



Model MP (Multi-Purpose) 1" Residential Riser

Bulletin 414 Rev.D

1" (25mm) Residential Riser for Providing Water Flow Alarm on Multipurpose Residential Fire Sprinkler Systems

Features

1. Designed to alarm on single fire sprinkler operation and not during normal household water usage.
2. Potable-water safe.
3. Water-flow Detector is preset to operate at 12 gpm ± 1 gpm (45.4 Lpm ± 3.8 Lpm), and is factory installed with a weather-proof metal cover.
4. Dedicated UL Listed water-flow detector assures optimum sensitivity while the adjustable delay device minimizes false alarms caused by pressure surges or short periods of water usage above 12 gpm.
5. Switch can be wired for 24 VDC or 125/250 VAC operation.
6. Stainless steel 1" (25mm) manifold with NPT or Metric Inlet and Outlet Threads.
7. Factory assembled and tested.
8. Rated working pressure not to exceed 175 psi.
9. UL Listed Assembly. NSF-61 Approved.
10. When the Model MP Riser is utilized in sprinkler systems with sprinklers having K-factors less than 4.4, there must be a minimum of 15 psi of operating pressure at the system's most remote head.

Listings & Approvals

1. Listed by Underwriters Laboratories Inc. (cULus)
2. NSF-61 Approved

Product Description

The Multi-Purpose-Riser comes factory assembled with the necessary accessories for a cost effective, complete riser assembly.

Cast-on lettering identifies manifold size and flow direction. This Riser can be used safely where domestic water and fire protection water are combined.

The water flow detector range, preset to 12 gpm ± 1 gpm, is designed to protect the system from false tripping when multiple household fixtures are in use. When the Model MP Riser is utilized in sprinkler systems with sprinklers having K-factors less than 4.4, there must be a minimum of 15 psi of operating pressure at the system's most remote head.

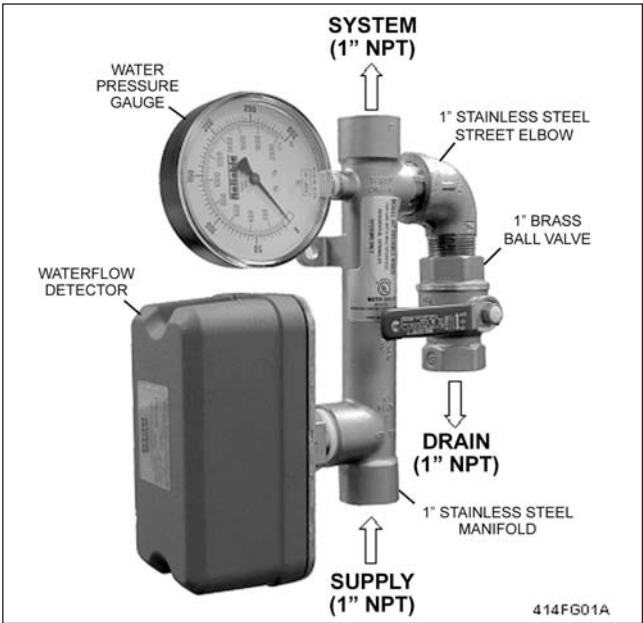


Fig.1

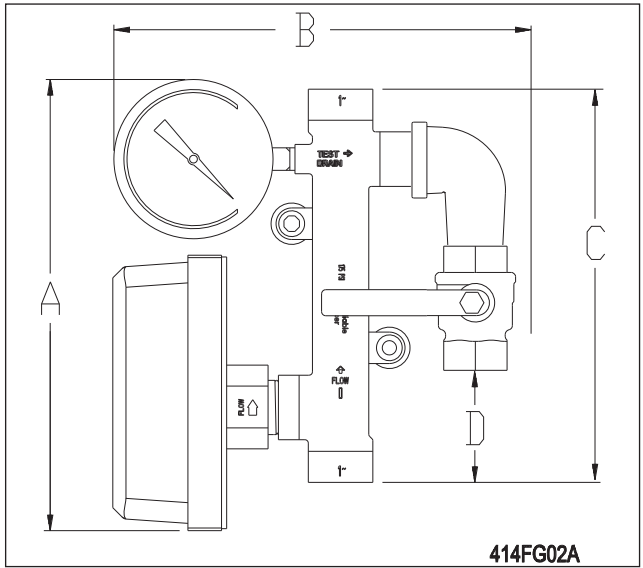


Fig.2

Technical Data:

Description	Multi Purpose Riser Trim				
	Dimensions inch (mm)				Weight*
Manifold Size:	A	B	C	D	Lbs (kg)
1" (25mm)	11 (280)	10 (254)	9.5 (241)	2.75 (70)	5.7 (2.1)

* Support Bracket Kit (optional) - 1 lb (0.45 kg)

Installation:

1. Install the manifold with the flow arrow pointing towards the SYSTEM side using 1" NPT threaded connections. Use potable water - safe thread sealants only (teflon tape is recommended).
2. Connect 1" Brass Ball Valve to drain.
3. Place the sprinkler system in service.
4. Follow directions on the water-flow detector switch for electrical connections.

Caution:

Automatic sprinkler systems having non-fire protection connection (permitting continual water flow) require dielectric fittings, according to NFPA 13 sect. 4-6, when dissimilar metal piping materials are joined.

Ordering Information:

Specify

1. Model MP 1" (25mm) Residential Riser.
2. NPT (P/N 6501200120) or Metric (P/N 6501200121) Threads for Inlet and Outlet.
3. Support Bracket Kit (P/N 6899190001), if required.

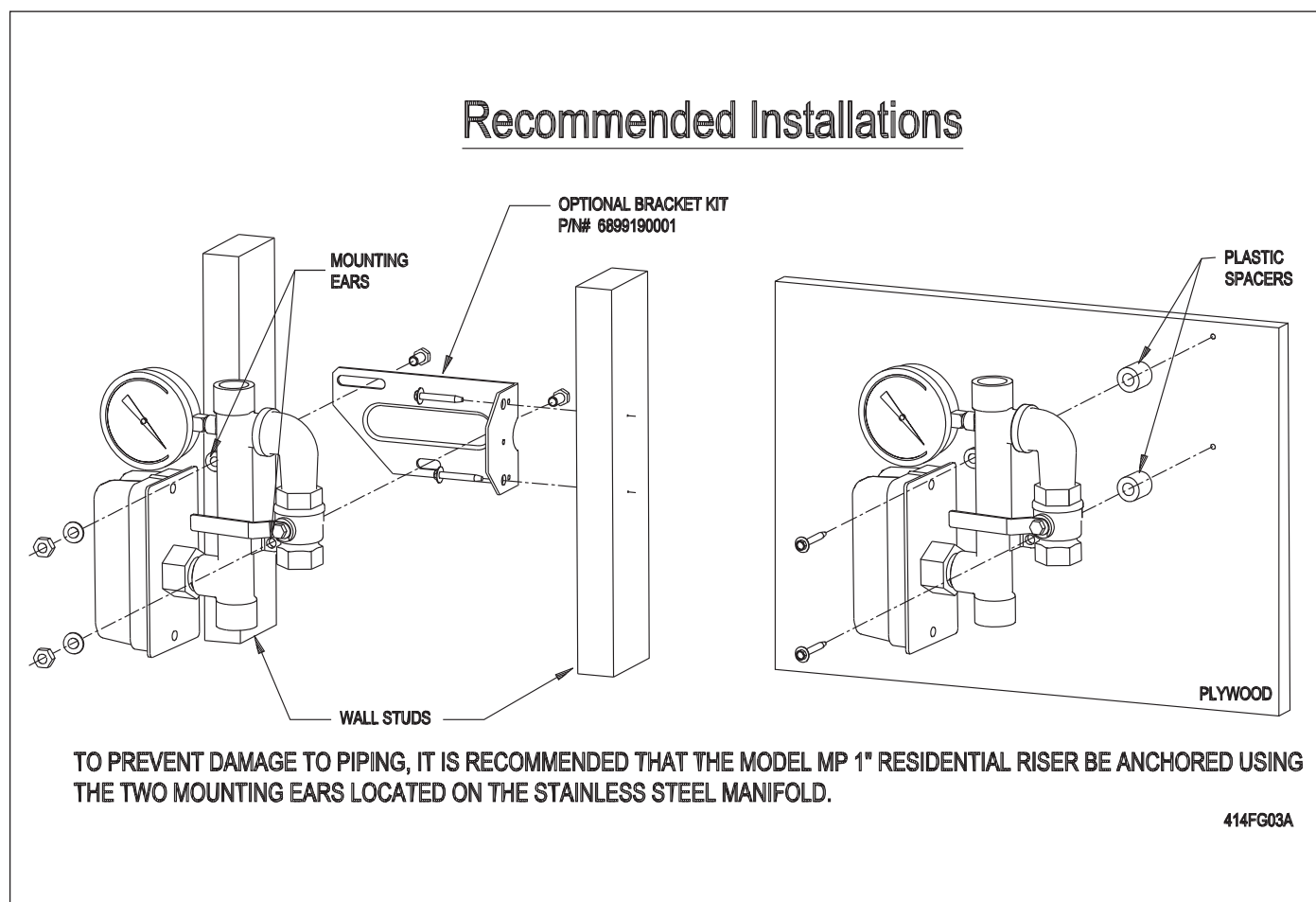


Fig. 3

The equipment presented in this bulletin is to be installed in accordance with the latest pertinent Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 80 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by



The Reliable Automatic Sprinkler Co., Inc.

