

# FIRE PROTECTION MATERIAL SUBMITTAL

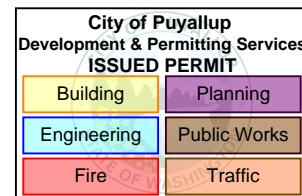
## BODY HOLDING

### GOOD SAMARITAN HOSPITAL

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PUYALLUP, WA 98372

JOB NUMBER: 122775-001

SUBMITTED BY: BROOKE McDANIELS



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# **BODY HOLDING MATERIAL SUBMITTAL**

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**SECTION I**  
**PIPE AND FITTINGS**

# SCHEDULE 10 & 40



**Always ready to protect your most valuable assets.**

As the leading supplier of steel sprinkler pipe, we understand that there are no second chances in fire suppression. You need products of enduring quality and exceptional strength—plus reliable service. You need Bull Moose.

## Bull Moose Fire Sprinkler Pipe Product Information

Nominal Pipe Size (Inches)		1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"	NPS (In.)		1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	
<b>SCHEDULE 10</b>	O.D. (in)	1.315	1.660	1.900	2.375	2.875	3.500	4.500	6.625	8.625	<b>SCHEDULE 40</b>	1.315	1.660	1.900	2.375	2.875	3.500	4.500		
	I.D. (in)	1.097	1.442	1.682	2.157	2.635	3.260	4.260	6.357	8.249		1.049	1.380	1.610	2.067	2.469	3.068	4.026		
	Empty Weight (lb/ft)	1.410	1.810	2.090	2.640	3.530	4.340	5.620	9.290	16.940		1.680	2.270	2.720	3.660	5.800	7.580	10.800		
	Water Filled Weight (lb/ft)	1.820	2.518	3.053	4.223	5.893	7.957	11.796	23.038	40.086		2.055	2.918	3.602	5.114	7.875	10.783	16.316		
	C.R.R.	15.27	9.91	7.76	6.27	4.92	3.54	2.50	1.158	1.805		1.00	1.00	1.00	1.00	1.00	1.00	1.00		
	Pieces per Lift	91	61	61	37	30	19	19	10	7		70	51	44	30	30	19	19		
	Lift Weight (lbs) 21' lengths	2,695	2,319	2,677	2,051	2,224	1,732	2,242	1,951	2,490		2,470	2,431	2,513	2,306	3,654	3,024	4,309		
	Lift Weight (lbs) 24' lengths	3,079	2,650	3,060	2,344	2,542	1,979	2,563	2,230	2,848		2,822	2,778	2,872	2,635	4,176	3,456	4,925		
	Lift Weight (lbs) 25' lengths	3,208	2,760	3,187	2,442	2,648	2,062	2,670				2,940	2,894	2,992	2,745	4,350	3,601	5,130		

### SCHEDULE 10 & 40 ADVANTAGES:

- UL listed (US & Canada) and FM approved
- ASTM A135 and A795 Type E, Grade A Certified
- Complies with NFPA-13, 13R and 14
- Industry-leading hydraulic characteristics
- CRR of 1.0 and greater
- All pipe NDT weld tested

### OTHER BENEFITS/SERVICES:

- We have the most stocking locations in the industry, for best delivery and availability
- Plain end or roll groove
- Eddy Guard II™ bacterial-resistant internal coating
- Custom length options
- Hot dipped galvanization
- Reddi-Pipe® red or black pipe eliminates field painting
- Compatible for use in wet, dry, preaction and deluge sprinkler systems
- The only maker with EPDs (to help earn LEED points).

**Exclusive maker of Reddi-Pipe®**  
RED OR BLACK PAINTED PIPE.



cULUS LISTED



800.325.4467  
sales@BullMooseIndustries.com  
BullMooseTube.com

# Mechanical-T<sup>®</sup> Bolted Branch Outlets



## STYLES 920 AND 920N

Victaulic Mechanical-T<sup>®</sup> Outlet provides a direct branch connection at any location a hole can be cut in pipe. The hole is cut oversize to receive a “holefinder” locating collar which secures the outlet in position permanently. A pressure responsive gasket seals on the pipe O.D.

Cross-type connections can be achieved by utilizing two upper housings of the same style and size, with the same or differing branch size connections. NOTE: Style 920 and Style 920N housings cannot be mated to each other to achieve a cross connection.

Style 920 and Style 920N Mechanical-T outlets are available with grooved or female threaded outlet. Specify choice on order. Units are supplied painted with plated bolts. Galvanized housings are available, supplied with plated bolts.

All sizes of Style 920 and 920N are rated at 500 psi/3450 kPa working pressure on Schedule 10 and 40 carbon steel pipe. They may also be used on high density polyethylene or polybutylene (HDPE) pipe. Pressure ratings on HDPE are dependent on the pipe rating. Contact Victaulic for ratings on other pipe. **Style 920 and 920N are not recommended for use on PVC plastic pipe.**

Standard piping practices dictate that the Mechanical-T Styles 920 and 920N must be installed so that the main and branch connections are a true 90° angle when permanently attached to the pipeline surface.

Additionally, the Vic-Tap II<sup>®</sup> hole cutting tool, which allows for hole cutting capabilities on pressurized systems, utilizes the Style 920 Mechanical-T in conjunction with the Series 726 Vic-Ball Valve to create the Style 931 Vic-Tap II Mechanical-T unit. See page 8 for further information.



STYLES 920 AND 920N

STYLE 920 CROSS

PATENTED

### MATERIAL SPECIFICATIONS

**Housing/Coating:** Ductile iron conforming to ASTM A-536, grade 65-45-12, with orange enamel coating. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

- **Optional:** Hot dipped galvanized

**Gasket: (Specify choice\*)**

- **Grade “E” EPDM**  
EPDM (Green color code). Temperature range -30°F to +230°F/-34°C to +110°C. Recommended for cold and hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL Classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C. NOT RECOMMENDED FOR PETROLEUM SERVICES.
- **Grade “T” nitrile**  
Nitrile (Orange color code). Temperature range -20°F to +180°F/-29°C to +82°C. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. Not recommended for hot water services over +150°F/+66°C or for hot dry air over +140°F/+60°C.

\*Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are not recommended. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

**Bolts/Nuts:** Heat-treated plated carbon steel, trackhead meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183.

**JOB/OWNER**

System No. \_\_\_\_\_  
Location \_\_\_\_\_

**CONTRACTOR**

Submitted By \_\_\_\_\_  
Date \_\_\_\_\_

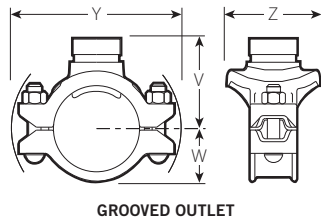
**ENGINEER**

Spec Sect \_\_\_\_\_ Para \_\_\_\_\_  
Approved \_\_\_\_\_  
Date \_\_\_\_\_

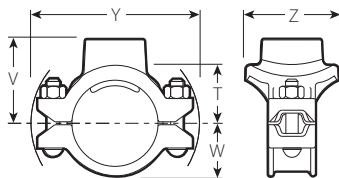
# Mechanical-T<sup>®</sup> Bolted Branch Outlets

STYLES 920 AND 920N

## DIMENSIONS



GROOVED OUTLET



FEMALE THREADED OUTLET

- Provides a direct branch connection at any location where a hole can be cut in the pipe
- A pressure responsive gasket provides the seal
- Request Publication 11.03 for Mechanical-T cross assemblies
- Pressure rated up to 500 psi/3450 kPa on steel pipe; also available for use with HDPE pipe
- Sizes from 2 × ½"/50 × 15 mm through 8 × 4"/200 × 100 mm

### IMPORTANT NOTES:

Style 920 and Style 920N housings cannot be mated to one another to achieve cross connections.

Size	Style No.	Max. Work Pressure@	Dimensions							Approx. Weight Each			
			Run × Branch Nominal Size Inches mm	920 or 920N	psi kPa	Hole Diameter +0.13 -0.00	T** Inches mm	V ‡ # Thd. Inches mm	V ‡ Grv. Inches mm	W Inches mm	Y Inches mm	Z Inches mm	Female Thd. Lbs. kg
<b>TABLE CONTINUED FROM PAGE 2</b>													
4 100	½ (a) □	920N	500 3450	1.50 38.1	3.03 77	3.56 90	—	2.69 68	7.01 178	2.75 70	3.7 1.8	—	
	¾ (a) □	920N	500 3450	1.50 38.1	3.00 76	3.56 90	—	2.69 68	7.01 178	2.75 70	3.7 1.8	—	
	1 (a) □	920N	500 3450	1.50 38.1	2.88 73	3.56 90	—	2.69 68	7.01 178	2.75 70	3.6 1.8	—	
	1 ¼ (a) † □	920N	500 3450	1.75 44.5	3.08 78	3.78 96	4.00 102	2.69 68	7.01 178	3.00 76	4.0 1.9	3.6 1.8	
	1 ½ (a) † □	920N	500 3450	2.00 50.8	3.28 83	4.00 102	4.00 102	2.69 68	7.01 178	3.25 83	4.2 2.0	3.9 1.9	
	2 (a) † □	920N	500 3450	2.50 63.5	3.25 83	4.00 102	4.00 102	2.69 68	7.01 178	3.88 99	5.0 2.3	4.6 2.1	
	2 ½ (a) †	920	500 3450	2.75 69.9	2.88 73	4.00 102	4.00 102	2.69 68	7.34 186	4.63 118	5.8 2.6	5.0 2.3	
	76.1 mm	920	500 3450	2.75 69.9	2.88 73	—	4.00 102	2.69 68	7.34 186	4.63 118	—	6.4 2.9	
	3 (a) †	920	500 3450	3.50 88.9	3.31 84	4.50 114	4.12 105	2.69 68	7.73 196	5.12 130	8.4 3.8	6.4 2.9	
	108.0	1 ¼ (a) □	920N	500 3450	1.75 44.5	3.08 78	3.78 96	—	2.63 67	7.64 194	3.05 78	5.0 2.3	—
1 ½ (a) □		920N	500 3450	2.00 50.8	3.28 83	4.00 102	—	2.63 67	7.64 194	3.25 83	5.0 2.3	—	
2 (a)		920N	500 3450	2.50 63.5	3.25 83	4.00 102	—	2.63 67	7.64 194	4.00 102	4.0 1.9	—	
76.1 mm		920	500 3450	2.75 69.9	2.88 73	4.00 102	4.00 102	2.63 67	7.64 194	4.29 109	8.0 3.6	7.8 3.5	
3 (a)		920	500 3450	3.50 88.9	3.31 84	4.50 114	4.50 114	2.63 67	7.63 194	4.88 124	6.8 3.1	6.5 3.0	
5 125		1 ½ (a) †	920	500 3450	2.00 50.8	4.03 102	4.75 121	4.75 121	3.16 80	9.70 246	3.69 94	7.4 3.4	7.6 3.4
		2 (a) †	920	500 3450	2.50 63.5	4.00 102	4.75 121	4.75 121	3.16 80	9.70 246	4.38 111	8.2 3.7	8.0 3.6
	2 ½ (a) †	920	500 3450	2.75 69.9	3.63 92	4.75 121	4.75 121	3.16 80	9.70 246	4.63 118	8.3 3.8	7.9 3.6	
	76.1 mm □	920	500 3450	2.75 69.9	3.75 95	—	4.75 121	3.16 80	9.70 246	4.63 118	—	8.0 3.6	
	3 (a) †	920	500 3450	3.50 88.9	3.81 97	5.00 127	4.63 118	3.16 80	9.70 246	5.31 135	8.4 3.8	8.8 4.0	
133.0	2 50	920N	500 3450	2.50 63.5	3.75 95	4.50 114	—	3.17 81	8.00 203	3.88 99	8.0 3.6	—	
	3 80	920	500 3450	3.50 88.9	3.81 97	5.00 127	—	3.00 76	9.46 240	5.31 135	8.0 3.6	—	

TABLE CONTINUED ON PG. 4

\*\* Center of run to engaged pipe end, female threaded outlet only (dimensions approximate).

† Available with grooved or female threaded outlet. Specify choice on order.

‡ Center of run to end of fitting.

