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FIRE PROTECTION MATERIAL SUBMITTAL FOR:

PROJECT

JOHNSONVILLE ELEMENTARY

18495 NC-27
CAMERON, NC 28326

GENERAL CONTRACTOR

ENGINEERED CONSTRUCTION
900 PAVERSTONE DR.

RALEIGH, NC 27615

11/5/2021

Fire Sprinkler Pipe

Schedule 10 and Schedule 40

Submittal Data Sheet

FM Approved and Fully Listed Sprinkler Pipe
Wheatland Tube's Schedule 10 and Schedule 40 steel fire sprinkler pipe is FM Approved and UL® and C-UL Listed.

Approvals and Specifications
Both products meet or exceed the following standards:

- ASTM A135, Type E, Grade A (Schedule 10)
- ASTM A795, Type E, Grade A (Schedule 40)
- NFPA® 13 and NFPA 14

Manufacturing Protocols
Schedule 10 and Schedule 40 are subjected to the toughest possible testing protocols to ensure the highest quality and long-lasting performance.

Finishes and Coatings
All Wheatland black steel fire sprinkler pipe receives a proprietary mill coating to ensure a clean, corrosion-resistant surface that outperforms and outlasts standard lacquer coatings. This coating allows the pipe to be easily painted, without special preparation. Schedule 10 and Schedule 40 can be ordered in black, or with hot-dip galvanizing, to meet FM/UL requirements for dry systems that meet the zinc coating specifications of ASTM A795 or A53. All Wheatland galvanized material is also UL Listed.

Product Marking
Each length of Wheatland fire sprinkler pipe is continuously stenciled to show the manufacturer, type of pipe, grade, size and length. Barcoding is acceptable as a supplementary identification method.

SCHEDULE 10 SPECIFICATIONS

NPS	NOM OD		NOM ID		NOMINAL WALL		NOMINAL WEIGHT		UL	PIECES
	in.	mm	in.	mm	in.	mm	lbs./ft.	kg/m	CRR*	Lift
1¼	1.660	42.2	1.442	36.6	0.109	2.77	1.81	2.69	7.3	61
1½	1.900	48.3	1.682	42.7	0.109	2.77	2.09	3.11	5.8	61
2	2.375	60.3	2.157	54.8	0.109	2.77	2.64	3.93	4.7	37
2½	2.875	73.0	2.635	66.9	0.120	3.05	3.53	5.26	3.5	30
3	3.500	88.9	3.260	82.8	0.120	3.05	4.34	6.46	2.6	19
4	4.500	114.3	4.260	108.2	0.120	3.05	5.62	8.37	1.6	19
5	5.563	141.3	5.295	134.5	0.134	3.40	7.78	11.58	1.5	13
6	6.625	168.3	6.357	161.5	0.134	3.40	9.30	13.85	1.0	10
8	8.625	219.1	8.249	209.5	0.188	4.78	16.96	25.26	2.1	7

** Calculated using Standard UL CRR formula, UL Fire Protection Directory, Category VIZY. The CRR is a ratio value used to measure the ability of a pipe to withstand corrosion. Threaded Schedule 40 steel pipe is used as the benchmark (value of 1.0).*

SCHEDULE 40 SPECIFICATIONS

NPS	NOM OD		NOM ID		NOMINAL WALL		NOMINAL WEIGHT		UL	PIECES
	in.	mm	in.	mm	in.	mm	lbs./ft.	kg/m	CRR*	Lift
1	1.315	33.4	1.049	26.6	0.133	3.38	1.68	2.50	1.00	70
1¼	1.660	42.2	1.380	35.1	0.140	3.56	2.27	3.39	1.00	51
1½	1.900	48.3	1.610	40.9	0.145	3.68	2.72	4.05	1.00	44
2	2.375	60.3	2.067	52.5	0.154	3.91	3.66	5.45	1.00	30

** Calculated using Standard UL CRR formula, UL Fire Protection Directory, Category VIZY. The CRR is a ratio value used to measure the ability of a pipe to withstand corrosion. Threaded Schedule 40 steel pipe is used as the benchmark (value of 1.0).*

SUBMITTAL INFORMATION

PROJECT: _____

CONTRACTOR: _____

DATE: _____

ENGINEER: _____

SPECIFICATION REFERENCE: _____

SYSTEM TYPE: _____

LOCATIONS: _____

COMMENTS: _____

☐ BLACK

☐ HOT-DIP GALVANIZED

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Bulletin 157 April 2020

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

Features

1. 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
2. Available with 1" NPT, ISO7-1R1, 3/4" NPT, or ISO7-1R3/4 inlet fitting.
3. 3/4" NPT inlet fittings permit replacement of older 3/4" inlet dry sprinklers without changing to a larger sprinkler fitting.
4. Sprinklers, escutcheons, and cover plates are available in a wide variety of standard and special application finishes.
5. White polyester, black polyester, and Electroless Nickel PTFE (ENT) finish sprinklers are cULus Listed as Corrosion Resistant.
6. 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).

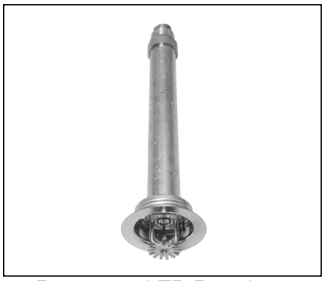
Product Description

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.

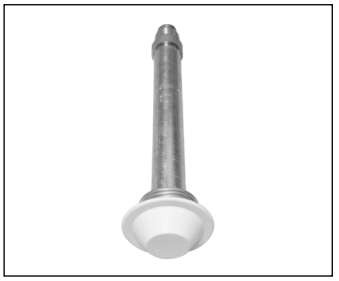
Model F3QR56 Dry Pendent and Sidewall sprinklers are available with a variety of escutcheon options as illustrated in Figs. 1 through 3 and Figs. 5 through 9. In addition, Model F3QR56 Dry Pendent sprinklers are also available with the Model CCP conical concealed cover plate as illustrated in Fig. 4. 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

Pendent
(See Fig. 1)

Pendent / HB
(See Fig. 2)



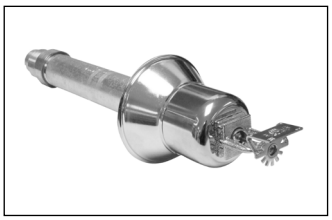
Recessed FP Pendent
(See Fig. 3)



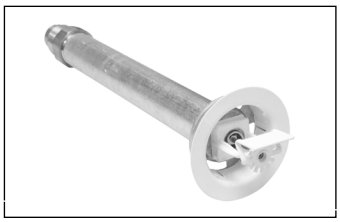
Concealed
(See Fig. 4)

Recessed F1 Pendent
(See Fig. 5)

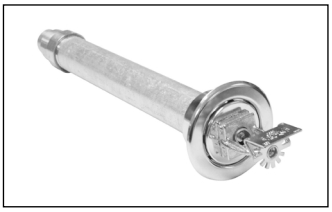
Horizontal Sidewall
(See Fig. 6)



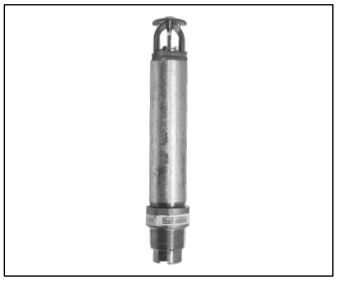
Horizontal Sidewall / HB
(See Fig. 7)



Recessed FP
Horizontal Sidewall
(See Fig. 8)



Recessed F1
Horizontal Sidewall
(See Fig. 9)



Upright
(See Fig. 10)

with Model F3QR56 Dry sprinklers will void all guarantees, warranties, listings and approvals.

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[1]	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[2], NYC[2]	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[2], FM[3], NYC[2]	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[2], FM[3][4], NYC[2]		
	FP Recessed Escutcheon				
F3QR56 Dry Upright	N/A	5" to 48" (127 to 1200 mm)	cULus[2]	1" NPT or ISO7-1R1	R5724

[1] For available temperature ratings and finishes see the Temperature Ratings and Finishes tables, respectively, in this Bulletin.
[2] cULus Listing and NYC for Light Hazard and Ordinary Hazard only.
[3] FM Approved for Light Hazard only.
[4] 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$^{1/2}$ (80 L/min/bar$^{1/2}$)

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[1]
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[2], NYC
			165°F (74°C)	150°F (66°C)	cULus, NYC

[1] For listed and approved sprinkler, escutcheon, and inlet configurations see the Available Configurations, Listings, and Approvals table in this Bulletin.
[2] High temperature classification is FM Approved with Standard and Model HB escutcheons only.

Finishes[4]

Component	Sprinkler	Escutcheon[1]	Cover Plate
Standard Finishes	Bronze	Brass[3]	White Paint
	White Polyester[2]	White Polyester	Chrome
	Chrome	Chrome	
Special Application Finishes	Electroless Nickel PTFE[2]	Type 316 Stainless Steel	Satin Chrome Black Paint Custom Color Paint Black Plating
	Black Polyester[2]	Black Polyester	
	Custom Color Polyester	Customer Color Polyester	

[1] Standard and Model HB escutcheons are supplied with both the can and escutcheon finished. Model F1 escutcheons are supplied with both the collar and escutcheon finished. Model FP escutcheons are supplied with the escutcheon finished; the cup is galvanized or stainless steel with no further finish.
[2] cULus Listed as a Corrosion Resistant Sprinkler.
[3] Brass finish available for standard, Model F1, and Model FP escutcheons only.
[4] Dry upright sprinkler available in standard bronze only.

Model F3QR56 Dry Pendent Sprinkler with Standard Escutcheon (SIN R5714)

"A" Dim.	2" to 48" (51mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 2" to 36" (51mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