(800) 431-1588
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(914) 829-2042
www.reliablesprinkler.com

Sales Offices
Sales Fax
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Internet Address



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E.G. Printed in USA 08/08 P/N9999970242

Reliable

Model RFC Series Residential Sprinklers

Flat Cover Plate, Concealed Pendent Sprinkler

cULus Listed

Product Features

- **cULus Listed as Residential Sprinklers**
- **Push-On cover plate installation**
- **Low water flow requirements**

Product Description

Model RFC Series residential sprinklers are flat cover plate, concealed pendent sprinklers intended for installation in accordance with NFPA 13, NFPA 13R, or NFPA 13D. The sprinklers are cULus Listed as Residential Sprinklers in accordance with UL 1626.

Model RFC30, RFC43, and RFC49 sprinklers have a 165°F (74°C) temperature rated fusible-link operating element. Model RFC58 sprinklers are offered with either a 165°F (74°C) or 212°F (100°C) temperature rated fusible-link operating element. Sprinklers with a 165°F (74°C) temperature rating are ordinary temperature classification and should be used with a 135°F (57°C) temperature rated cover plate. Sprinklers with a 212°F (100°C) temperature rating are intermediate temperature classification and should be used with a 165°F (74°C) temperature rated cover plate.

Model RFC Series sprinklers are installed with a Model RFC cover plate. Model RFC cover plates may be installed by either pushing or threading the cover plate into the sprinkler cup. Model RFC30, RFC43, and RFC49 sprinklers allow 1/2" (13 mm) of cover plate adjustment. Model RFC58 sprinklers allow 3/4" (19 mm) of cover plate adjustment.

Model RFC cover plates are available in a variety of finishes as listed in Table H. In addition, Model RFC cover plates may be ordered as either traditional solid cover plates or perforated cover plates.



Table A

Sprinkler Model	Nominal K-Factor gpm/psi ^{1/2} (l/min/bar ^{1/2})	Max. Coverage Area ft x ft (m x m)	Sprinkler Identification Number (SIN)
RFC30	3.0 (43.2)	14 x 14 (4.3 x 4.3)	RA0611
RFC43	4.3 (62)	20 x 20 (6.1 x 6.1)	RA0612
RFC49	4.9 (70.6)	20 x 20 (6.1 x 6.1)	RA0616
RFC58	5.8 (84)	20 x 20 (6.1 x 6.1)	RA0613

Technical Specifications

Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 3.0 (43.2 metric)
Max. Working Pressure: 175 psi (12 bar)
Min. Spacing: 8 ft. (2.4 m)

Material Specifications

Thermal Sensor: Nickel Alloy Solder Link
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing Assembly: Nickel Alloy with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Cover Plate Finishes
 (See Table H)

Sensitivity
 Fast-response

Temperature Rating
 165°F (74°C) sprinkler
 135°F (57°C) cover plate

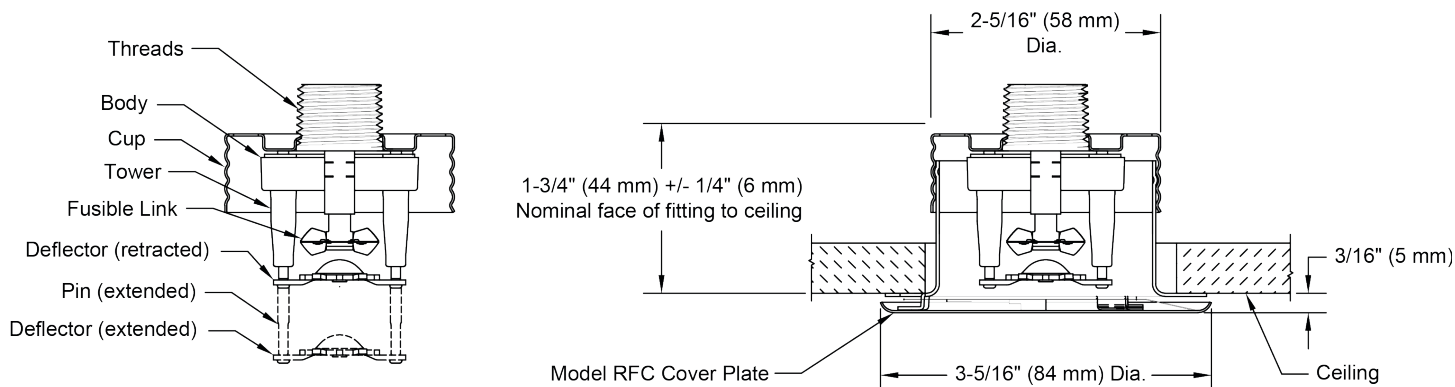
Cover Plate
 Model RFC cover plate

Sprinkler Wrench
 Model FC

Listings and Approvals
 cULus Listed



Bottom View

Model RFC30 Sprinkler Components and Dimensions**Figure 1****Model RFC30 Sprinkler Hydraulic Design Criteria****Table B**

Minimum Flow and Residual Pressure		
Max. Coverage Area ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)
12 x 12 (3.6 x 3.6)	9 (34)	9.0 (0.62)
14 x 14 (4.3 x 4.3)	10 (38)	11.0 (0.76)

Notes:

- For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in Table B above and (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.

Model RFC43 Residential Sprinkler

SIN RA0612

Technical Specifications

Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 4.3 (62 metric)
Max. Working Pressure: 175 psi (12 bar)
Min. Spacing: 8 ft. (2.4 m)

Material Specifications

Thermal Sensor: Nickel Alloy Solder Link
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing Assembly: Nickel Alloy with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Cover Plate Finishes
 (See Table H)

Sensitivity
 Fast-response

Temperature Rating
 165°F (74°C) sprinkler
 135°F (57°C) cover plate

Cover Plate
 Model RFC cover plate

Sprinkler Wrench
 Model FC

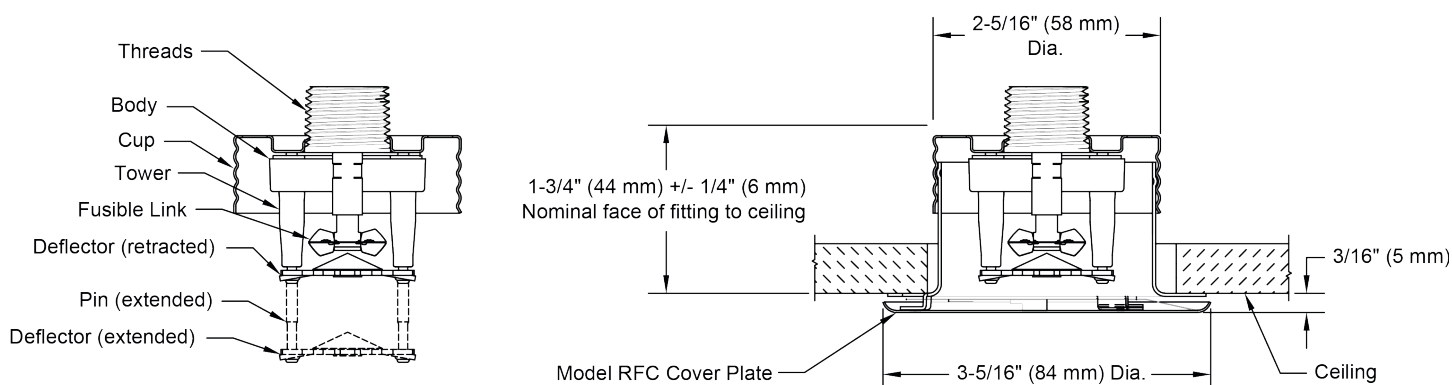
Listings and Approvals
 cULus Listed



Bottom View

Model RFC43 Sprinkler Components and Dimensions

Figure 2



Model RFC43 Sprinkler Hydraulic Design Criteria

Table C

Minimum Flow and Residual Pressure		
Max. Coverage Area ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)
12 x 12 (3.6 x 3.6)	12 (45)	7.8 (0.54)
14 x 14 (4.3 x 4.3)	13 (49)	9.1 (0.63)
16 x 16 (4.9 x 4.9)	13 (49)	9.1 (0.63)
18 x 18 (5.5 x 5.5)	18 (68)	17.5 (1.21)
20 x 20 (6.1 x 6.1)	21 (79)	23.8 (1.64)

Notes:

- For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in Table C above and (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.