# Female threaded outlets are available to NPT and BSPT specifications.

@ See page 7 for Fire Protection approvals and pressure ratings.

(a) British Standard female pipe threaded outlet is available as listed. Specify "BSPT" clearly on order.

(b) For 76.1 mm threaded outlet, specify 2½" BSPT clearly on order.

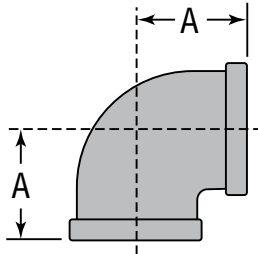
§ Vds approved for fire protection services

□ LPCB approved for fire protection services

∅ Approved for use in China by Tianjin Approvals Company.

## FIG. 3201

90° Elbow



For Listings/Approval Details and Limitations, visit our website at [www.anvilintl.com](http://www.anvilintl.com) or contact an Anvil® Sales Representative.

**FIGURE 3201 - 90° ELBOW**

Nominal Size	Maximum Working Pressure▲	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1 20	500 3450	1.50 38.10	0.62 0.28
1¼ 32	500 3450	1.75 44.45	0.90 0.41
1½ 40	500 3450	1.94 49.276	1.20 0.54
2 50	500 3450	2.25 57.15	1.85 0.84

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit [anvilintl.com](http://anvilintl.com) or contact your local Anvil Representative.

### MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

**NOTICE:** Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

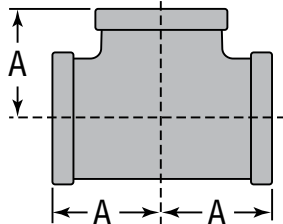
### PROJECT INFORMATION

### APPROVAL STAMP

Project:	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

## FIG. 3205

### Straight Tee



For Listings/Approval Details and Limitations, visit our website at [www.anvilintl.com](http://www.anvilintl.com) or contact an Anvil® Sales Representative.

### FIGURE 3205 - STRAIGHT TEE

Nominal Size	Maximum Working Pressure <sup>▲</sup>	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1 25	500 3450	1.50 38.10	0.85 0.39
1¼ 32	500 3450	1.75 44.45	1.22 0.55
1½ 40	500 3450	1.94 49.27	1.55 0.70
2 50	500 3450	2.25 57.15	2.45 1.11

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit [anvilintl.com](http://anvilintl.com) or contact your local Anvil Representative.

### MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

**NOTICE:** Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

### PROJECT INFORMATION

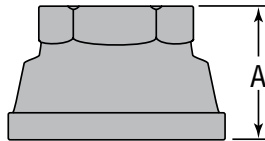
### APPROVAL STAMP

Project:	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	



## FIG. 3221R

### Reducing Coupling



For Listings/Approval Details and Limitations, visit our website at [www.anvilintl.com](http://www.anvilintl.com) or contact an Anvil® Sales Representative.

FIGURE 3221R - REDUCING COUPLING			
Nominal Size	Maximum Working Pressure▲	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1 x 1/2 25 x 15	500 3450	1.69 42.92	0.39 0.18
1 x 3/4 25 x 20	500 3450	1.69 42.92	0.53 0.24

▲ - Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit [anvilintl.com](http://anvilintl.com) or contact your local Anvil Representative.

### MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

**NOTICE:** Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

PROJECT INFORMATION		APPROVAL STAMP	
Project:		<input type="checkbox"/> Approved	
Address:		<input type="checkbox"/> Approved as noted	
Contractor:		<input type="checkbox"/> Not approved	
Engineer:		Remarks:	
Submittal Date:			
Notes 1:			
Notes 2:			

# **SECTION II**

## **HANGERS AND BRACING**

# Threaded Accessories

## B3205 - Threaded Rod (right-hand threads - both ends)

### B3205L - Threaded Rod (right & left hand threads)

**Size Range:** 3/8"-16 thru 7/8"-9 rod

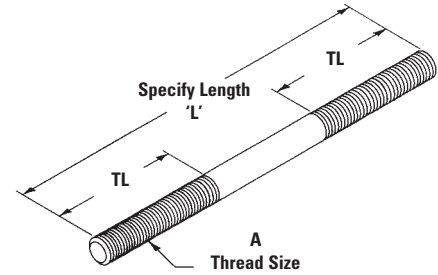
**Material:** Steel

**Function:** Recommended for use as a hanger support in hanger assemblies. Rod is threaded on both ends with right hand threads of the length shown. Also available with left and right hand threads - specify Fig. B3205L when ordering.

**Maximum Temperature:** 750°F (399°C)

**Finish:** Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

**Order By:** Figure number, rod size, length and finish



Part No.	Thread Size A	Standard		Design Load			
		Thread Length	TL	650°F (343°C)		750°F (399°C)	
		in.	(mm)	Lbs.	(kN)	Lbs.	(kN)
B3205-3/8 x 'L'	3/8"-16	2 1/2"	(63.5)	730	(3.25)	572	(2.54)
B3205-1/2 x 'L'	1/2"-13	2 1/2"	(63.5)	1350	(6.00)	1057	(4.70)
B3205-5/8 x 'L'	5/8"-11	2 1/2"	(63.5)	2160	(9.61)	1692	(7.52)
B3205-3/4 x 'L'	3/4"-10	3"	(76.2)	3230	(14.37)	2530	(11.25)
B3205-7/8 x 'L'	7/8"-9	3 1/2"	(88.9)	4480	(19.93)	3508	(15.60)

For larger sizes consult full line pipe hanger catalog.

## ATR - All Threaded Rod - 120" (3.05m) Lengths

### TOLCO™ Fig. 99 - All Threaded Rod Cut To Length

**Size Range:** 1/4"-20 thru 7/8"-9 rod in 120" lengths or cut to length

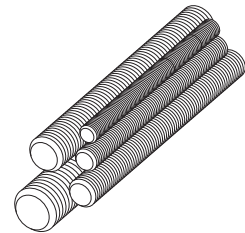
**Material:** Steel

**Maximum Temperature:** 750°F (399°C)

**Finish:** Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

**Approvals:** Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13.

**Order By:** Figure number, rod size, length and finish



OPM



Part No. - Size x Length		Threads Per Inch	Recommended Load		Approx. Wt./100 Ft.	
ATR	Fig. 99		Lbs.	(kN)	Lbs.	(kg)
ATR 1/4" x 120	99-1/4" x length	20	240	(1.07)	12	(5.44)
ATR 3/8" x 120	99-3/8" x length	16	730	(3.24)	29	(13.15)
ATR 1/2" x 120	99-1/2" x length	13	1350	(6.00)	53	(24.04)
ATR 5/8" x 120	99-5/8" x length	11	2160	(9.60)	89	(40.37)
ATR 3/4" x 120	99-3/4" x length	10	3230	(14.37)	123	(55.79)
ATR 7/8" x 120	99-7/8" x length	9	4480	(19.93)	170	(77.11)

For larger sizes consult full line pipe hanger catalog.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

# SAMMYS® FOR CONCRETE

## SAMMYS® FOR CONCRETE - Vertical Application



Application	Product Features
	<ul style="list-style-type: none"> <li>• Easy two step process (Drill hole &amp; drive Sammys concrete anchor).</li> <li>• 1/4" pre-drilled pilot hole required.</li> <li>• Concrete Installation Tool available for a one tool installation process.</li> <li>• Made in the U.S.A.</li> </ul>

Watch a video demonstration at [www.itwbuildex.com](http://www.itwbuildex.com)

#14 Black Nut Driver Part # 8113910  
#14SW Red Nut Driver Part # 8114910

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)*	FM Test Load (lbs)	Box Qty	Case Qty
<b>VERTICAL MOUNT</b>								
	1/4"	8058957	CST 200	5/16 x 1-3/4"	2400		25	125
	3/8"	8059957	CST 20	5/16 x 1-3/4"	2400	1475	25	125
	3/8"	8145925	CST 20-SS	5/16 x 1-3/4"	2400		25	125
	1/2"	8060925	CST 2	5/16 x 1-3/4"	2400		25	125

\* Tested in 3000 PSI concrete

## SIDEWINDER® FOR CONCRETE - Horizontal Application



Application	Product Features
	<ul style="list-style-type: none"> <li>• Easy two step process (Drill hole &amp; drive Sammys concrete anchor).</li> <li>• 1/4" pre-drilled pilot hole required.</li> <li>• Concrete Installation Tool available for a one tool installation process.</li> <li>• Made in the U.S.A.</li> </ul>

Watch a video demonstration at [www.itwbuildex.com](http://www.itwbuildex.com)

#14SW Red Nut Driver Part # 8114910

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)*	FM Test Load (lbs)	Box Qty	Case Qty
<b>HORIZONTAL MOUNT</b>								
	1/4"	8062957	SWC 200	5/16 x 1-3/4"	2450		25	125
	3/8"	8061957	SWC 20	5/16 x 1-3/4"	2450	1475	25	125

\* Tested in 3000 PSI concrete



**SPECIAL NUT DRIVER SYSTEM:** The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.

## Fig. 200 - "Trimline" Adjustable Band Hanger Fig. 200R (Import) - "Trimline" Adjustable Band Hanger w/Retainer Ring



**Size Range** — 1/2" thru 8" pipe

**Material** — Carbon Steel, Mil. Galvanized to G90 specifications

**Function** — For fire sprinkler and other general piping purposes. Knurled swivel nut design permits hanger adjustment after installation.

**Features** —

- (1/2" thru 2") Flared edges ease installation for all pipe types and protect CPVC plastic pipe from abrasion. Captured design keeps adjusting nut from separating with hanger. Hanger is easily installed around pipe.
- (2½" thru 8") Spring tension on nut holds it securely in hanger before installation. Adjusting nut is easily removed.

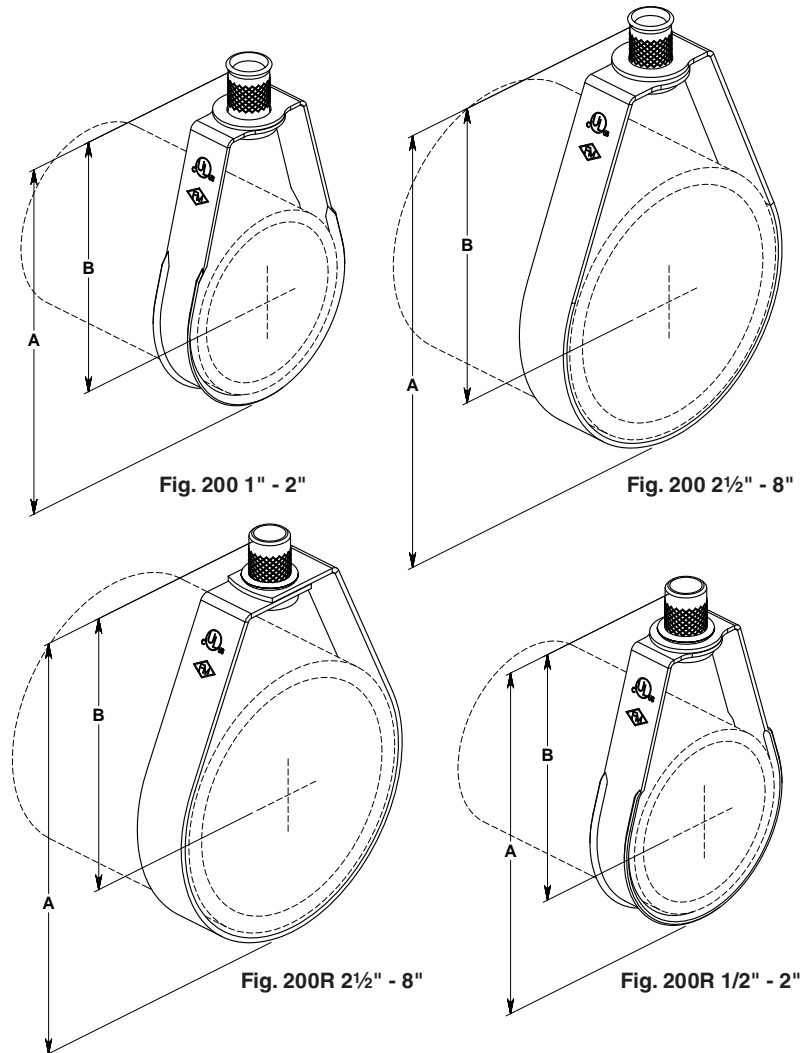
**Approvals** — Underwriters' Laboratories listed (1/2" thru 8") in the USA (**UL**) and Canada (**cUL**) for steel and CPVC plastic pipe and Factory Mutual Engineering Approved (¾" thru 8"). Conforms to Federal Specifications WW-H-171E, Type 10 and Manufacturers Standardization Society SP-69, Type 10.