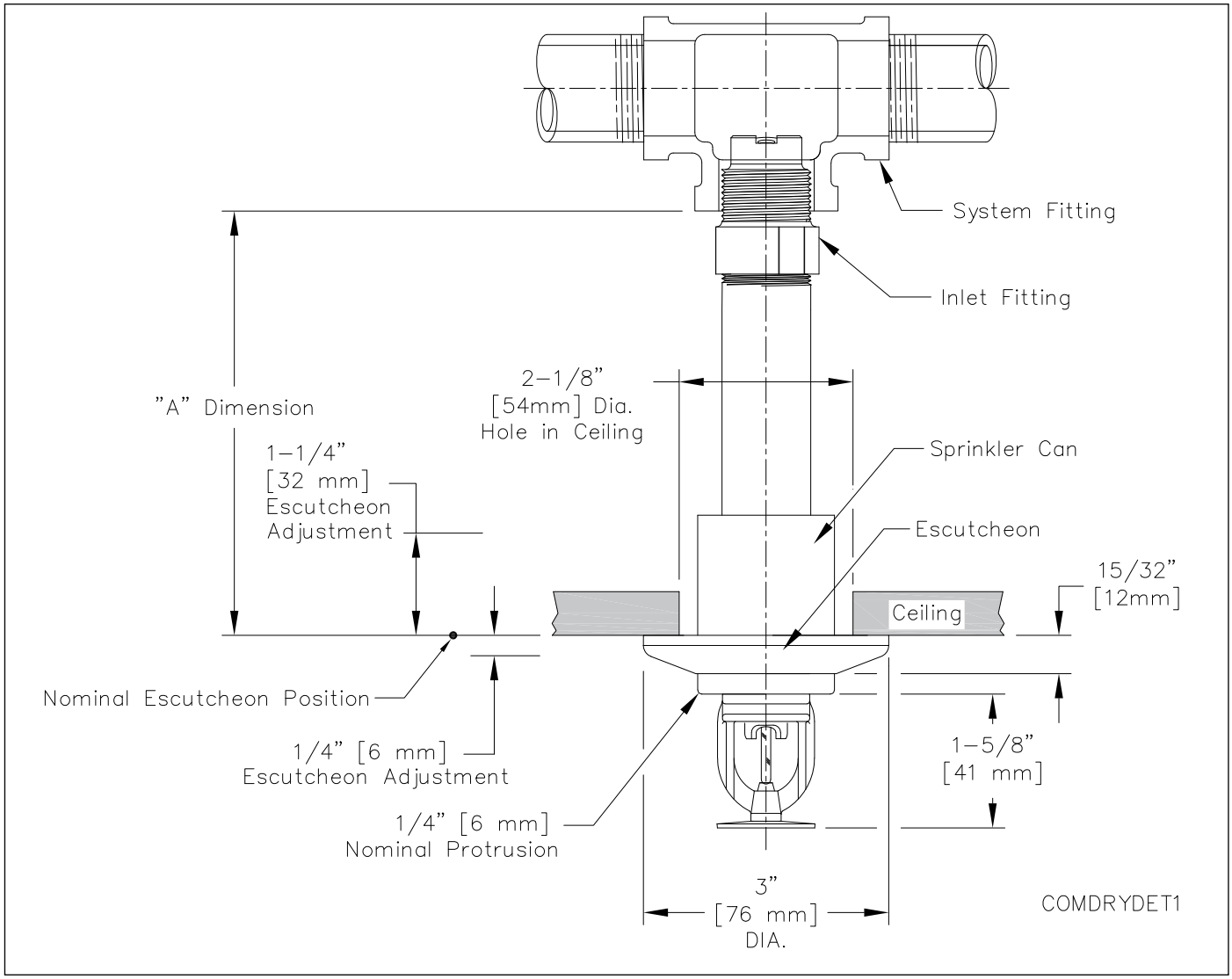


Fig. 1

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 C2

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

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

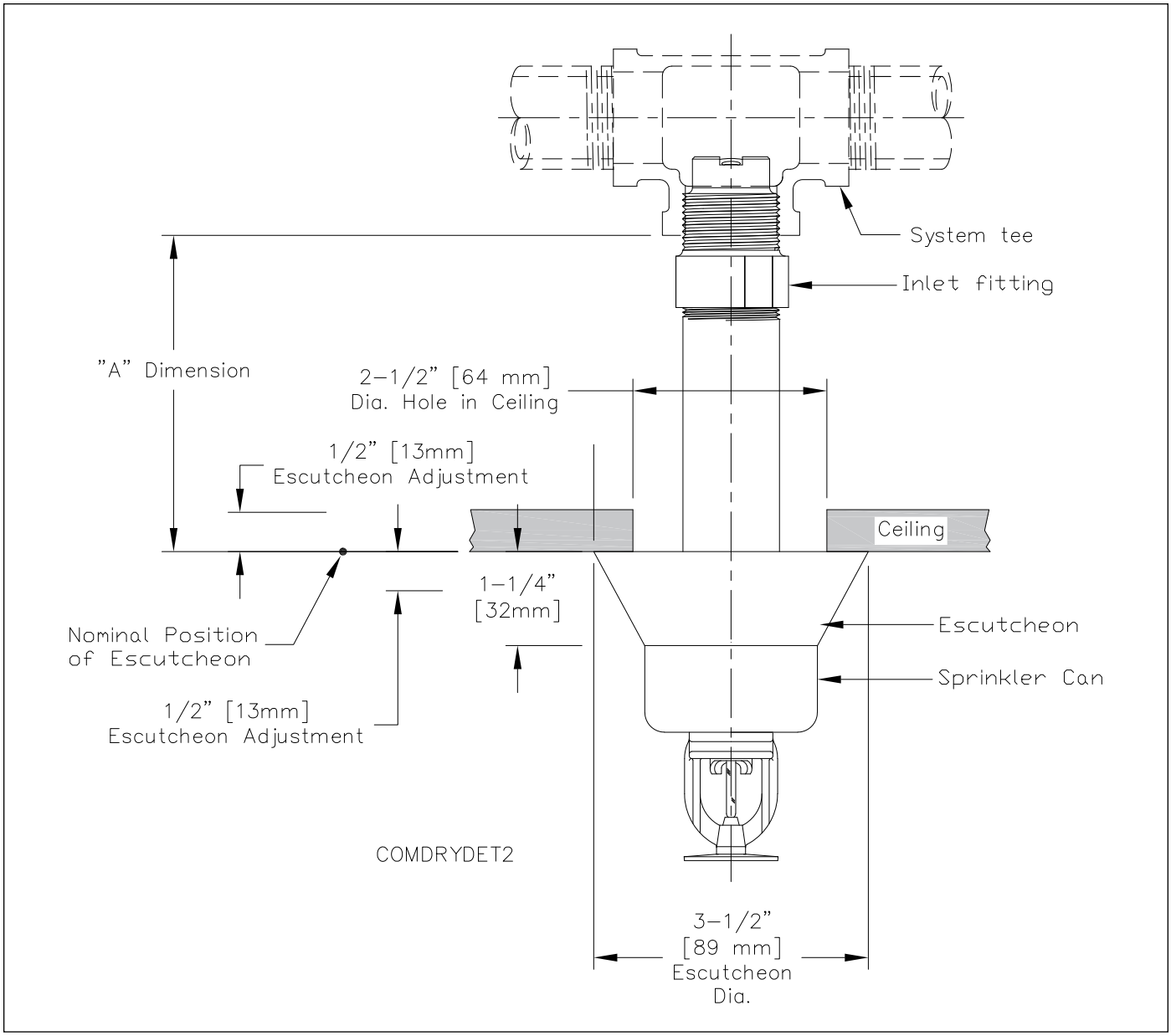


Fig. 2

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.

Sprinkler Guard: Model C2

Model F3QR56 Dry Pendent Sprinkler with Model FP Recessed Escutcheon (SIN R5714)

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

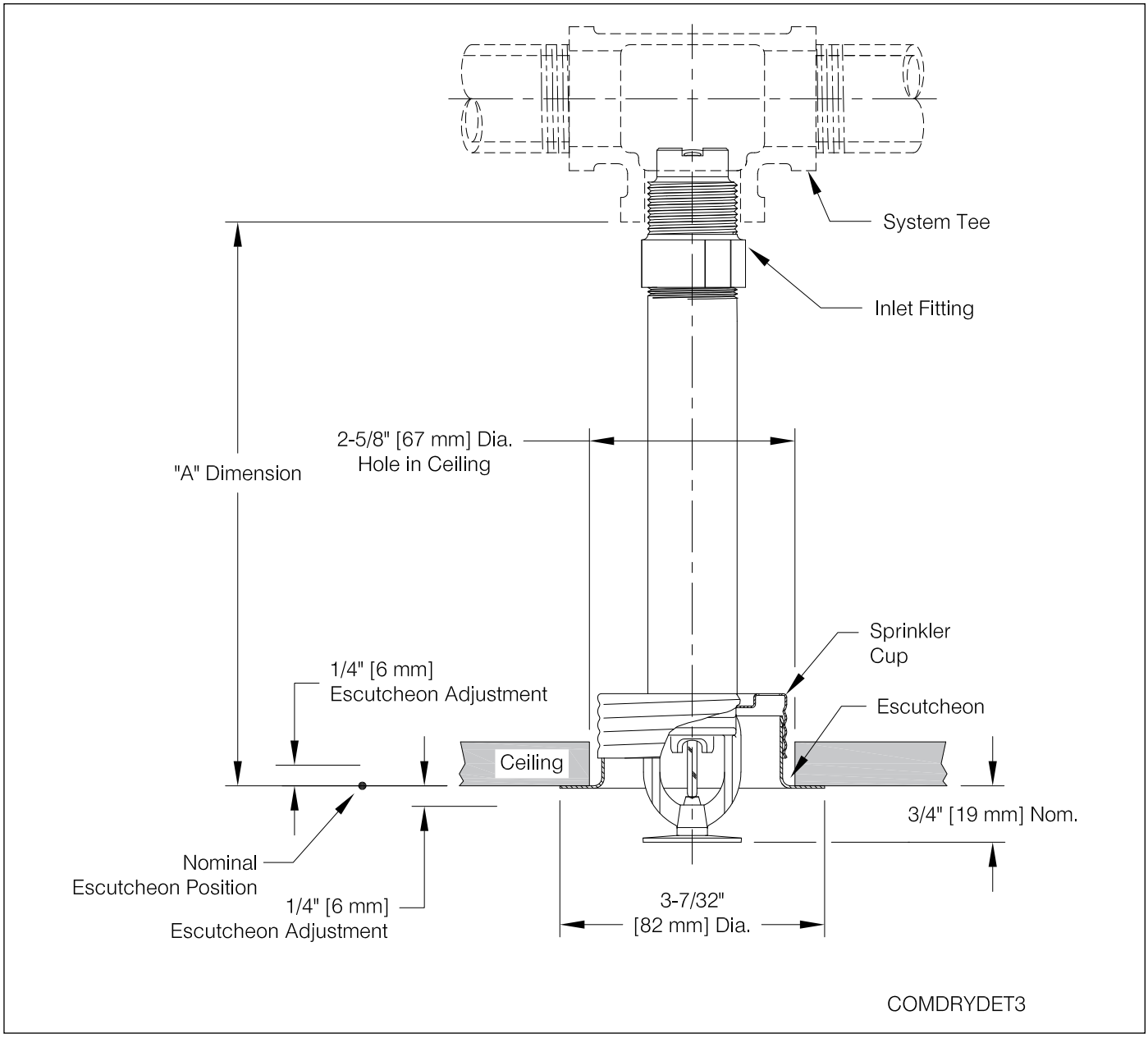


Fig. 3

Note: Do not install the Model F3QR56 Dry Pendent sprinkler with the Model FP escutcheon in ceilings which have positive pressure in the space above.

Model F3QR56 Dry Pendent Sprinkler with Model CCP Cover Plate (SIN R5714)