Model RFC49 Residential Sprinkler

SIN RA0616

Technical Specifications

Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 4.9 (70.6 metric)
Max. Working Pressure: 175 psi (12 bar)
Min. Spacing: 8 ft. (2.4 m)

Material Specifications

Thermal Sensor: Nickel Alloy Solder Link
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing Assembly: Nickel Alloy with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Cover Plate Finishes
 (See Table H)

Sensitivity
 Fast-response

Temperature Rating
 165°F (74°C) sprinkler
 135°F (57°C) cover plate

Cover Plate
 Model RFC cover plate

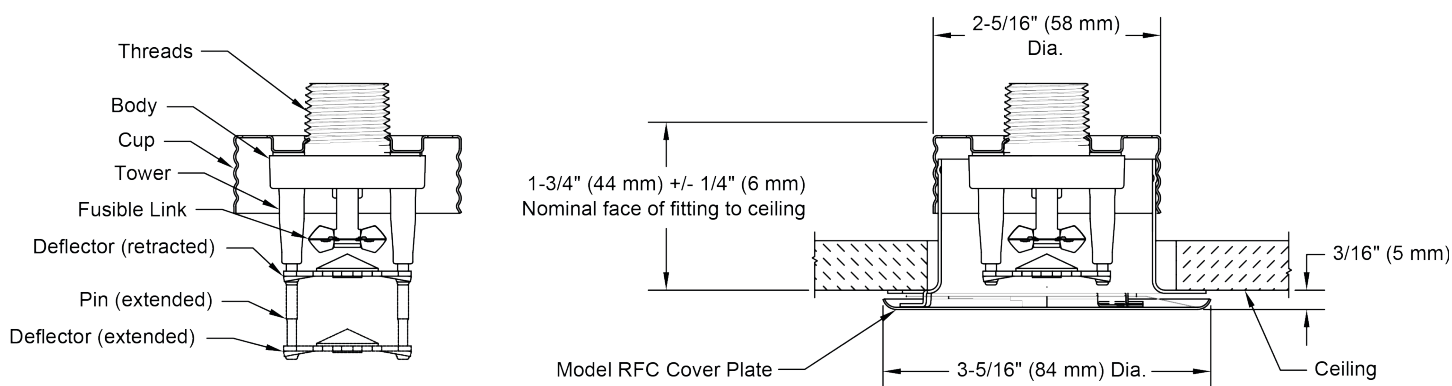
Sprinkler Wrench
 Model FC

Listings and Approvals
 cULus Listed



Model RFC49 Sprinkler Components and Dimensions

Figure 3



Model RFC49 Sprinkler Hydraulic Design Criteria

Table D

Minimum Flow and Residual Pressure		
Max. Coverage Area ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)
16 x 16 (4.9 x 4.9)	13 (49.0)	7.0 (0.48)
18 x 18 (5.5 x 5.5)	17 (64.3)	12.0 (0.83)
20 x 20 (6.1 x 6.1)	20 (75.7)	16.7 (1.15)

Notes:

- For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in Table D above and (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.

Model RFC58 Residential Sprinkler

SIN RA0613

Technical Specifications

Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 5.8 (84 metric)
Max. Working Pressure: 175 psi (12 bar)
Min. Spacing: 8 ft. (2.4 m)

Material Specifications

Thermal Sensor: Nickel Alloy Solder Link
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing Assembly: Nickel Alloy with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Chrome Plated Bronze Alloy
Cup: Steel

Cover Plate Finishes

(See Table H)

Sensitivity

Fast-response

Temperature Ratings

Ordinary:
 165°F (74°C) sprinkler
 135°F (57°C) cover plate
Intermediate:
 212°F (100°C) sprinkler
 165°F (74°C) cover plate

Cover Plate

Model RFC Cover Plate

Sprinkler Wrench

Model FC

Listings and Approvals

cULus Listed

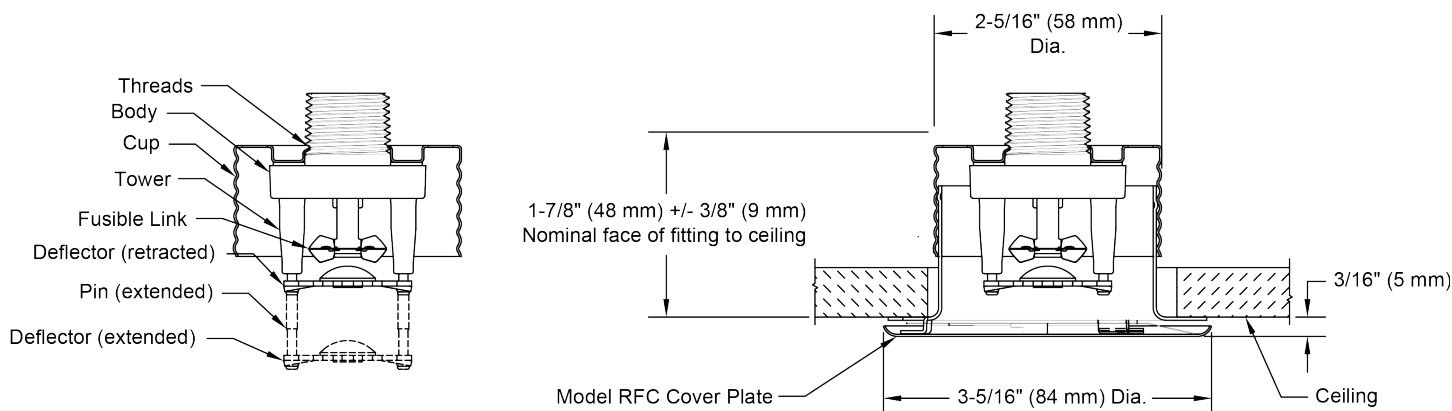


Bottom View



Model RFC58 Sprinkler Components and Dimensions

Figure 4



Model RFC58 Sprinkler Hydraulic Design Criteria

Table E

Minimum Flow and Residual Pressure		
Max. Coverage Area ⁽²⁾ ft. x ft. (m x m)	Flow gpm (l/min)	Pressure psi (bar)
16 x 16 (4.9 x 4.9)	16 (60.6)	7.6 (0.53)
18 x 18 (5.5 x 5.5)	18 (68.1)	9.6 (0.66)
20 x 20 (6.1 x 6.1)	20 (75.7)	11.9 (0.82)

Notes:

- For NFPA 13 installations the flow per sprinkler must be the greater of: (1) the flow listed in Table E above and (2) the flow required to achieve a minimum design density of 0.1 gpm/sq ft over the design area of the sprinkler.
- For coverage area dimensions less than those listed above, use the minimum required flow for the next larger max. coverage area listed.

Cover Plate Finishes⁽¹⁾**Table H**

Standard Finishes	Special Application Finishes		
White Polyester	Off White Paint	Black Paint	Raw Brass
Chrome Plated	Bright Brass	Finished Bronze	Black Plated
	Satin Chrome	Stainless Steel Clad ⁽³⁾	Custom Color Paint ⁽²⁾

Notes:

1. Paint or any other coating applied over the factory finish will void all approvals and warranties.
2. Custom color paint is semi-gloss, unless specified otherwise.
3. Stainless steel clad cover plates are Type 316 Stainless Steel on the finished side and C102 Copper Allow on the back side. Cover plates are not listed or approved as corrosion resistant. Stainless steel clad cover plates are not available perforated.

Installation Dimensions**Table J**

Sprinkler Model	Cover Plate Model	Cover Plate Diameter inch (mm)	Recommended Hole Diameter in Ceiling inch (mm)	Cover Plate Adjustment inch (mm)	Min. to Max. Face of Fitting to Ceiling ⁽¹⁾ inch (mm)	Min. to Max. Dropped Deflector Distance below Ceiling inch (mm)	Cover Plate Temperature Rating
RFC30 RFC43 RFC49	RFC	3-5/16 (84)	2-5/8 (67)	1/2 (13)	1-1/2 to 2 (38 to 51)	1/2 to 1 (13 to 25)	135°F (57°C)
RFC58	RFC	3-5/16 (84)	2-5/8 (67)	3/4 (19)	1-1/2 to 2-1/4 (38 to 57)	1/4 to 1 (6 to 25)	135°F ⁽²⁾ (57°C) or 165°F ⁽³⁾ (74°C)

Notes:

1. Face of fitting to ceiling dimensions are based on a nominal thread make up. Verify dimensions based on fitting and thread sealing method prior to installation. A 1/2" x 1/2" brass nipple extension (Reliable P/N 6999991900) is available where necessary for replacement of existing sprinklers.
2. For use with 165°F (74°C) temperature rated sprinklers where the Maximum Ceiling Temperature does not exceed 100°F (38°C).
3. For use with 212°F (100°C) temperature rated sprinklers with the Maximum Ceiling Temperature does not exceed 150°F (66°C).

Installation

Model RFC series sprinklers are intended to be installed in accordance with NFPA 13, NFPA 13R, or NFPA 13D, as well as the requirements of applicable authorities having jurisdiction. Model RFC series sprinklers must not be installed in ceilings with positive pressure in the space above. Ensure that the 4 slots in the cup are open and unobstructed following installation. Model RFC series sprinklers are shipped with a protective cap that should remain on the sprinkler until installed. The protective cap should be replaced following installation of the sprinkler and permanently removed only when the cover plate is installed and the sprinkler system is placed in service following construction.

Model RFC series sprinklers are installed with the Model FC wrench. The use of any other wrench to installed Model RFC series sprinklers is not permitted and may damage the sprinkler. Temporarily remove the protective cap during installation of the sprinkler. Insert the Model FC wrench over the sprinkler until the wrench engages the body. Do not wrench any other part of the sprinkler/cup assembly. The Model FC wrench is designed to be turned with a standard 1/2" square drive. Tighten the sprinkler into the fitting after applying a PTFE based thread sealant to the sprinkler's threads. Recommended installation torque is 8 to 18 ft/lb (11 to 24 N/m).

Do not exceed the maximum recommended torque. Exceeding the maximum recommended torque may cause leakage or impairment of the sprinkler. Use care when inserting or removing the wrench from the sprinkler to avoid damage to the sprinkler.

Install the cover plate by hand by pushing the cover plate into the cup and turning the cover in the clockwise direction until it is tight against the ceiling.

Application

Model RFC series sprinklers are intended for installation where residential sprinklers are permitted or required by NFPA 13, NFPA 13R, and NFPA 13D. The sprinklers are concealed pendant residential sprinklers.

