizontal throw of sprinkler).
- (c). The Minimum Flow requirement is based on minimum flow in GPM (LPM) from each sprinkler. The associated residual pressures are calculated using the nominal K-Factor. Refer to Hydraulic Design in the Design Criteria section for details.

TABLE E
SERIES LFII RESIDENTIAL HORIZONTAL AND RECESSED HORIZONTAL SIDEWALL SPRINKLERS (TY1334)
LOCATED ALONG A SLOPE AND DISCHARGING ACROSS THE SLOPE
NFPA 13D AND 13R HYDRAULIC DESIGN CRITERIA
WET PIPE SYSTEMS
(Greater Than 4-Inch Rise for 12-Inch Run Up to 8-Inch Rise for 12-Inch Run)

Installation

The RAPID RESPONSE Series LFII Residential Horizontal and Recessed Horizontal Sidewall Sprinklers (TY1334) must be installed in accordance with the following instructions.

NOTICE

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 inch (1,6 mm).

Obtain a leak-tight 1/2 inch NPT sprinkler joint by applying a minimum to maximum torque of 7 to 14 ft. lbs. (9,5 to 19,0 Nm). Higher levels of torque can distort the sprinkler Inlet with consequent leakage or impairment of the sprinkler.

Do not attempt to compensate for insufficient adjustment in an Escutcheon Plate by under- or over-tightening the Sprinkler. Re-adjust the position of the sprinkler fitting to suit.

Series LFII Residential Horizontal Sidewall Sprinklers

The Series LFII Residential Horizontal Sidewall Sprinklers must be installed in accordance with the following instructions.

1. Install horizontal sidewall sprinklers in the horizontal position with their center-line of waterway perpendicular to the backwall and parallel to the ceiling. The word "TOP" on the Deflector is to face towards the ceiling with the front edge of the Deflector parallel to the ceiling.
2. With pipe-thread sealant applied to the pipe threads, hand-tighten the sprinkler into the sprinkler fitting.
3. Tighten the sprinkler into the sprinkler fitting using only the W-Type 6 Sprinkler Wrench. (Figure 3). With reference to Figure 1, apply the W-Type 6 Sprinkler Wrench to the wrench flats.

Series LFII Residential Recessed Horizontal Sidewall Sprinklers

The Series LFII Residential Recessed Horizontal Sidewall Sprinklers must be installed in accordance with the following instructions.

1. Install recessed horizontal sidewall sprinklers in the horizontal position with their center-line of waterway perpendicular to the backwall and parallel to the ceiling. The word "TOP" on the Deflector is to face towards the ceiling.

2. After installing the Style 20 Mounting Plate over the sprinkler threads and with pipe-thread sealant applied to the pipe threads, hand-tighten the sprinkler into the sprinkler fitting.
3. Tighten the sprinkler into the sprinkler fitting using only the W-Type 7 Recessed Sprinkler Wrench (Figure 4). With reference to Figure 1, apply the W-Type 7 Recessed Sprinkler Wrench to the sprinkler wrench flats.
4. After the ceiling has been installed or the finish coat has been applied, slide on the Style 20 Closure over the Series LFII Residential Sprinkler and push the Closure over the Mounting Plate until its flange comes in contact with the ceiling.

Care and Maintenance

The RAPID RESPONSE Series LFII Residential Horizontal and Recessed Horizontal Sidewall Sprinklers (TY1334) must be maintained and serviced in accordance with the following instructions.

NOTICE

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, obtain permission to shut down the affected fire protection systems from the proper authorities and notify all personnel who may be affected by this action.

Absence of the outer piece of an escutcheon, which is used to cover a clearance hole, can delay sprinkler operation in a fire situation.

Owners must assure that the sprinklers are not used for hanging of any objects and that the sprinklers are only cleaned by means of gently dusting with a feather duster; otherwise, non-operation in the event of a fire or inadvertent operation may result.

Exercise care to avoid damage to sprinklers before, during, and after installation. Never paint, plate, coat, or otherwise alter automatic sprinklers after they leave the factory.

Replace sprinklers that:

- were modified or over-heated.
- were damaged by dropping, striking, wrench twisting, wrench slippage, or the like.
- are leaking or exhibiting visible signs of corrosion.

- were exposed to corrosive products of combustion but have not operated, if you cannot easily remove combustion by-products with a cloth.
- have a cracked bulb or have lost liquid from the bulb. Refer to the Installation section in this data sheet.

Initial and frequent visual inspections of random samples are recommended for corrosion-resistant sprinklers to verify the integrity of the corrosion-resistant material of construction. Thereafter, annual inspections per NFPA 25 should suffice.

Inspections of corrosion-resistant sprinklers are recommended at close range, instead of from the floor level per NFPA. Inspection at close range can better determine the exact sprinkler condition and the long-term integrity of the corrosion-resistant material, which can be affected by the corrosive conditions present.

Responsibility lies with the owner 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 (that is, NFPA 25), in addition to the standards of any authorities having jurisdiction. Contact the installing contractor or sprinkler manufacturer regarding any questions.

Automatic sprinkler systems are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

Limited Warranty

Products manufactured by Tyco Fire Suppression & Building Products (TFSBP) 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 TFSBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFSBP 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 TFSBP to be defective shall be either repaired or replaced, at TFSBP's sole option. TFSBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFSBP 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 TFSBP 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 TFSBP was informed about the possibility of such damages, and in no event shall TFSBP's 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.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

Sprinkler Assembly

Specify Series LFII Residential Horizontal Sidewall Sprinkler (TY1334), K=4.2, with (temperature rating) and (finish), and P/N (below).

155°F (68°C) Chrome Plated	P/N 51-211-9-155
155°F (68°C) White Polyester	P/N 51-211-4-155
155°F (68°C) White (RAL9010)*	P/N 51-211-3-155
155°F (68°C) Natural Brass.	P/N 51-211-1-155
175°F (79°C) or Chrome Plated	P/N 51-211-9-175
175°F (79°C) White Polyester	P/N 51-211-4-175
175°F (79°C) White (RAL9010)*	P/N 51-211-3-175
175°F (79°C) Natural Brass.	P/N 51-211-1-175

*Eastern Hemisphere sales only.

Recessed Escutcheon

Specify Style 20 Recessed Escutcheon with finish and P/N. Refer to Technical Data Sheet TFP770.

Sprinkler Wrench

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

Specify W-Type 7 Sprinkler Wrench, P/N 56-850-4-001.