Model F1FR Series Quick Response Glass Bulb Sprinklers

Bulletin 014 Rev. N

Model F1FR56 Sprinkler Types

Standard Spray Upright
Standard Spray Pendent
Conventional Upright/Pendent
Vertical Sidewall
Horizontal Sidewall

Model F1FR56 Recessed Sprinkler Types

Standard Spray Pendent
Horizontal Sidewall

Model F1FR56 Concealed Sprinkler Types

Standard Spray Pendent

Model F1FR42, F1FRXLH & F1FR28 Sprinkler Types

Standard Spray Upright
Standard Spray Pendent

Model F1FR40 Sprinkler Types

Standard Spray Pendent

Model F1FR42, F1FR40, F1FRXLH & F1FR28 Recessed Sprinkler Types

Standard Spray Pendent

Model F1FR56LL & F1FR42LL NSF Certified Low Lead Sprinkler Types

Standard Spray Pendent with less than 0.25% Lead Content

Listing & Approvals

The following organizations provide Listings or Approvals for various Model F1FR series sprinklers. See the Design and Installation table in this Bulletin for information on specific listings and approvals applicable to each sprinkler.

1. Underwriters Laboratories Inc. and Certified for Canada (cULus).
2. FM Approvals (FM)
3. Loss Prevention Certification Board (LPCB)
4. VdS Schadenverhütung GmbH (VdS)
5. NSF Certified to NSF/ANSi Standard 61 Annex G (NSF)
6. EC Certificate: 0786-CPD-40239 (RA1414), 0786-CPD-40251 (RA1425), 0786-CPD-40252 (RA1475) (EC)

UL Listing Category

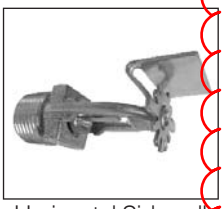
Sprinklers, Automatic & Open (VNIV)
Quick Response Sprinkler


Upright


Pendent

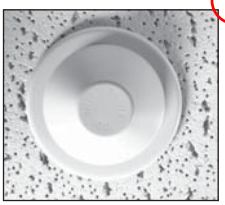

Conventional

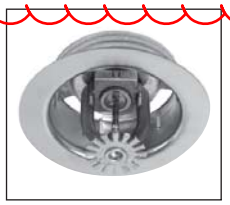

Vertical Sidewall


Horizontal Sidewall


Recessed Pendent/F1/F2


Recessed Horizontal Sidewall


Concealed Pendent


Recessed Pendent/FP


XLH Upright


XLH Pendent


XLH Recessed Pendent F1/F2


XLH Recessed Pendent FP

Product Description

Reliable Model F1FR series sprinklers are quick-response automatic sprinklers with a glass bulb thermal element. Model F1FR series sprinklers are Standard Spray sprinklers, with the exception of the Model F1FR56 Conventional sprinkler which is an Old-style/Conventional sprinkler.

The Model F1FR Series automatic sprinklers utilize a 3.0 mm frangible glass bulb. These sprinklers have demonstrated response times in laboratory tests which are five to ten times faster than standard response sprinklers. This quick response enables the Model F1FR Series sprinklers to apply water to a fire faster than standard-response sprinklers of the same temperature rating.

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.

At normal temperatures, the glass bulb contains the fluid in both the liquid and vapor phases. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands, forcing the bubble smaller and smaller as the liquid pressure increases. Continued heating forces the liquid to push out against the bulb, causing the glass to shatter, opening the waterway and allowing the deflector to distribute the discharging water.

Model F1FR Series sprinklers provide a wide range of options where quick-response, glass bulb sprinklers are used:

- Pendent, recessed pendent, upright, horizontal sidewall, and vertical sidewall deflectors
- K-factors of 2.8 (40 metric), 4.0 (57 metric), 4.2 (60 metric), and 5.6 (80 metric)
- Flush, recessed, and concealed installations

See the Design and Installation Information table in this Bulletin for information on the approvals and availability of specific Model F1FR series sprinkler configurations.

Model F1FR Recessed Pendent and Recessed Horizontal Sidewall sprinklers are required to be used with Reliable Model F1, F2, or FP recessed escutcheons. See the Recessed Escutcheon Data table in this Bulletin for listing and approval information with each specific Model F1FR series sprinkler. Model F1 and F2 recessed escutcheons, shown in Fig. 1 and 3, are a friction fit assembly allowing for 3/4-inch (19mm) and 1/2-inch (12.7mm) of adjustment, respectively. Model FP recessed escutcheons, shown in Fig. 2, provide a 1/2-inch (12.7mm) threaded adjustment.

Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers are required to be used with Model CCP cover plates. A standard profile Model CCP cover plate is available that provides up to 1/2-inch (12.7mm) of cover plate adjustment. In addition, a low profile Model CCP cover plate is also available that provides up to 5/16-inch (8.0mm) of cover plate adjustment. See the Design and Installation Information and Listed and Approved Temperature Ratings tables in this Bulletin for further information on approved cover plate options.

Application

Model F1FR Series sprinklers are intended for use in accordance with NFPA 13, FM Property Loss Prevention Data Sheets, and the requirements of the Authority Having Jurisdiction. Care must be exercised that the k-factor, temperature rating, deflector style, and sprinkler type are in accordance with the requirements of the applicable design and installation standards. In addition, Model F1FR Series sprinklers must be used in accordance with their listings and approvals, as well as the information provided in this Bulletin.

Installation

Glass bulb sprinklers have orange bulb protectors or protective caps to minimize bulb damage during shipping, handling and installation. Reliable sprinkler installation wrenches are designed to install sprinklers with bulb protectors in place. Remove the bulb protector at the time when the sprinkler system is placed in service for fire protection. Removal of the bulb protector before this time may leave the bulb vulnerable to damage. Remove bulb protectors by undoing the clasp by hand. Do not use tools to remove bulb protectors.

Model F1FR Series sprinklers must be installed with the Reliable sprinkler installation wrench identified in the Design and Installation Information table in this Bulletin. Any other wrench may damage the sprinkler. A leak tight sprinkler joint can be obtained with a torque of 8 to 18 lb-ft (11 to 24 N-m). Do not tighten sprinklers over the maximum recommended installation torque. Exceeding the maximum recommended installation torque may cause leakage or impairment of the sprinkler.

Recessed Sprinklers

Model F1FR Series Recessed sprinklers are to be installed as shown in Fig. 1, Fig. 2, or Fig. 3, as applicable to the specific model being installed. The Recessed Escutcheon Data table in the Bulletin identifies the only recessed escutcheons that are permitted to be used with each Model F1FR Series Recessed sprinkler. The use of any other recessed escutcheon will void all approvals and negate all warranties.

Concealed Sprinklers

Model F1FR Series Concealed Pendent sprinklers are to be installed as shown in Fig. 4 or Fig. 5, as applicable to the selected cover plate. Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers have a factory-installed Model CCP cup. A protective cap is installed at the factory that should remain on the sprinkler until the sprinkler is installed and should then be reinstalled on the sprinkler until the cover plate is installed. The concealed sprinkler assemblies are completed by the installation of a Model CCP push-on/thread-off cover plate assembly. The cover plate and sprinkler cup assemblies are joined using a cover plate skirt with flexible tabs for threaded engagement. A choice of two Model CCP cover plate assemblies provides either 1/2-inch (13mm) or 5/8-inch (8mm) of cover adjustment. Do not install Model F1FR Series Concealed Pendent sprinklers in ceilings which have positive pressure in the space above.

Model F1FR Series Concealed Pendent sprinklers require a 2-5/8-inch (67mm) diameter hole to be cut in the ceiling. The Model RC1 wrench is used to engage the sprinkler wrenching surfaces and to install the sprinkler in the fitting. Remove the protective cap to install the sprinkler, then reinstall the protective cap until the cover plate is installed. When inserting or removing the wrench from the sprinkler/cup assembly, care should be taken to prevent damage to the sprinkler. Do not wrench any other part of the sprinkler/cup assembly. Installation is completed by removing the protective cap from the sprinkler and pushing the cover plate onto the cup. Final adjustment is made by hand turning the cover plate until the skirt flange makes full contact with the ceiling. Cover plate removal requires turning the cover plate in the counter clockwise direction. After installation, inspect all sprinklers to ensure that there is a gap between the cover plate and ceiling and that the four cup slots are open and free from any air flow impediment to the space above.

Concealed cover plate/cup assemblies are listed only for use with specific sprinklers. The use of any concealed cover plate/cup assembly other than the Reliable Model CCP with Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers or the use of the Model CCP Concealed cover plate assembly on any sprinkler with which it is not specifically listed my prevent good fire protection and will void all guarantees, warranties, listings and approvals.

Technical Data:

Sensitivity: Quick-response
Thread Size: 1/2-inch NPT standard; ISO 7-R1/2 optional
Maximum Working Pressure: 175 psi (12 bar) - 100% Factory tested hydrostatically to 500 psi (34.5 bar)
SIN RA1425, RA1414 & RA1435 cULus listed for 250 psi (17 bar)

Design and Installation Information											
Model	**Nominal K-factor**		**Nominal Orifice Diameter**		**Deflector/ Orientation**	**Nominal Sprinkler Height**		**Installation Wrench**	**SIN**	**Listings and Approvals**	**Approval Notes**
	US	**Metric**	**inches**	**mm**		**inches**	**mm**				
F1FR28	2.8	40	3/8	10	Pendent	2.25	57	D	RA1411	cULus	2
					Recessed Pendent	2.25	57	GFR2	RA1411	cULus	2
					Upright	2.25	57	D	RA1421	cULus	1,2
F1FR40	4.0	57	3/8	10	Pendent	2.25	57	D	RA1418	VdS	
					Recessed Pendent	2.25	57	GFR2	RA1418	VdS	
F1FR42	4.2	60	7/16	10	Pendent	2.25	57	D	RA1413	cULus	2
					Recessed Pendent	2.25	57	GFR2	RA1413	cULus	2
					Upright	2.25	57	D	RA1423	cULus	1,2
F1FR42LL	4.2	60	7/16	10	Pendent	2.25	57	D	RA1410	cULus, NSF	
					Recessed Pendent	2.25	57	GFR2	RA1410	cULus, NSF	
F1FRXLH (F1FR42 with Pintle)	4.2	60	7/16	10	Pendent	2.25	57	D	RA1413	cULus	2
					Recessed Pendent	2.25	57	GFR2	RA1413	cULus	2
					Upright	2.25	57	D	RA1423	cULus	1,2
F1FR56	5.6	80	1/2	15	Pendent	2.25	57	D	RA1414	cULus, FM, LPCB, VdS, EC	1,2,3,4
					Recessed Pendent	2.25	57	GFR2	RA1414	cULus, FM, LPCB, VdS, EC	1,2,3,4
					Concealed Pendent	2.25	57	RC1	RA1414	cULus,VdS,EC	5,6
					Upright	2.25	57	D	RA1425	cULus, FM, LPCB, VdS, EC	1,2,3,4
					"Conventional (Pendent or Upright)"	2.25	57	D	RA1475	LPCB, VdS, EC	4
F1FR56LL	5.6	80	1/2	15	Pendent	2.25	57	D	RA1415	cULus, NSF	1
					Recessed Pendent	2.25	57	GFR2	RA1415	cULus, NSF	
					Concealed Pendent	2.25	57	RC1	RA1414	cULus, NSF	6
F1FR56	5.6	80	1/2	15	Horizontal Sidewall	2.63	67	D	RA1435	cULus, FM	1,2,3,7
					Recessed Horizontal Sidewall	2.63	67	GFR2	RA1435	cULus, FM	8
F1FR56	5.6	80	1/2	15	Vertical Sidewall (Pendent or Upright)	2.25	57	D	RA1485	cULus, FM, LPCB	1,2,3,9

(1) cULus Listed Corrosion Resistant sprinkler when ordered with available Polyester coating.
(2) cULus Listed Corrosion Resistant sprinkler when ordered with available Electroless Nickel PTFE plating.
(3) Available with FM approved Polyester coating in black or white.
(4) Available with LPCB and VdS approved Polyester coating.
(5) VdS and EC approvals of the F1FR56 Concealed Pendent sprinkler are for 155°F (68°C) temperature rated sprinklers only. VdS approved sprinklers must use Norbulb brand glass bulbs with the 1/2-inch (12.7mm) adjustment Model CCP cover plate only.
(6) Model F1FR56 Concealed Pendent and Model F1FR56LL Concealed Pendent sprinklers must be used with Reliable Model CCP cover plates, available as either standard depth with 1/2-inch (12.7mm) of adjustment or low profile with 5/16-inch (8.0 mm) of adjustment.
(7) cULus Listing of the F1FR56 Horizontal Sidewall sprinkler is for Light and Ordinary Hazard occupancies only. FM Approval of the F1FR56 Horizontal Sidewall sprinkler is for Light Hazard occupancies only.
(8) cULus Listing and FM Approval of the F1FR56 Recessed Horizontal Sidewall sprinkler is for Light Hazard occupancies only.
(9) The F1FR56 Vertical Sidewall sprinkler is listed and approved for use only in Light Hazard occupancies. Minimum to maximum deflector to ceiling distance shall be 4 inches to 12 inches (102mm to 305mm). LPCB approval of the F1FR56 Vertical Sidewall sprinkler is for installation in the Pendent position only.