**Maximum Temperature** — 650°F

**Finish** — Mil. Galvanized. Stainless Steel materials will be supplied with (2) hex nuts in place of a knurled nut.

**Order By** — Figure number and pipe size

**Note** — Figure 200R (import) with retainer ring and non-captured knurled nut.



Dimensions • Weights						
Pipe Size	Rod Size		A	B	Max. Rec. Load Lbs.	Approx. Wt./100
	Inch	Metric				
1/2	3/8	8mm or 10mm	3½	2½	400	11
3/4	3/8	8mm or 10mm	3½	2½	400	11
<b>1</b>	<b>3/8</b>	<b>8mm or 10mm</b>	<b>3¾</b>	<b>2¾</b>	<b>400</b>	<b>12</b>
1¼	3/8	8mm or 10mm	3¾	2¾	400	13
1½	3/8	8mm or 10mm	3¾	2¾	400	14
2	3/8	8mm or 10mm	4½	3	400	15
2½	3/8	10mm	5½	4½	600	27
3	3/8	10mm	5¾	4	600	29
3½	3/8	10mm	7¾	5¼	600	34
4	3/8	10mm	7¾	5	1000	35
5	1/2	12mm	9½	6¼	1250	66
6	1/2	12mm	10½	6¾	1250	73
8	1/2	12mm	13½	8¾	1250	136

## Fig. 25 - Surge Restrainer



**Size Range** — One size fits 3/4" thru 2" pipe.

**Material** — Pre-Galvanized Steel

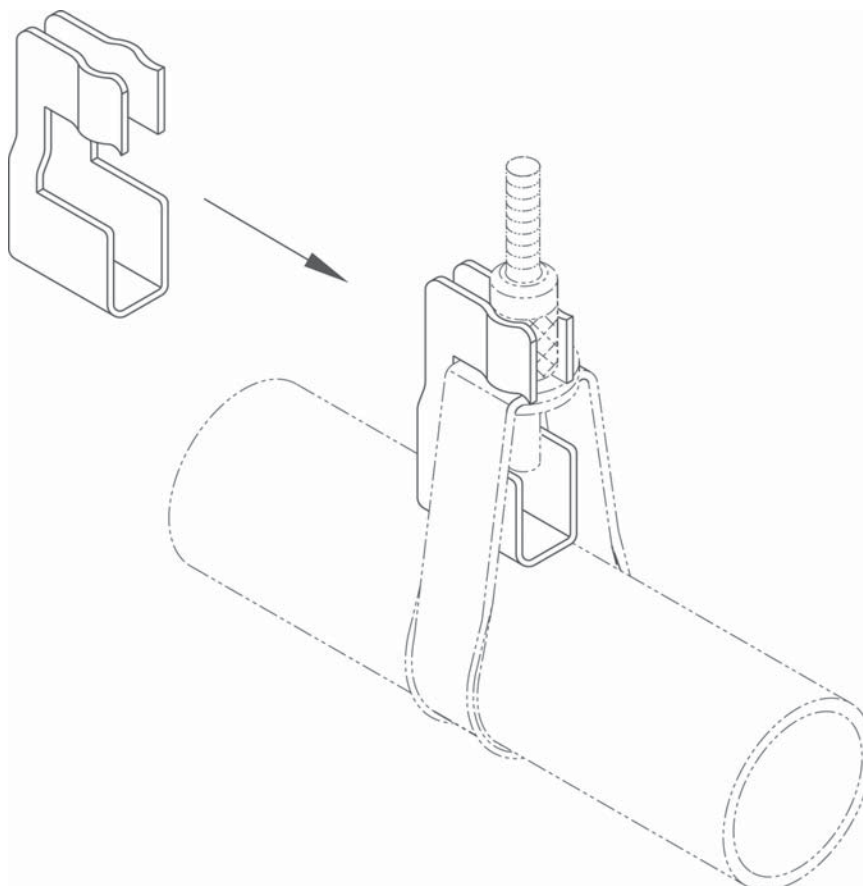
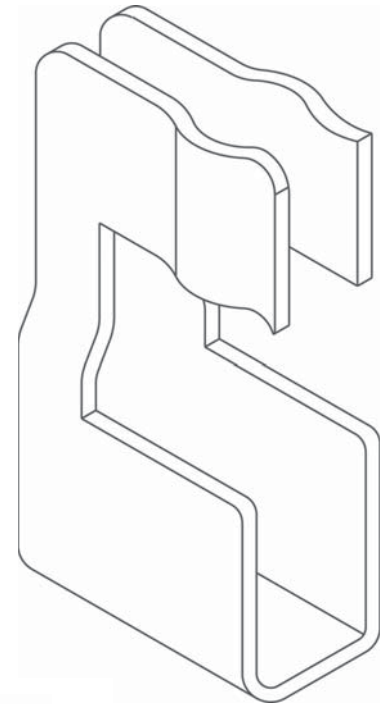
**Function** — Designed to be used in conjunction with TOLCO® Band Hangers to restrict the upward movement of piping as it occurs during sprinkler head activation or earthquake type activity. The surge restrainer is easily and efficiently installed by snapping into a locking position on the band hanger. This product is intended to satisfy the requirements as indicated in the National Fire Protection Association NFPA 13, 2010 edition, 9.2.3.4.4.1 and 9.2.3.4.4.4 Can be used to restrain either steel pipe or CPVC plastic Pipe.

**Approvals** — Underwriters' Laboratories Listed **only** when used with TOLCO band hangers Fig. 2, 2NFPA and 200, in the USA (**UL**) and Canada (**cUL**).

**Finish** — Pre-Galvanized

**Order By** — Figure number and TOLCO band hanger, size from 3/4" thru 2".

Patent #5,344,108



**SECTION III**  
**SPRINKLERS AND ACCESSORIES**

# Reliable®

## Model F1FR Series Quick Response Glass Bulb Sprinklers

### 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 Low Lead Sprinkler Types

Standard Spray Pendent with less than 0.25% Lead Content

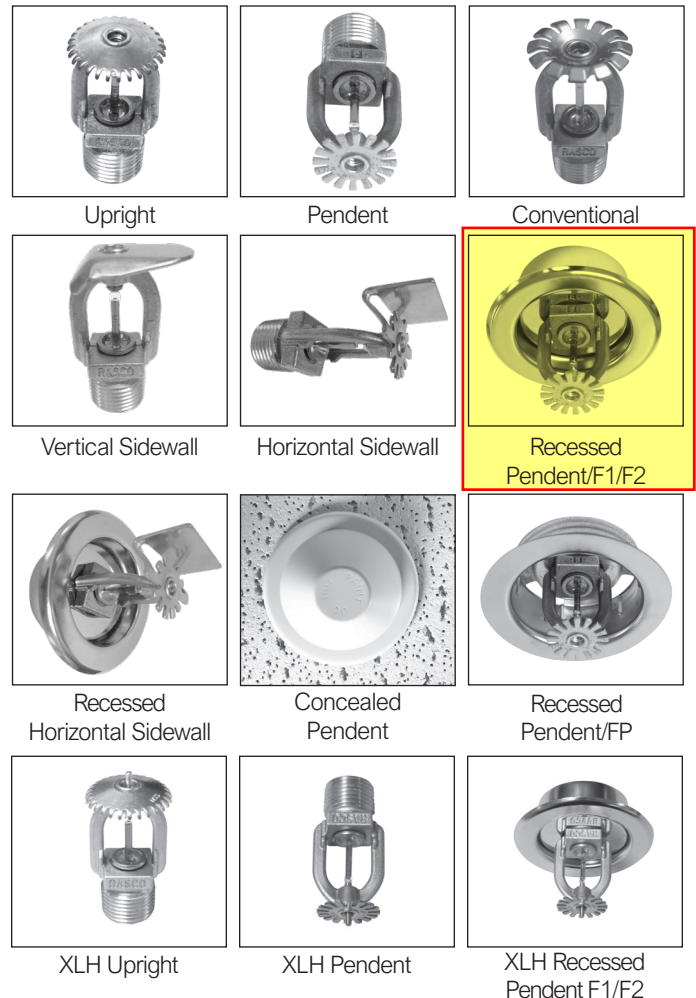
### Listing & Approvals

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) in accordance with ANSI/UL199.
2. FM Approvals (FM)
3. Loss Prevention Certification Board (LPCB)
4. VdS Schadenverhütung GmbH (VdS)
5. Underwriters Laboratories Inc. and Underwriters Laboratories of Canada Certified for Health Effects to NSF/ANSI Standard 61 Annex G (ULH)
6. EC Certificate: 0786-CPD-40239 (RA1414), 0786-CPD-40251 (RA1425), 0786-CPD-40252 (RA1475) (EC)
7. WaterMark certified. Certificate Number 23347. (WM)

### UL Listing Category

Sprinklers, Automatic & Open (VNIV)  
Quick Response Sprinkler



### 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.



XLH Recessed Pendent FP



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 W4 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 may 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	W2	RA1411	cULus	2
					Recessed Pendent	2.25	57	W4	RA1411	cULus	2
					Upright	2.25	57	W2	RA1421	cULus	1,2
F1FR40	4.0	57	3/8	10	Pendent	2.25	57	W2	RA1418	VdS	
					Recessed Pendent	2.25	57	W4	RA1418	VdS	
F1FR42	4.2	60	7/16	10	Pendent	2.25	57	W2	RA1413	cULus	2
					Recessed Pendent	2.25	57	W4	RA1413	cULus	2
					Upright	2.25	57	W2	RA1423	cULus	1,2
F1FR42LL	4.2	60	7/16	10	Pendent	2.25	57	W2	RA1410	cULus, ULH	
					Recessed Pendent	2.25	57	W4	RA1410	cULus, ULH	
F1FRXLH (F1FR42 with Pintle)	4.2	60	7/16	10	Pendent	2.25	57	W2	RA1413	cULus	2
					Recessed Pendent	2.25	57	W4	RA1413	cULus	2
					Upright	2.25	57	W2	RA1423	cULus	1,2
F1FR56	5.6	80	1/2	15	Pendent	2.25	57	W2	RA1414	cULus, FM, LPCB, VdS, EC, WM	1,2,3,4
					Recessed Pendent	2.25	57	W4	RA1414	cULus, FM, LPCB, VdS, EC, WM	1,2,3,4
					Concealed Pendent	2.25	57	W4	RA1414	cULus, VdS, EC, WM	5,6
					Upright	2.25	57	W2	RA1425	cULus, FM, LPCB, VdS, EC, WM	1,2,3,4
					"Conventional (Pendent or Upright)"	2.25	57	W2	RA1475	LPCB, VdS, EC, WM	4
F1FR56LL	5.6	80	1/2	15	Pendent	2.25	57	W2	RA1415	cULus, ULH	1
					Recessed Pendent	2.25	57	W4	RA1415	cULus, ULH	
					Concealed Pendent	2.25	57	W4	RA1415	cULus, ULH	6
F1FR56	5.6	80	1/2	15	Horizontal Sidewall	2.63	67	W2	RA1435	cULus, FM	1,2,3,7
					Recessed Horizontal Sidewall	2.63	67	W4	RA1435	cULus, FM	8
F1FR56	5.6	80	1/2	15	Vertical Sidewall (Pendent or Upright)	2.25	57	W2	RA1485	cULus, FM, LPCB	1,2,3,9

<sup>(1)</sup> cULus Listed Corrosion Resistant sprinkler when ordered with available Polyester coating.

<sup>(2)</sup> cULus Listed Corrosion Resistant sprinkler when ordered with available Electroless Nickel PTFE plating.

<sup>(3)</sup> Available with FM approved Polyester coating in black or white.

<sup>(4)</sup> Available with LPCB and VdS approved Polyester coating.