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

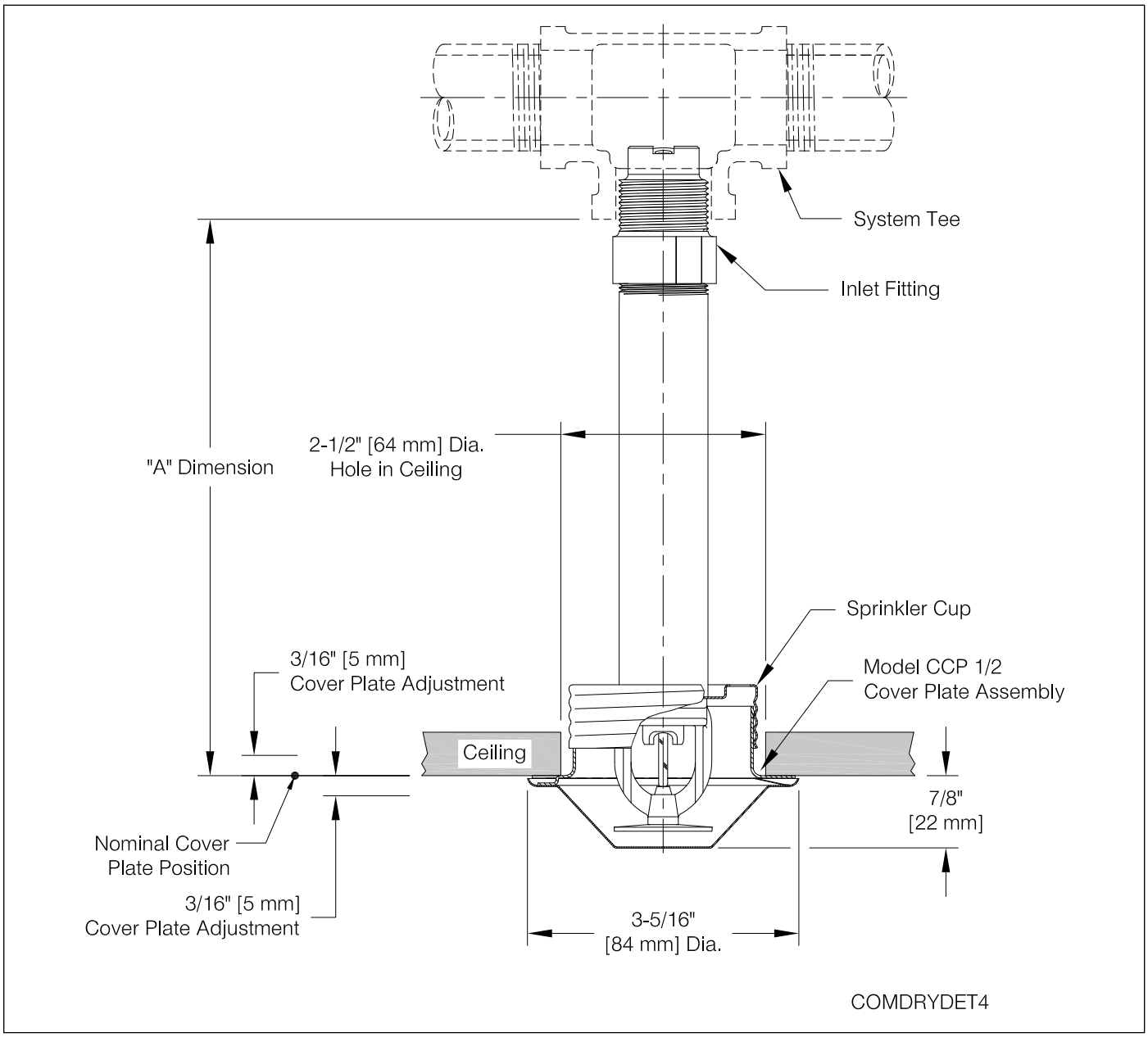


Fig. 4

Note: Do not install the Model F3QR56 Dry Pendent sprinkler with the Model CCP cover plate in ceilings which have positive pressure in the space above.

Model F3QR56 Dry Pendent Sprinkler with Model F1 Recessed Escutcheon (SIN R5714)

“A” Dim.	3½” to 48” (89mm to 1219mm) in 1/4” (6mm) increments for 1” connections or 3½” to 36” (89mm to 914mm) in 1/4” (6mm) increments for 3/4” connections.

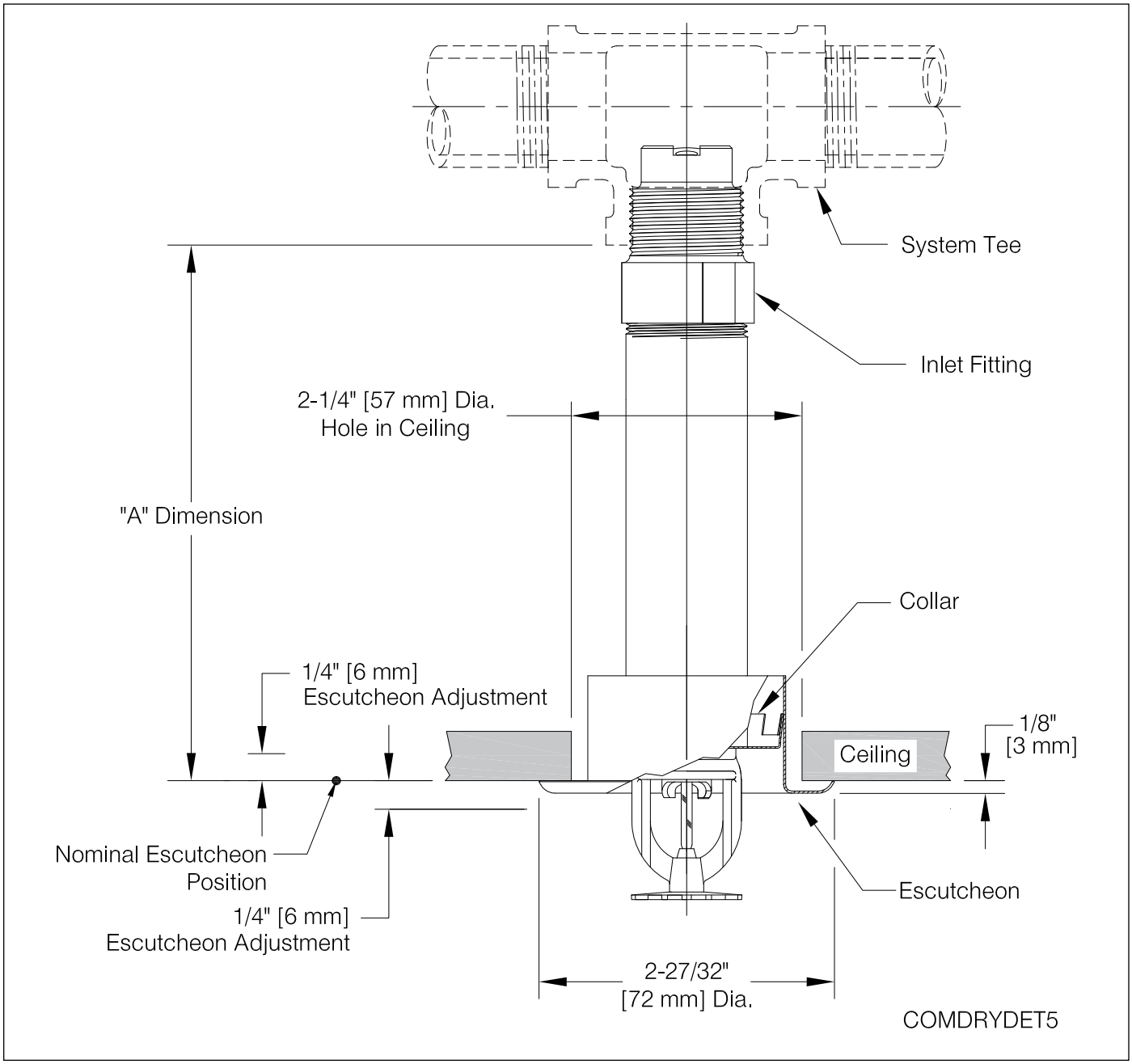


Fig. 5

Model F3QR56 Dry Horizontal Sidewall Sprinkler with Standard Escutcheon (SIN R5734)

"A" Dim.	2" to 48" (51mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 2" to 36" (51mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

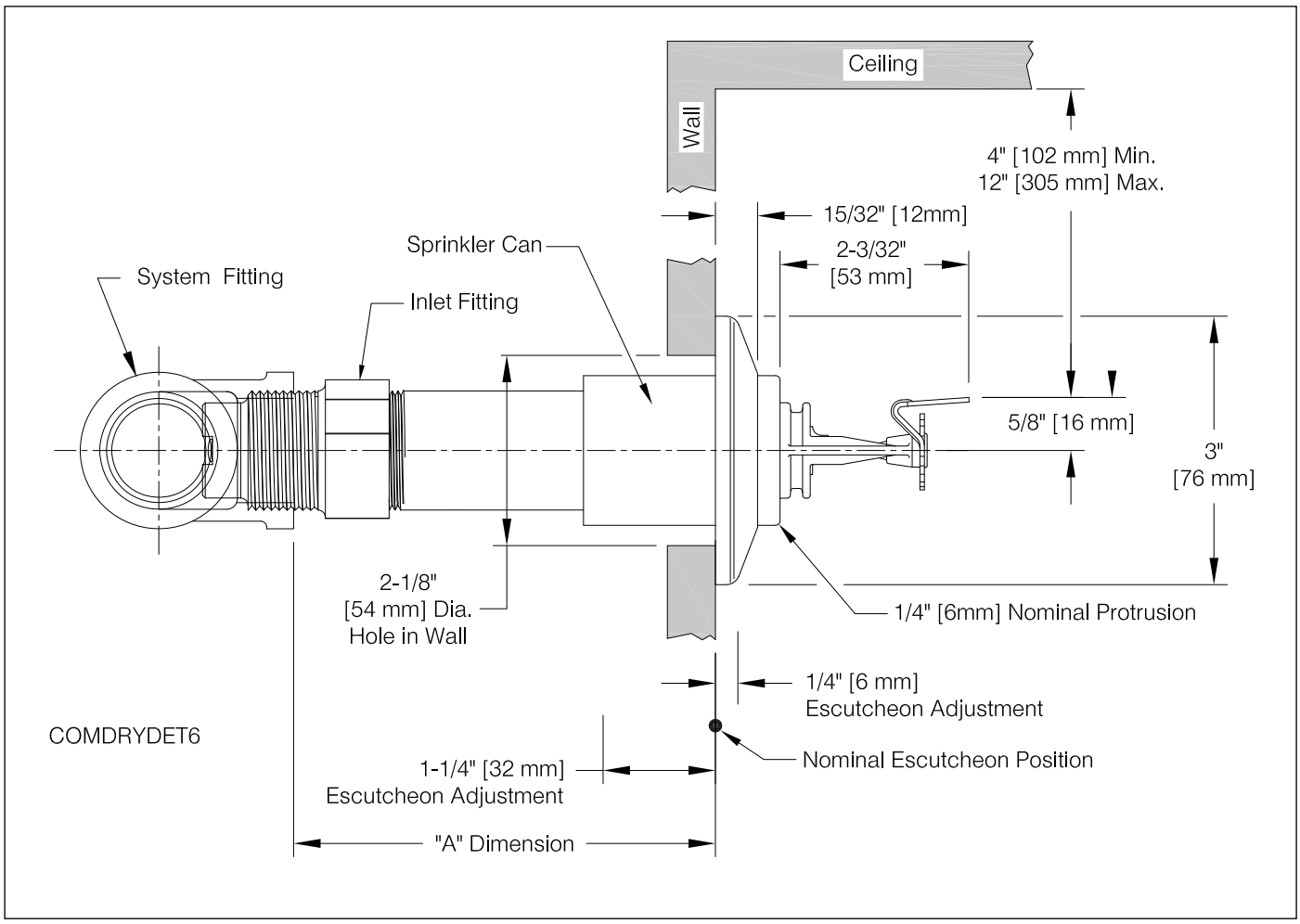


Fig. 6

Note: The sprinkler can protrudes ¼" when escutcheon is in nominal position. Escutcheon adjustment provides -¼" (-6mm) to +1¼" (+32mm) "A" dimension adjustment range.