Listed and Approved Temperature Ratings

Model	Deflector/ Orientation	Ordinary Temp. Classification 100°F (38°C) Max. Ambient Temp.		Intermediate Temp. Classification 150°F (65°C) Max. Ambient Temp.		High Temp. Classification 225°F (107°C) Max. Ambient Temp.
		135°F (57°C) Temp. Rating	155°F (68°C) Temp. Rating	175°F (79°C) Temp. Rating	200°F (93°C) Temp. Rating	286°F (141°C) Temp. Rating
		Orange Bulb	Red Bulb	Yellow Bulb	Green Bulb	Blue Bulb
F1FR28	Pendent	cULus				
	Recessed Pendent	cULus				--
	Upright	cULus				
F1FR40	Pendent	VdS				
	Recessed Pendent	VdS				--
F1FR42	Pendent	cULus				
	Recessed Pendent	cULus				--
	Upright	cULus				
F1FR42LL	Pendent	--			cULus, NSF	--
	Recessed Pendent	--			cULus, NSF	--
F1FRXLH	Pendent	cULus				
	Recessed Pendent	cULus				--
	Upright	cULus				
F1FR56	Pendent	cULus, FM, LPCB, VdS, EC				
	Recessed Pendent	cULus, FM, LPCB, VdS, EC				--
	Concealed Pendent*	cULus	cULus,VdS,EC	cULus		--
	Upright	cULus, FM, LPCB, VdS, EC				
	"Conventional (Pendent or Upright)"	LPCB, VdS, EC				
F1FR56LL	Pendent	--			cULus, NSF	--
	Recessed Pendent	--			cULus, NSF	--
	Concealed Pendent*	--			cULus, NSF	--
F1FR56	Horizontal Sidewall	cULus, FM				
	Recessed Horizontal Sidewall	cULus, FM				--
F1FR56	Vertical Sidewall (Pendent or Upright)	cULus, FM, LPCB				

* Model F1FR56 Concealed Pendent and F1FR56LL Concealed Pendent sprinklers must be used with Reliable Model CCP cover plates. For Ordinary Temperature Classification sprinklers use a 135°F (57°C) temperature rated cover plate. For Intermediate Temperature Classification sprinklers use a 165°F (74°C) temperature rated cover plate.

Recessed Escutcheon Data

Model	Deflector/ Orientation	Listed and Approved Recessed Escutcheons			SIN
		Model F1 (Fig. 1 & 3) 3/4-inch (19mm) adjustment	Model F2 (Fig. 1 & 3) 1/2-inch (12.7mm) adjustment	Model FP (Fig. 2) 1/2-inch (12.7mm) adjustment	
F1FR28	Recessed Pendent	cULus	cULus	cULus	RA1411
F1FR40	Recessed Pendent	VdS	VdS	VdS	RA1418
F1FR42	Recessed Pendent	cULus	cULus	cULus	RA1413
F1FR42LL	Recessed Pendent	cULus, NSF	cULus, NSF	cULus, NSF	RA1410
F1FR42XLH	Recessed Pendent	cULus	cULus	cULus	RA1413
F1FR56	Recessed Pendent	cULus, LPCB, VdS, EC	cULus, FM, LPCB, VdS, EC	cULus, VdS, EC	RA1414
F1FR56LL	Recessed Pendent	cULus, NSF	cULus, NSF	cULus, NSF	RA1415
F1FR56	Recessed Horizontal Sidewall	cULus	cULus, FM	cULus	RA1435

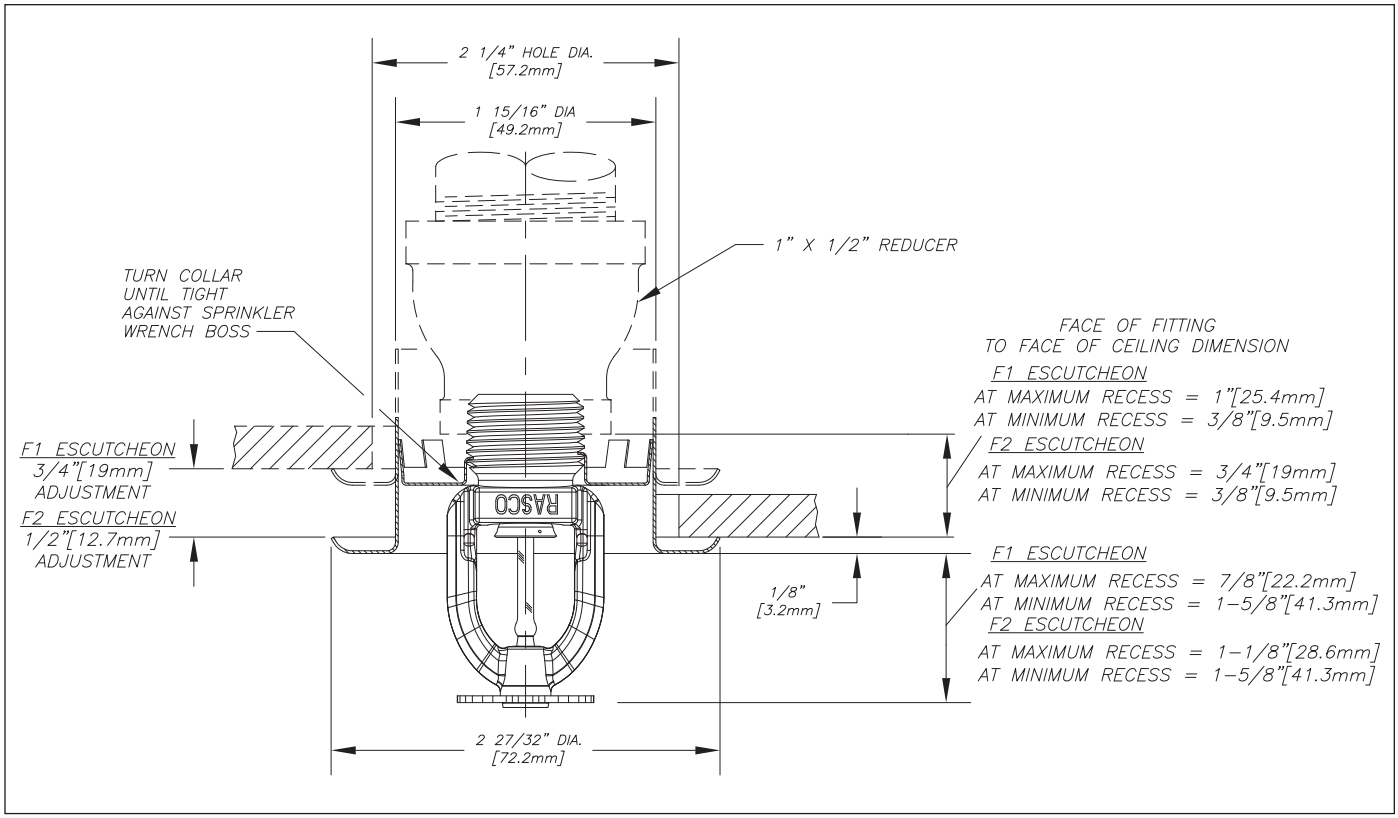


Fig. 1
Model F1FR56, F1FR56LL, F1FR42, F1FR40, F1FR42LL, F1FRXLH & F1FR28
Recessed Pendent sprinkler with Model F1 or F2 escutcheon

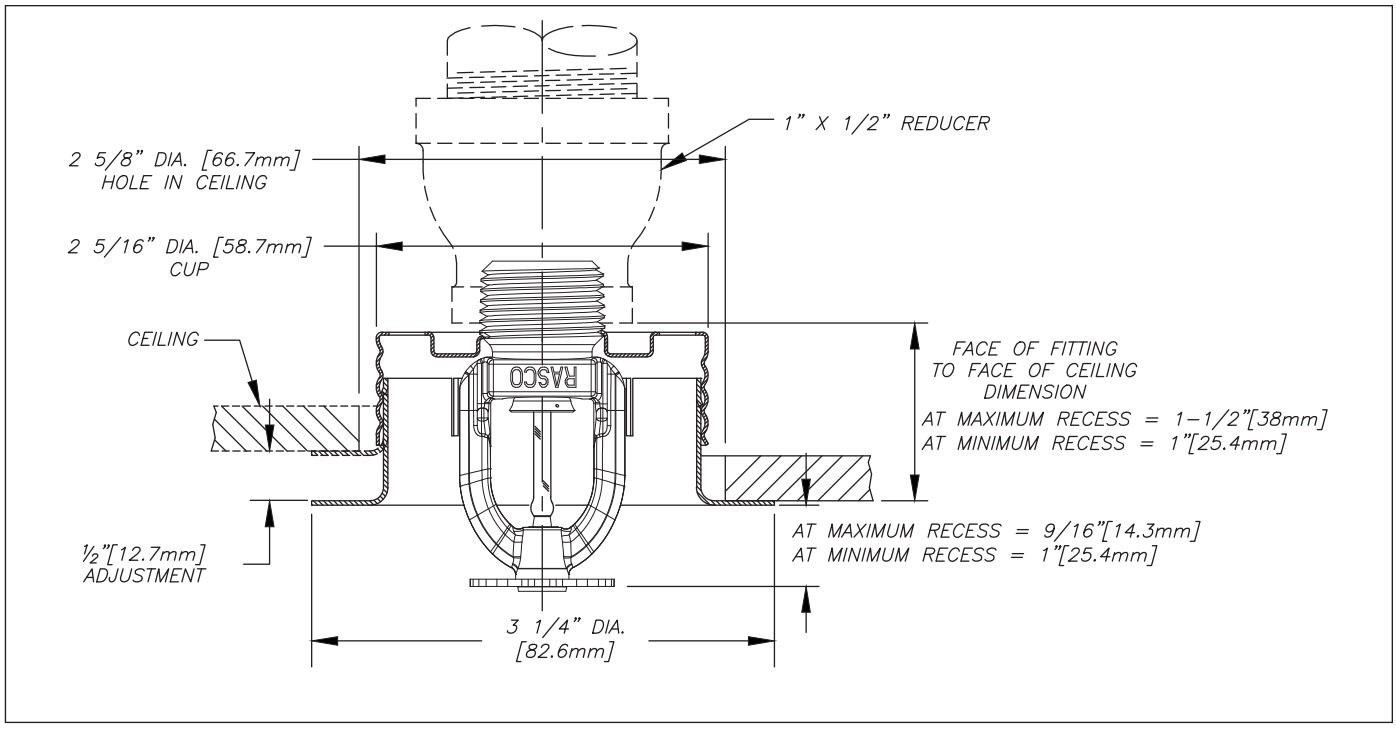


Fig. 2
Model F1FR56, F1FR56LL, F1FR42, F1FR40, F1FR42LL, F1FRXLH & F1FR28
Recessed Pendent sprinkler with Model FP escutcheon

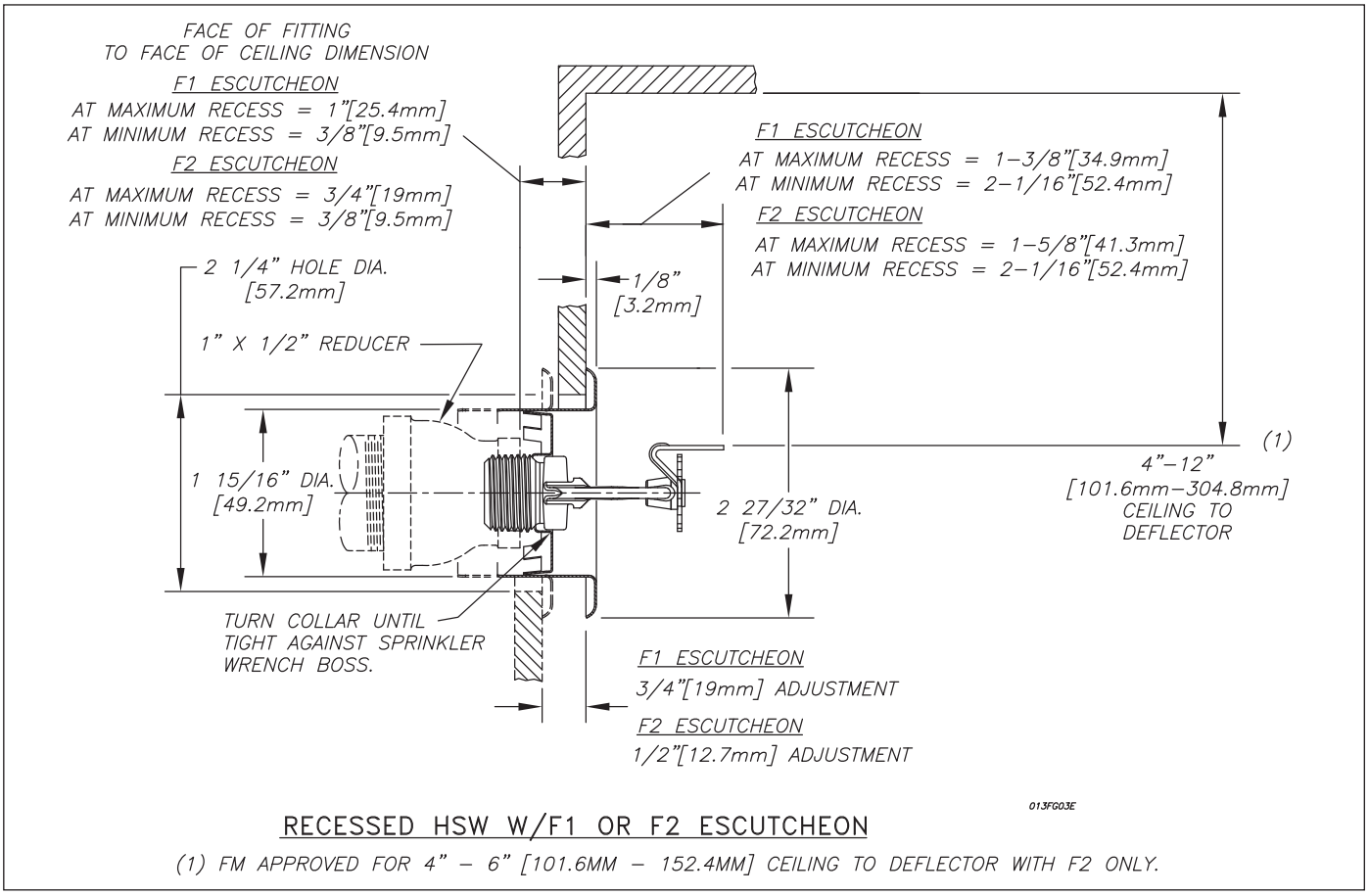


Fig. 3
Model F1FR56 Recessed Horizontal Sidewall sprinkler with Model F1 or F2 escutcheon