Model RFC 30, RFC43, and RFC49 sprinklers are available in ordinary temperature classification for installation where the Maximum Ceiling Temperature does not exceed 100°F (38°C). Model RFC58 sprinklers are available in either ordinary or intermediate temperature classification for installation where the Maximum Ceiling Temperature does not exceed 100°F (38°C) or 150°F (66°C), respectively.

Wrench



Model FC

Maintenance

Model RFC series sprinklers should be inspected and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by gentle vacuuming. Replace any sprinkler cover plate assembly which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Listings and Approvals

Listed by Underwriters Laboratories, Inc. and UL Certified for Canada (cULus)

UL Listing Category

Residential Automatic Sprinkler

UL Guide Number

VKKW

Guarantee

For the Reliable Automatic Sprinkler Co., Inc. guarantee, terms, and conditions, visit www.reliablesprinkler.com.

Patents

Model RFC30, RFC43, RFC49, and RFC58 sprinklers are covered by U.S. Patent No. 9,248,327 and U.S. Patent No. 7,275,603.

Model RFC30 and RFC43 sprinklers are additionally covered by U.S. Patent No. 8,776,903.

Ordering Information

Specify the following when ordering.

Sprinkler

- Model (RFC30, RFC43, RFC49, RFC58)
- Temperature Rating

Cover Plate

- Model RFC
- Temperature Rating
- Finish (See Table H)

Sprinkler Wrench

- Model FC



Model F3QR Quick Response Dry Sprinklers

Features

1. The Model F3QR sprinkler utilizes Belleville Spring Closure Technology. Reliable is the first in the industry to produce a Quick Response Dry Concealed sprinkler utilizing this technology.
2. Styles available
 - Pendent
 - Recessed FP Pendent
 - Recessed F1 Pendent
 - Concealed
 - Horizontal Sidewall
 - Recessed FP Horizontal Sidewall
 - Recessed F1 Horizontal Sidewall
3. 1½" (38mm) escutcheon adjustment on pendent sprinkler.
4. ½" (13mm) escutcheon adjustment on recessed sprinkler with push-on/ thread-off FP Model Escutcheon ring.
5. 3/8" (9.5mm) cover plate adjustment on concealed sprinkler with push-on/ thread-off CCP Cover Plate.
6. 3/4" (19mm) escutcheon adjustment on recessed sprinkler with F1 Escutcheon.
7. Attractive appearance. Employs 3mm frangible glass bulb and galvanized nipple.
8. Lengths available to accommodate installation dimensions from 2" - to - 48" (51mm - to - 1219mm), in ¼" (6mm) increments. See specific styles for correct "A" dimension range.
9. Available in a variety of plated and painted finishes.
10. Polyester Coated Corrosion Resistant Sprinklers.

US Patent Numbers 5,775,431 and 5,967,240.

Other US Patents pending.

Approvals

1. Listed by Underwriters Laboratories Inc. and UL Certified for Canada (cULus)

Style	Response	Sprinkler System Type	Hazard
Pendent Recessed Pendent Recessed F1 Pendent CCP Concealed (R5714)	Quick	Wet Pipe Dry Pipe All Preaction	Light Ordinary
Horizontal Sidewall Recessed Horizontal Sidewall (R5734)	Quick	Wet Pipe Dry Pipe All Preaction	Light

2. Certified by FM Approvals

Style	Response	Sprinkler System Type	Hazard
Pendent Recessed F1 Pendent (R5714)	Quick	Wet Pipe Dry Pipe All Preaction	Light Ordinary, Groups 1&2
Horizontal Sidewall Recessed F1 Horizontal Sidewall (R5734)	Quick	Wet Pipe Dry Pipe All Preaction	Light

3. NYC MEA 258-93-E

The Reliable Automatic Sprinkler Co., Inc., 103 Fairview Park Drive, Elmsford, New York 10523



Pendent
(See Fig. 1)



Pendent / HB
(See Fig. 2)



Recessed FP Pendent
(See Fig. 3)



Concealed
(See Fig. 4)



Recessed F1 Pendent
(See Fig. 5)



Horizontal Sidewall
(See Fig. 6)



Horizontal Sidewall / HB
(See Fig. 7)



Recessed FP
Horizontal Sidewall
(See Fig. 8)



Recessed F1
Horizontal Sidewall
(See Fig. 9)

Model F3QR Dry Pendent Sprinkler

"A" Dim.	2" to 48" (51mm to 1219mm) in 1/4" (6mm) increments
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Finishes⁽¹⁾

Sprinkler	Escutcheon
Bronze	Brass ⁽³⁾
Chrome Plated	Chrome Plated
White Polyester ⁽²⁾	White

⁽¹⁾ Other finishes and colors are available on special order.

Consult factory for details.

⁽²⁾ cULus Listed as a Corrosion Resistant sprinkler in standard Black or White.

⁽³⁾ Not available for HB escutcheons.

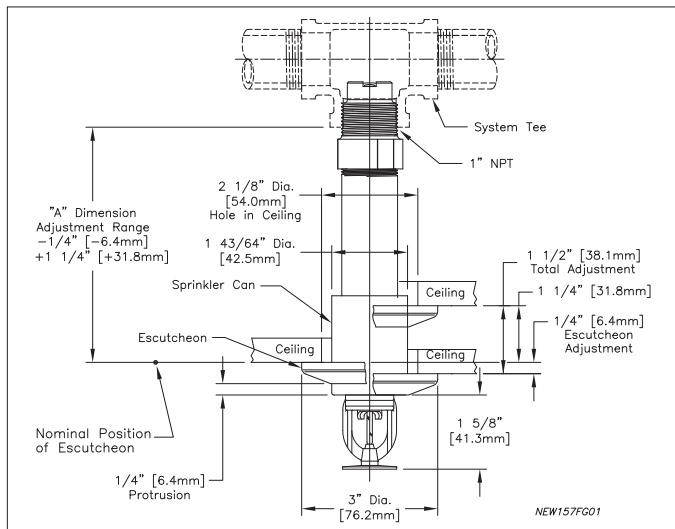


Fig. 1

Note: The sprinkler can protrudes 1/4" when escutcheon is in nominal position. Escutcheon adjustment provides -1/4" (-6mm) to +1 1/4" (+32mm) "A" dimension adjustment range.

Sprinkler Guard: Model C-2

Sprinkler Installation Wrench: Model F3 Sprinkler Wrench

Sprinkler Identification Number (SIN): R5714

Model F3QR Dry Recessed FP Pendent Sprinkler

"A" Dim.	3 1/2" to 48" (89mm to 1219mm) in 1/4" (6mm) increments
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Finishes⁽¹⁾

Sprinkler	Escutcheon
Bronze	Brass
Chrome Plated	Chrome Plated
White Polyester ⁽²⁾	White

⁽¹⁾ Other finishes and colors are available on special order.

Consult factory for details. Cup remains unfinished.

Only the escutcheon will contain desired finish.

⁽²⁾ cULus Listed as a Corrosion Resistant sprinkler in standard Black or White.

Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Max. Ambient Temp.	Bulb Color
Ordinary	135°F (57°C)	100°F (38°C)	Orange
Ordinary	155°F (68°C)	100°F (38°C)	Red
Intermediate ⁽¹⁾	175°F (79°C)	150°F (66°C)	Yellow
Intermediate	200°F (93°C)	150°F (66°C)	Green
High ⁽¹⁾	286°F (141°C)	225°F (107°C)	Blue

Sprinkler cup and FP Escutcheon fabricated of steel and recommended for interior applications.

⁽¹⁾ Listed and Certified only by cULus.

Model F3QR Dry Pendent w/HB Escutcheon

"A" Dim.	3 1/2" to 48" (89mm to 1219mm) in 1/4" (6mm) increments
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Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Max. Ambient Temp.	Bulb Color
Ordinary	135°F (57°C)	100°F (38°C)	Orange
Ordinary	155°F (68°C)	100°F (38°C)	Red
Intermediate ⁽¹⁾	175°F (79°C)	150°F (66°C)	Yellow
Intermediate	200°F (93°C)	150°F (66°C)	Green
High ⁽¹⁾	286°F (141°C)	225°F (107°C)	Blue

Sprinkler can and escutcheon fabricated of brass for better weather resistance in exterior applications.

⁽¹⁾ Listed and Certified only by cULus.

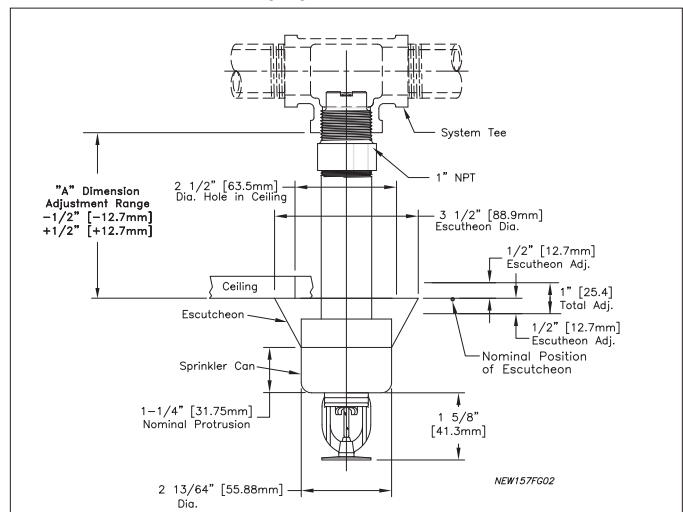


Fig. 2

Note: The sprinkler can protrudes 1 1/4" when escutcheon is in nominal position. Escutcheon adjustment provides -1/2" (-12.7mm) to +1 1/2" (+12.7mm) "A" dimension adjustment range.