Model F3QR56 Dry Horizontal Sidewall Sprinkler with Model HB Escutcheon (SIN R5734)

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

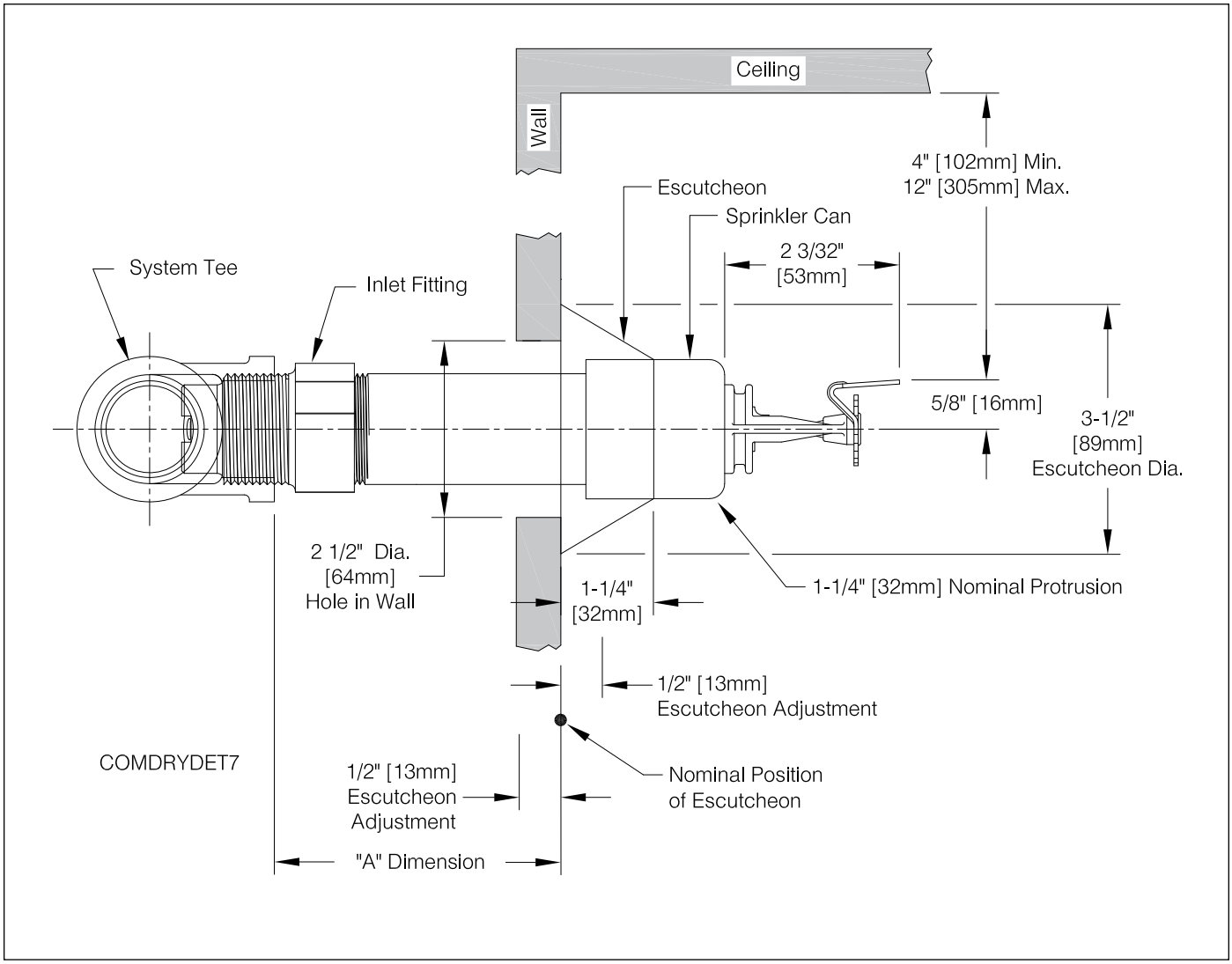


Fig. 7

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 F3QR56 Dry Horizontal Sidewall Sprinkler with Model FP Recessed Escutcheon (SIN R5734)

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

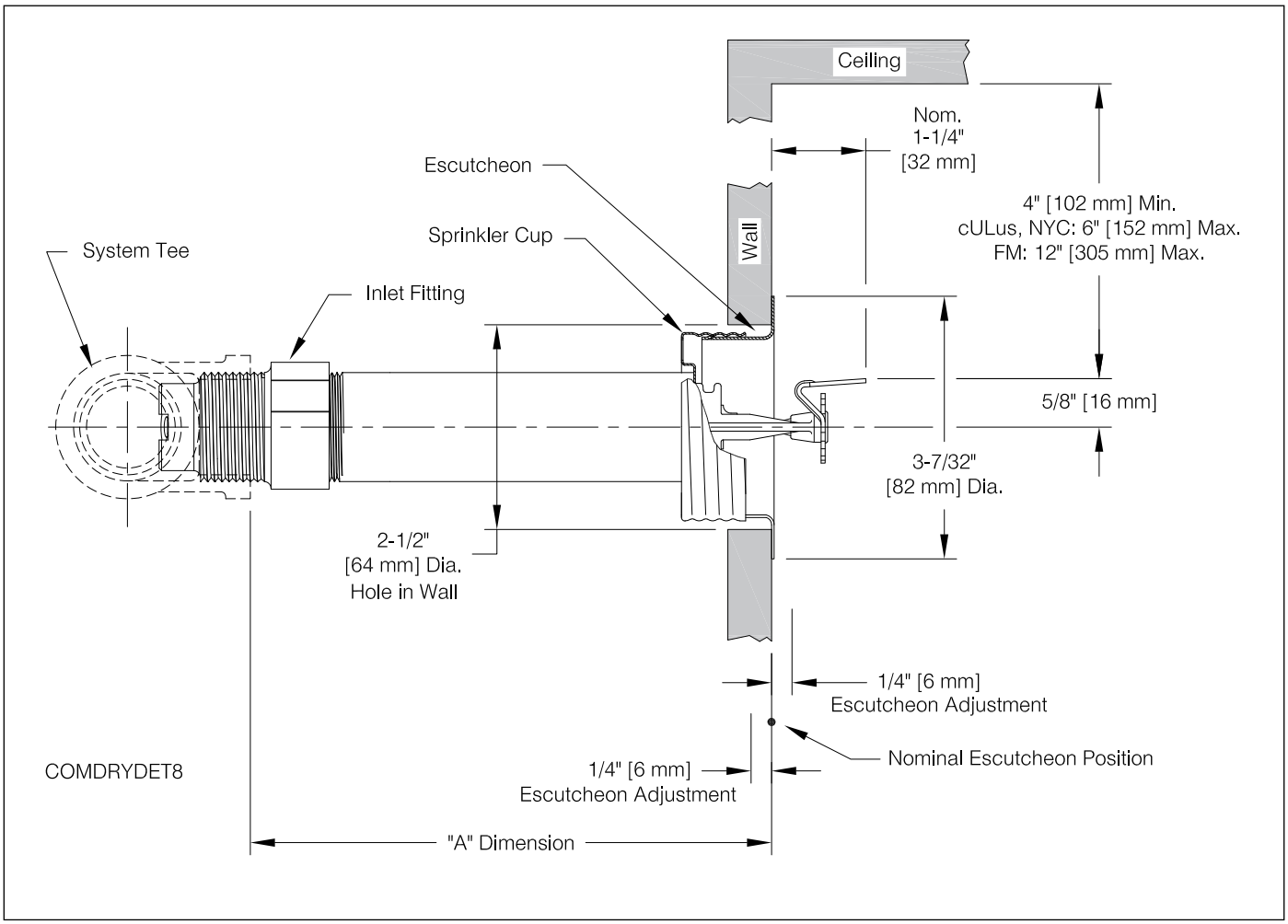


Fig. 8

Note: Do not install the Model F3QR56 Dry Horizontal Sidewall sprinkler with the Model FP escutcheon in walls which are positively pressurized with respect to the protected space.

Model F3QR56 Dry Horizontal Sidewall Sprinkler with Model F1 Recessed Escutcheon (SIN R5734)

"A" Dim.	3½" to 48" (89mm to 1219mm) in 1/4" (6mm) increments for 1" connections or 3½" to 36" (89mm to 914mm) in 1/4" (6mm) increments for 3/4" connections

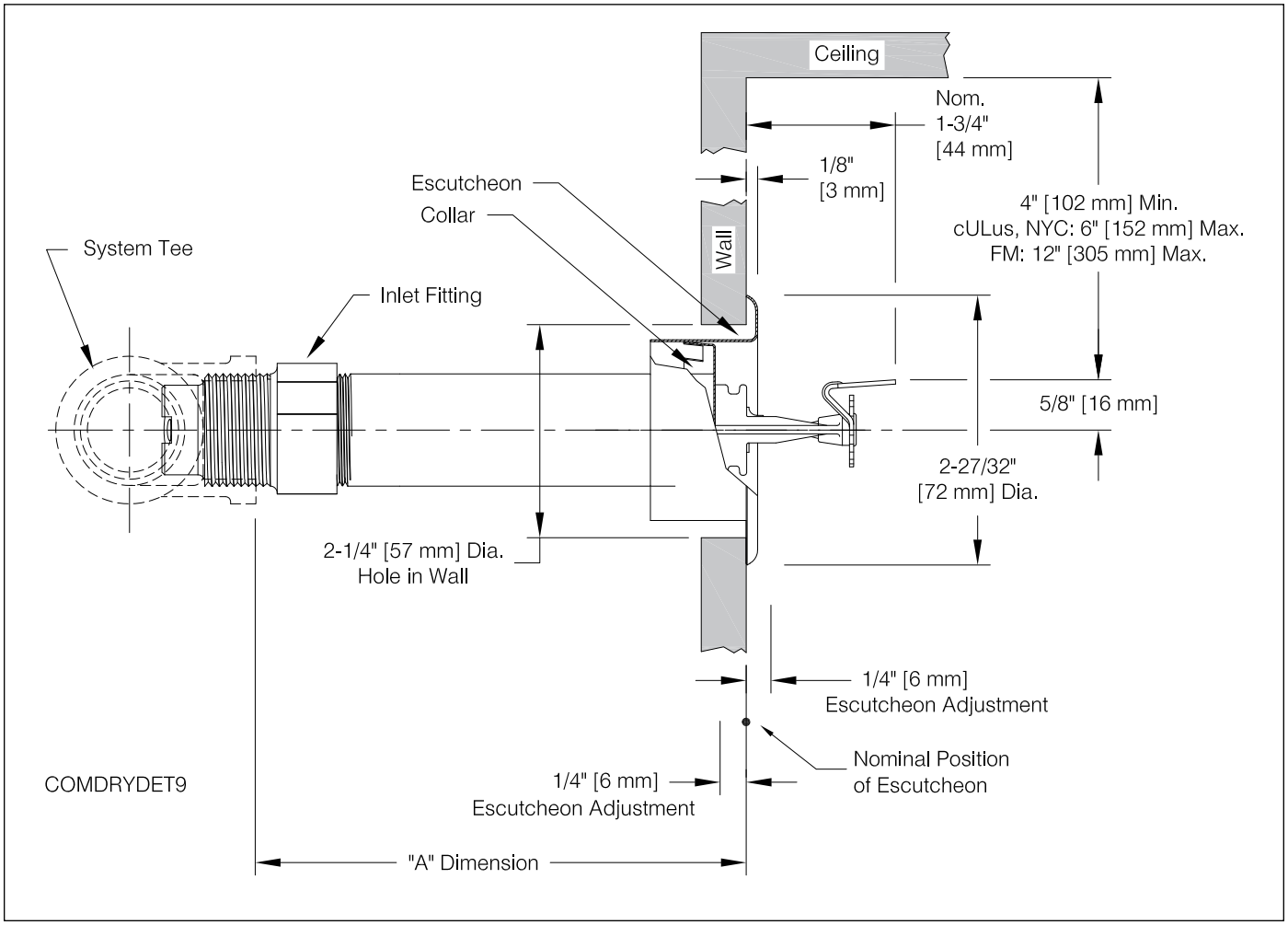


Fig. 9

Model F3QR56 Dry Upright (SIN 5724)

Order Dimensions 5” to 48” (127 mm to 1219 mm)