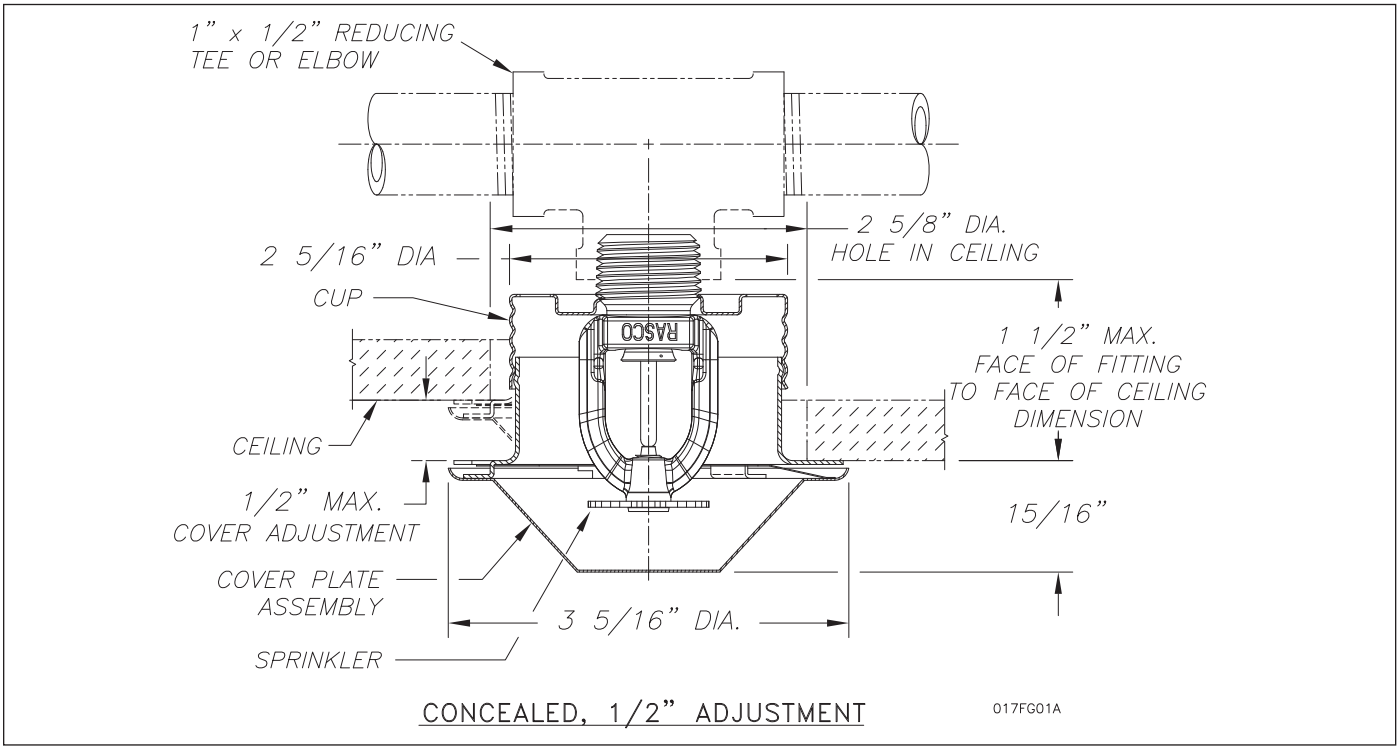


Fig. 4
Model F1FR56/F1FR56LL Concealed Pendent sprinkler with standard depth
1/2-inch (12.7mm) adjustment - Model CCP cover plate

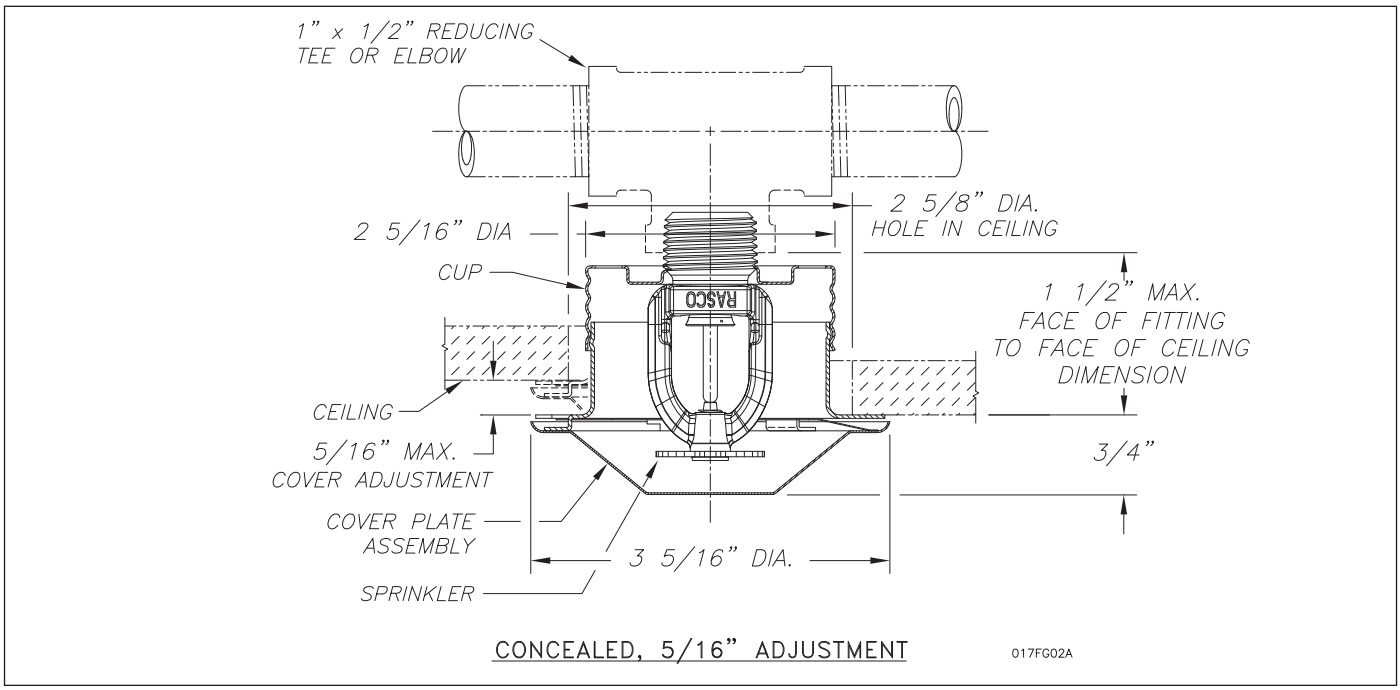


Fig. 5 - Model F1FR56/F1FR56LL Concealed Pendent sprinkler with low profile 5/16-inch (8.0mm) adjustment - Model CCP cover plate

Maintenance

The Model F1FR 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 using a soft brush or gentle vacuuming. Replace 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.

Finishes (1)

Standard Finishes		
Sprinkler	**Escutcheon**	**Cover plate(1)**
Bronze	Brass	Chrome
Chrome Plated	Chrome	White
Polyester	Plated	
Coated (4)(5)(6)	White Painted	
Special Application Finishes		
Sprinkler	**Escutcheon**	**Cover plate(1)**
Electroless Nickel PTFE(7)	Electroless Nickel PTFE	Bright Brass
Bright Brass(3)	Bright Brass	Black Plating
Black Plated	Black Plated	Black Paint
Black Paint(2)(6)	Black Paint	Off White
Off White(2)(6)	Off White	Satin Chrome
Chrome Dull	Chrome Dull	

(1) Other finishes and colors are available on special order. Consult the factory for details. Custom color painted sprinklers may not retain their UL Corrosion resistance listing. Coverplate custom paint is semi-gloss, unless specified otherwise.

(2) cULus Listed only.

(3) 200°F (93°C) maximum.

(4) cULus listed "corrosion resistance" applies to SIN Numbers RA1435 (HSW), RA1485(VSW), RA1425 (Upright), RA1414 (Pendent) and RA1415 (Pendent) in standard black or white. Corrosion resistance in other polyester colors is available upon request.

(5) FM Approvals finish as "Polyester coated" applies to SIN Number RA1414, RA1435 and RA1425 in standard black or white.

(6) LPCB and VdS Approved finish applies only to RA1425, RA1414, RA1418 (VdS) and RA1475.

(7) cULus listed Corrosion Resistant

Material Data	
Frame:	DZR Brass, QM Brass, or Low Lead Brass
Deflector:	CDA Alloy 220, 260, or 510
Load Screw\Pintle:	CDA Alloy 360 or 544
Cup:	CDA Alloy 651 or 693
Washer:	Nickel Alloy 440 or 360, coated with PTFE Adhesive Tape
Bulb:	Glass

Ordering Information

Specify:

1. Sprinkler Model: [F1FR28][F1FR40][F1FR42] [F1FR42LL][F1FRXLH][F1FR56][F1FR56LL]
2. Sprinkler Deflector/Orientation: [Pendent][Recessed Pendent][Upright][Conventional][Horizontal Sidewall] [Recessed Horizontal Sidewall][Vertical Sidewall]
3. Sprinkler threads: [1/2-inch NPT][ISO 7-R1/2]
4. Sprinkler Temperature Rating: [135°F (57°C)][155°F (68°C)][175°F (79°C)][200°F (93°C)][286°F (141°C)]
5. Sprinkler Finish
6. Escutcheon Model: [F1][F2][FP]
7. Escutcheon Finish (where applicable)
8. Cover plate Model: [standard profile CCP 1/2-inch (12.7mm) adjustment][low profile CCP 5/16-inch (8.0mm) adjustment]
9. Cover plate Temperature Rating: [135°F (57°C) for use with Ordinary Temperature sprinklers][165°F (74°C) for use with Intermediate Temperature sprinklers]
10. Cover plate Finish

Note: When Model F1FR Series Recessed sprinklers are ordered, the sprinklers and escutcheons are packaged separately.

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.

Manufactured by

Reliable®

Reliable Automatic Sprinkler Co., Inc.
(800) 431-1588 Sales Offices
(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
www.reliablesprinkler.com Internet Address

Recycled Paper

Revision lines indicate updated or new data.

EG. Printed in U.S.A. 12/15 P/N 9999970300

Reliable®

Model F3QR Quick Response Dry Sprinklers

Bulletin 157 Rev. I

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

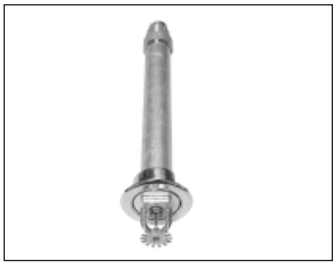
3. NYC MEA 258-93-E

Pendent
(See Fig. 1)

Pendent / HB
(See Fig. 2)

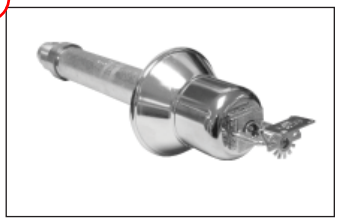
Recessed FP Pendent
(See Fig. 3)

Concealed
(See Fig. 4)

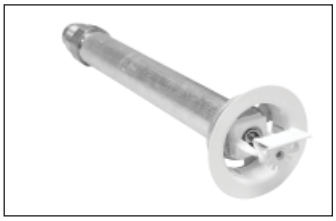


Recessed F1 Pendent
(See Fig. 5)

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 ¼" (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.

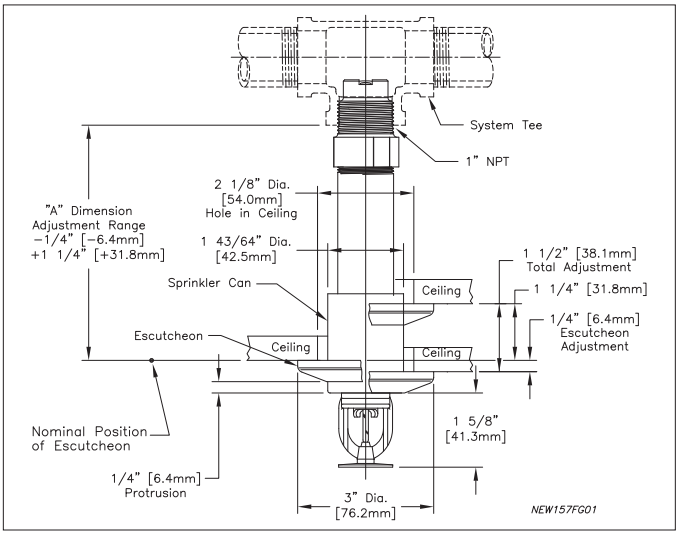


Fig. 1

Note: The sprinkler can protrudes ¼" when escutcheon is in nominal position. Escutcheon adjustment provides -¼" (-6mm) to +1¼" (+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 Pendent w/HB Escutcheon

"A" Dim.	3½" to 48" (89mm to 1219mm) in ¼" (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 [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.