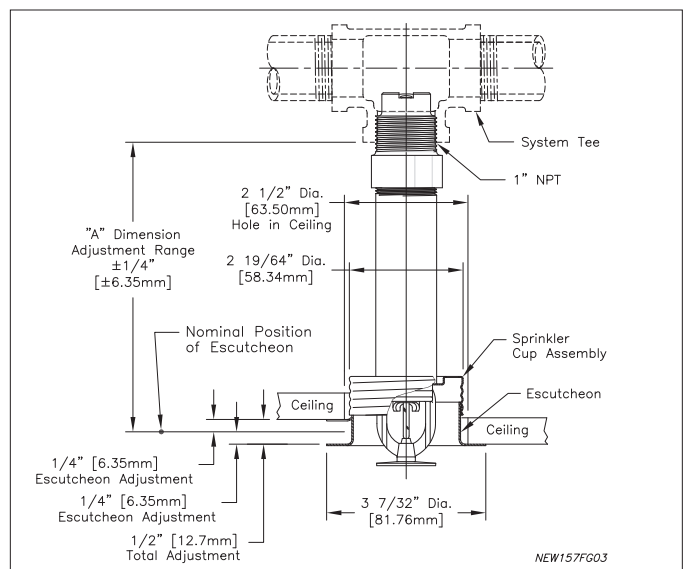


Fig. 3

Note: Do not install the Model F3QR Dry Recessed FP Pendent Sprinkler in ceilings which have positive pressure in space above.

Sprinkler Installation Wrench: Model XLO2 Sprinkler Wrench

Sprinkler Identification Number (SIN): R5714

Model F3QR Dry Pendent Concealed Sprinkler

"A" Dim.	3 1/2" to 48" (89mm to 1219mm) in 1/4" (6mm) increments
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CCP Cover Plate ⁽¹⁾ Finishes ⁽²⁾

Standard Finishes	Special Application Finishes
Chrome Plated White	Bright Brass Plated Black Plated Black Paint Off White Satin Chrome

⁽¹⁾ Utilizes the 1/2" cover plate with 3/8" total adjustment.

⁽²⁾ Other finishes and colors are available on special order.
Consult factory for details.

Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Cover Plate Temp. Rating	Max. Ambient Temp.
Ordinary	135°F (57°C)	135°F (57°C)	100°F (38°C)
Ordinary	155°F (68°C)	135°F (57°C)	100°F (38°C)
Intermediate ⁽¹⁾	175°F (79°C)	165°F (74°C)	150°F (66°C)
Intermediate	200°F (93°C)	165°F (74°C)	150°F (66°C)
High ⁽¹⁾	286°F (141°C)	165°F (74°C)	150°F (66°C)

Sprinkler cup fabricated of steel and CCP Cover Plate fabricated of brass and recommended for interior applications.

⁽¹⁾ Listed and Certified only by cULus.

Sprinkler Installation Wrench:

Model XLO2 Sprinkler Wrench

Sprinkler Identification Number (SIN): R5714

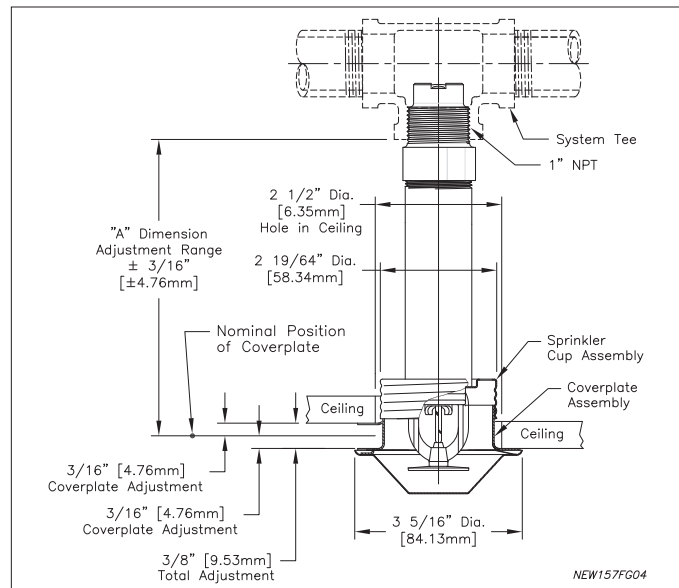


Fig. 4

Note: Do not install the Model F3QR Dry Concealed Pendent Sprinkler in ceilings which have positive pressure in the space above.

Model F3QR Dry Recessed F1 Pendent Sprinkler

"A" Dim.	3 1/2" to 48" (89mm to 1219mm) in 1/4" (6mm) increments
-----------------	---

Finishes ⁽¹⁾

Sprinkler	Escutcheon	Collar
Chrome Plated White Polyester ⁽²⁾	Chrome Plated White	Chrome Plated White

⁽¹⁾ Other finishes and colors are available on special order.
Consult factory for details.

⁽²⁾ cULus Listed as a Corrosion Resistant sprinkler in standard Black or White.

Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Max. Ambient Temp.	Bulb Color
Ordinary	135°F (57°C)	100°F (38°C)	Orange
Ordinary	155°F (68°C)	100°F (38°C)	Red
Intermediate ⁽¹⁾	175°F (79°C)	150°F (66°C)	Yellow
Intermediate	200°F (93°C)	150°F (66°C)	Green
High ⁽¹⁾	286°F (141°C)	225°F (107°C)	Blue

⁽¹⁾ Listed and Certified only by cULus.

Sprinkler Installation Wrench:

Model XLO2 Sprinkler Wrench

Sprinkler Identification Number (SIN): R5714

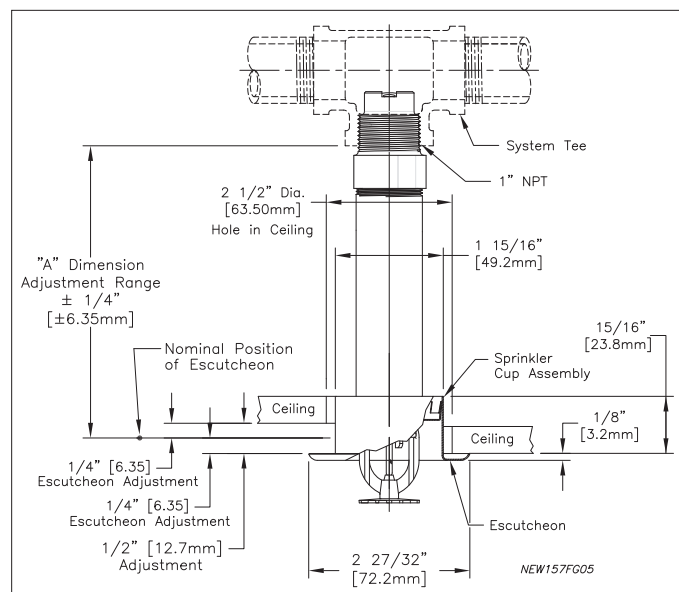


Fig. 5

Model F3QR Dry Horizontal Sidewall Sprinkler

"A" Dim.	2" to 48" (51mm to 1219mm) in 1/4" (6mm) increments
----------	---

Finishes⁽¹⁾

Sprinkler	Escutcheon
Bronze	Brass ⁽³⁾
Chrome Plated	Chrome Plated
White Polyester ⁽²⁾	White

⁽¹⁾ Other finishes and colors are available on special order.

Consult factory for details.

⁽²⁾ cULus Listed as a Corrosion Resistant sprinkler in standard Black or White.

⁽³⁾ Not available for HB escutcheons.

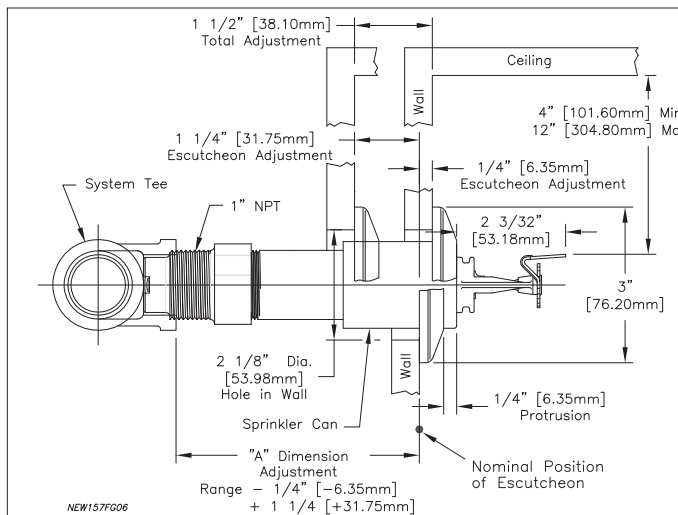


Fig. 6

Note: The sprinkler can protrudes 1/4" when escutcheon is in nominal position. Escutcheon adjustment provides -1/4" (-6mm) to +1 1/4" (+32mm) "A" dimension adjustment range.

⁽¹⁾ Listed and Certified only by cULus.

Sprinkler Installation Wrench: Model F3 Sprinkler Wrench
prinkler Identification Number (SIN): R5734

Model F3QR Dry HSW w/HB Escutcheon

"A" Dim.	3 1/2" to 48" (89mm to 1219mm) in 1/4" (6mm) increments
----------	---

Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Max. Ambient Temp.	Bulb Color
Ordinary	135°F (57°C)	100°F (38°C)	Orange
Ordinary	155°F (68°C)	100°F (38°C)	Red
Intermediate ⁽¹⁾	175°F (79°C)	150°F (66°C)	Yellow
Intermediate	200°F (93°C)	150°F (66°C)	Green
High	286°F (141°C)	225°F (107°C)	Blue

Sprinkler can and escutcheon fabricated of brass for better weather resistance in exterior applications.