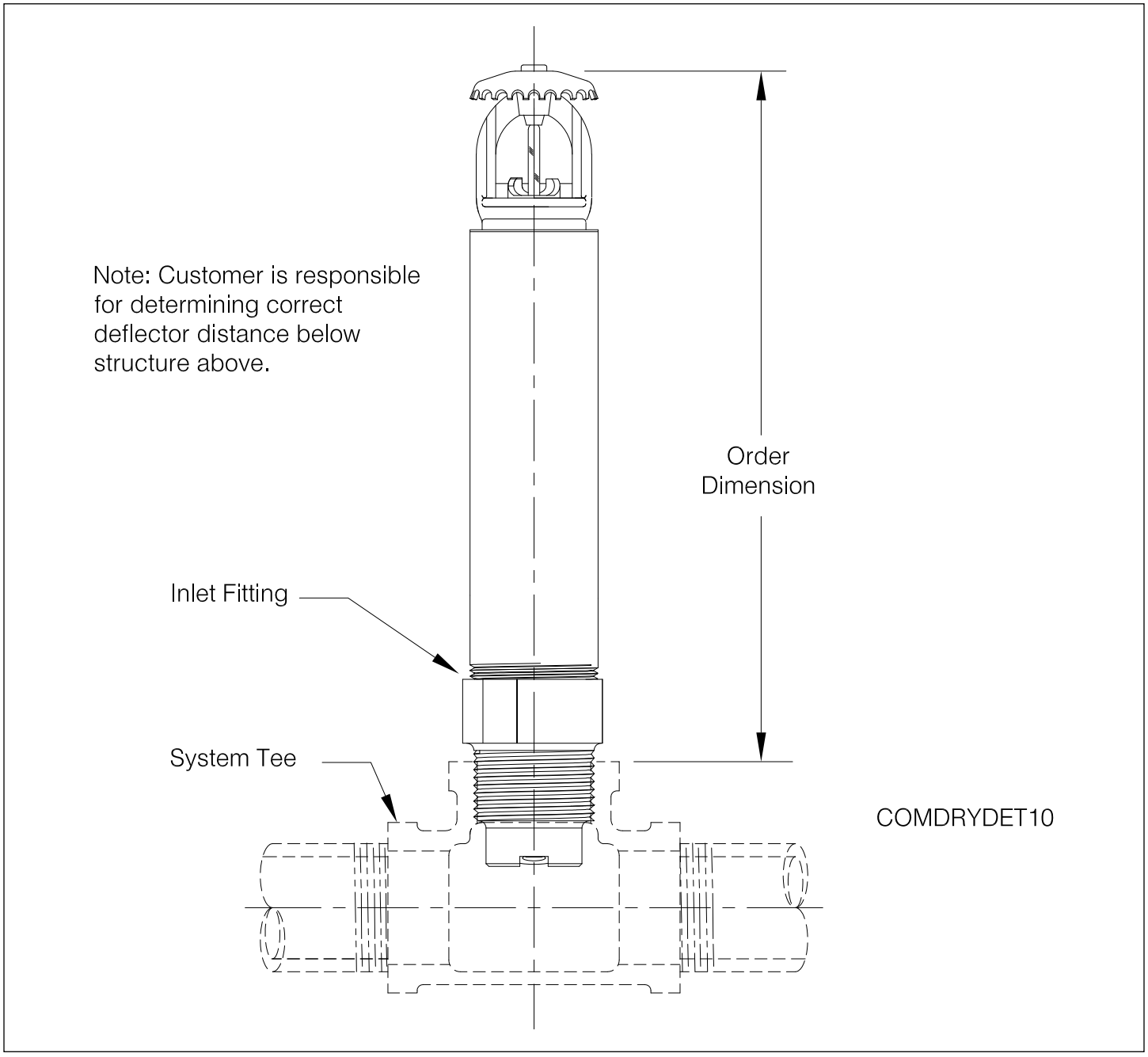


Fig. 10

MINIMUM EXPOSED BARREL LENGTH WHEN CONNECTED TO WET PIPE SPRINKLER SYSTEM

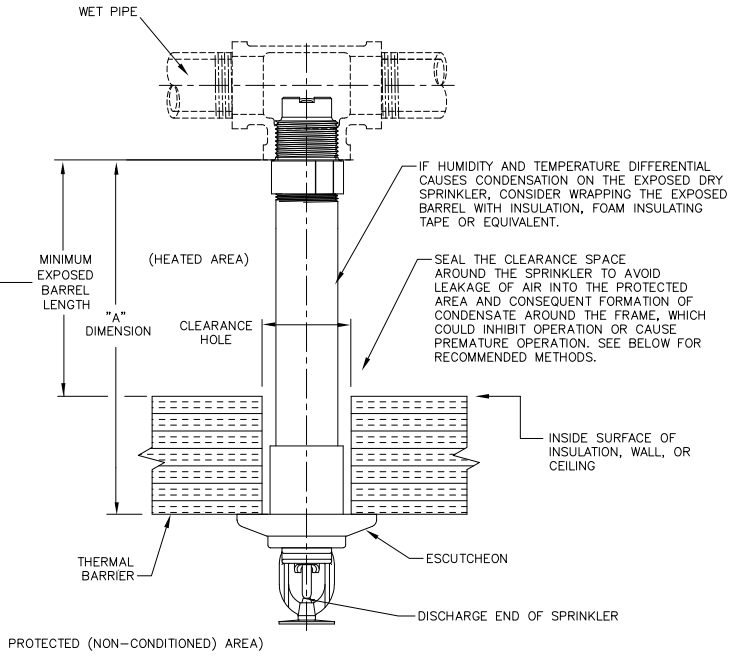
NOTE: STANDARD DRY PENDENT IS SHOWN, HOWEVER, MINIMUM EXPOSED BARREL LENGTH APPLIES TO ALL STYLES OF DRY SPRINKLERS CONNECTED TO A WET PIPE SYSTEM.

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)

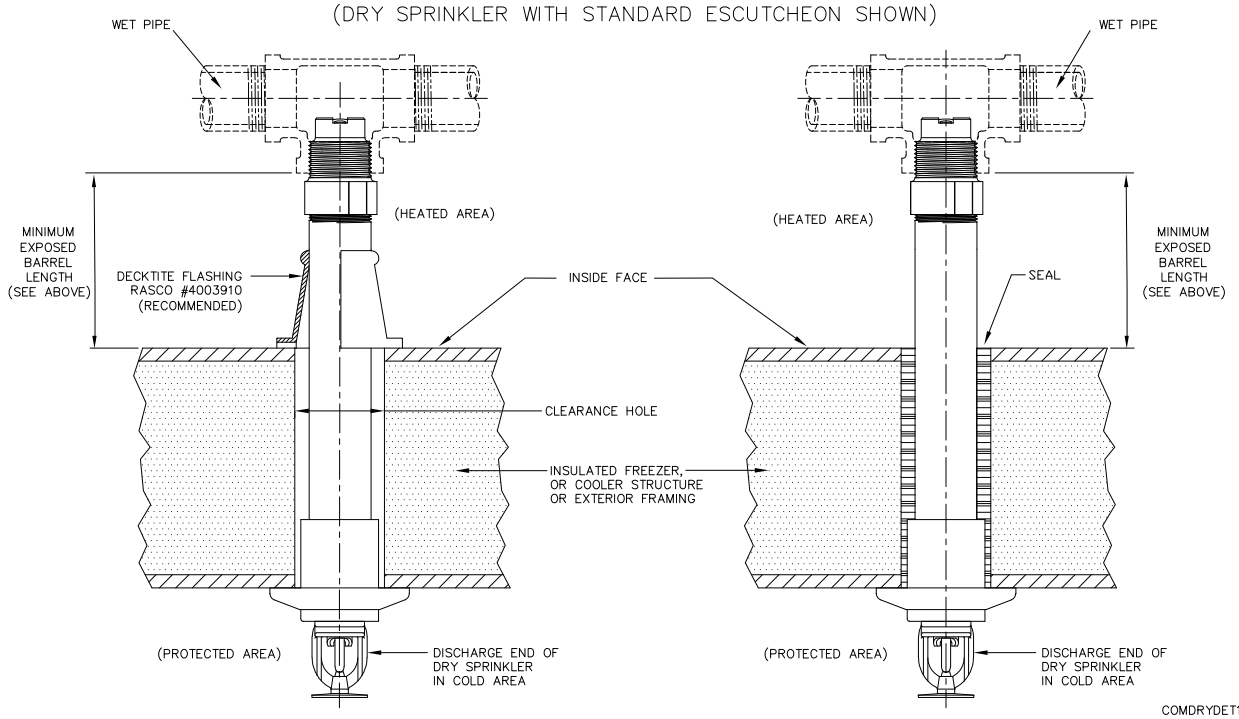


Fig. 11

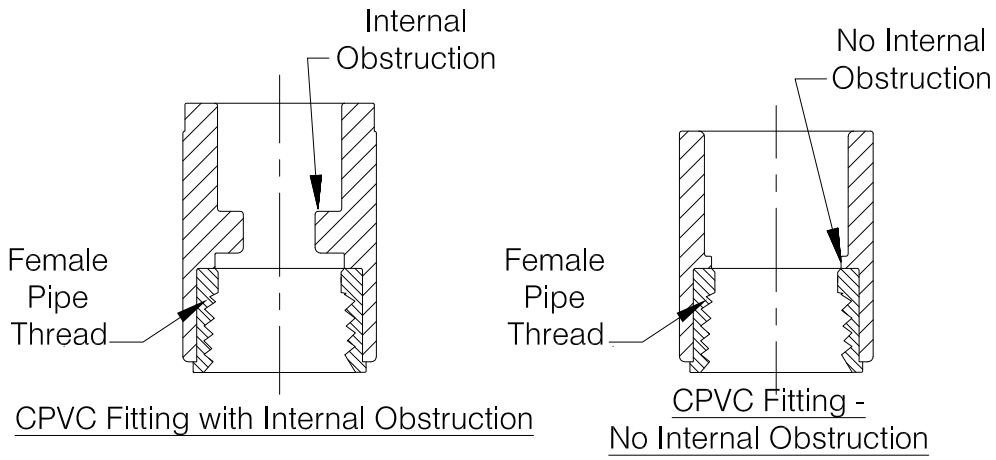
CAUTION

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.

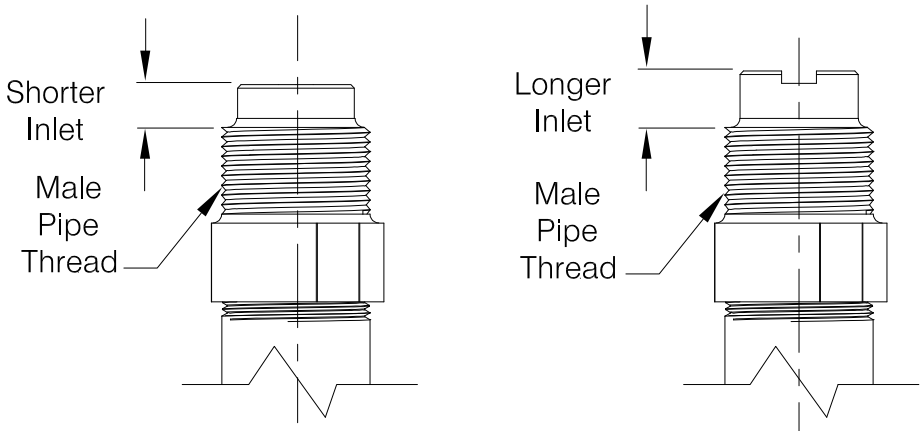
Short inlet ("PL") versions of Reliable dry sprinklers are available that may or may not be compatible with fittings having internal obstructions in existing installations. Sprinklers with the short inlet ("PL") should only be installed in CPVC fittings of wet-pipe systems.