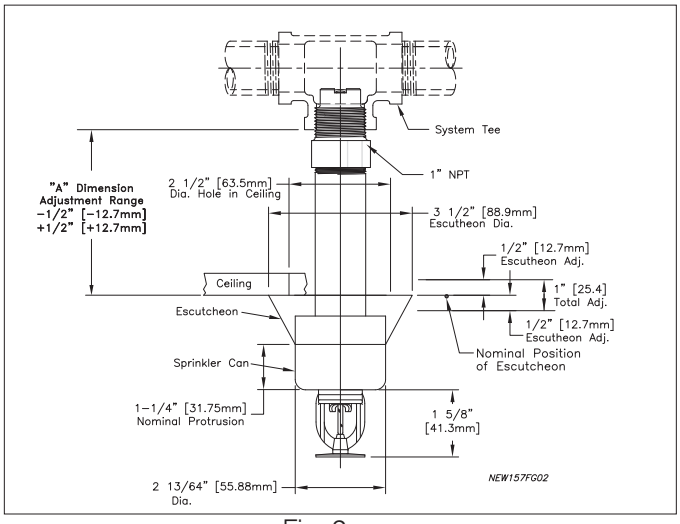


Fig. 2

Note: The sprinkler can protrudes 1¼" when escutcheon is in nominal position. Escutcheon adjustment provides -½" (-12.7mm) to +½" (+12.7mm) "A" dimension adjustment range.

Model F3QR Dry Recessed FP Pendent Sprinkler

"A" Dim.	3½" to 48" (89mm to 1219mm) in ¼" (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 remainds 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.

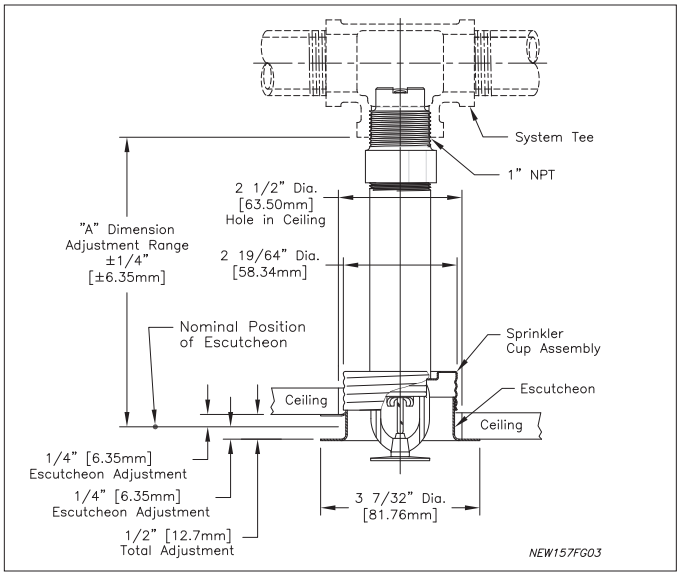


Fig. 3

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.	3½" to 48" (89mm to 1219mm) in ¼" (6mm) increments

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.

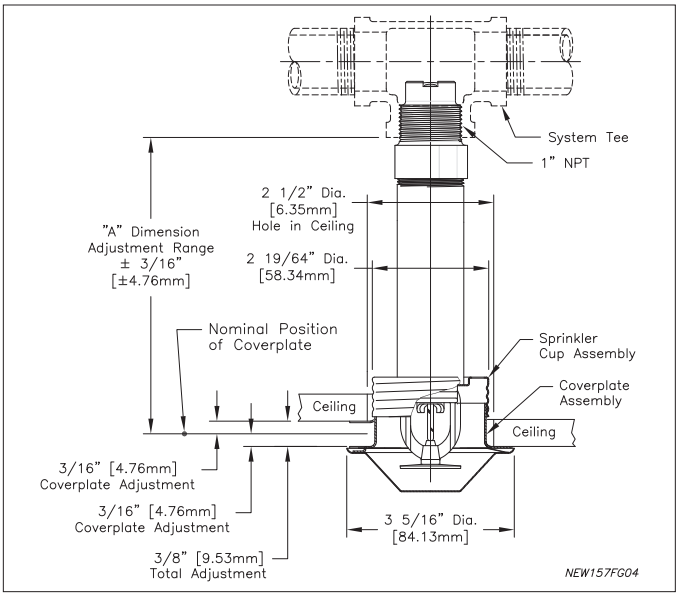


Fig. 4

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

Sprinkler Installation Wrench:
Model XLO2 Sprinkler Wrench
Sprinkler Identification Number (SIN): R5714

Model F3QR Dry Recessed F1 Pendent Sprinkler

"A" Dim.	3½" to 48" (89mm to 1219mm) in ¼" (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.

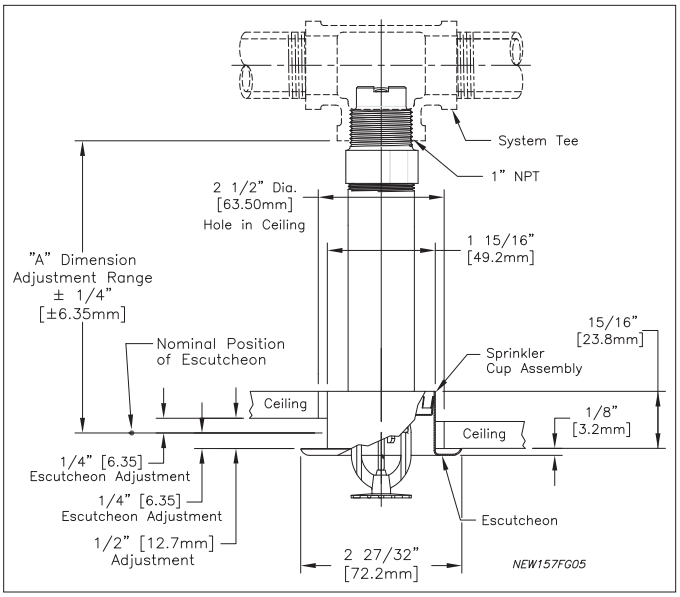


Fig. 5

Sprinkler Installation Wrench:
Model XLO2 Sprinkler Wrench
Sprinkler Identification Number (SIN): R5714

Model F3QR Dry Horizontal Sidewall Sprinkler

"A" Dim.	2" to 48" (51mm to 1219mm) in ¼" (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.

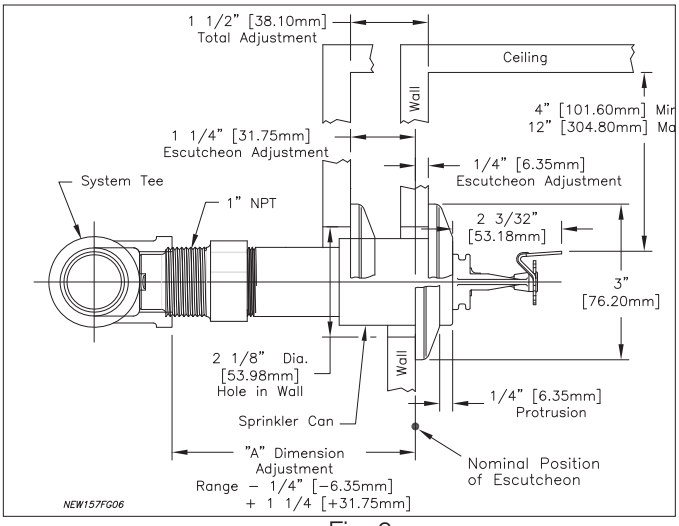


Fig. 6

Note: The sprinkler can protrudes ¼" when escutcheon is in nominal position. Escutcheon adjustment provides -¼" (-6mm) to +1¼" (+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.	3½" to 48" (89mm to 1219mm) in ¼" (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.

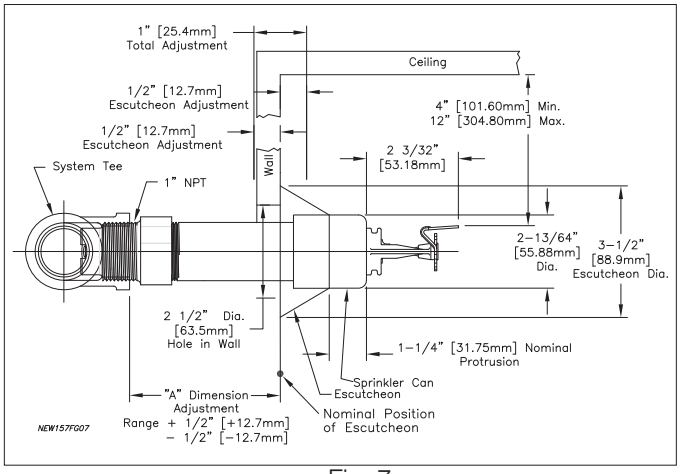


Fig. 7

Note: The sprinkler can protrudes 1¼" when escutcheon is in nominal position. Escutcheon adjustment provides -½" (-12.7mm) to +½" (+12.7mm) "A" dimension adjustment range.

Model F3QR Dry Recessed FP Horizontal Sidewall Sprinkler

"A" Dim.	3½" to 48" (89mm to 1219mm) in ¼" (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 remaindes 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

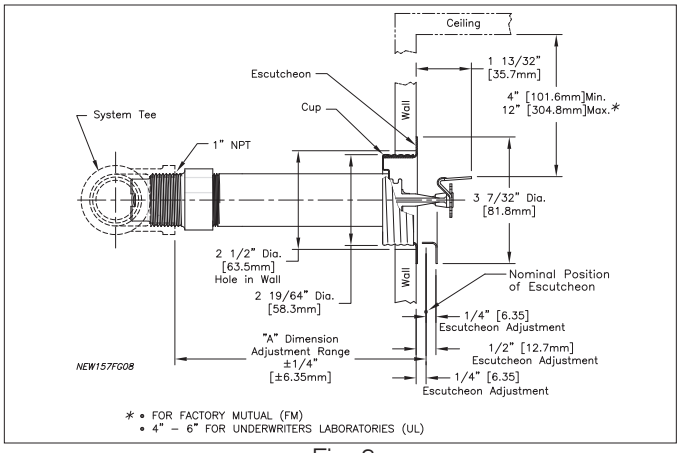


Fig. 8

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.	3½" to 48" (89mm to 1219mm) in ¼" (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): R5734

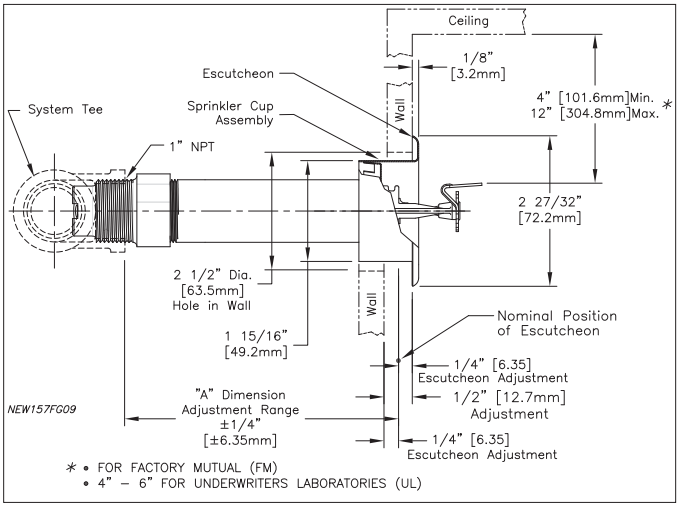


Fig. 9

- 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: ½" (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 contaminents 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 ¼" (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 [7½ 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:

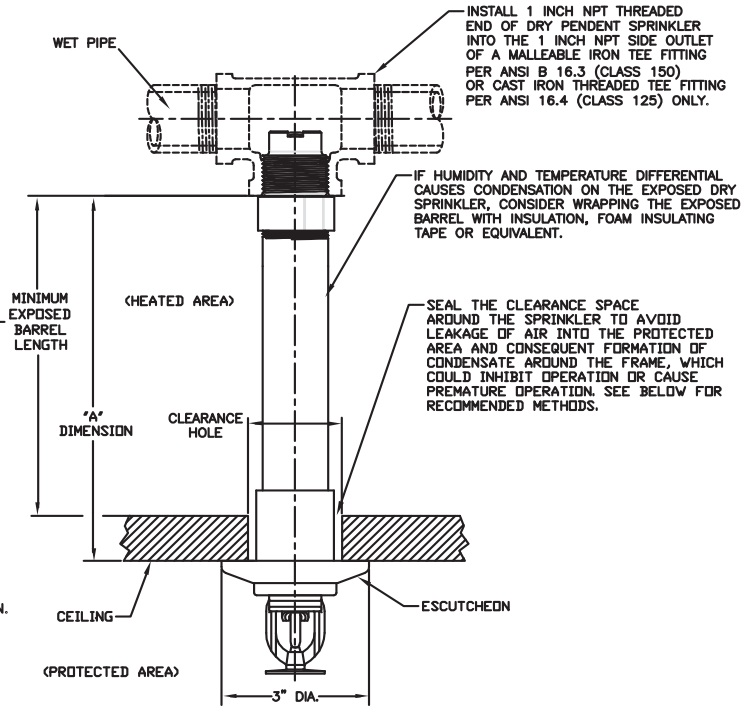
Use specified by RASCO wrenches only, which are designed to engage sprinkler's wrenching pad. (Fig. 15, page 9)

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)