<sup>(5)</sup> 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.

<sup>(6)</sup> 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.

<sup>(7)</sup> cULus Listing of the F1FR56 Horizontal Sidewall sprinkler is for Light and Ordinary Hazard occupancies only. Minimum to maximum deflector to ceiling distance shall be 4 inches to 12 inches (102mm to 305mm). FM Approval of the F1FR56 Horizontal Sidewall sprinkler is for Light Hazard occupancies only.

<sup>(8)</sup> cULus Listing and FM Approval of the F1FR56 Recessed Horizontal Sidewall sprinkler is for Light Hazard occupancies only.

<sup>(9)</sup> The F1FR56 Vertical Sidewall sprinkler is listed and approved for use only in Light Hazard occupancies. 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, ULH		
	Recessed Pendent				cULus, ULH		
F1FRXLH	Pendent	cULus					
	Recessed Pendent	cULus					
	Upright	cULus					
F1FR56	Pendent	cULus, FM, LPCB, VdS, EC, WM					
	Recessed Pendent	cULus, FM, LPCB, VdS, EC, WM					
	Concealed Pendent*	cULus, WM	cULus, VdS, EC, WM	cULus, WM			
	Upright	cULus, FM, LPCB, VdS, EC, WM					
	“Conventional (Pendent or Upright)”	LPCB, VdS, EC, WM					
F1FR56LL	Pendent				cULus, ULH		
	Recessed Pendent				cULus, ULH		
	Concealed Pendent*				cULus, ULH		
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, ULH	cULus, ULH	cULus, ULH	RA1410
F1FR42XLH	Recessed Pendent	cULus	cULus	cULus	RA1413
F1FR56	Recessed Pendent	cULus, LPCB, VdS, EC, WM	cULus, FM, LPCB, VdS, EC, WM	cULus, VdS, EC, WM	RA1414
F1FR56LL	Recessed Pendent	cULus, ULH	cULus, ULH	cULus, ULH	RA1415
F1FR56	Recessed Horizontal Sidewall	cULus	cULus, FM	cULus	RA1435

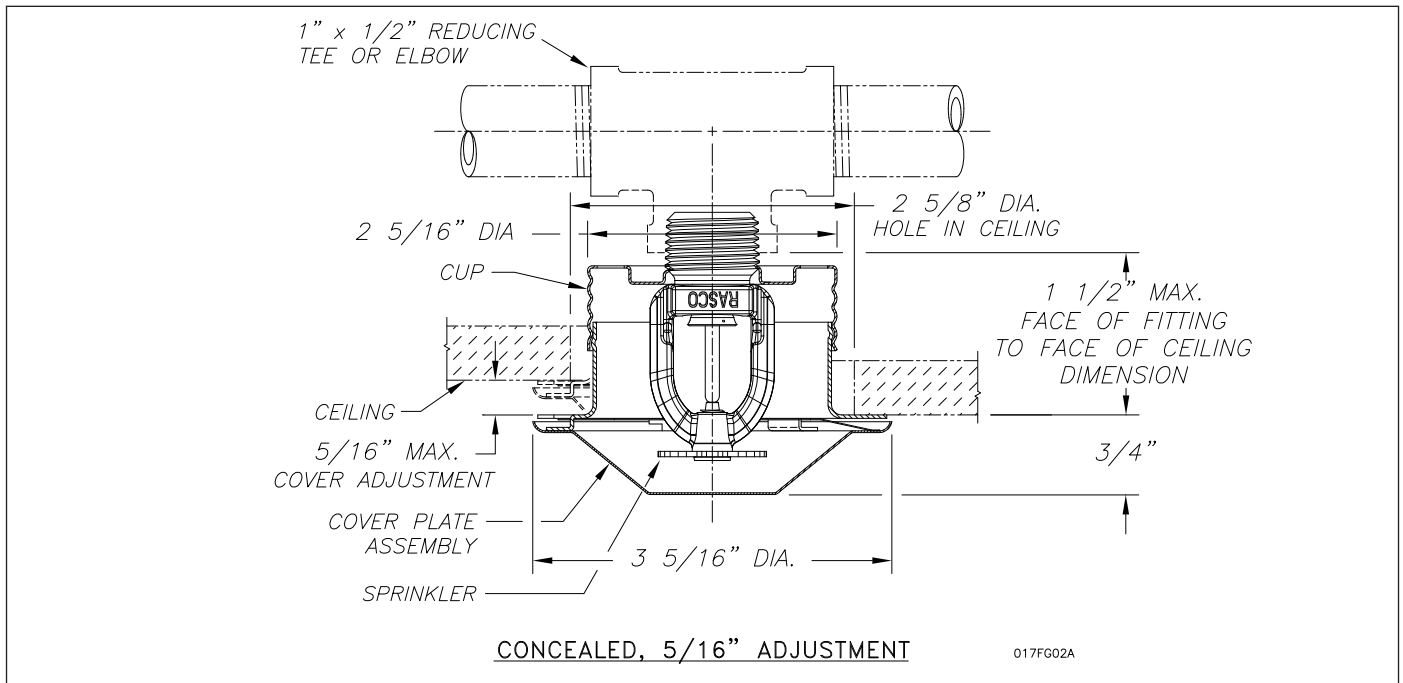


Fig. 5 - Model F1FR56/F1FR56LL Concealed Pendent sprinkler with low profile 5/16-inch (8.0mm) adjustment - Model CCP cover plate

## 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 <sup>(1)</sup> <sup>(2)</sup>

Standard Finishes		
Sprinkler	Escutcheon	Cover plate
Bronze	Brass	Chrome
Chrome	Chrome	White
White Polyester <sup>(3)(6)(7)</sup>	White	
Special Application Finishes		
Sprinkler	Escutcheon	Cover plate
Electroless Nickel PTFE <sup>(3)(4)</sup>	Electroless Nickel PTFE	Bright Brass
Black Polyester <sup>(3)(6)(7)</sup>	Bright Brass	Black
Bright Brass <sup>(5)</sup>	Black	Off White
Off White <sup>(6)(7)</sup>	Off White	Satin Chrome
Satin Chrome	Satin Chrome	

<sup>(1)</sup> Other finishes and colors may be available on special order. Consult the factory for details.

<sup>(2)</sup> Paint or any other coating applied over the factory finish will void all approvals and warranties.

<sup>(3)</sup> cULus Listed as Corrosion Resistant.

<sup>(4)</sup> FM Approved as Corrosion Resistant for SIN RA1414, RA1425, RA1435, and RA1485.

<sup>(5)</sup> 200°F (93°C) maximum temperature rated sprinkler only.

<sup>(6)</sup> VdS Approved for RA1425, RA1414, RA1418, and RA1475.

<sup>(7)</sup> LPCB Approved for RA1425, RA1414, and RA1475.

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

## Ordering Information

### Specify:

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

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

# Reliable®

## Model F3QR56 Dry K5.6 (80 metric) Quick-Response, Standard Spray Sprinklers

Bulletin 157 March 2022

### Features

- Available in the following configurations:
  - Pendent with standard escutcheon
  - Pendent with Model HB extended escutcheon
  - Pendent with Model FP recessed escutcheon
  - Pendent with Model F1 recessed escutcheon
  - Concealed Pendent with Model CCP cover plate
  - Horizontal Sidewall with Standard escutcheon
  - Horizontal Sidewall with Model HB extended escutcheon
  - Horizontal Sidewall with Model FP recessed escutcheon (FM Standard Response)
  - Horizontal Sidewall with Model F1 recessed escutcheon (FM Standard Response)
  - Upright
- Available with 1" NPT, ISO7-1R1, 3/4" NPT, or ISO7-1R3/4 inlet fitting.
- 3/4" NPT inlet fittings permit replacement of older 3/4" inlet dry sprinklers without changing to a larger sprinkler fitting.
- Sprinklers, escutcheons, and cover plates are available in a wide variety of standard and special application finishes.
- White polyester, black polyester, and Electroless Nickel PTFE (ENT) finish sprinklers are cULus Listed as Corrosion Resistant.
- Available with cULus Listed 250 psi (17.2 bar) pressure rating for Dry Pendent and select HSW configurations. FM Approved for 175 psi (12 bar).

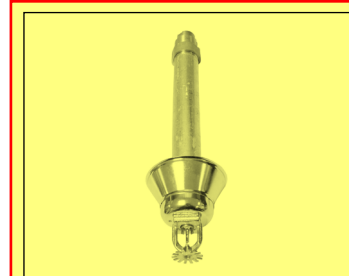
### Product Description

Model F3QR56 Dry sprinklers are quick-response, standard coverage sprinklers with a nominal K-Factor of 5.6 (80 metric). Available in Dry Pendent, Dry Horizontal Sidewall, and Dry Upright configurations, Model F3QR56 Dry sprinklers all use a 3 mm glass bulb operating element. See the Temperature Ratings table in this Bulletin for available temperature ratings. Model F3QR56 Dry sprinklers are intended for installation on wet-pipe, dry-pipe, or preaction sprinkler systems in accordance with NFPA 13, FM Property Loss Prevention Data Sheets, and other applicable installation standards.

Model F3QR56 Dry Pendent and Sidewall sprinklers are available with a variety of escutcheon options as illustrated in Figs. 1 through 3 and Figs. 5 through 9. In addition, Model F3QR56 Dry Pendent sprinklers are also available with the Model CCP conical concealed cover plate as illustrated in Fig. 4. Available sprinkler, escutcheon, and cover plate finishes are identified in the Finishes table in this Bulletin. The Model F1 escutcheon, Model FP escutcheon, and Model CCP cover plate are the only recessed escutcheons and cover plate listed for use with Model F3QR56 Dry sprinklers; the use of any other recessed escutcheon or cover plate with Model F3QR56 Dry sprinklers will void all guarantees, warranties, listings and approvals.



Pendent  
(See Fig. 1)



Pendent / HB  
(See Fig. 2)



Recessed FP Pendent  
(See Fig. 3)



Concealed  
(See Fig. 4)



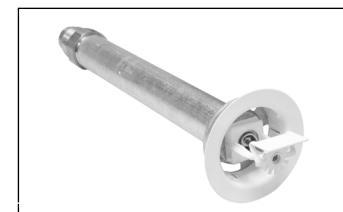
Recessed F1 Pendent  
(See Fig. 5)



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)



Upright  
(See Fig. 10)

Inlet fittings are available with 1" NPT, ISO 7-1R1, 3/4" NPT, or ISO7-1R3/4 threads. Sprinklers with 3/4" NPT and ISO7-1R3/4 inlet fittings are intended primarily for replacement of existing 3/4" or ISO7-1R3/4 inlet dry sprinklers, but may also be used in new installations.

See the Available Configurations, Listings, and Approvals table in this Bulletin for further information on Model F3QR56 Dry sprinklers.

### Available Configurations, Listings, and Approvals

Sprinkler Model	Escutcheon or Cover Plate	Available Length (See Figs. 1-9)	Listings and Approvals <sup>(1)</sup>	Inlet Threads	Sprinkler Identification Number (SIN)
F3QR56 Dry Pendent	Standard Escutcheon	2" to 36" (50 to 900 mm)	cULus, NYC	3/4" NPT or ISO7-1R3/4	R5714
	HB Extended Escutcheon	3-1/2" to 36" (90 to 900 mm)			
	F1 Recessed Escutcheon				
	FP Recessed Escutcheon				
	CCP Cover Plate				
	Standard Escutcheon	2" to 48" (50 to 1200 mm)	cULus, FM, NYC	1" NPT or ISO7-1R1	
	HB Extended Escutcheon	3-1/2" to 48" (90 to 1200 mm)			
	F1 Recessed Escutcheon				
	FP Recessed Escutcheon				
	CCP Cover Plate				
F3QR56 Dry Horizontal Sidewall	Standard Escutcheon	2" to 48" (50 to 1200 mm)	cULus <sup>(2)</sup> , NYC <sup>(2)</sup>	3/4" NPT or ISO7-1R3/4	R5734
	HB Extended Escutcheon	3-1/2" to 48" (90 to 1200 mm)			
	F1 Recessed Escutcheon				
	FP Recessed Escutcheon				
	Standard Escutcheon	2" to 48" (50 to 1200 mm)	cULus <sup>(2)</sup> , FM <sup>(3)</sup> , NYC <sup>(2)</sup>	1" NPT or ISO7-1R1	
	HB Extended Escutcheon	3-1/2" to 48" (90 to 1200 mm)			
	F1 Recessed Escutcheon	3-1/2" to 48" (90 to 1200 mm)	cULus <sup>(2)</sup> , FM <sup>(3)(4)</sup> , NYC <sup>(2)</sup>		
	FP Recessed Escutcheon				
F3QR56 Dry Upright	N/A	5" to 48" (127 to 1200 mm)	cULus <sup>(2)</sup>	1" NPT or ISO7-1R1	R5724

<sup>(1)</sup> For available temperature ratings and finishes see the Temperature Ratings and Finishes tables, respectively, in this Bulletin.