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



CPVC Fitting with Internal Obstruction

CPVC Fitting -
No Internal Obstruction



Dry Sprinkler
Short Inlet ("PL")

Dry Sprinkler
Standard Inlet

BE SURE TO ORDER THE CORRECT SPRINKLERS FOR YOUR APPLICATION

COMDRYDET2

Fig. 12

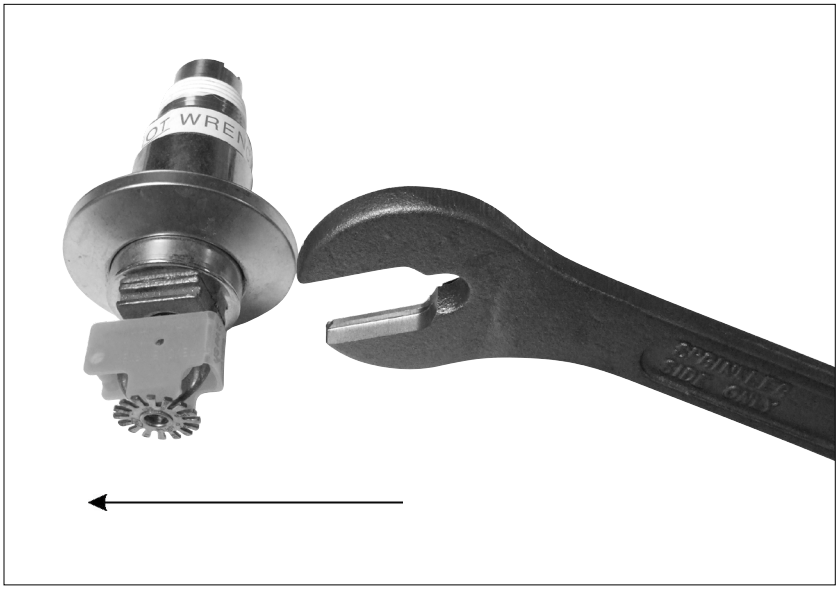


Fig. 13 - Model F3R Wrench

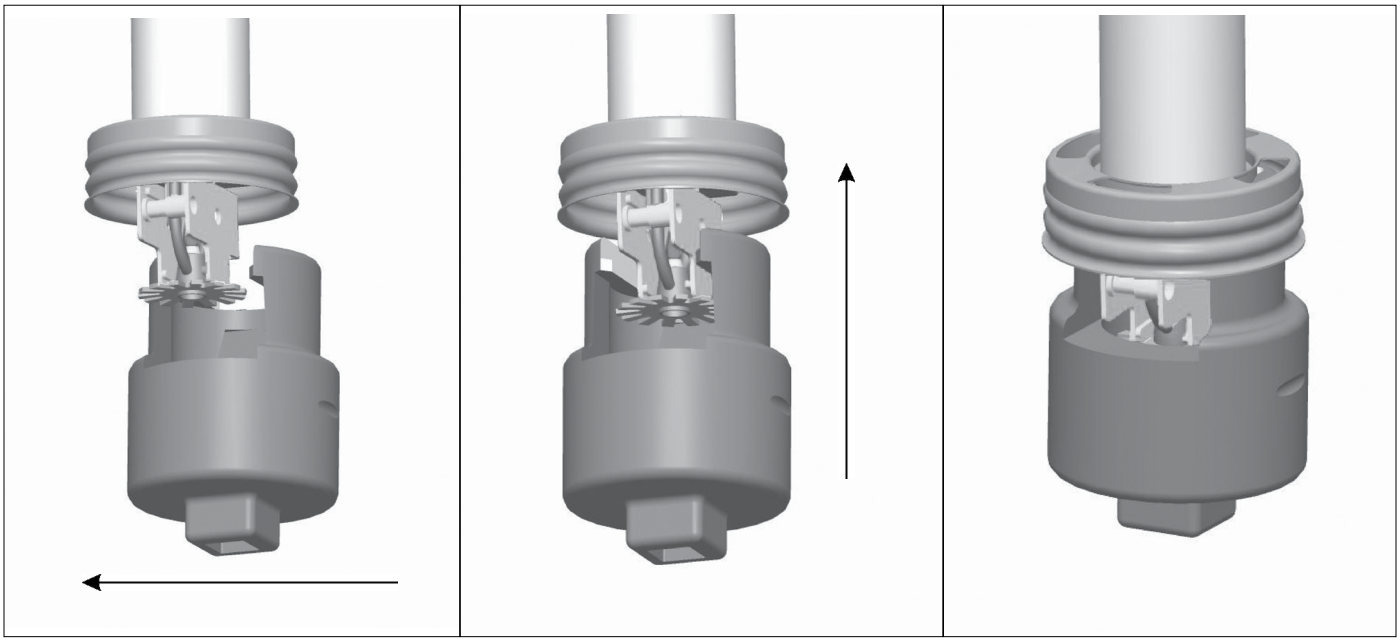
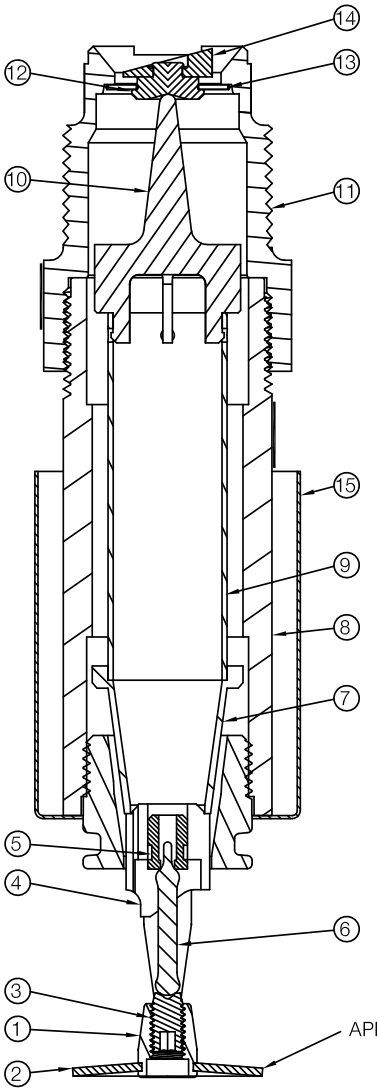


Fig. 14 - Model XLO2 Wrench

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 Instructions

Model F3QR56 Dry sprinklers must only be installed in the following fittings:

1. The side outlet of an ANSI B 16.3 class 150 (malleable or ductile) or ANSI B16.4 class 125 (cast) iron pipe tee
2. The run outlet of an ANSI B 16.3 class 150 (malleable or ductile) or ANSI B16.4 class 125 (cast) iron pipe tee, with the side outlet plugged (wet-pipe systems only)
3. Spears Manufacturing Company Brass Thread Insert Style or Special Reinforced Plastic Thread Style Listed adapter or tee (wet-pipe systems only) (gasket sealed outlets shall not be used)
4. Any Listed CPVC sprinkler adapter or tee only in accordance with Fig. 12 and upon verification that the CPVC adapter or tee does not interfere with the sprinkler's inlet (wet-pipe systems only) (gasket sealed outlets shall not be used)

Model F3QR56 dry sprinklers must not be installed into elbows, welded outlets, gasket sealed outlets, or couplings. Installation of the Model F3QR56 Dry sprinkler is not recommend in copper pipe systems, as this may reduce the life expectancy of the sprinkler.

In all dry-pipe system installations, the Model F3QR56 Dry sprinkler must be installed with protrusion into the fitting in accordance with Fig. 1 through Fig. 10 in this Bulletin. Do not install Model F3QR56 Dry sprinklers with the standard (long) inlet fitting into CPVC fittings that have an internal obstruction (see Fig. 12); this will damage the sprinkler, the fitting, or both. Model F3QR56 Dry sprinklers are available with a short "PL" inlet fitting for installation on CPVC fittings of wet-pipe sprinkler systems only.

Model F3QR56 Dry sprinklers connected to wet-pipe systems must be installed with the Exposed Minimum Barrel Length required by Fig. 11 located in a Heated Area.

An orange protective clip is factory installed on the sprinkler to protect the glass bulb thermal element from damage. The clip should remain in place during installation of the sprinkler and be removed when the sprinkler system is placed in service. Sprinklers with 3/4" NPT and ISO7-1R3/4 inlets are supplied with a protective cap on the inlet that must be removed before installation.

Use the following steps for installation:

1. Cut a hole in the wall or ceiling directly in-line with the outlet of the fitting. See the Installation Data table for the recommended hole diameter based on the escutcheon or cover plate option selected.
2. Apply pipe joint compound or PTFE tape to the male threads of the sprinkler's inlet fitting.
3. Install the sprinkler in the fitting using the installation wrench specified in the Installation Data table. The Model F3R wrench is designed to be inserted into the groves in the sprinkler's wrench boss as shown in Fig. 13. The Model XLO2 wrench is designed to fit into the cup and engage the wrench boss as shown in Fig. 14. Do NOT wrench any part of the sprinkler assembly other than the wrench boss. When inserting or removing the wrench from the sprinkler, care should be taken to prevent damage to the sprinkler. The sprinkler is then tightened into the pipe fitting to achieve a leak free connection. The recommended minimum to maximum installation torque is 22 - 30 lb-ft (30 – 40 N-m) for 1" NPT and ISO7-1R1 sprinklers, and 14 - 20 lb-ft (19 – 27 N-m) for 3/4" NPT and ISO7-1R3/4 sprinklers.
   3a. Alternatively, where access to the outer tube of the sprinkler is available, the Model F3QR56 Dry sprinkler may be installed using a pipe wrench. The pipe wrench shall only be permitted to interface with the galvanized steel outer tube portion of the sprinkler (Item #8 in Fig. 15). Do NOT wrench any other portion of the sprinkler assembly. A pipe wrench can install the sprinkler into the fitting with a large amount of torque; consideration should be given to the need for future removal of the sprinkler because the installation torque will have to be matched or exceeded to remove the sprinkler. The recommended minimum to maximum installation torque is 22 - 30 lb-ft (30 – 40 N-m) for 1" NPT and ISO7-1R1 sprinklers, and 14 - 20 lb-ft (19 – 27 N-m) for 3/4" NPT and ISO7-1R3/4 sprinklers.
4. Standard and Model HB escutcheons can be installed by slipping the escutcheon over the can until the escutcheon is seated against the ceiling or wall. Model F1 escutcheons are installed by pressing the escutcheon onto the collar until the escutcheon is seated against the ceiling or wall. The Model FP escutcheon is installed by pressing or threading the escutcheon into the cup by hand; the escutcheon can be tightened against the ceiling or wall by turning the escutcheon in a clockwise direction and removed by turning the escutcheon in a counter-clockwise direction. To install the Model CCP cover plate, first remove the protective clip. Install the Model CCP cover plate on the sprinkler by pressing or threading the cover plate into the cup by hand; the cover plate can be tightened against the ceiling by turning the cover plate in a clockwise direction and removed by turning the cover plate in a counter-clockwise direction.
5. Remove the orange protective clip when placing the sprinkler system in service.

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*
F3QR56 Dry Pendent	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	
F3QR56 Dry Horizontal Sidewall	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	
	F1 Recessed Escutcheon	2-1/4" (57 mm)	XLO2	cULus, NYC 4-5/8" to 6-5/8" (118 mm to 168 mm)
	FP Recessed Escutcheon	2-1/2" (64 mm)	XLO2	
	F1 Recessed Escutcheon	2-1/4" (57 mm)	XLO2	FM 4-5/8" to 12-5/8" (118 mm to 321 mm)
	FP Recessed Escutcheon	2-1/2" (64 mm)	XLO2	
F3QR56 Dry Upright	N/A	1-1/2" (38mm)	F3R	Not Applicable

***Note:** Based on 5/8" (16 mm) centerline of sprinkler tube/inlet to defector 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:

1. Sprinkler: [Model F3QR56 Dry Pendent SIN R5714] [Model F3QR56 Dry Horizontal Sidewall SIN R5734] [Model F2QR Dry Upright SIN R5724]
2. Escutcheon/Cover Plate: [None][Standard escutcheon][Model HB extended escutcheon][Model F1 recessed escutcheon][Model FP recessed escutcheon] [Model CCP cover plate – pendent only]
3. Inlet Threads: [1" NPT][ISO7-1R1][3/4" NPT][ISO7-1R3/4]
4. Inlet Fitting: [Long – Standard Inlet Fitting][Short "PL" – Wet Pipe Systems only]
5. Sprinkler Temperature Rating: See Temperature Ratings table
6. Sprinkler Finish: See Finishes Table
7. Escutcheon/Cover Plate Finish: See Finishes Table
8. Length:
   *For dry pendents 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:

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

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 almost 100 years.