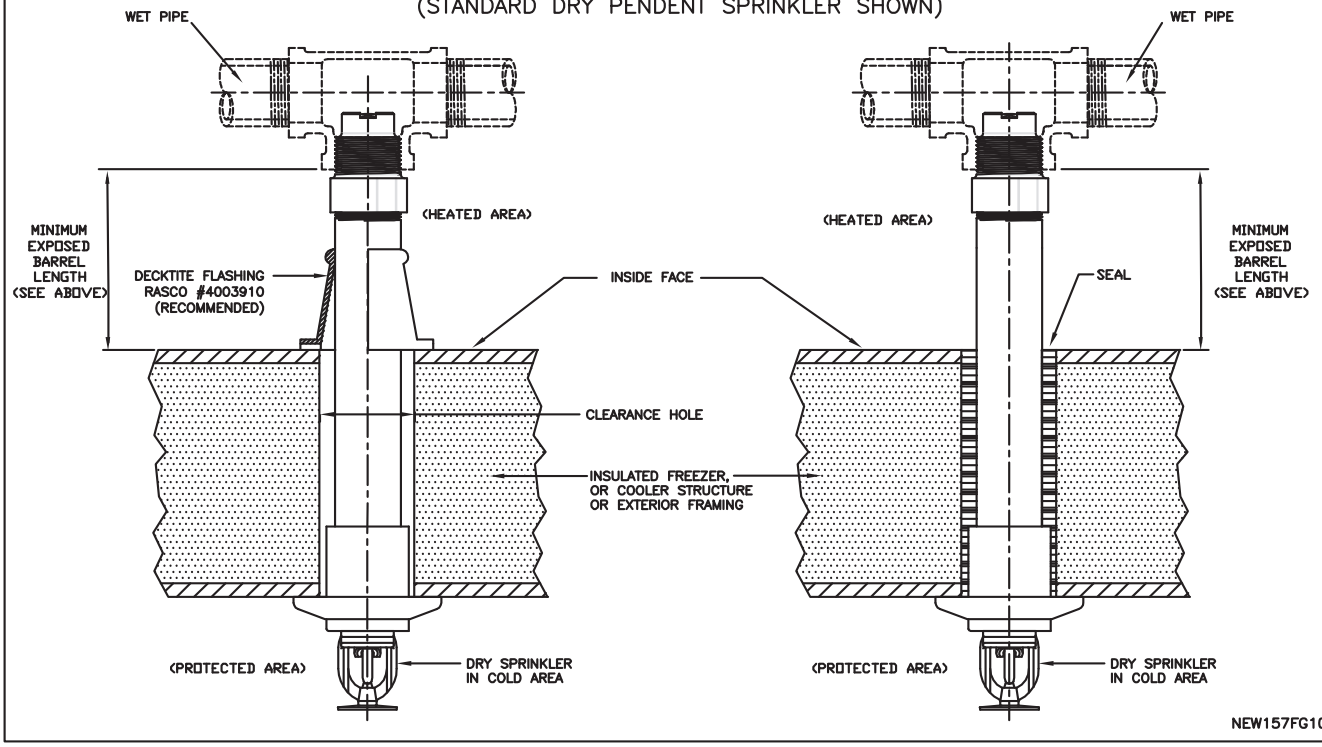
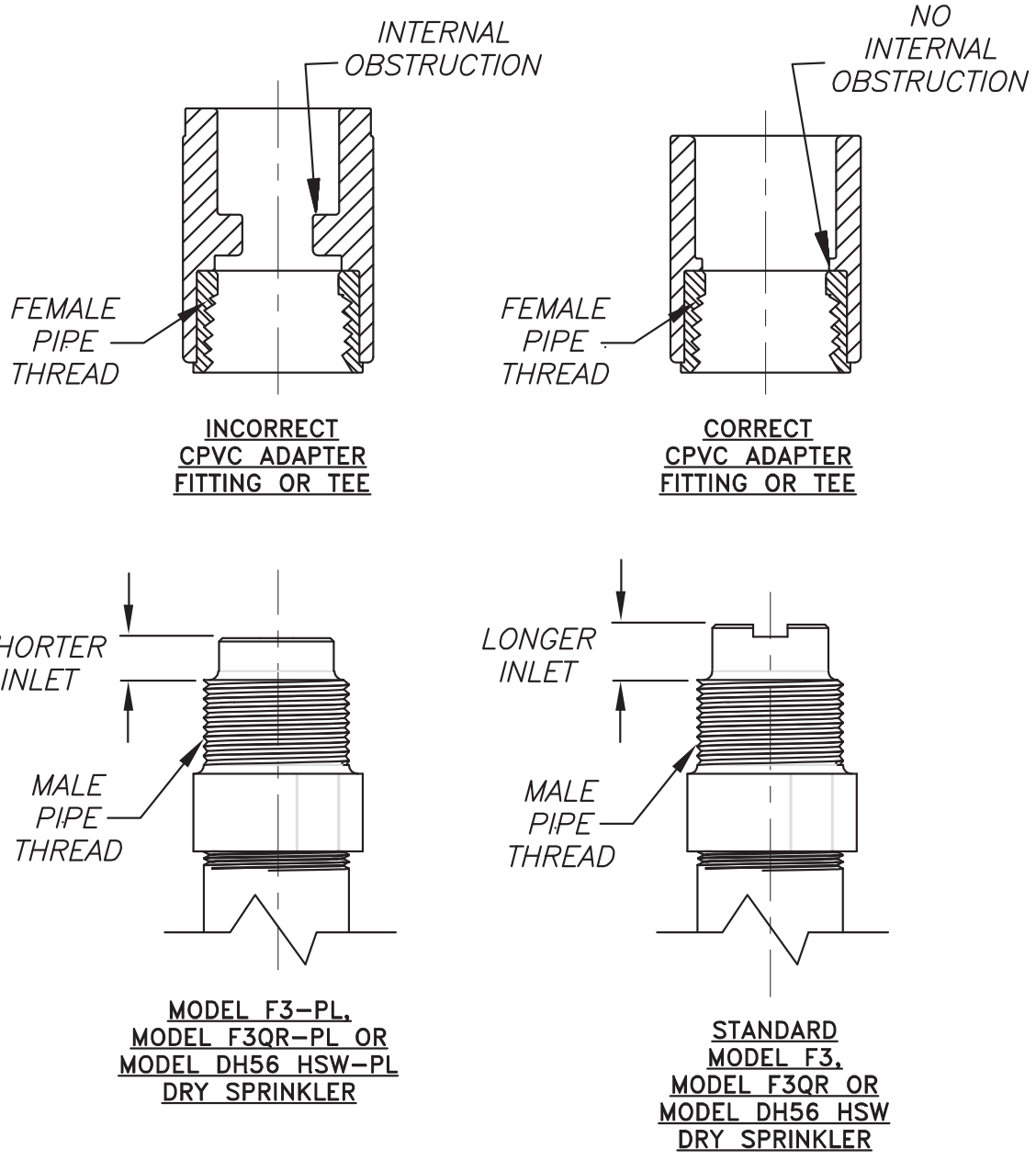


Fig. 10

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

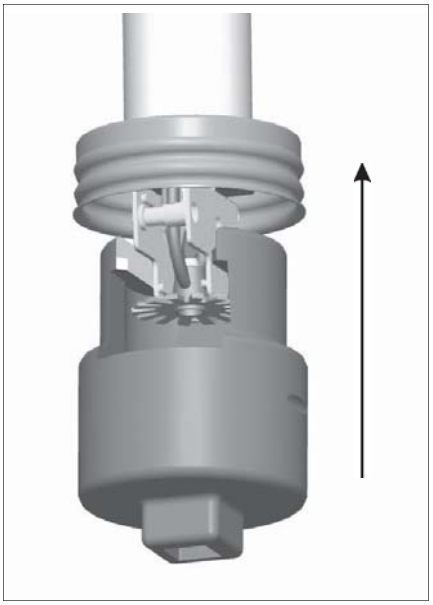


Fig. 13 - XLO2 Wrench

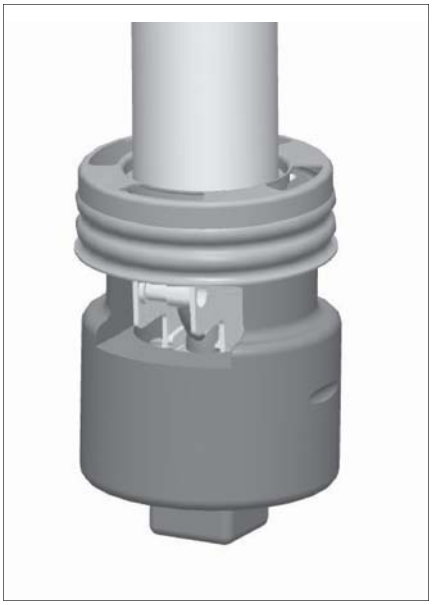


Fig. 14 - XLO2 Wrench

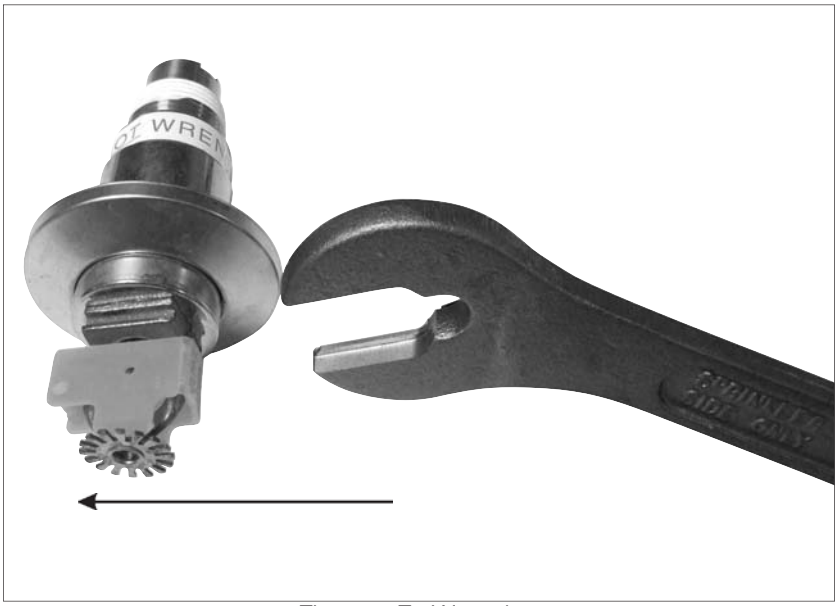


Fig. 15 - F3 Wrench

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.

Manufactured by
Reliable®

The Reliable Automatic Sprinkler Co., Inc.
(800) 431-1588 Sales Offices
(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
www.reliablesprinkler.com Internet Address

Recycled Paper

Revision lines indicate updated or new data.

EG. Printed in U.S.A. 12/12 P/N 9999970175

FLEXHEAD® Flexible Sprinkler Connections

STANDARD TALL SERIES HOSE

STANDARD TALL HOSE: available in 24", 36", 48", 60", 72" hose lengths. Rated working pressure 175psi, Straight model, Standard 1" I.D.

STANDARD ELBOW TALL HOSE: 24", 36", 48", 60", 72" hose lengths. Rated working pressure 175psi, Elbow model.

FM APPROVED UL

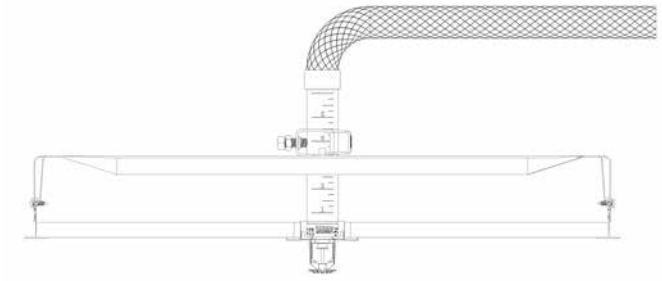
The benefits of installing FlexHead Commercial Connections include:

- Uniform bids / construction schedules
- Reduced man power and labor costs
- Retrofit existing buildings within confined spaces quickly and easily
- Increased efficiency
- Quick and easy installation
- Simple friction loss / water pressure calculations
- Relocate and reconfigure without draining and disassembling
- Flexible design provides versatility for changes in floor plan or occupancy
- Reduced service calls
- No call-backs due to quality manufacturing
- Rapid construction schedules allowing fast-track building occupancy

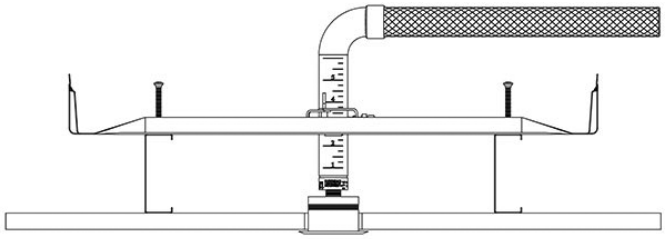
Unlike traditional hard-piped fire protection systems, FlexHead® sprinkler connections allow engineers, architects, contractors and building owners a degree of versatility previously unavailable, featuring:

- Industrial grade material
- Acceptable for use in a return-air plenum
- Perfect center-of-tile and aesthetic uniformity
- Approved for use with medium and heavy load grids (ASTM C635, 636)
- 100% leak-tested connections
- All welded, no o-rings
- Adjustable height and sprinkler alignment
- Proven technology
- Ceiling system compatibility
- Compatible with FM / UL sprinklers
- Meets 2013 NFPA 13 guidelines
- UL Approved for installation in dry wall ceiling grids