<sup>(2)</sup> cULus Listing and NYC for Light Hazard and Ordinary Hazard only.

<sup>(3)</sup> FM Approved for Light Hazard only.

<sup>(4)</sup> Model F3QR56 Dry Horizontal Sidewall with Model F1 or Model FP recessed escutcheon are FM Approved as Standard Response.

## Listing and Approval Agencies

See the Available Configurations, Listings, and Approvals table in this Bulletin for listings and approvals applicable to each available configuration.

1. Listed by Underwriters Laboratories, Inc. and UL Certified for Canada (cULus)
2. Certified by FM Approvals (FM)
3. Permitted in New York City based on UL Listing per Local Law 33/2007 (NYC)

## Technical Data

Nominal K-Factor: 5.6 gpm/psi<sup>1/2</sup> (80 L/min/bar<sup>1/2</sup>)

Sprinkler	Listing or Approval	Deflector to Ceiling Distance	Maximum Working Pressure
F3QR56 Dry Pendent	cULus, NYC	See note below	250 psi (17.2 bar)
	FM	See note below	175 psi (12 bar)
F3QR56 Dry Horizontal Sidewall	cULus, NYC	4" to 6 "	250 psi (17.2 bar)
		4" to 12"	175 psi (12 bar)
	FM	See note below	175 psi (12 bar)
F3QR56 Dry Upright	cULus	See note below	175 psi (12 bar)

**Note:** Deflector distance to be in accordance with applicable NFPA, FM, or other agency requirements. Information is provided only when additional clarification is necessary.

Temperature Classification	Glass Bulb Color	Sprinkler Temperature Rating	Cover Plate Temperature Rating	Maximum Ceiling Temperature	Listings and Approvals <sup>(1)</sup>
Ordinary	Orange	135°F (57°C)	135°F (57°C)	100°F (38°C)	cULus, FM, NYC
	Red	155°F (68°C)			
Intermediate	Yellow	175°F (79°C)	165°F (74°C)	150°F (66°C)	cULus, NYC
Intermediate	Green	200°F (93°C)	165°F (74°C)	150°F (66°C)	cULus, FM, NYC
High	Blue	286°F (141°C)	None	225°F (107°C)	cULus, FM <sup>(2)</sup> , NYC
			165°F (74°C)	150°F (66°C)	cULus, NYC

<sup>(1)</sup> For listed and approved sprinkler, escutcheon, and inlet configurations see the Available Configurations, Listings, and Approvals table in this Bulletin.

<sup>(2)</sup> High temperature classification is FM Approved with Standard and Model HB escutcheons only.

## Finish Notes

1. Finishes vary with type of trim selected. See table provided with each sprinkler detail for finish combinations.
2. Paint or any other coating applied over the factory finish will void all approvals and warranties.
3. Other finishes and colors may be available on special order. Consult your Reliable sales representative for details.
4. For Standard, Model HB, and Model F1 trims, both components of escutcheon are finished.
5. For Model FP and CCP trims, only the trim ring and cover plate are finished. The threaded sprinkler cup is unfinished.

# Model F3QR56 Dry Pendent Sprinkler with Model HB Extended Escutcheon (SIN R5714)

<b>"A" Dim.</b>	3½" to 48" (89mm to 1219mm) in ¼" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in ¼" (6mm) increments for ¾" connections
-----------------	---

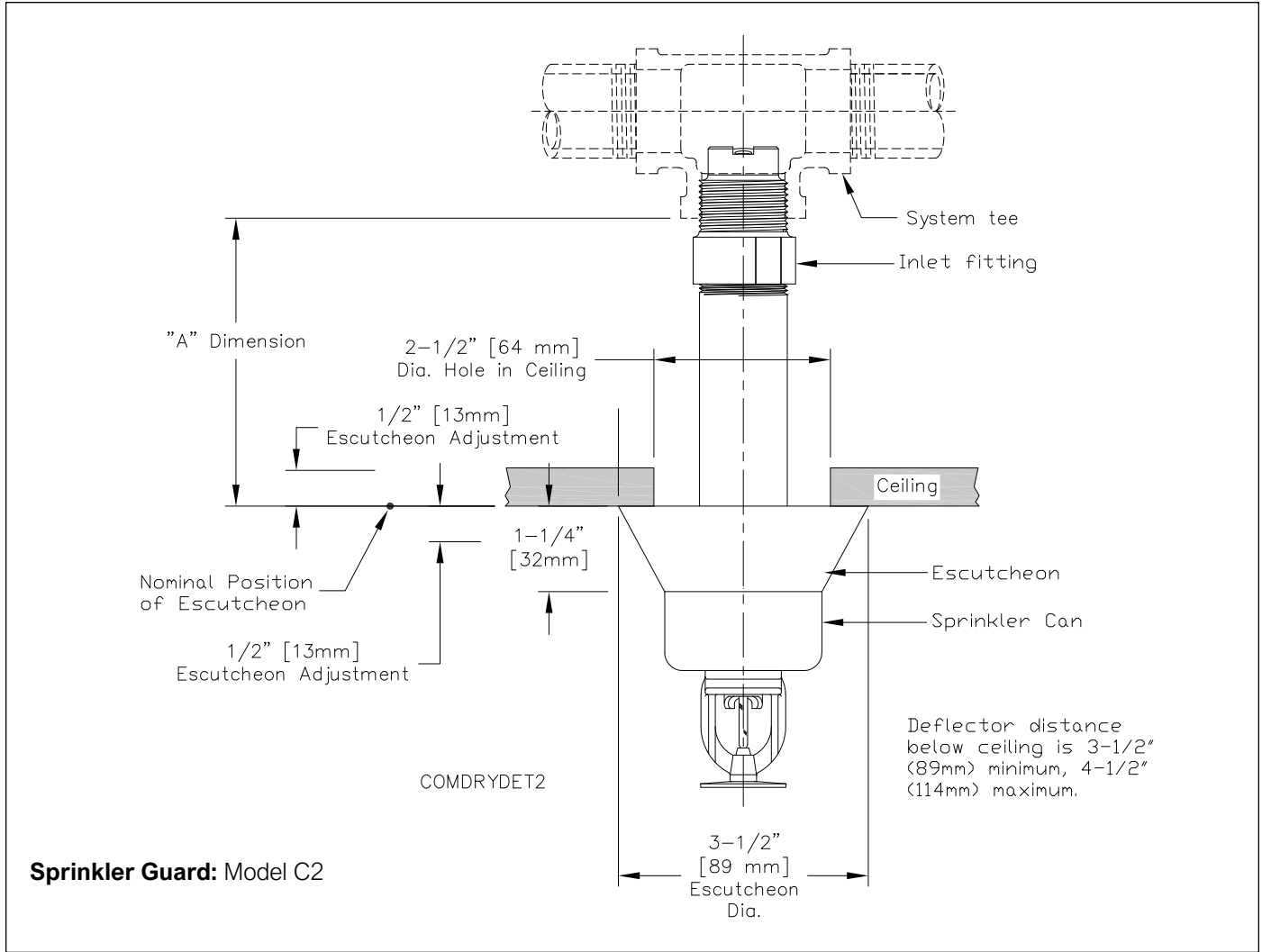


Fig. 2

**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.

Finish Combinations: HB Escutcheon	
Sprinkler	Escutcheon <sup>(2)(3)</sup>
Bronze	Chrome
Chrome	Chrome
White Polyester <sup>(1)</sup>	White Polyester
Black Polyester <sup>(1)</sup>	Black Polyester
Custom Color Polyester <sup>(1)</sup>	Custom Color Polyester
Electroless Nickel PTFE <sup>(1)(4)</sup>	Stainless Steel

**Notes:**

1. UL Listed as Corrosion Resistant.
2. Escutcheons do not carry corrosion resistant listings.
3. Base material is 316 stainless steel unless noted.
4. FM Approved as Corrosion Resistant.



MINIMUM EXPOSED BARREL LENGTH WHEN CONNECTED TO WET PIPE SPRINKLER SYSTEM

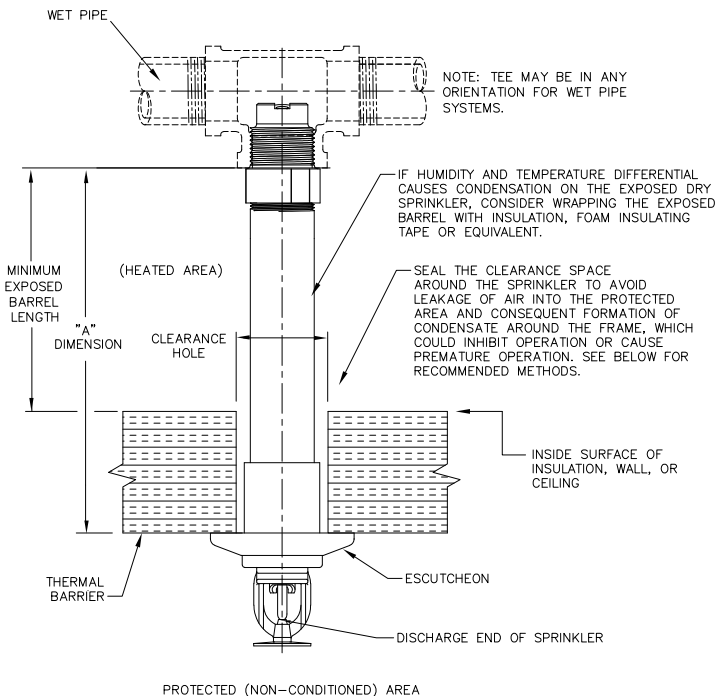
NOTE: STANDARD DRY PENDENT IS SHOWN, HOWEVER, MINIMUM EXPOSED BARREL LENGTH APPLIES TO ALL STYLES OF DRY SPRINKLERS CONNECTED TO A WET PIPE SYSTEM.