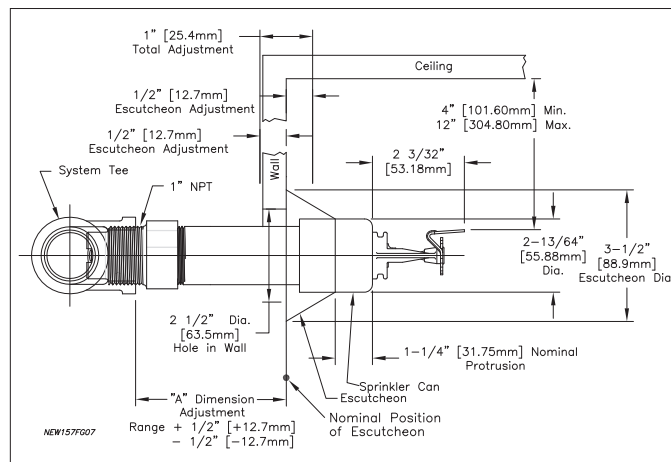


Fig. 7

Note: The sprinkler can protrudes 1/4" when escutcheon is in nominal position. Escutcheon adjustment provides -1/2" (-12.7mm) to +1/2" (+12.7mm) "A" dimension adjustment range.

Model F3QR Dry Recessed FP Horizontal Sidewall Sprinkler

"A" Dim.	3 1/2" to 48" (89mm to 1219mm) in 1/4" (6mm) increments
----------	---

Finishes⁽¹⁾

Sprinkler	Escutcheon
Bronze	Brass
Chrome Plated	Chrome Plated
White Polyester ⁽²⁾	White

⁽¹⁾ Other finishes and colors are available on special order.

Consult factory for details. Cup remains unfinished. "See page 2"

⁽²⁾ cULus Listed as a Corrosion Resistant sprinkler in standard Black or White.

Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Max. Ambient Temp.	Bulb Color
Ordinary	135°F (57°C)	100°F (38°C)	Orange
Ordinary	155°F (68°C)	100°F (38°C)	Red
Intermediate ⁽¹⁾	175°F (79°C)	150°F (66°C)	Yellow
Intermediate	200°F (93°C)	150°F (66°C)	Green
High ⁽¹⁾	286°F (141°C)	225°F (107°C)	Blue

⁽¹⁾ Listed and Certified only by cULus.

Sprinkler Installation Wrench:

Model XLO2 Sprinkler Wrench

Sprinkler Identification Number (SIN): R5734

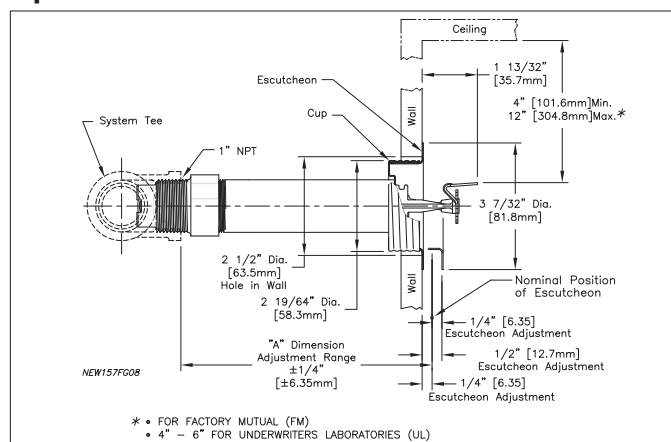


Fig. 8

Notes: Do not install the Model F3QR Dry Recessed FP Horizontal Sidewall Sprinkler in walls which have positive pressure in their side space.

- Listed by cULus for Quick Response. Approved by FM for Standard Response.
- Recessed Horizontal sidewall sprinklers are listed with cULus for installation of min. 4" (100mm) - to - max. 6" (150mm) below ceiling and approved by FM for installation of min. 4" (100mm) - to - max. 12" (300mm) below ceiling.

Model F3QR Dry Recessed F1 Horizontal Sidewall Sprinkler

"A" Dim.	3 1/2" to 48" (89mm to 1219mm) in 1/4" (6mm) increments
-----------------	---

Finishes⁽¹⁾

Sprinkler	Escutcheon	Collar
Chrome Plated	Chrome Plated	Chrome Plated
White Polyester ⁽²⁾	White	White

⁽¹⁾ Other finishes and colors are available on special order. Consult factory for details.

⁽²⁾ cULus Listed as a Corrosion Resistant sprinkler in standard Black or White.

Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Max. Ambient Temp.	Bulb Color
Ordinary	135°F (57°C)	100°F (38°C)	Orange
Ordinary	155°F (68°C)	100°F (38°C)	Red
Intermediate ⁽¹⁾	175°F (79°C)	150°F (66°C)	Yellow
Intermediate	200°F (93°C)	150°F (66°C)	Green
High ⁽¹⁾	286°F (141°C)	225°F (107°C)	Blue

⁽¹⁾ Listed and Certified only by cULus.

Sprinkler Installation Wrench:

Model XLO2 Sprinkler Wrench

Sprinkler Identification Number (SIN): R5734

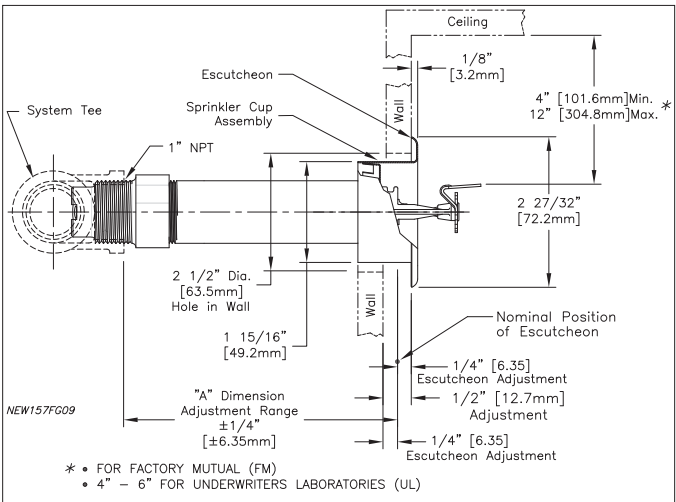


Fig. 9

- Listed by cULus for Quick Response. Approved by FM for Standard Response.
- Recessed Horizontal sidewall sprinklers are listed with cULus for installation of min. 4" (100mm) - to - max. 6" (150mm) below ceiling and approved by FM for installation of min. 4" (100mm) - to - max. 12" (300mm) below ceiling.

Technical Data:

Orifice Size: 1/2" (15mm)
Thread Size: 1" NPT per ANSI B2.1
Working Pressure: 175 psi (12 bar)
Nominal K Factor - US / (Metric): 5.6 / (80)

Product Description

Reliable Model F3QR Dry Sprinklers are quick response sprinklers utilizing a durable 3mm frangible glass bulb. This quick response enables these sprinklers to apply water to a fire much sooner than standard response sprinklers of the similar temperature rating.

Model F3QR Dry Sprinklers are intended for use in dry and preaction systems and in areas subjected to freezing temperatures, such as freezers and unheated portions inside and outside buildings.

Environments wherein dry sprinklers are employed can be corrosive. For this reason, Model F3 Sprinklers have a special wax fillet placed in the gap between the cup that supports the bulb and the wrenching boss. This wax will not interfere with the operation of the sprinkler, and it prevents contaminants from entering the internal portion of the drop nipple. The wax must not be removed.

Operation

The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response. When the temperature increases sufficiently, due to a fire, the bulb shatters allowing operating parts to clear the waterway. This enables the inlet seal to release air or water and subsequently, cause water flow over the deflector in a uniform spray pattern, controlling or extinguishing the fire.

Ordering Information

Specify:

1. Sprinkler Type (select one):
 - (a) Model F3QR Dry Pendent
 - (b) Model F3QR Dry Pendent/HB
 - (c) Model F3QR Dry Recessed FP Pendent
 - (d) Model F3QR Dry Recessed F1 Pendent
 - (e) Model F3QR Dry Concealed Pendent
 - (f) Model F3QR Dry Horizontal Sidewall
 - (g) Model F3QR Dry Horizontal Sidewall/HB
 - (h) Model F3QR Dry Recessed FP Horizontal Sidewall
 - (i) Model F3QR Dry Recessed F1 Horizontal Sidewall
2. Sprinkler Temperature Rating.
3. Sprinkler Finish.
4. Escutcheon type (F1 or FP).
5. Cover Plate/Escutcheon Finish.
6. Length:
"A" Dimension (face of tee to face of ceiling or wall) in 1/4" (6mm) increments.
7. Model F3QR Dry Pendent (a) is available without sprinkler can and escutcheon.

Note:

1. The "A" dimension is based on a nominally gauged pipe thread "make-up" of 0.600" (15mm) per ANSI B2.1 [7 1/2 threads approximately].
2. All platings and paintings are decorative and intended for interior use.