FLEXHEAD SUSPENDED CEILING DETAIL



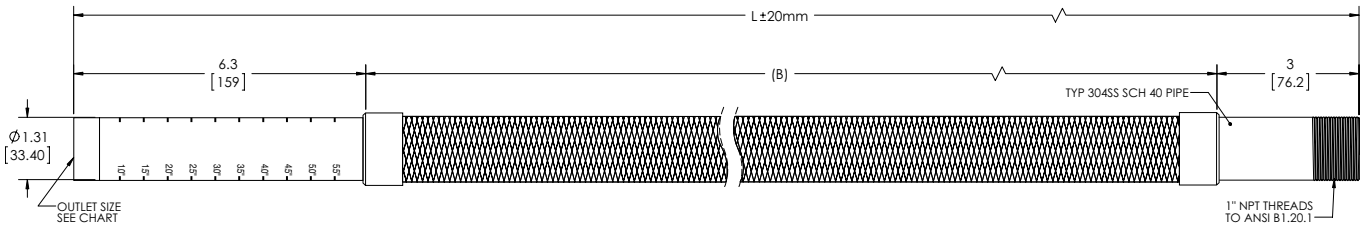
FLEXHEAD SHEETROCK CEILING DETAIL



PROJECT INFORMATION	APPROVAL STAMP
Project:	☐ **Approved**
Address:	☐ **Approved as noted**
Contractor:	☐ **Not approved**
Engineer:	**Remarks:**
Submittal Date:	
Notes 1:	
Notes 2:	

STANDARD TALL SERIES HOSE

20XXT (STRAIGHT)



MODEL NUMBER:
20XXT-XX
- = **50**(1/2" NPT OUTLET SIZE) OR **75**(3/4" NPT OUTLET SIZE)
- = TALL SERIES HOSE
- = HOSE LENGTH (24", 36", 48", 60", OR 72")

All dimensions are in inches

FLEXHEAD STANDARD TALL HOSE SERIES – 1" INTERNAL DIAMETER (I.D.) HOSE SERIES

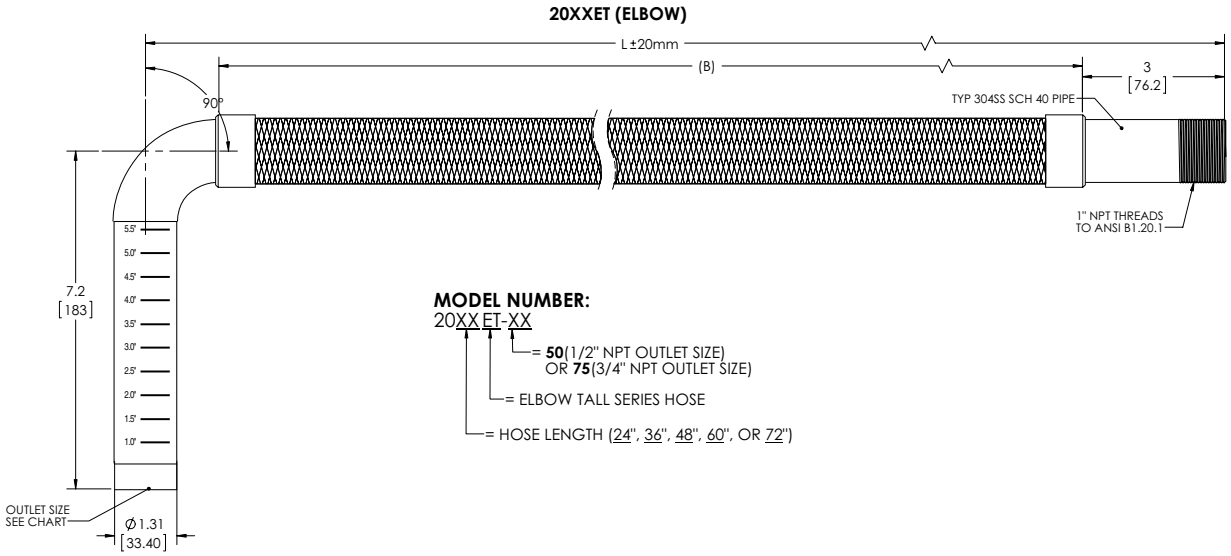
Model Number	Outlet Orifice Size	Hose Assembly Length (L)	Braid Length (B)	Minimum Bend Radius		Max. Number of 90° Bends		Equivalent Length of 1 in. Schedule 40 Pipe (Ft.)						Max. Rated Working Pressure	
				FM	UL	FM	UL	UL	FM					FM	UL
									5.6 k-Factor	8.0 k-Factor	11.2 k-Factor	14.0 k-Factor	16.8 k-Factor		
	In./cm.	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*PSI/Kpa*	*PSI/Kpa*
2024T-50	½ *1.27*	24 *610*	14.7 *373.4*	8 *200*	3 *76.2*	1	3	11 *3.4*	18.4 *5.6*	7.7 *2.3*	7.6 *2.3*	—	—	175 *1205*	175 *1205*
2036T-50		36 *914*	26.7 *678.2*			2	3	16 *4.9*	26.6 *8.1*	11.5 *3.5*	11.5 *3.5*	—	—		
2048T-50		48 *1219*	38.7 *983.0*			3	4	24 *7.3*	30.3 *9.2*	15.3 *4.6*	15.3 *4.7*	—	—		
2060T-50		60 *1524*	50.7 *1287.8*			4	4	29 *8.8*	35.8 *10.9*	19.1 *5.8*	19.3 *5.8*	—	—		
2072T-50		72 *1828*	62.7 *1592.6*			4	4	35 *10.7*	45.6 *13.9*	23 *7*	23.2 *7*	—	—		
2024T-75	¾ *1.90*	24 *610*	14.7 *373.4*	8 *200*	3 *76.2*	1	3	12 *3.7*	N/A			14.7 *4.5*	7.1 *2.1*	175 *1205*	175 *1205*
2036T-75		36 *914*	26.7 *678.2*			2	3	18 *5.5*	N/A	21.5 *6.5*	21.6 *6.6*	21.8 *6.6*	10.9 *3.3*		
2048T-75		48 *1219*	38.7 *983.0*			3	4	23 *7.0*	N/A	30.5 *9.3*	30.6 *9.3*	29 *8.8*	14.8 *4.5*		
2060T-75		60 *1524*	50.7 *1287.8*			4	4	29 *8.8*	N/A	39.5 *12*	39.6 *12*	36.1 *11*	18.7 *5.6*		
2072T-75		72 *1828*	62.7 *1592.6*			4	4	32 *9.8*	N/A	48.5 *14.7*	48.8 *14.9*	43.2 *13.1*	22.6 *6.8*		

Model Numbers: The "T" designates Tall Series Hose. The "50" designates ½" Outlet Hose Series. The "75" designates ¾" Outlet Hose Series.

Equivalent Lengths are shown with maximum number of 90° bends at the minimum bend radius per agency. 2- 45° or 3-30° bends equal 1-90° bend. Different values were obtained by FM and UL due to the difference in minimum bend radius, testing protocol and calculation methods. Please see individual standards for more information relative to Friction Loss (equivalent length of pipe).

See listing(s) approval agency for the latest approval details.

STANDARD TALL SERIES HOSE



FLEXHEAD ELBOW TALL HOSE SERIES – 1" INTERNAL DIAMETER (I.D.) HOSE SERIES

Model Number	Outlet Orifice Size	Hose Assembly Length (L)	Braid Length (B)	Minimum Bend Radius		Max. Number of 90° Bends		Equivalent Length of 1 in. Schedule 40 Pipe (Ft.)						Max. Rated Working Pressure	
				FM	UL	FM	UL	UL	FM					FM	UL
									5.6 k-Factor	8.0 k-Factor	11.2 k-Factor	14.0 k-Factor	16.8 k-Factor		
	In./cm.	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*PSI/Kpa*	*PSI/Kpa*
2024ET-50	½ *1.27*	24 *610*	19.5 *495.3*	8 *200*	3 *76.2*	1	3	19 *5.8*	26.4 *8.0*	6.8 *2*	7.4 *2.2*	—	—	175 *1205*	175 *1205*
2036ET-50		36 *914*	31.5 *800.1*			2	3	23 *7.0*	30.1 *9.1*	11.8 *3.6*	12.5 *3.8*	—	—		
2048ET-50		48 *1219*	43.5 *1104.9*			3	4	27 *8.2*	33.8 *10.3*	16.9 *5.1*	17.6 *5.3*	—	—		
2060ET-50		60 *1524*	55.5 *1409.7*			4	4	32 *9.8*	37.5 *11.4*	21.9 *6.6*	22.7 *6.9*	—	—		
2072ET-50		72 *1828*	67.5 *1714.5*			4	4	35 *10.7*	41.2 *12.5*	27 *8.2*	27.8 *8.4*	—	—		
2024ET-75	¾ *1.90*	24 *610*	19.5 *495.3*	8 *200*	3 *76.2*	1	3	18 *5.5*	N/A			14.7 *4.5*	8.2 *2.5*	175 *1205*	175 *1205*
2036ET-75		36 *914*	31.5 *800.1*			2	3	23 *7.0*	N/A	25.2 *7.7*	26 *7.9*	21.8 *6.6*	13 *3.9*		
2048ET-75		48 *1219*	43.5 *1104.9*			3	4	23 *7.0*	N/A	32.9 *10*	33 *10*	29 *8.8*	17.8 *5.4*		
2060ET-75		60 *1524*	55.5 *1409.7*			4	4	29 *8.8*	N/A	40.6 *12.3*	40 *12.1*	36.1 *11*	22.6 *6.8*		
2072ET-75		72 *1828*	67.5 *1714.5*			4	4	32 *9.8*	N/A	48.5 *14.7*	47 *14.3*	43.2 *13.1*	27.5 *8.3*		

Model Numbers: The "ET" designates Elbow Tall Series Hose. The "50" designates ½" Outlet Hose Series. The "75" designates ¾" Outlet Hose Series.

Equivalent Lengths are shown with maximum number of 90° bends at the minimum bend radius per agency. 2- 45° or 3-30° bends equal 1-90° bend. Different values were obtained by FM and UL due to the difference in minimum bend radius, testing protocol and calculation methods. Please see individual standards for more information relative to Friction Loss (equivalent length of pipe).

See listing(s) approval agency for the latest approval details.

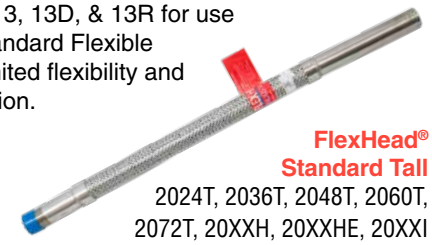
INSTALLATION INSTRUCTIONS

MPO24BKT2 Multi-Position Open Hub Bracket (MPO)

Installation of FlexHead Commercial Ceiling Flexible Sprinkler Drop System

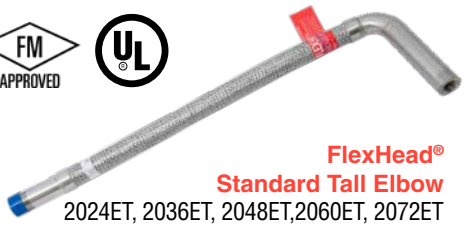
Recommend the use of proper PPE for installation. MPO24BKT2 is approved for use with the standard FlexHead® Flexible Sprinkler Hose in accordance to NFPA 13, 13D, & 13R for use in wet and dry sprinkler system. The Standard Flexible sprinkler hoses are UL approved for Limited flexibility and are intended for direct sprinkler connection.

The MPO24BKT2 is pre-assembled at center tile position. (See below for additional installation configurations)



FlexHead® Standard Tall
2024T, 2036T, 2048T, 2060T, 2072T, 20XXH, 20XXHE, 20XXI

FM APPROVED



FlexHead® Standard Tall Elbow
2024ET, 2036ET, 2048ET,2060ET, 2072ET

1 T Bar Ceiling Grid Installation

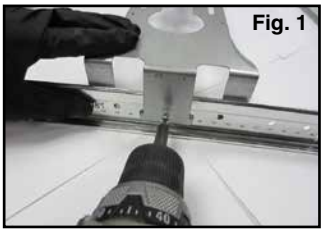


Fig. 1

The MPO bracket is designed for use on ceiling grids conforming to ASTM C 635*.

Locate the center of the ceiling tile marking, align the offset screw with that marking for true center of tile installation. Insert one bracket leg at a time, applying a downward pressure on the bracket leg and T-Bar. Place the second leg on the T-Bar and repeat process. (Fig. 1)

2 FlexHead Flexible Hose Installation

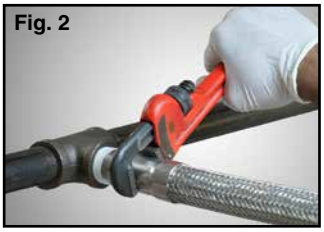


Fig. 2

Do not wrench on braided hose

Apply Teflon® tape or pipe sealant to the 1" NPT thread. Install into branch outlet. Any direction is acceptable, ensure the hose is allowed at least one bend per installation to allow for seismic movement. (See Friction Loss Chart on page 8 for details.)

Tighten hose using the pipe drop section, never apply a wrench to the braided hose for installation. (Fig. 2)

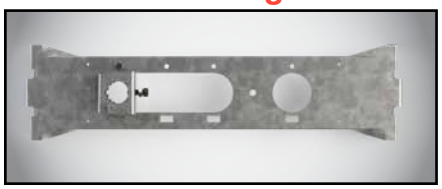
3 MPO Bracket Installation

Maneuver the flexible sprinkler drop from the branch to the MPO bracket. Review that the hose length, number of bends, and bend radius are applicable for the installation per NFPA guidelines. (See corresponding hose submittal for installation information.)

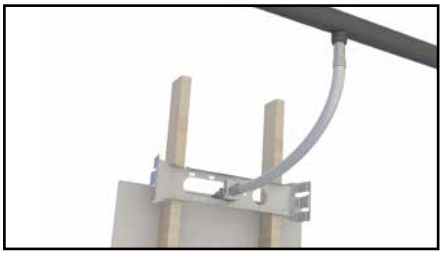
The MPO bracket has an open hub for ease of installation. Open the hinge apparatus by turning the locking shaft ¼ turn. Slide the flexible hose drop into the hub. Ensure the drop is vertical, and the SS Flexible® hose is not applying a substantial moment on the bracket causing sprinkler misalignment. Latch the hinge door closed and adjust the sprinkler drop for desired ceiling height. Tighten the set screw till hand tight plus 1" turn, (100 in-lbs).