AMBIENT TEMPERATURE EXPOSED TO DISCHARGE END OF SPRINKLER*	EXPOSED BARREL AMBIENT TEMPERATURE		
	40°F/4°C	50°F/10°C	60°F/16°C
	EXPOSED MINIMUM BARREL LENGTH** (FACE OF FITTING 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 (100)	0	0
10°F (-12°C)	8 (200)	1 (25)	0
0°F (-18°C)	12 (300)	3 (75)	0
-10°F (-23°C)	14 (350)	4 (100)	1 (25)
-20°F (-29°C)	14 (350)	6 (150)	3 (75)
-30°F (-34°C)	16 (400)	8 (200)	4 (100)
-40°F (-40°C)	18 (450)	8 (200)	4 (100)
-50°F (-46°C)	20 (500)	10 (250)	6 (150)
-60°F (-51°C)	20 (500)	10 (250)	6 (150)

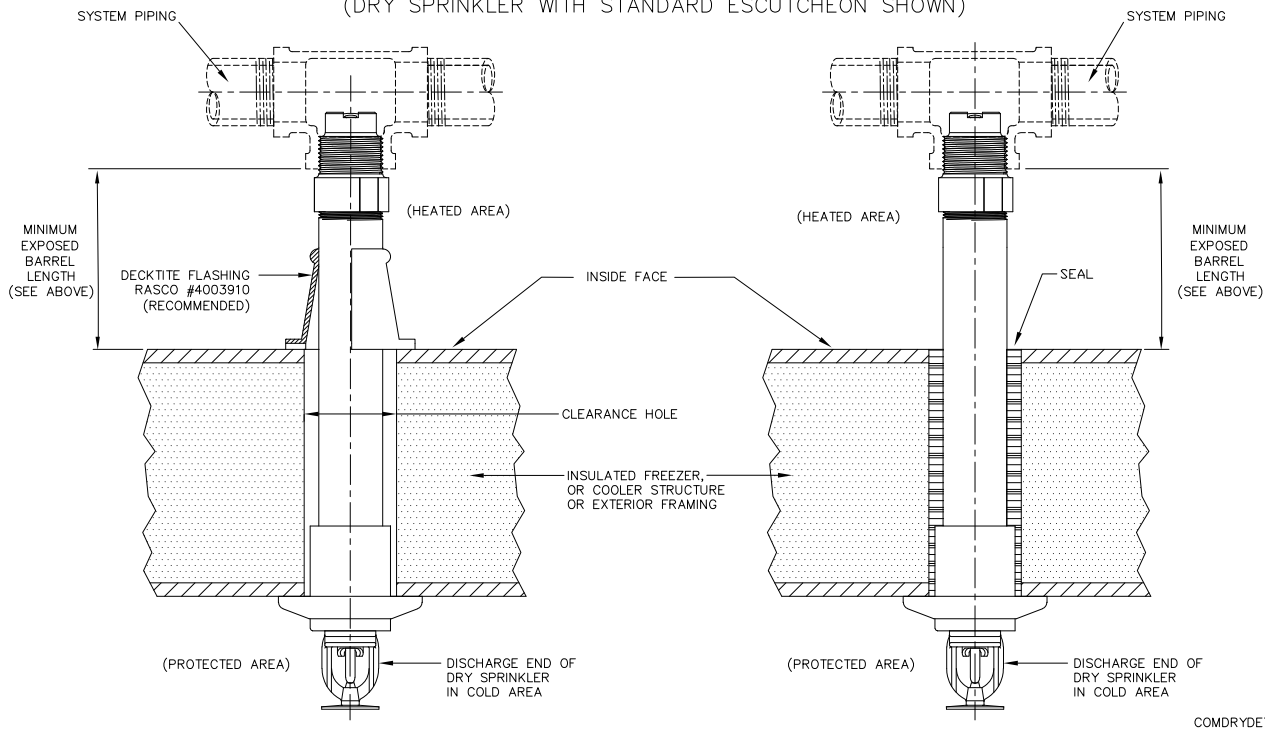
\* FOR AMBIENT TEMPERATURES EXPOSED TO THE DISCHARGE END OF THE SPRINKLER THAT OCCUR BETWEEN THE VALUES LISTED, USE THE NEXT COOLER TEMPERATURE.

\*\* THE MINIMUM EXPOSED BARREL LENGTH IS NOT THE SAME AS THE "A" DIMENSION. THE MINIMUM EXPOSED BARREL LENGTH IS BASED ON A PROPERLY SEALED PENETRATION WITH A MAXIMUM WIND VELOCITY ON THE EXPOSED SPRINKLER OF 30 MPH (48 KM/H). LONGER EXPOSED BARREL LENGTHS WILL HELP AVOID FREEZING OF THE WET PIPING WHERE HIGHER WIND VELOCITY IS EXPECTED.

\*\*\* THE MINIMUM EXPOSED BARREL LENGTH IS MEASURED FROM THE FACE OF THE FITTING TO THE INSIDE FACE OF THE INSULATION, WALL, OR CEILING LEADING TO THE COLD SPACE, WHICHEVER IS CLOSEST TO THE FITTING.



RECOMMENDED DRY SPRINKLER SEAL ARRANGEMENTS (DRY SPRINKLER WITH STANDARD ESCUTCHEON SHOWN)



COMDRYDET11

Fig. 11

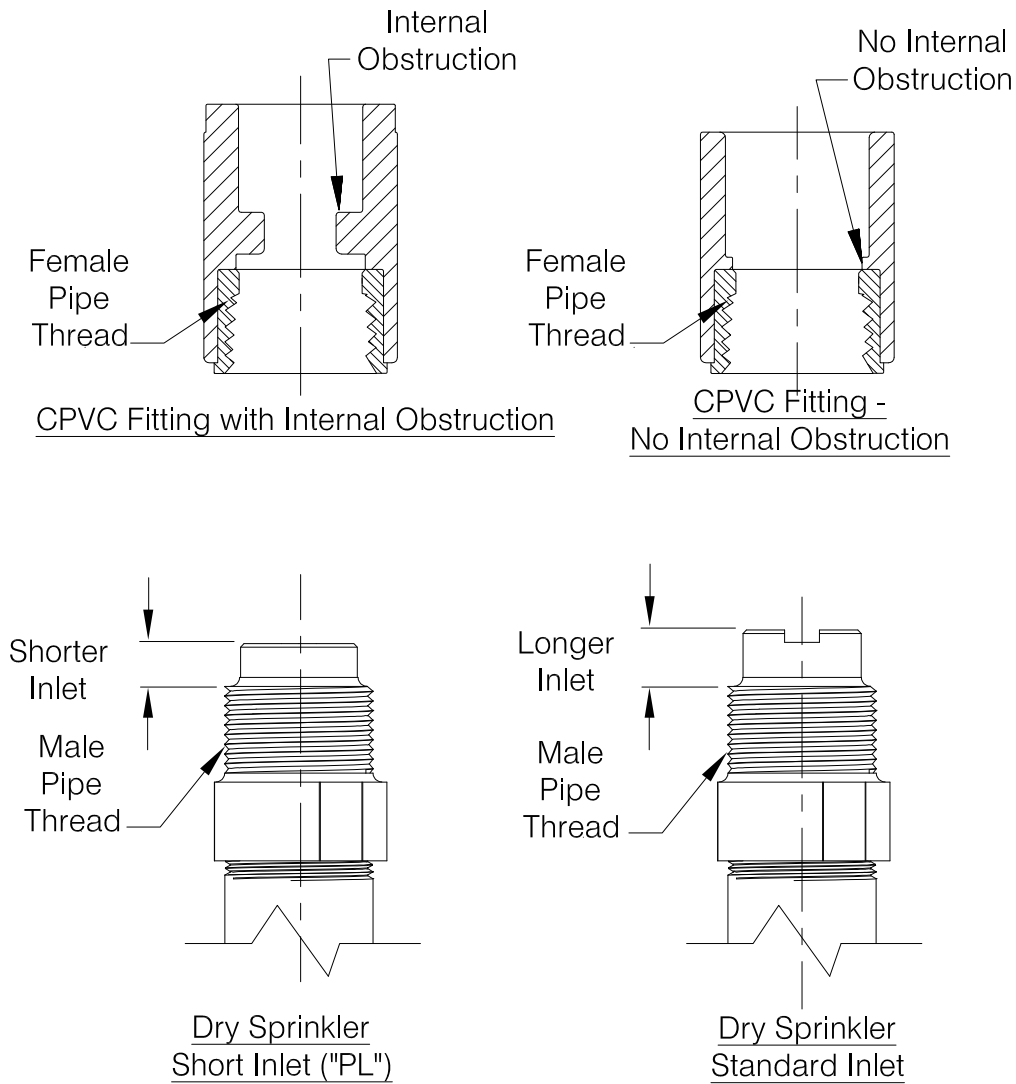
## **\*CAUTION\***

RELIABLE DRY SPRINKLERS MAY BE INSTALLED IN A LISTED CPVC SPRINKLER FITTING, ONLY UPON VERIFICATION THAT THE FITTING DOES NOT INTERFERE WITH THE SPRINKLER'S INLET.

Do not install dry sprinklers with standard inlets into CPVC fittings that have an internal obstruction; this will damage the sprinkler, the fitting, or both.

Short inlet ("PL") versions of Reliable dry sprinklers are available that may or may not be compatible with fittings having internal obstructions in existing installations. Sprinklers with the short inlet ("PL") should only be installed in CPVC fittings of wet-pipe systems.

In all cases, verify sprinkler and fitting dimensions prior to installation to avoid interference.

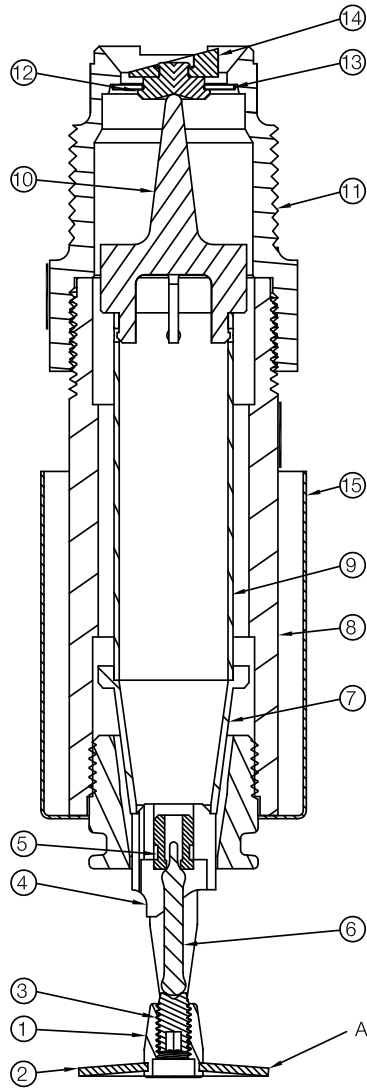


**BE SURE TO ORDER THE CORRECT SPRINKLERS FOR YOUR APPLICATION**

COMDRYDET2

Fig. 12

## MATERIAL SPECIFICATIONS



ITEM #	DESCRIPTION	MATERIAL SPECIFICATION
1	FRAME	BRASS PER UNS C83600
2	DEFLECTOR	BRONZE PER UNS C51000
3	LOAD SCREW	BRASS PER UNS C22000
4	SEAT ADAPTOR	BRASS ALLOY PER UNS C36000
5	BULB INSERT	COPPER ALLOY PER UNS C31400
6	GLASS BULB	GLASS W/GLYCERIN SOLUTION
7	ORIFICE ADAPTOR	BRASS ALLOY PER UNS C36000
8	OUTER TUBE	GALVANIZED STEEL
9	INNER TUBE	BRASS ALLOY PER UNS C23000
10	YOKE	BRASS ALLOY PER UNS C38000
11	INLET	BRASS ALLOY PER UNS C35330
12	CAP	BRASS ALLOY PER UNS C54400
13	SPRING WASHER/SEAL	PTFE COATED BERYLLIUM NICKEL
14	FLIP DISK	BRASS ALLOY PER UNS C54400
15	CAN/ESCUTCHEON	PAINTED OR PLATED MILD STEEL, EXCEPT FOR TYPE 316 STAINLESS STEEL FOR SPRINKLERS WITH ENT FINISH

(PIPE WRENCH MAY ONLY BE USED ON OUTER STEEL PIPE OF SPRINKLER)

COMDRYDET13

APPEARANCE OF DEFLECTOR MAY VARY DEPENDING ON MODEL

Fig. 15

## Installation Data

Sprinkler Model	Escutcheon or Cover Plate	Suggested Hole Diameter in Wall or Ceiling	Installation Wrench	Required Centerline of Sprinkler Tube/Inlet to Finished Ceiling Vertical Dimension*
<b>F3QR56 Dry Pendent</b>	Standard Escutcheon	2-1/8" (54 mm)	F3R	Not Applicable
	HB Extended Escutcheon	2-1/2" (64 mm)	F3R	
	F1 Recessed Escutcheon	2-1/4" (57 mm)	XLO2	
	FP Recessed Escutcheon	2-1/2" (64 mm)	XLO2	
	CCP Cover Plate		XLO2	
<b>F3QR56 Dry Horizontal Sidewall</b>	Standard Escutcheon	2-1/8" (54 mm)	F3R	4-5/8" to 12-5/8" (118 mm to 321 mm)
	HB Extended Escutcheon	2-1/2" (64 mm)	F3R	cULus, NYC 4-5/8" to 6-5/8" (118 mm to 168 mm)
	F1 Recessed Escutcheon	2-1/4" (57 mm)	XLO2	
	FP Recessed Escutcheon	2-1/2" (64 mm)	XLO2	FM 4-5/8" to 12-5/8" (118 mm to 321 mm)
	F1 Recessed Escutcheon	2-1/4" (57 mm)	XLO2	
	FP Recessed Escutcheon	2-1/2" (64 mm)	XLO2	
<b>F3QR56 Dry Upright</b>	N/A	1-1/2" (38mm)	F3R	Not Applicable

\*Note: Based on 5/8" (16 mm) centerline of sprinkler tube/inlet to deflector vertical distance.