Manufactured by

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Bulletin 014 Rev. P

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

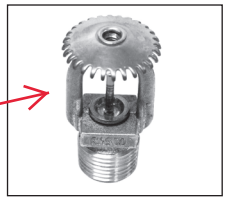
Model F1FR42, F1FR40, F1FRXLH & F1FR28 Recessed Sprinkler Types
Standard Spray Pendent

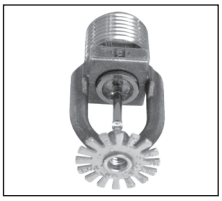
Model F1FR56LL & F1FR42LL Low Lead Sprinkler Types
Standard Spray Pendent with less than 0.25% Lead Content

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)

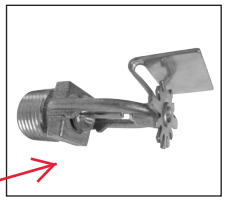
UL Listing Category
Sprinklers, Automatic & Open (VNIV)
Quick Response Sprinkler


Upright

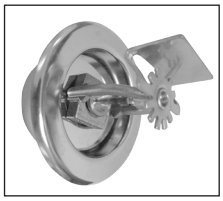

Pendent


Conventional

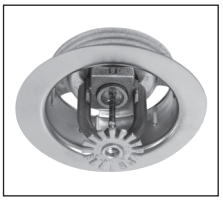

Vertical Sidewall

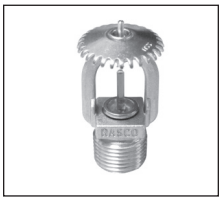

Horizontal Sidewall


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 or W2	RA1411	cULus	2
					Recessed Pendent	2.25	57	GFR2	RA1411	cULus	2
					Upright	2.25	57	D or W2	RA1421	cULus	1,2
F1FR40	4.0	57	3/8	10	Pendent	2.25	57	D or W2	RA1418	VdS	
					Recessed Pendent	2.25	57	GFR2	RA1418	VdS	
F1FR42	4.2	60	7/16	10	Pendent	2.25	57	D or W2	RA1413	cULus	2
					Recessed Pendent	2.25	57	GFR2	RA1413	cULus	2
					Upright	2.25	57	D or W2	RA1423	cULus	1,2
F1FR42LL	4.2	60	7/16	10	Pendent	2.25	57	D or W2	RA1410	cULus, ULH	
					Recessed Pendent	2.25	57	GFR2	RA1410	cULus, ULH	
F1FRXLH (F1FR42 with Pintle)	4.2	60	7/16	10	Pendent	2.25	57	D or W2	RA1413	cULus	2
					Recessed Pendent	2.25	57	GFR2	RA1413	cULus	2
					Upright	2.25	57	D or W2	RA1423	cULus	1,2
F1FR56	5.6	80	1/2	15	Pendent	2.25	57	D or W2	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 or W2	RA1425	cULus, FM, LPCB, VdS, EC	1,2,3,4
					"Conventional (Pendent or Upright)"	2.25	57	D or W2	RA1475	LPCB, VdS, EC	4
F1FR56LL	5.6	80	1/2	15	Pendent	2.25	57	D or W2	RA1415	cULus, ULH	1
					Recessed Pendent	2.25	57	GFR2	RA1415	cULus, ULH	
					Concealed Pendent	2.25	57	RC1	RA1415	cULus, ULH	6
F1FR56	5.6	80	1/2	15	Horizontal Sidewall	2.63	67	D or W2	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 or W2	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. 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.
(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. 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				
	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, 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	cULus, FM, LPCB, VdS, EC	cULus, VdS, EC	RA1414
F1FR56LL	Recessed Pendent	cULus, ULH	cULus, ULH	cULus, ULH	RA1415
F1FR56	Recessed Horizontal Sidewall	cULus	cULus, FM	cULus	RA1435

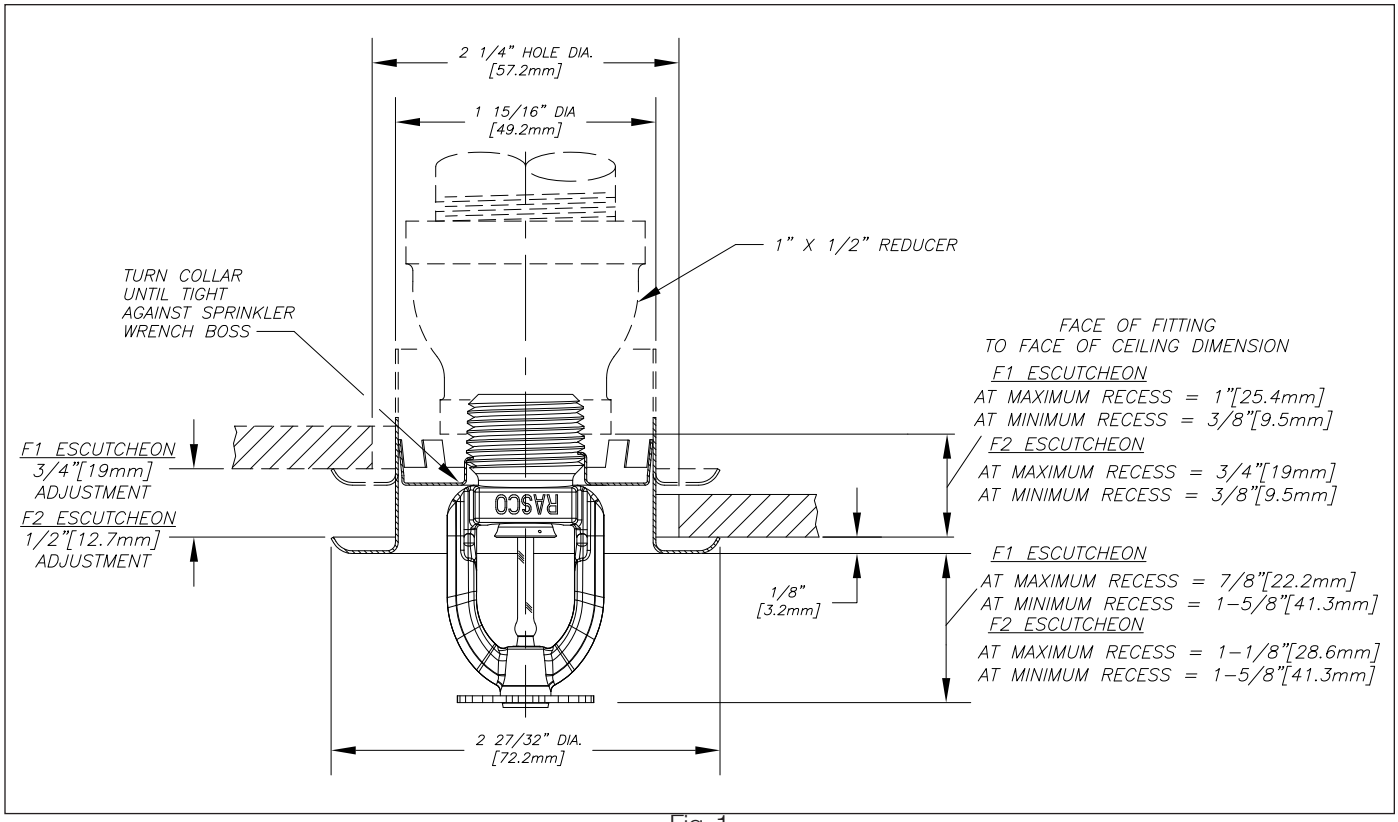


Fig. 1
Model F1FR56, F1FR56LL, F1FR42, F1FR40, F1FR42LL, F1FRXLH & F1FR28
Recessed Pendent sprinkler with Model F1 or F2 escutcheon

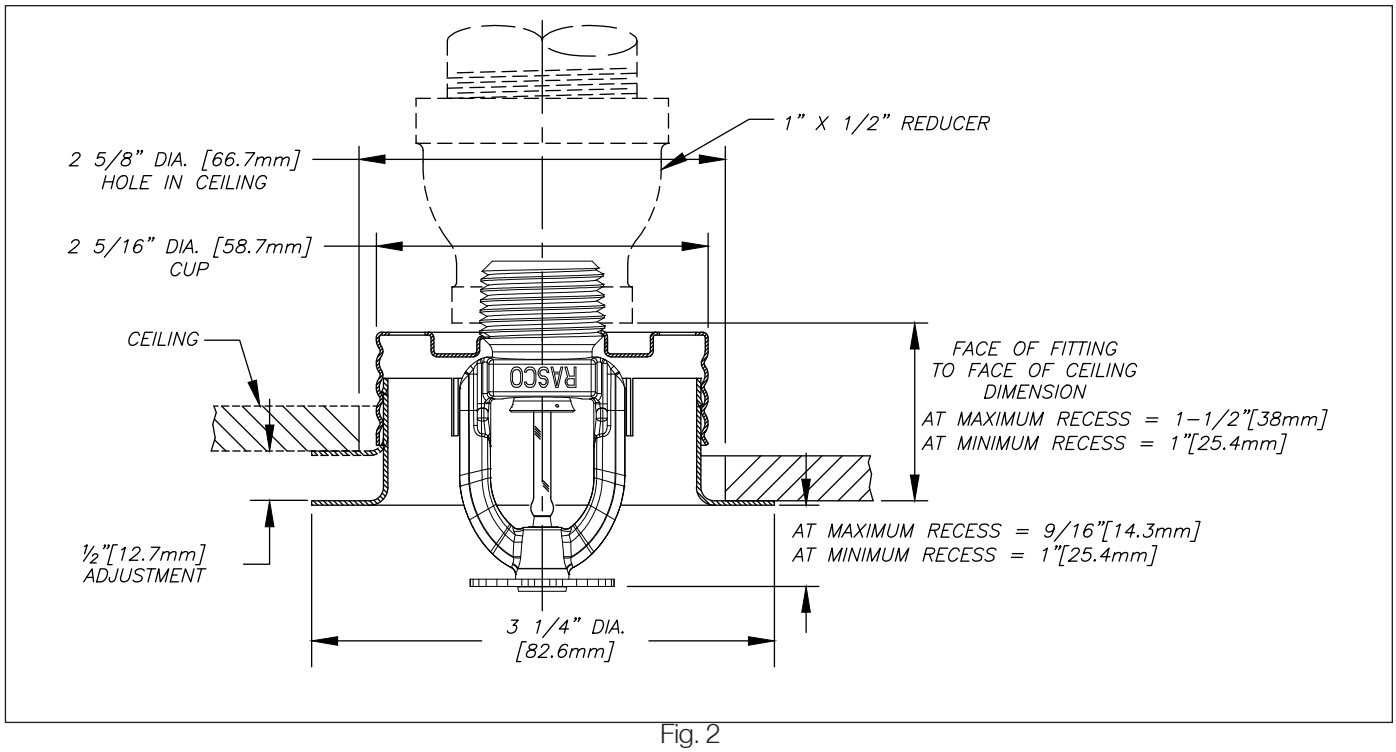


Fig. 2
Model F1FR56, F1FR56LL, F1FR42, F1FR40, F1FR42LL, F1FRXLH & F1FR28
Recessed Pendent sprinkler with Model FP escutcheon