Install desired sprinkler head, per the manufacturer's installation instructions.

Installation Configurations



24" Tile – 24/4 - Quarter Mark Position



14½" Wood Stud - Center Position♦

Installation Complete

U.S and International Patent Pending: #6,123,154, #6,119,784, #6,752,218, #7,032,680, #6,488,097
20XXHE, 20XXSF, 20XXE & 20XXI, 20XXET with MPO24BKT2 Bracket has not been evaluated by UL.
*Intended for use on ASTM C 635 intermediate or heavy duty ceilings systems installed in accordance to ASTM C 636.
♦FM Approved, Installation has not been evaluated by UL.

INSTALLATION INSTRUCTIONS

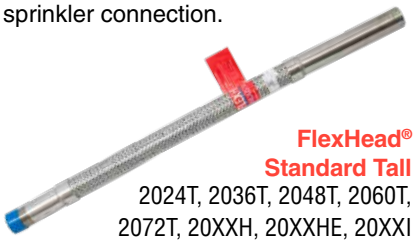
ADOXXBKT3 Adjustable Open Hub Bracket (ADO)

Installation of FlexHead Commercial Ceiling Flexible Sprinkler Drop System

Recommend the use of proper PPE for installation. ADOXX-BKT3 is approved for use with the standard FlexHead® and SuperFlex™ Flexible Sprinkler Hose in accordance to NFPA 13, 13D, & 13R for use in wet and dry sprinkler system. The Standard & SuperFlex™ Flexible sprinkler hoses are UL approved for limited flexibility and are intended for direct sprinkler connection.

The ADOXXBKT3 is pre-assembled at center tile position. (See below for additional installation configurations)

ADO16BKT3 & ADO24BKT3 UL Listed and FM Approved.
ADO30BKT3 & ADO48BKT3 FM Approved.



FlexHead®
Standard Tall
2024T, 2036T, 2048T, 2060T, 2072T, 20XXH, 20XXHE, 20XXI

FlexHead®
Standard Tall Elbow
2024ET, 2036ET, 2048ET,2060ET, 2072ET

SuperFlex™
2036SF, 2048SF, 2072SF

1 T Bar Ceiling Grid Installation

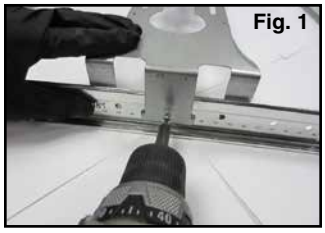


Fig. 1

The ADO bracket is designed for use on ceiling grids conforming to ASTM C 635*.

Locate the center of the ceiling tile marking, align the offset screw with that marking for true center of tile installation. Insert one bracket leg at a time, applying a downward pressure on the bracket leg and T-Bar. Place the second leg on the T-Bar and repeat process. (Fig. 1)

2 FlexHead Flexible Hose Installation

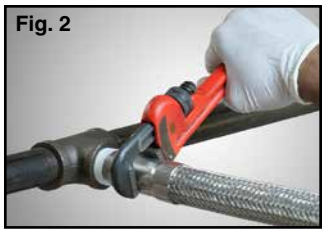


Fig. 2

Do not wrench on braided hose

A. For threaded fitting branch connection: Apply Teflon® tape or pipe sealant to the 1" NPT thread. Install into branch outlet. Tigthen the hose using the pipe section, never apply a wrench to the braided hose when installing.

B. For groove connection follow the grooved coupling manufacturer's installation instructions.

C. For SLT connection follow Gruvlok® installation instructions, "Fig 7074SLT SlideLOK® Ready for Installation Cap & Fitting Instructions".

The FlexHead connection can be installed in any direction from the branch. Ensure the hose is allowed at least one bend per installation to allow for seismic movement. (See fiction Loss Chart on Page 3 for details)

3 ADO Bracket Installation


Fig. 3a

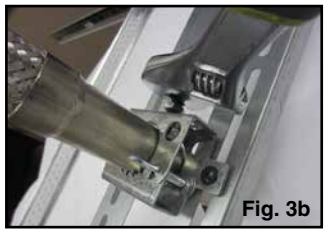


Fig. 3b

Maneuver the flexible sprinkler drop from the branch to the ADO bracket. Review that the hose length, number of bends, and bend radius are applicable for the installation per NFPA guidelines. (See corresponding hose submittal for installation information.)

The ADO bracket has an open hub for ease of installation. Open the hinge apparatus by turning the locking shaft ¼ turn. Slide the flexible hose drop into the hub. Ensure the drop is vertical, and the SS Flexible® hose is not applying a substantial moment on the bracket causing sprinkler misalignment. Latch the hinge door closed and adjust the sprinkler drop for desired ceiling height. Tighten the set screw till hand tight plus ¾" turn, (130 in-lbs). (Fig. 3a and 3b)

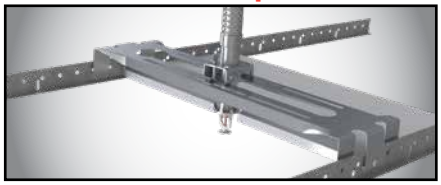
Install desired sprinkler head, per the manufacturer's installation instructions.

Installation Configurations


24" Tile – 24/4 - Quarter Mark Position


14½" Wood Stud - Center Position♦

Installation Complete



U.S and International Patent Pending: #6,123,154, #6,119,784, #6,752,218, #7,032,680, #6,488,097
20XXT, 220XXET, 20XXH, 20XXHE, 20XXI, with ADOXXBKT3 Bracket has not been evaluated by UL.
*Intended for use on ASTM C 635 intermediate or heavy duty ceilings systems installed in accordance to ASTM C 636.
♦FM Approved, Installation has not been evaluated by UL.

INSTALLATION INSTRUCTIONS

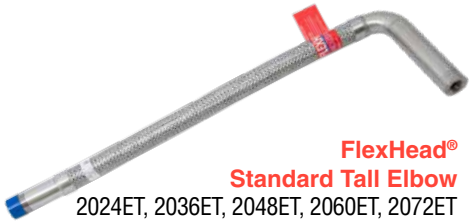
MPT24BKT1 Multi-Position Tall Bracket (MPT)

Installation of FlexHead Commercial Ceiling Flexible Sprinkler Drop System

Recommend the use of proper PPE for installation. MPT-24-BKT1 is approved for use with the standard FlexHead® and SuperFlex™ Flexible Sprinkler Hose in accordance to NFPA 13, 13D, & 13R for use in wet and dry sprinkler system. The Standard & SuperFlex™ Flexible sprinkler hoses are UL approved for limited flexibility and are intended for direct sprinkler connection.

The MPT bracket is set for 24" center of tile installation. (See back side for additional installation configurations)

FlexHead®
Standard Tall
2024T, 2036T, 2048T, 2060T, 2072T



FlexHead®
Standard Tall Elbow
2024ET, 2036ET, 2048ET, 2060ET, 2072ET

SuperFlex™
2036SF, 2048SF, 2072SF

1 T Bar Ceiling Grid Installation

The MPT bracket is designed for use on ceiling grids conforming to ASTM C 635*.

Locate the center of the ceiling tile marking, align the offset screw with that marking for true center of tile installation.Insert one bracket leg at a time, applying a downward pressure on the bracket leg and T-Bar. Screw the self tapping screw using a #2 square head driver. Place the second leg on the T-Bar and repeat process. (Fig. 1)

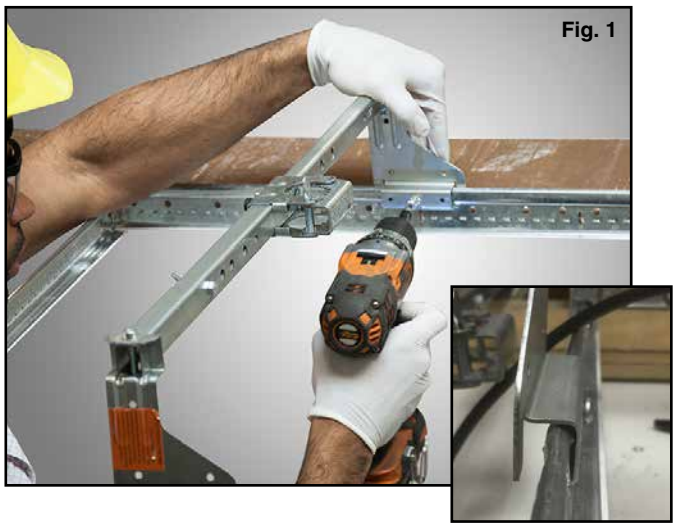


Fig. 1

2 FlexHead Flexible Hose Installation

A. For threaded fitting branch connection: Apply Teflon® tape or pipe sealant to the 1" NPT thread. Install into branch outlet. Tigthen the hose using the pipe section, never apply a wrench to the braided hose when installing.

B. For groove connection follow the grooved coupling manufacturer's installation instructions.

C. For SLT connection follow Gruvlok® installation instructions, “Fig 7074SLT SlideLOK® Ready for Installation Cap & Fitting Instructions”.

The FlexHead connection can be installed in any direction from the branch. Ensure the hose is allowed at least one bend per installation to allow for seismic movement. (See fiction Loss Chart on Page 3 for details)

Fig. 2

Do not wrench on braided hose

*Intended for use on ASTM C 635 intermediate or heavy duty ceilings systems installed in accordance to ASTM C 636.

3 Secure the Flexhead Sprinkler Drop to MPT Bracket –

Maneuver the flexible sprinkler drop from the branch to the MPT bracket. Review that the hose length, number of bends, and bend radius are applicable for the installation per NFPA guidelines. (See corresponding hose submittal for installation information.)

The MPT bracket has an open hub for ease of installation. Open the hinge apparatus by turning the locking shaft ¼ turn. Slide the flexible hose drop into the hub. Ensure the drop is vertical, and the SS Flexible® hose is not applying a substantial moment on the bracket causing sprinkler misalignment. Latch the hinge door close and adjust the sprinkler drop for desired ceiling height. Tightening the set screw till hand tight plus two full revolutions, (130 in-lbs). (Fig. 3a and 3b)

Install desired sprinkler head, per the manufacturer's installation instructions.


Fig. 3a

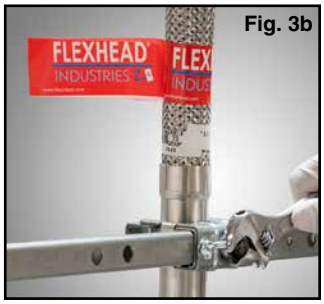


Fig. 3b

4 Ceiling Tile Installation –

The flexible sprinkler drop system with MPT Bracket is able to be installed prior to the ceiling tile installation, preventing the need for sprinkler contractor tile adjustment.

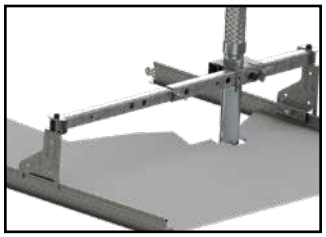
For ease of tile installation, cut the largest sprinkler hole recommended by the manufacturer. The largest hole that is still covered by the sprinkler escutcheon allows for an easier install.

Angle the tile at 45 degrees and push the tile through the hole and up above the ceiling T-bar, maneuver the tile and allow it to drop in the proper location. (Fig. 4)

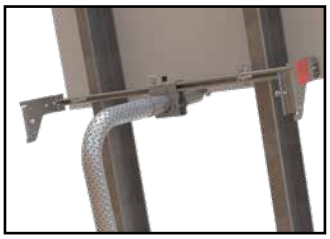

Fig. 4

Installation Complete

Installation Configurations


24" Tile – 24/4
Quarter Mark Position


16" Tile – 16/2
Center Position


16" Metal Stud
Center Position♦


14½" Wood Stud
Center Position♦

U.S and International Patent Pending: #6,123,154, #6,119,784, #6,752,218, #7,032,680, #6,488,097
20XXET with MPT-24BKT1 Bracket has not been evaluated by UL.
♦FM Approved, Installation has not been evaluated by UL.