## Maintenance

The Model F3QR56 Dry Sprinklers should be inspected 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. 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. 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.

## Ordering Information

Specify:

- Sprinkler: [Model F3QR56 Dry Pendent SIN R5714]  
[Model F3QR56 Dry Horizontal Sidewall SIN R5734]  
[Model F2QR Dry Upright SIN R5724]
- Escutcheon/Cover Plate: [None][Standard escutcheon]  
[Model HB extended escutcheon][Model F1 recessed escutcheon][Model FP recessed escutcheon][Model CCP cover plate – pendent only]
- Inlet Threads: [1" NPT][ISO7-1R1][3/4" NPT][ISO7-1R3/4]

- Inlet Fitting: [Long – Standard Inlet Fitting][Short "PL" – Wet Pipe Systems only]
- Sprinkler Temperature Rating: See Temperature Ratings Table
- Sprinkler Finish: See Finish Combinations Table
- Escutcheon/Cover Plate Finish: See Finish Combinations Table
- Length:

\*For dry pendants and dry sidewalls: "A" Dimension is from face of tee to face of finished ceiling or wall in 1/4" (6mm) increments. See Fig. 1 through Fig. 9.

\*For dry uprights: Order dimension is from face of tee to top of deflector in 1/4" (6mm) increments. See Fig. 10.

## Notes:

- For Dry Upright, customer is responsible for determining the correct deflector distance from structure above.
- Length is based on normally gauged pipe thread "make-up" of .600" (15mm) per ANSI B2.1 (approximately 7-1/2 threads).

## Installation Wrench

Model F3R Sprinkler Wrench (Standard and HB escutcheons)  
Model XLO2 Sprinkler Wrench (FP Recessed and CCP Concealed)

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.

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# Reliable®

## Escutcheons, Extender Rings, and Paint Caps

### Fire Sprinkler Escutcheons

Escutcheons enhance the appearance of fire sprinklers by covering exposed fittings that are visible beyond finished ceilings and walls. Furnished to accommodate male pipe threads, the escutcheon is held firmly in place by the sprinkler. The finishes provided are for decorative purposes and may weather or discolor when exposed to outdoor or corrosive conditions.

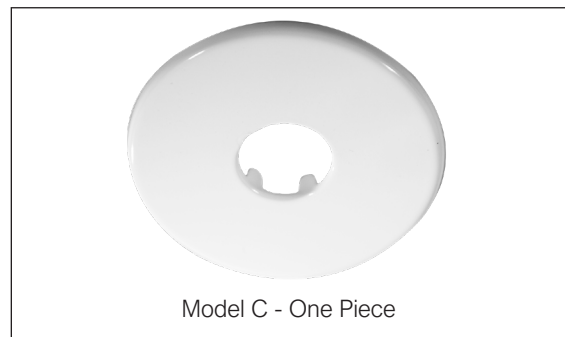
#### Model B - One Piece

Model B escutcheons are made of mild steel and are available in the finishes listed in Table B. The Model B is also available in stainless steel, with or without polyester coating.

- Diameter: 2-7/8" (73mm); Depth: 11/16" (17mm)
- Sprinkler Thread Size: 1/2" and 3/4"



Model B - One Piece



Model C - One Piece

#### Model C - One Piece

Model C escutcheons are made of mild steel and are available in the finishes listed in Table B.

- Diameter: 2-7/8" (73mm); Depth: 1/8" (3mm)
- Sprinkler Thread Size: 1/2"

#### Model HB - Two Piece

Model HB escutcheons are made of mild steel and are available in the finishes listed in Table B. Telescoping design permits up to 1" (25mm) vertical adjustment for variations in the distance that sprinklers extend below the ceiling.

- Diameter: 3-1/2" (89mm); Depth: 2" min. (51mm), 3" max. (76mm)
- Sprinkler Thread Size: 1/2" or 3/4"



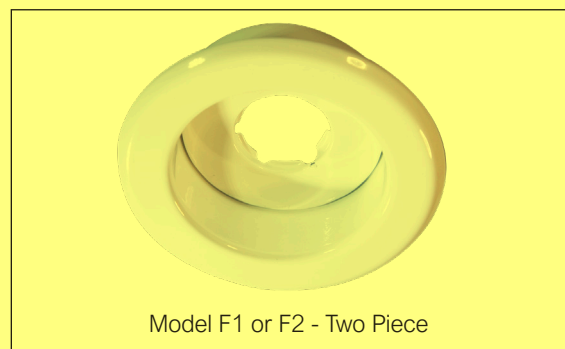
Model HB - Two Piece

#### Model F1 or F2 - Two piece

Model F1 and F2 escutcheons are made of mild steel and are available in the finishes listed in Table B. The Model F1 and F2 is also available in stainless steel, with or without polyester coating. Model F1 permits up to 3/4" (19mm) vertical adjustment and Model F2 permits up to 1/2" (12mm) vertical adjustment.

- Diameter: 2-7/8" (73mm); Depth: F1 1-1/8" (29mm), F2 7/8" (22mm)

Sprinkler Thread Size: 1/2" or 3/4"



Model F1 or F2 - Two Piece

## Paint Caps

Paint caps, generally made from plastic, are installed at the time of sprinkler rough-in and are intended to protect the sprinkler assembly during the ceiling painting process. These temporary caps should be removed as soon as possible following painting.

### Model F1

The Model F1 cap is made from translucent HDPE material and is designed to fit securely onto the inner collar of Model F1, F2, F1S, F2S, and FV escutcheons. The translucent material allows detection of water from a sprinkler or fitting leak that might develop during or after hydrostatic testing.



Escutcheon Finishes		Table B
Standard Finishes	Special Application Finishes	
White Polyester Chrome Plated	Bright Brass Black Paint Off White Satin Chrome	

**Note:** The Model FP escutcheon assembly consists of an unfinished galvanized cup with a finished escutcheon ring.

## Maintenance

Escutcheons for listed recessed sprinklers must remain in place, and shall be replaced if found missing. Non-listed metallic trim rings for exposed sprinklers are often required for fire separation purposes and should be replaced if found missing.

## Approvals

There are no listings or approvals required for non-recessed escutcheons such as the Model B and C one piece or the Model HB two piece escutcheon. These may be used with any exposed fire sprinkler installation made in accordance with NFPA 13 requirements. Escutcheons used with recessed sprinklers must be part of a listed sprinkler assembly. Refer to the appropriate technical bulletin of each sprinkler for this information.

## Ordering Information

### Specify:

- Model
- Material: Standard or Stainless Steel\*
- Thread Size
- Finish

\***Note:** Stainless steel available for Models B, F1, F2, and FP only.

# Reliable®

## Sprinkler Guards, Guards with Shields, and Water Shields

### Product Description

Sprinkler guards and water shields in this bulletin are independent components which are Listed or Approved with specific fire sprinklers. Sprinkler guards are designed to protect the sprinkler from damage due to incidental contact. Water shields are intended for use in racks or under grated walkways and prevent water from above from cooling and thereby delaying activation of the shielded sprinkler.

Refer to the guard selection table in this bulletin and sprinkler technical bulletins for listing and approval information regarding sprinkler and guard combinations.

**Note:** Guards, shields, and guard/shield combinations are NOT compatible with recessed sprinkler installations.

### Model C Guards and Guard/Shield Assemblies

#### Model C-1 Guard

This guard is used with pendent, upright, horizontal sidewall, and vertical sidewall sprinklers and does not incorporate a water shield.

#### Model C-2 Guard

This guard is used with non-recessed dry pendent sprinklers.

#### Model C-3 Guards

This guard has a built-in water shield. When assembled to an upright sprinkler, the combination forms an upright intermediate sprinkler with guard.

#### Model C-5 Guard/Shield Assembly

This assembly is a Model C-1 guard supplied with either an S-1 water shield threaded onto 1/2" sprinkler threads, or an S-2 water shield threaded onto 3/4" threads. The combination forms a pendent intermediate level sprinkler with guard.

### Model D Guards and Guard/Shield Assemblies

#### Model D-1 Guard

These guards are used with pendent, upright, and horizontal sidewall sprinklers and do not incorporate a water shield.

#### Model D-3, D-6, and D-7 Guards

These guards have a built-in water shield. When assembled to an upright sprinkler, the combination forms an upright intermediate sprinkler with guard.

#### Model D-4 and D-5 Guard/Shield Assembly

These assemblies are model D-1 guards supplied with either an S-1 water shield threaded onto 1/2" sprinkler threads, or an S-2 water shield threaded onto 3/4" threads. The combination forms a pendent intermediate level sprinkler with guard.

#### Model D-8 Guard

This guard is used with pendent and upright sprinklers and does not incorporate a water shield.



Example: Model D1 Sprinkler Guard

#### Model D-9 Guard/Shield Assembly

This assembly is a Model D-8 guard supplied with an S-2 water shield that is threaded onto 3/4" sprinkler threads. The combination forms a pendent intermediate level sprinkler with guard.

#### Model D-14 Guard

Model D-14 sprinkler guards are FM Approved for in-rack installation only. Each guard is supplied with a 1" locknut that must be threaded onto the sprinkler prior to sprinkler installation. Where permitted by Table A, the guards may also be used in combination with the S-5 water shield which replaces the locknut. The guard may be mounted to the sprinkler either prior to or following installation of the sprinkler into an outlet.

### Model S Water Shields

Model S Shields are threaded water shields designed to create a pendent intermediate level sprinkler when installed on an approved sprinkler. The water shields are UL listed and/or FM Approved with the sprinklers listed in Table A, Listed and Approved Sprinkler, Guard, and Water Shield Combinations.

#### Model S-1

Model S-1 (3-1/4" [83mm] diameter) water shields are threaded onto 1/2" sprinkler inlet threads prior to installation

#### Model S-2 and S-3

Model S-2 (3-1/4" [83mm] diameter) and S-3 (3-3/4" [95mm] diameter) water shields are threaded onto 3/4" sprinkler inlet threads prior to installation.

**Note:** Model S-3 water shields are intended and listed for use on Model JL14 and JL17 ESFR storage sprinklers.

#### Model S-5

Model S-5 (4-1/2" [114mm] diameter) water shields are threaded onto 1" sprinkler inlet threads prior to installation.

**Model 22 and 25 Sprinkler Guards**

Model 22 and 25 sprinkler guards are FM Approved for in-rack installation only. Each guard is supplied with a 1" locknut that must be threaded onto the sprinkler prior to sprinkler installation. Where permitted by Table A, the guards may also be used in combination with the S-5 water shield which replaces the locknut. The guard is assembled to the sprinkler following installation of the sprinkler.

**Model F Guards and Guards with Shields**

Model F guards and guards with shields are specifically designed for use with KFR sprinklers and various F1 and F1FR sprinklers being transitioned to KFR frames. These sprinklers are designated as "NEW" in Table A, "Listed and Approved Sprinkler, Guard, and Water Shield Combinations."

**Model F-1, F-2, F-4, and F-7**

These guards are used with pendent, upright, horizontal sidewall, and vertical sidewall sprinklers and do not incorporate a water shield.

**Model F-3 Guard**

This guard has a built-in water shield. When assembled to an upright sprinkler, the combination forms an upright intermediate sprinkler with guard.

**Model F-5 Guard/Shield Assembly**

This assembly is a Model F-1 guard supplied with an S-1 water shield that is threaded onto 1/2" sprinkler threads. The combination forms a pendent intermediate level sprinkler with guard.