General Installation Instructions

Model F3QR dry sprinklers must be installed only in standard (ANSI B 16.3 class 150 and ANSI B 16.4 class 125) pipe tees in the horizontal position, even at branch line ends. They should not be installed into elbows or pipe couplings located on drop nipples to the sprinklers. For these and other fittings including CPVC*, the dry sprinkler should be installed into a fitting to allow protrusion into the fitting in accordance with the diagrams. The "A" dimension of the dry sprinkler, which extends into the freezers or a freezing zone from wet pipe systems, should be selected to provide, as a minimum, the specified lengths in inches shown in Fig. 10.

Caution:

Do not install Model F3QR Dry sprinklers into CPVC adapter fittings or tees that have an internal obstruction. This will damage the sprinkler and /or the fitting. Refer to Fig. 11.

During installation, the following steps must be followed:

1. Cut the specified size hole (see illustrations) for the sprinkler in the ceiling or wall directly in line with the tee.
2. Apply pipe joint compound to the 1" (25mm) pipe threads and install sprinkler using the Model F3 or XLO2 Sprinkler Wrench as specified.
3. Install the Model FP push-on / thread-off escutcheon or CCP cover plate if required.

Note: Installation of the Model F3QR Sprinklers is not recommended in copper pipe systems, as this may reduce the life expectancy of the sprinklers.

Model F3QR Concealed and Recessed Installation Instructions

- The Model XLO2 wrench (Fig. 12) is designed to locate on the wrenching pads of the recessed sprinkler while centering in the cup. A standard ½" drive ratchet may be used to drive this wrench. Fig. 13 and Fig. 14 show sequentially the insertion of the wrench. First the wrench, with its jaws above the sprinkler deflector, is moved laterally until centered with the cup. Then raise the wrench inside of the cup until its jaws engage the sprinkler's square wrenching pads (Fig. 14). To remove the wrench, follow this procedure in reverse order. Care should be taken to avoid striking the deflector, with the wrench.
- Model F3 Wrench (Fig. 15) is used for installation of Pendent and Horizontal Sidewall sprinklers.
- Glass bulb sprinklers have orange bulb protectors to minimize bulb damage during shipping, handling and installation. REMOVE THIS PROTECTION AT THE TIME THE SPRINKLER SYSTEM IS PLACED IN SERVICE FOR FIRE PROTECTION. Removal of the protectors before this time may leave the bulb vulnerable to damage. RASCO wrenches are designed to install sprinklers when covers are in place. REMOVE PROTECTORS BY UNDOING THE CLASP BY HAND. DO NOT USE TOOLS TO REMOVE THE PROTECTORS.

Maintenance

The Model F3QR Quick Response Dry Sprinklers should be inspected quarterly and the sprinkler system maintained in accordance with NFPA 25. Do not remove the factory applied thermally sensitive wax fillet between the bulb supporting cup and the wrenching boss. Do not replace this wax with a substitute substance. An Alternate substance may interfere with proper operation of the sprinkler. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gently vacuuming. Remove any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Caution:

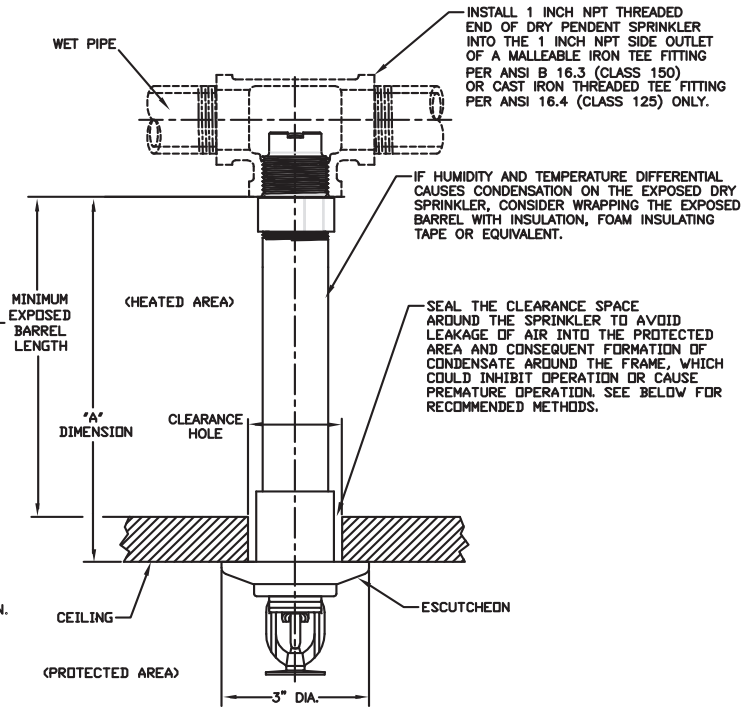
Use specified by RASCO wrenches only, which are designed to engage sprinkler's wrenching pad. (Fig. 15, page 9)

**RECOMMENDED EXPOSED MINIMUM BARREL LENGTH BASED ON AMBIENT TEMPERATURE IN THE PROTECTED AREA
(STANDARD DRY PENDENT SPRINKLER SHOWN)**

AMBIENT TEMPERATURE OF PROTECTED AREA* AT THE DISCHARGE END OF THE SPRINKLER	EXPOSED BARREL AMBIENT TEMPERATURE		
	40°F/4°C	50°F/10°C	60°F/16°C
	EXPOSED MINIMUM BARREL LENGTH** (FACE OF TEE TO TOP OF CEILING)		
	IN. (MM)	IN. (MM)	IN. (MM)
40°F (4°C)	0	0	0
30°F (-1°C)	0	0	0
20°F (-7°C)	4 (101)	0	0
10°F (-12°C)	8 (203)	1 (25.1)	0
0°F (-18°C)	12 (305)	3 (75)	0
-10°F (-23°C)	14 (356)	4 (101)	1 (25.1)
-20°F (-29°C)	14 (356)	6 (152)	3 (75)
-30°F (-34°C)	16 (406)	8 (203)	4 (101)
-40°F (-40°C)	18 (457)	8 (203)	4 (101)
-50°F (-46°C)	20 (508)	10 (254)	6 (152)
-60°F (-51°C)	20 (508)	10 (254)	6 (152)

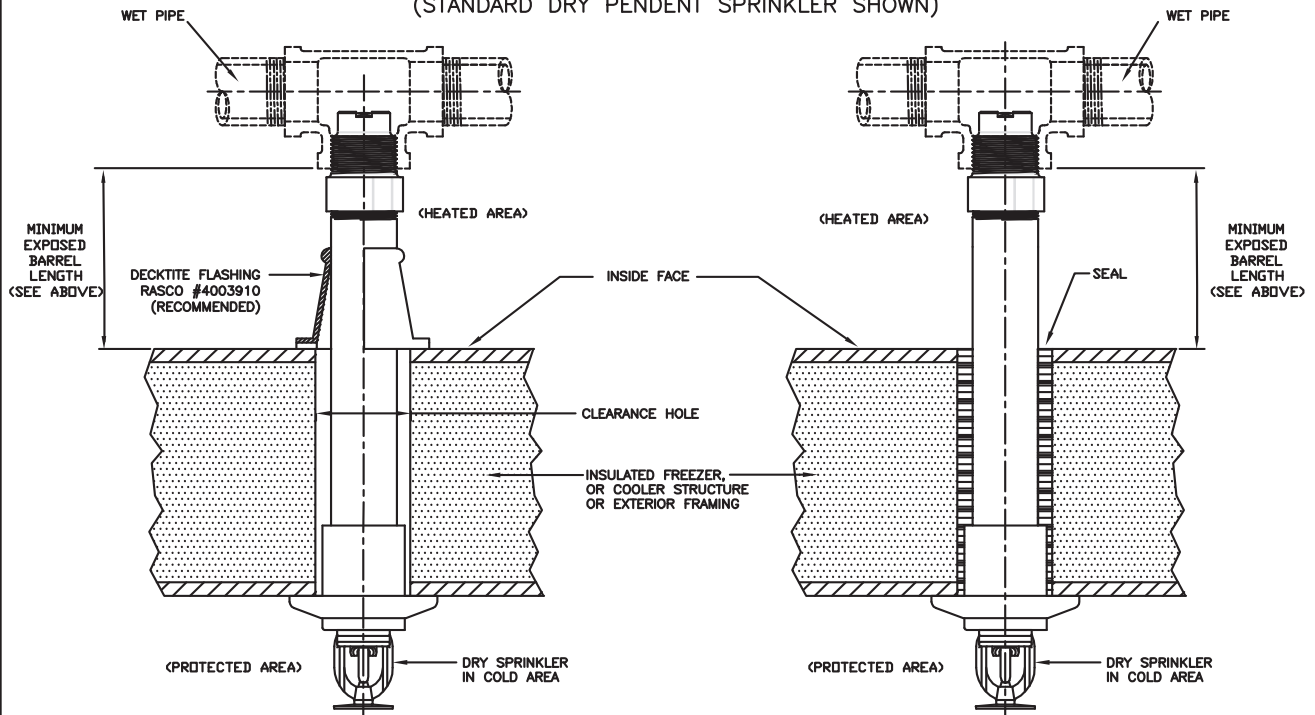
* THE PROTECTED AREA REFERS TO THE AREA BELOW THE CEILING. THE AMBIENT TEMPERATURE IS THE TEMPERATURE AT THE DISCHARGE END OF THE SPRINKLER.
FOR PROTECTED AREA TEMPERATURES THAT OCCUR BETWEEN THE VALUES LISTED, USE THE NEXT COOLER TEMPERATURE.

**THE MIN. REQUIRED BARREL LENGTH IS NOT THE SAME AS THE 'A' DIMENSION. NOTE: EXPOSED MINIMUM BARREL LENGTHS ARE INCLUSIVE UP TO 30MPH WIND VELOCITIES IN THE PROTECTED AREA.