FRICTION LOSS DATA & SPECIFICATIONS

Model Number	Outlet Orifice Size	Hose Assembly Length	Minimum Bend Radius		Max. Number of 90° Bends		Equivalent Length of 1 in. Schedule 40 Pipe (Ft.)							Max. Rated Working Pressure	
			FM	UL	UL	FM	UL	FM						FM	UL
								5.6 k-Factor	8.0 k-Factor	11.2 k-Factor	14.0 k-Factor	16.8 k-Factor	22.4 k-Factor		
	In./cm.	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*PSI/Kpa*	*PSI/Kpa*
SuperFlex 1" Internal Diameter (I.D) Hose Series															
2036SF-50	½ 1.27	36 914	7 178	2 50.8	5	2	30 9.1	16.2 4.9	16.9 5.1	11.5 3.5	—	—	—		
2048SF-50		48 1219			8	3	47 14.3	28.7 8.7	29.3 8.9	15.4 4.7	—	—	—		
2072SF-50		72 1828			12	4	71 21.6	53.9 16.4	54.3 16.5	23.2 7	—	—	—		
2036SF-75	¾ 1.90	36 914	7 178	2 50.8	5	2	29 8.8	—	21.5 6.5	21.6 6.5	21.8 6.6	22 6.7	—		
2048SF-75		48 1219			8	3	44 13.4	—	30.5 9.2	30.6 9.3	31.1 9.4	30.8 9.3	—		
2072SF-75		72 1828			12	4	70 21.3	—	48.5 14.7	48.8 14.8	49.9 15.2	48.6 14.8	—		
SuperFlex Elbow 1" Internal Diameter (I.D) Hose Series															
2036ESF-50	½ 1.27	36 914	7 178	N/A	—	2	—	25.8 7.8	26.1 7.9	12.5 3.8	—	—	—	175 1205	175 1205
2048ESF-50		48 1219			—	3	—	36.1 11	36.3 11	17.6 5.3	—	—	—		
2072ESF-50		72 1828			—	4	—	57.3 17.4	56.9 17.3	27.8 8.4	—	—	—		
2036ESF-75	¾ 1.90	36 914	7 178	N/A	—	2	—	—	25.2 7.6	26 7.9	25.9 7.9	25.7 7.8	—	175 1205	175 1205
2048ESF-75		48 1219			—	3	—	—	32.9 10	33 10	33 10	33 10	—		
2072ESF-75		72 1828			—	4	—	—	48.5 14.8	47 14.3	47.3 14.4	47.6 14.5	—		
Flexhead Standard Tall 1" Internal Diameter (I.D) Hose Series															
2024T-50	½ 1.27	24 610	8 200	3 76.2	3	1	11 3.4	18.4 5.6	7.7 2.3	7.6 2.3	—	—	—	175 1205	175 1205
2036T-50		36 914			3	2	16 4.9	26.6 8.1	11.5 3.5	11.5 3.5	—	—	—		
2048T-50		48 1219			4	3	24 7.3	30.3 9.2	15.3 4.6	15.4 4.7	—	—	—		
2060T-50		60 1524			4	4	29 8.8	35.8 10.9	19.1 5.8	19.3 5.8	—	—	—		
2072T-50		72 1828			4	4	35 10.7	45.6 13.9	23.0 7	23.2 7	—	—	—		
2024T-75	¾ 1.90	24 610	8 200	3 76.2	3	1	12 3.7	—	7.3 2.2	5.9 1.8	14.7 4.5	7.1 2.1	—	175 1205	175 1205
2036T-75		36 914			3	2	18 5.5	—	21.5 6.5	10.4 3.1	21.8 6.6	10.9 3.3	—		
2048T-75		48 1219			4	3	23 7.0	—	30.5 9.3	14.9 4.5	29 8.8	14.8 4.5	—		
2060T-75		60 1524			4	4	29 8.8	—	39.5 12	19.4 5.9	36.1 11	18.7 5.6	—		
2072T-75		72 1828			4	4	32 9.8	—	48.5 14.7	24.0 7.3	43.2 13.1	22.6 6.8	—		
Flexhead Standard Tall Elbow 1" Internal Diameter (I.D) Hose Series															
2024ET-50	½ 1.27	24 610	8 200	3 76.2	3	1	19 5.8	26.4 8.0	6.8 2	7.4 2.2	—	—	—	175 1205	175 1205
2036ET-50		36 914			3	2	23 7.0	30.1 9.1	11.8 3.6	12.5 3.8	—	—	—		
2048ET-50		48 1219			4	3	27 8.2	33.8 10.3	16.9 5.1	17.6 5.3	—	—	—		
2060ET-50		60 1524			4	4	32 9.8	37.5 11.4	21.9 6.6	22.7 6.9	—	—	—		
2072ET-50		72 1828			4	4	35 10.7	41.2 12.5	27.0 8.2	27.8 8.4	—	—	—		

See Table Notes on Page 8.

FRICTION LOSS DATA & SPECIFICATIONS

Model Number	Outlet Orifice Size	Hose Assembly Length	Minimum Bend Radius		Max. Number of 90° Bends		Equivalent Length of 1 in. Schedule 40 Pipe (Ft.)							Max. Rated Working Pressure	
			FM	UL	UL	FM	UL	FM						FM	UL
								5.6 k-Factor	8.0 k-Factor	11.2 k-Factor	14.0 k-Factor	16.8 k-Factor	22.4 k-Factor		
	In./cm.	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*PSI/Kpa*	*PSI/Kpa*
2024ET-75	¾ *1.90*	24 *610*	8 *200*	3 *76.2*	3	1	18 *5.5*	—	8.8 *2.6*	8.7 *2.6*	14.7 *4.5*	8.2 *2.5*	—	175 *1205*	175 *1205*
2036ET-75		36 *914*			3	2	23 *7.0*	—	25.5 *7.7*	14.2 *4.2*	21.8 *6.6*	13 *3.9*	—		
2048ET-75		48 *1219*			4	3	23 *7.0*	—	32.9 *10*	18.4 *5.6*	29 *8.8*	17.8 *5.4*	—		
2060ET-75		60 *1524*			4	4	29 *8.8*	—	40.6 *12.3*	22.7 *6.9*	36.1 *11.0*	22.6 *6.8*	—		
2072ET-75		72 *1828*			4	4	32 *9.8*	—	48.5 *14.7*	27.0 *8.2*	43.2 *13.1*	27.5 *8.3*	—		
Flexhead High Pressure 1" Internal Diameter (I.D) Hose Series															
2024H-50	½ *1.27*	24 *610*	8 *200*	3 *76.2*	3	2	11 *3.4*	18.4 *5.6*	7.7 *2.3*	7.6 *2.3*	—	—	—	300 *2068*	300 *2068*
2036H-50		36 *914*			3	3	16 *4.9*	26.6 *8.1*	11.5 *3.5*	11.5 *3.5*	—	—	—		
2048H-50		48 *1219*			4	4	24 *7.3*	30.3 *9.2*	15.3 *4.6*	15.4 *4.7*	—	—	—		
2060H-50		60 *1524*			4	4	29 *8.8*	35.8 *10.9*	19.1 *5.8*	19.3 *5.8*	—	—	—		
2072H-50		72 *1828*			4	4	35 *10.7*	45.6 *13.9*	23.0 *7*	23.2 *7*	—	—	—		
2024H-75	¾ *1.90*	24 *610*	8 *200*	3 *76.2*	3	2	12 *3.7*	—	14.7 *4.5*	6.8 *2.0*	14.7 *4.5*	7.1 *2.1*	—	300 *2068*	300 *2068*
2036H-75		36 *914*			3	3	18 *5.5*	—	21.5 *6.5*	11.4 *3.4*	21.8 *6.6*	10.9 *3.3*	—		
2048H-75		48 *1219*			4	4	23 *7.0*	—	30.5 *9.2*	16.0 *5.1*	29 *8.8*	14.8 *4.5*	—		
2060H-75		60 *1524*			4	4	29 *8.8*	—	39.5 *12*	20.6 *6.2*	36.1 *11.0*	18.7 *5.7*	—		
2072H-75		72 *1828*			4	4	32 *9.8*	—	48.5 *14.7*	25.3 *7.7*	43.2 *13.1*	22.6 *6.8*	—		
Flexhead High Pressure Elbow 1" Internal Diameter (I.D) Hose Series															
2024HE-50	½ *1.27*	24 *610*	8 *200*	3 *76.2*	3	2	19 *5.8*	14.7 *4.5*	6.8 *2*	7.4 *2.2*	—	—	—	300 *2068*	300 *2068*
2036HE-50		36 *914*			3	3	23 *7.0*	21.8 *6.6*	11.8 *3.6*	12.5 *3.8*	—	—	—		
2048HE-50		48 *1219*			4	4	27 *8.2*	29.0 *8.8*	16.9 *5.1*	17.6 *5.3*	—	—	—		
2060HE-50		60 *1524*			4	4	32 *9.8*	36.1 *11*	21.9 *6.6*	22.7 *6.9*	—	—	—		
2072HE-50		72 *1828*			4	4	35 *10.7*	43.2 *13.1*	27.0 *8.2*	27.8 *8.4*	—	—	—		
2024HE-75	¾ *1.90*	24 *610*	8 *200*	3 *76.2*	3	2	18 *5.5*	—	14.7 *4.5*	—	14.7 *4.5*	8.2 *2.5*	—	300 *2068*	300 *2068*
2036HE-75		36 *914*			3	3	23 *7.0*	—	25.2 *7.7*	26 *7.9*	21.8 *6.6*	13 *3.9*	—		
2048HE-75		48 *1219*			4	4	23 *7.0*	—	32.9 *10*	33 *10*	29 *8.8*	17.8 *5.4*	—		
2060HE-75		60 *1524*			4	4	29 *8.8*	—	40.5 *12.3*	40 *12.2*	36.1 *11.0*	22.6 *6.8*	—		
2072HE-75		72 *1828*			4	4	32 *9.8*	—	48.5 *14.8*	47 *14.3*	43.2 *13.1*	27.5 *8.3*	—		
Flexhead Dry Pendent System 1" Internal Diameter (I.D) Hose Series															
2024-DPS	1 *2.54*	24 *610*	7 *180*	—	—	1	—	18.4 *5.6*	7.7 *2.3*	7.6 *2.3*	—	7.1 *2.1*	10.7 *3.3*	—	175 *1205*
2036-DPS		36 *914*			—	2	—	26.6 *8.1*	11.5 *3.5*	11.5 *3.5*	—	10.9 *3.3*	15.1 *4.6*		
2048-DPS		48 *1219*			—	3	—	30.3 *9.2*	15.3 *4.7*	15.4 *4.7*	—	14.8 *4.5*	21.5 *6.5*		
2060-DPS		60 *1524*			—	4	—	35.8 *10.9*	19.1 *5.8*	19.3 *5.9*	—	18.7 *5.7*	25.3 *7.7*		
2072-DPS		72 *1828*			—	4	—	45.6 *13.9*	23 *7*	23.2 *7*	—	22.6 *6.9*	26.9 *8.1*		

See Table Notes on Page 8.

FRICTION LOSS DATA & SPECIFICATIONS

Model Number	Outlet Orifice Size	Hose Assembly Length	Minimum Bend Radius		Max. Number of 90° Bends		Equivalent Length of 1 in. Schedule 40 Pipe (Ft.)							Max. Rated Working Pressure	
			FM	UL	UL	FM	UL	FM						FM	UL
								5.6 k-Factor	8.0 k-Factor	11.2 k-Factor	14.0 k-Factor	16.8 k-Factor	22.4 k-Factor		
	In./cm.	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*In./mm.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*Ft./m.*	*PSI/Kpa*	*PSI/Kpa*
Flexhead Institutional 1" Internal Diameter (I.D) Hose Series															
2024I	½ *1.27*	24 *610*	8 *200*	3 *76.2*	3	1	11 *3.4*	18.4 *5.6*	—	—	—	—	—	175 *1205*	175 *1205*
2036I		36 *914*			3	3	16 *4.9*	26.6 *8.1*	—	—	—	—	—		
2048I		48 *1219*			4	4	24 *7.3*	30.3 *9.2*	—	—	—	—	—		
2060I		60 *1524*			4	4	29 *8.8*	35.8 *10.9*	—	—	—	—	—		
2072I		72 *1828*			4	4	35 *10.7*	45.6 *13.9*	—	—	—	—	—		
2024I	¾ *1.90*	24 *610*	8 *200*	3 *76.2*	3	1	12 *3.7*	—	—	—	11.6 *3.5*	—	—	175 *1205*	175 *1205*
2036I		36 *914*			3	2	18 *5.5*	—	—	—	16 *4.9*	—	—		
2048I		48 *1219*			4	3	23 *7.0*	—	—	—	17.9 *5.4*	—	—		
2060I		60 *1524*			4	4	29 *8.8*	—	—	—	24.7 *7.5*	—	—		
2072I		72 *1828*			4	4	32 *9.8*	—	—	—	28.9 *8.8*	—	—		
Flexhead Institutional for use with Amerlux Ceiling System - 1" Internal Diameter (I.D) Hose Series															
2024IA	½ *1.27*	24 *610*	8 *200*	—	—	1	11 *3.4*	—	18.4 *5.6*	—	—	—	—	175 *1205*	175 *1205*
2036IA		36 *914*			—	2	16 *4.9*	—	26.6 *8.1*	—	—	—	—		
2048IA		48 *1219*			—	3	24 *7.3*	—	30.3 *9.2*	—	—	—	—		
2060IA		60 *1524*			—	4	29 *8.8*	—	35.8 *10.9*	—	—	—	—		
2072IA		72 *1828*			—	4	35 *10.7*	—	45.6 *13.9*	—	—	—	—		

NOTES:
Model Numbers:

- "SF" designates SuperFlex™ Hose series.
- "ESF" designates SuperFlex™ Elbow Hose series.
- "E" designates elbow drop hose series
- "T" designates straight tall style hose
- "ET" designates elbow tall style hose series.
- "H" designates high pressure 300psi working pressure hose series.
- "HE" designates high pressure 300psi elbow hose series.
- "DPS" designates dry pendant system.
- "DT" designates drain tee hose series used in dry pendent/freezer application.
- "DPS" and "DT" models are approved for use in cold storage application (Freezer, Cold Chamber) and combine an approved flexible sprinkler hose and an approved dry pendent sprinkler. UHO-1 or UHO-3 is required to connect the flexible sprinkler hose to the dry sprinkler.
- "I" indicates instiutional flexible hose.
- "A" indicates models for use with Amerlux Ceiling System.
- "50" designates ½" Outlet Hose series. The "75" designates ¾" Outlet Hose series. Inlet size 1".
- Max Ambient Temperature Rating on all model numbers are 300° F (148° C).
- Equivalent lengths are shown with maximum number of 90° bends at the minimum bend radius per agency. 2-45° or 3-30° bend equal 1-90° bend. Different values were obtained by FM and UL due to the difference in minimum bend radius, testing protocol and calculation methods. Please see individual standards for more information relative to Friction Loss (equivalent length of pipe).
- All hoses require a minimum of one bend for installation. Bend radius tool available for 3" bend "T" hose, "SF" hose does not require bend radius tool.
- FM equivalent length calculation includes Sprinkler Head Friction Loss.
- See listing(s) approval agency for the latest approval details.