**Model F-6 Guard/Shield Assembly**

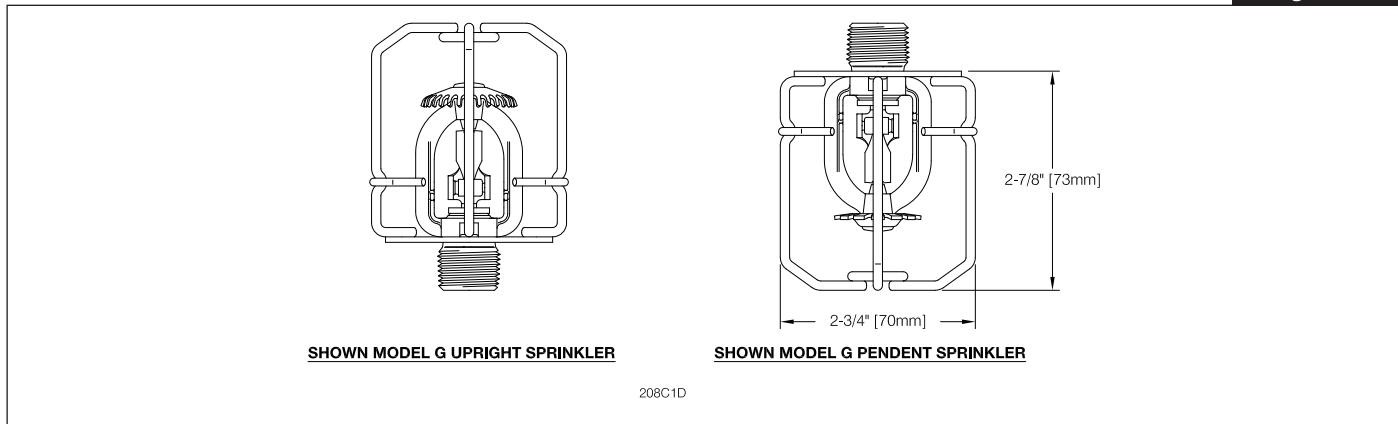
This assembly is a Model F-2 guard supplied with an S-2 water shield that is threaded onto 3/4" sprinkler threads. The combination forms a pendent intermediate level sprinkler with guard.

**Model F-8 Guard/Shield Assembly**

This assembly is a model F-7 guard supplied with either an S-1 water shield which is threaded onto 1/2" sprinkler threads, or an S-2 water shield threaded onto 3/4" threads. The combination forms a pendent intermediate level sprinkler with guard.

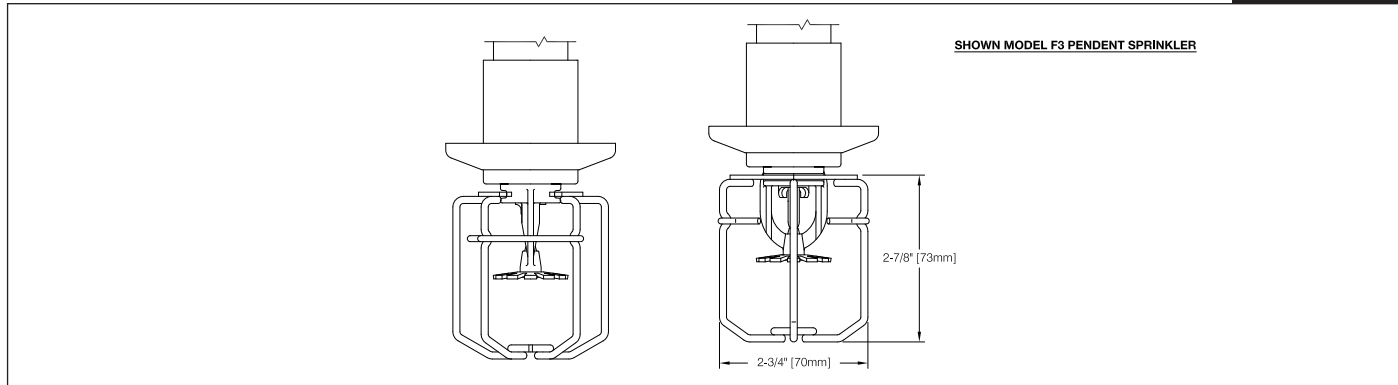
**Model C-1 Guards**

**Figure 1**



**Model C-2 Guards**

**Figure 2**





**Table A cont.**

Sprinkler Model <sup>(1)</sup>	Type <sup>(2)</sup>	Sprinkler Identification Number (SIN)	Nominal K-Factor gpm/psi <sup>1/2</sup> (L/min/bar <sup>1/2</sup> )	Sensitivity <sup>(3)</sup>	Threads NPT or ISO-7R	Approvals <sup>(4)</sup>	Guard, Guard and Shield, or Water Shield Model
F1FR56SS	Pendent	RA6514	5.6 (80)	QR	1/2	cULus	D-1 Guard D-5 Guard and Shield
						FM	C-1 Guard C-5 Guard and Shield D-1 Guard D-4 Guard and Shield D-5 Guard and Shield
	Upright	RA6524	5.6 (80)	QR	1/2	cULus	D-1 Guard C-3 Guard and Shield D-3 Guard and Shield
						FM	C-1 Guard C-3 Guard and Shield
F1FR80 NEW <sup>(8)</sup>	Pendent	RA6312	8.0 (115)	QR	3/4	cULus	F-7 Guard F-8 Guard and Shield S-2 Shield
						FM	F-2 Guard F-6 Guard and Shield S-2 Shield
	Upright	RA6322	8.0 (115)	QR	3/4	cULus	F-1 Guard F-3 Guard and Shield
						FM	F-2 Guard F-3 Guard and Shield
FUTURE							
F1FR80SS	Pendent	RA6412	8.0 (115)	QR	3/4	cULus	D-1 Guard D-5 Guard and Shield S-2 Shield
						FM	C-1 Guard C-5 Guard and Shield S-2 Shield
	Upright	RA6522	8.0 (115)	QR	3/4	cULus	C-1 Guard C-3 Guard and Shield
						FM	C-1 Guard
F3-56 Dry	Pendent	R5314	5.6 (80)	SR	1	cULus, FM	C-2 Guard <sup>(5)</sup>
	HSW	R5334	5.6 (80)	SR	1	FM	C-2 Guard <sup>(5)</sup>
F3QR56 Dry	Pendent	R5714	5.6 (80)	QR	1	cULus, FM	C-2 Guard <sup>(5)</sup>
	HSW	R5734	5.6 (80)	QR	1	FM	C-2 Guard <sup>(5)</sup>
G	HSW	R1231	2.8 (40)	SR	1/2	cULus	D-1 Guard
		R1233	4.2 (60)	SR	1/2	cULus	D-1 Guard
		R1235	5.6 (80)	SR	1/2	cULus FM	D-1 Guard C-1 Guard
		R1236	8.0 (115)	SR	1/2	cULus	D-1 Guard
		R1237	8.0 (115)	SR	3/4	cULus	D-1 Guard
	Pendent	R1011	2.8 (40)	SR	1/2	cULus FM	D-1 Guard C-1 Guard
		R1013	4.2 (60)	SR	1/2	cULus	D-1 Guard
		R1015	5.6 (80)	SR	1/2	cULus FM	D-1 Guard D-5 Guard and Shield S-1 Shield C-1 Guard
		R1016	8.0 (115)	SR	1/2	cULus	D-1 Guard D-5 Guard and Shield
						FM	C-1 Guard
		R1017	8.0 (115)	SR	3/4	cULus	D-1 Guard D-5 Guard and Shield S-2 Shield
						FM	C-1 Guard C-5 Guard and Shield S-2 Shield

**Note:** see table notes on page 13.

Sprinkler Model <sup>(1)</sup>	Type <sup>(2)</sup>	Sprinkler Identification Number (SIN)	Nominal K-Factor gpm/psi <sup>1/2</sup> (L/min/bar <sup>1/2</sup> )	Sensitivity <sup>(3)</sup>	Threads NPT or ISO-7R	Approvals <sup>(4)</sup>	Guard, Guard and Shield, or Water Shield Model
KFR56	Pendent	RA3614	5.6 (80)	QR	1/2	cULus	F-7 Guard F-8 Guard and Shield S-1 Shield
						FM	F-1 Guard F-5 Guard and Shield S-1 Shield
	Upright	RA3624	5.6 (80)	QR	1/2	cULus	F-1 Guard F-3 Guard and Shield
						FM	F-1 Guard F-3 Guard and Shield
	HSW	RA3634	5.6 (80)	QR	1/2	cULus	F-7 Guard
						FM	F-4 Guard
KFR56-300	Pendent	RA3914	5.6 (80)	QR	1/2	cULus	F-7 Guard F-8 Guard/Water Shield S-1 Water Shield
	Upright	RA3924					F-1 Guard F-3 Guard/Water Shield
	HSW	RA3934					F-7 Guard
KFR80	Pendent	RA5412	8.0 (115)	QR	3/4	cULus	F-7 Guard F-8 Guard and Shield S-2 Shield
						FM	F-2 Guard F-6 Guard and Shield S-2 Shield
	Upright	RA5422	8.0 (115)	QR	3/4	cULus	F-1 Guard F-3 Guard and Shield
						FM	F-2 Guard F-3 Guard and Shield
N25 Threaded	Pendent	RA0912	25.2 (360)	ESFR	1	FM	25 Guard <sup>(6)</sup> S-5 Shield <sup>(6)(7)</sup>
N252EC	Pendent	RA0842	25.2 (360)	QR	1	FM	25 Guard <sup>(6)</sup>
P22 Threaded	Pendent	R601	22.4 (320)	ESFR	1	FM	D-14 Guard <sup>(6)</sup> S-5 Shield <sup>(6)(7)</sup>
P25 Threaded	Pendent	R602	25.2(360)	ESFR	1	FM	D-14 Guard <sup>(6)</sup> S-5 Shield <sup>(6)(7)</sup>

**Notes:**

- <sup>(1)</sup> Sprinkler guards and water shields are listed and approved only for use with specific sprinklers. The use of any other guards or water shields on these sprinklers may impede their operation or distribution and negate all approvals and warranties.
- <sup>(2)</sup> HSW: Horizontal Sidewall; VSW: Vertical Sidewall
- <sup>(3)</sup> QR: Quick-response; SR: Standard-response; ESFR: Early Suppression Fast Response.
- <sup>(4)</sup> In addition, SSL Approval for C-1, C-2, and C-3 guards and water shields.
- <sup>(5)</sup> Model C-2 guards are listed and work only with standard and HB type escutcheons. Model C-2 guards cannot be used with FP or F1 recessed escutcheons
- <sup>(6)</sup> FM Approved for intermediate-level use only, such as in-rack, under conveyors, mezzanines, or other similar obstructions. Only for use with threaded sprinklers.
- <sup>(7)</sup> When used in combination with a guard, the S-5 Shield replaces the 1" lock washer provided with the guard.
- <sup>(8)</sup> Sprinklers designated as "NEW" are updated versions of legacy sprinklers and MUST use F-series guards and guards with shields. These sprinklers will be designated with the suffix "N" on orders.

**Listings & Approvals**

Refer to Table A. Listed and Approved Sprinkler, Guard, and Water Shield Combinations for information on Listings and Approvals applicable to each guard and water shield.

1. Listed by Underwriters Laboratories, Inc. and UL certified for Canada (cULus)
2. Certified by FM Approvals
3. Scientific Services Laboratories (SSL, Australia)\*  
\* For Models C1, C2, C3 guards.

**Wrench for Installation of Guard, Water Shield, and Sprinkler Assembly**

**Table B**

Guard/ Water Shield	Required Wrench for Installation of Guard, Water Shield, and Sprinkler Assembly
D-1	Model JD K5.6 and smaller sprinklers
D-3	
D-4	
D-5	
D-1	Model J K8.0 sprinklers
D-3	
D-4	
D-5	
D-6	Model JV
D-7	
D-8	
D-9	
D-14	Model W16
F (All)	Model J

**Ordering Information**

**Specify:**

- Guard, Guard with Shield, or Shield Model
- Sprinkler Thread Size (required for Model D-4 and D-5 only)
- Finish (See tables C and D)
- Wrench (See table B)

**Note:** Factory installation of Models D and F guards is available at additional cost. Please contact your Reliable representative for details.

**Finishes**

**Guard Finishes**

**Table C**

Standard	Special Application
Zinc plated with clear chromate	Enamel red paint Custom color paint Bright Chrome Dull Chrome

**Water Shield Finishes**

**Table D**

S Series Water Shields	
Standard	Special Application
Galvanized	Enamel red paint Custom color paint