RECOMMENDED EXPOSED MINIMUM BARREL LENGTHS ALSO APPLY TO HORIZONTAL SIDEWALL DRY SPRINKLERS

**RECOMMENDED DRY SPRINKLER SEAL ARRANGEMENTS
(STANDARD DRY PENDENT SPRINKLER SHOWN)**

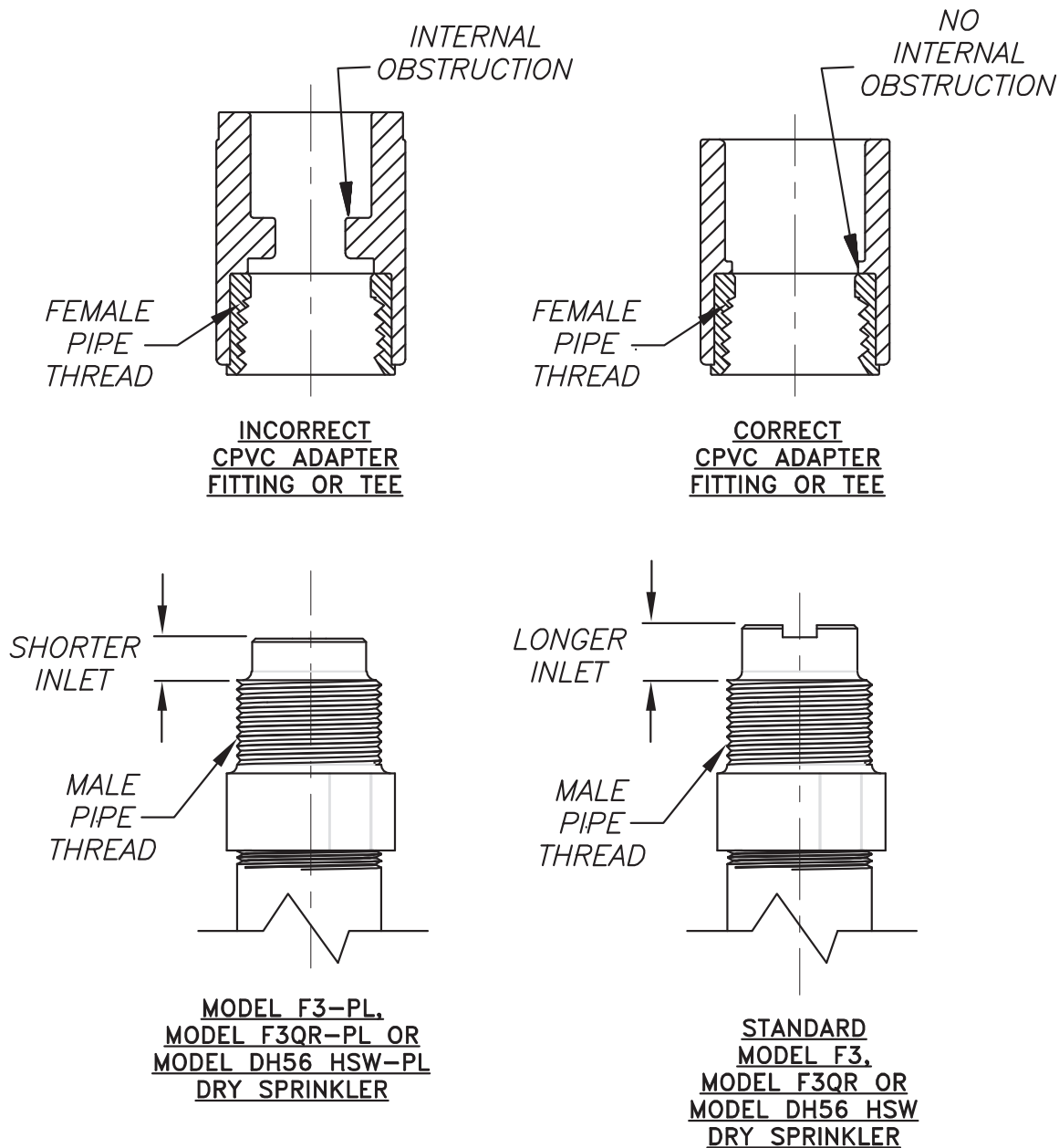


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Fig. 10

CAUTION

DO NOT INSTALL MODEL F3, MODEL F3QR OR MODEL DH56 HSW DRY SPRINKLERS INTO CPVC ADAPTER FITTINGS OR TEES THAT HAVE AN INTERNAL OBSTRUCTION. THIS WILL DAMAGE THE SPRINKLER AND/OR THE FITTING.
CPVC ADAPTER FITTINGS AND TEES WITH INTERNAL OBSTRUCTIONS ARE ALSO COMMONLY FOUND DURING THE RETROFITTING PROCESS OF RELIABLE'S OLDER MODEL G3 DRY SPRINKLERS.



BE SURE TO ORDER THE CORRECT SPRINKLERS FOR YOUR APPLICATION

016fg08A

Fig. 11



Fig. 12 - XLO2 Wrench

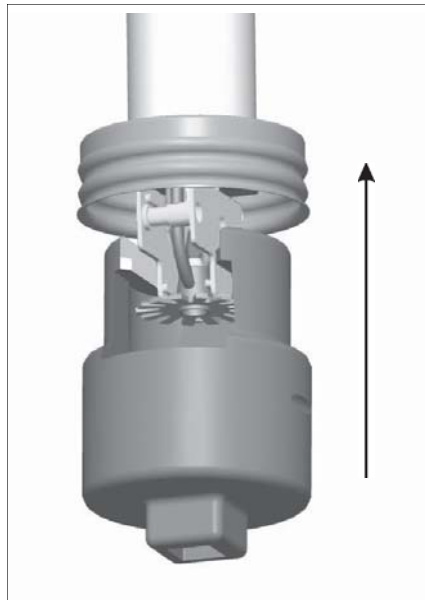


Fig. 13 - XLO2 Wrench

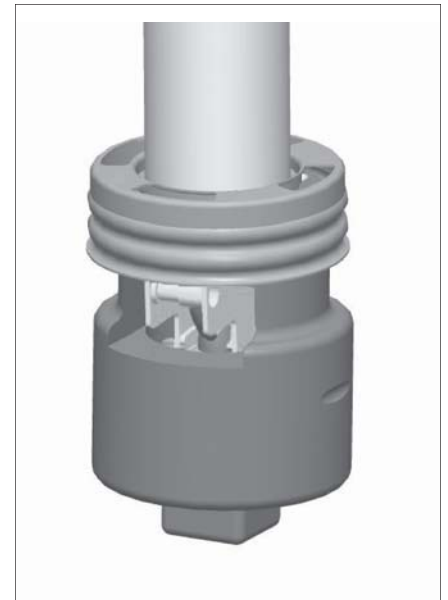


Fig. 14 - XLO2 Wrench

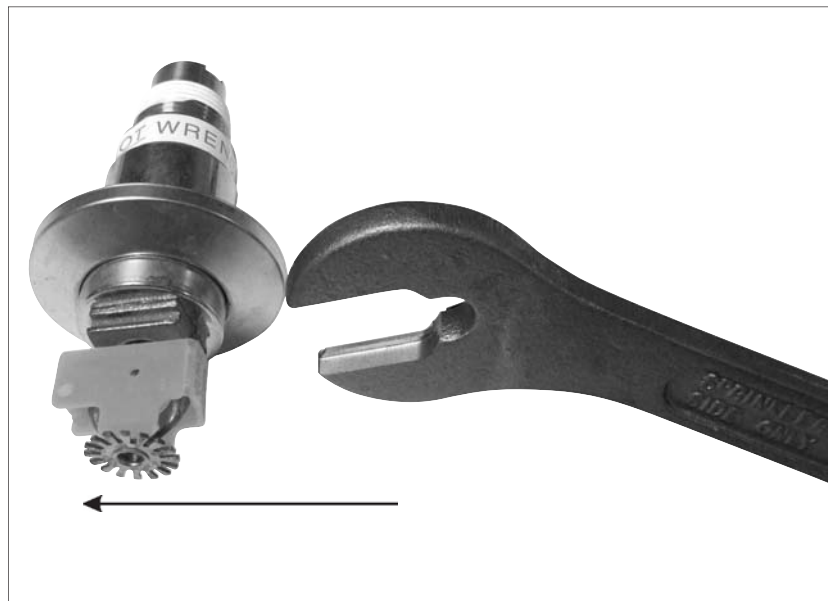


Fig. 15 - F3 Wrench

Reliable...For Complete Protection

Reliable offers a wide selection of sprinkler components. Following are some of the many precision-made Reliable products that guard life and property from fire around the clock.

- Automatic sprinklers
- Flush automatic sprinklers
- Recessed automatic sprinklers
- Concealed automatic sprinklers
- Adjustable automatic sprinklers
- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retarding chambers
- Dry pipe valves
- Accelerators for dry pipe valves
- Mechanical sprinkler alarms
- Electrical sprinkler alarm switches
- Water flow detectors
- Deluge valves
- Detector check valves
- Check valves
- Electrical system
- Sprinkler emergency cabinets
- Sprinkler wrenches
- Sprinkler escutcheons and guards
- Inspectors test connections
- Sight drains
- Ball drips and drum drips
- Control valve seals
- Air maintenance devices
- Air compressors
- Pressure gauges
- Identification signs
- Fire department connection

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable.

Products manufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

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