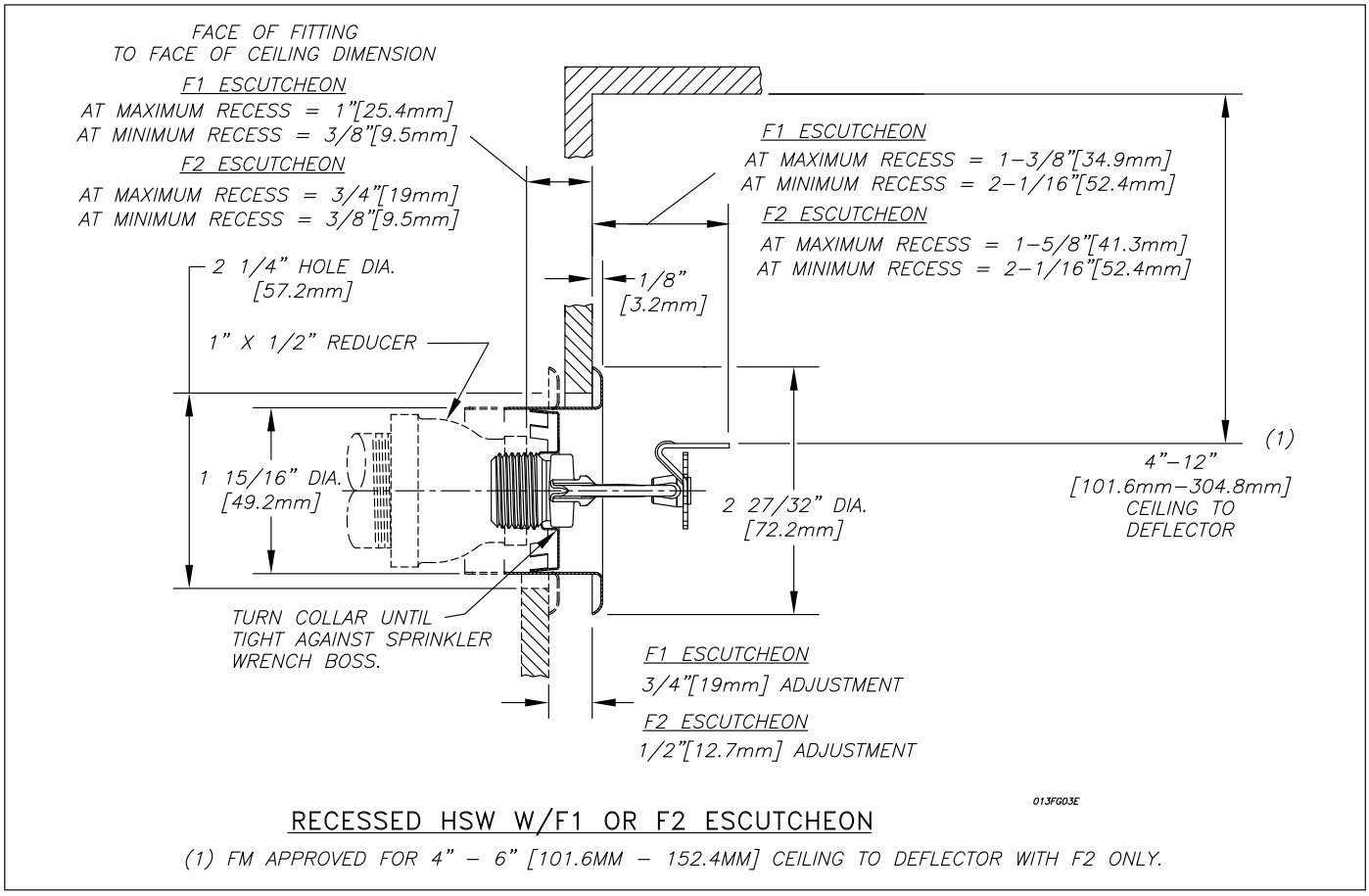


Fig. 3
Model F1FR56 Recessed Horizontal Sidewall sprinkler with Model F1 or F2 escutcheon

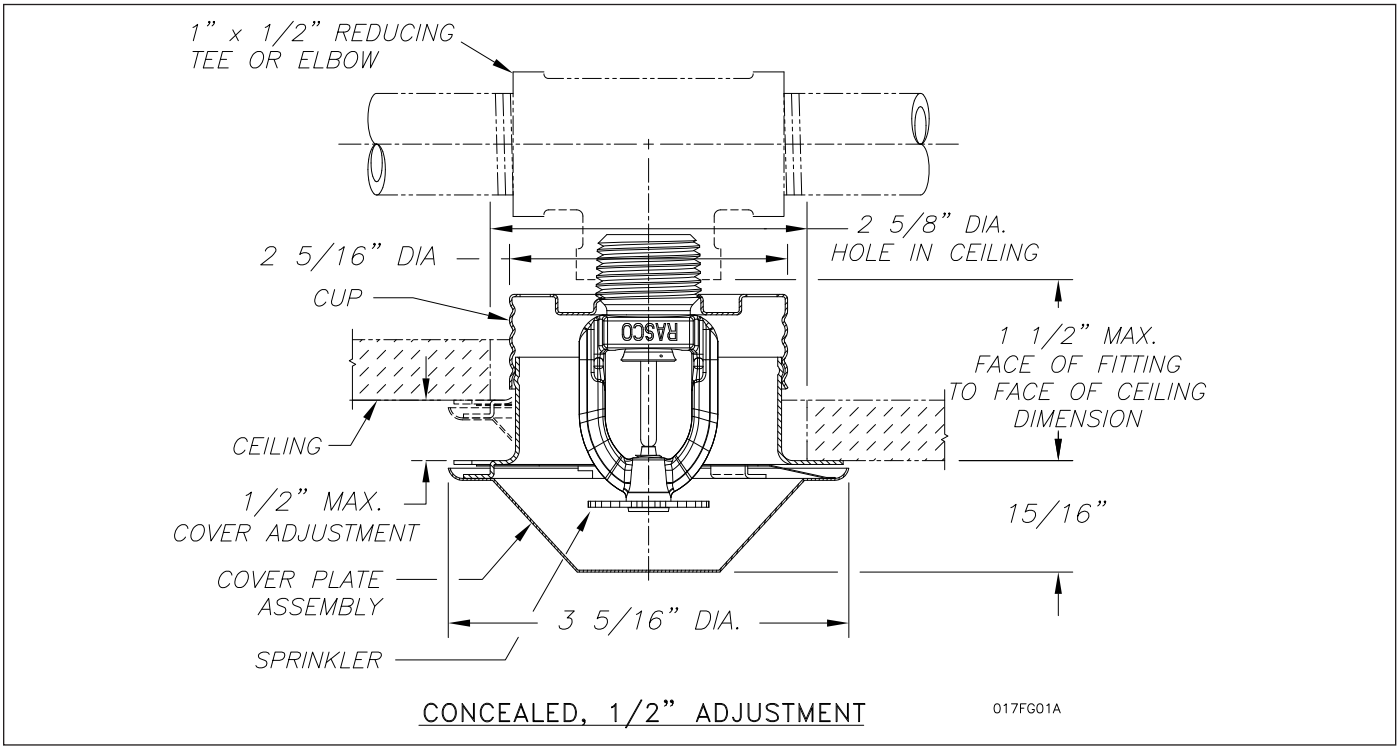


Fig. 4
Model F1FR56/F1FR56LL Concealed Pendent sprinkler with standard depth
1/2-inch (12.7mm) adjustment - Model CCP cover plate

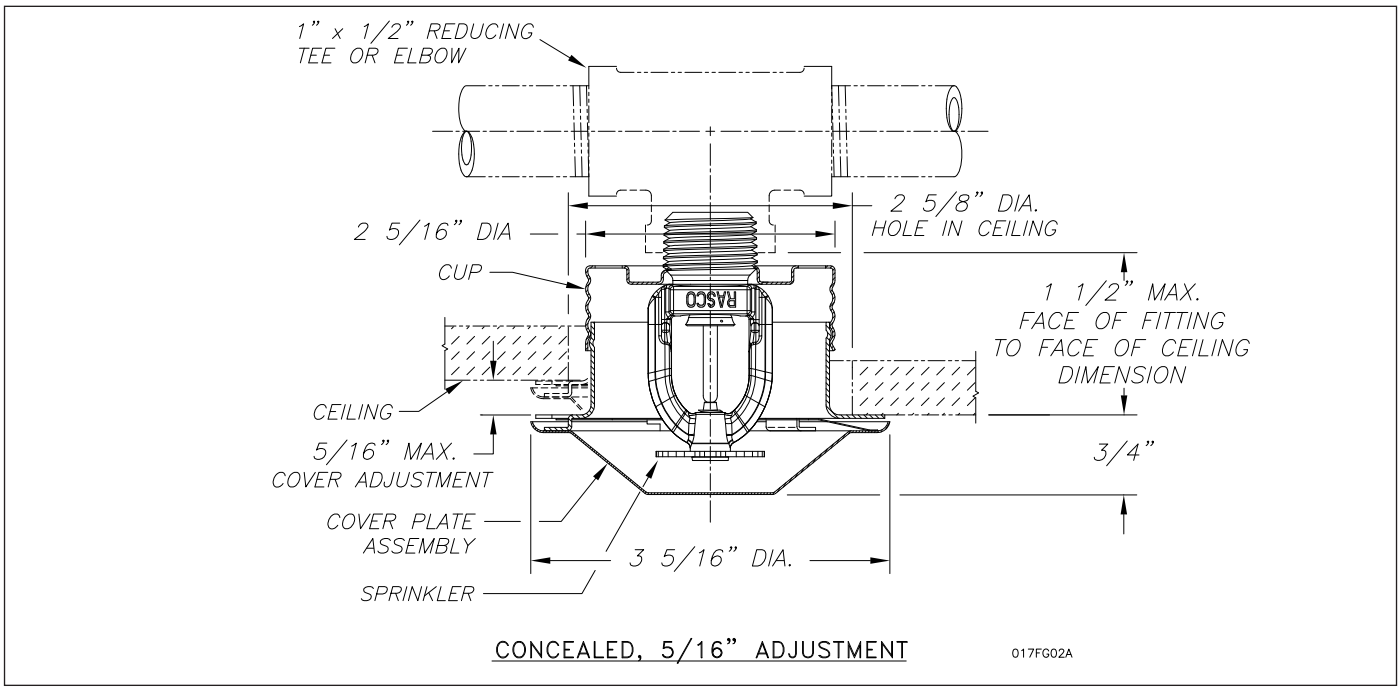


Fig. 5 - Model F1FR56/F1FR56LL Concealed Pendent sprinkler with low profile 5/16-inch (8.0mm) adjustment - Model CCP cover plate

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 Plated	White
Polyester 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 almost 100 years.

Manufactured by

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Reliable Automatic Sprinkler Co., Inc.

(800) 431-1588	Sales Offices
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CAST IRON THREADED FITTINGS

Anvil standard and extra heavy cast iron threaded fittings are manufactured in accordance with ASME B16.4. Plugs and bushings are manufactured in accordance with ASME B16.14.

NOTE: Figure 367 Concentric Reducers do not meet the overall length requirement of ASME B16.4. All other dimensions are in compliance.

c UL us

FM APPROVED

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative.

Cast Iron Threaded Fittings
Pressure - Temperature Ratings

Temperature		Pressure			
		Class 125		Class 250	
(°F)	*(°C)*	psi	*bar*	psi	*bar*
-20° to 150°	*-28.9 to 65.6*	175	*12.1*	400	*27.6*
200°	*93.3*	165	*11.4*	370	*25.5*
250°	*121.1*	150	*10.3*	340	*23.4*
300°	*148.9*	140	*9.7*	310	*21.4*
350°	*176.7*	125	*8.6*	300	*20.7*
400°	*204.4*	–	–	250	*17.2*

Standards and Specifications

	Dimensions	Material	Galvanizing*	Thread	Pressure Rating
CAST IRON THREADED FITTINGS					
Class 125	ASME B16.4	ASTM A-126 (A)	ASTM A-153	ASME B1.20.1	ASME B16.4
Class 250	ASME B16.4	ASTM A-126 (A)	ASTM A-153	ASME B1.20.1	ASME B16.4
CAST IRON PLUGS AND BUSHINGS					
	ASME B16.14	ASTM A- 126 (A)	ASTM A-153	ASME B1.20.1	ASME B16.14

* ASTM B 633. Type I, SC 4, may be supplied as alternate zinc coating per applicable ASME B16 product standard.

General Assembly of Threaded Fittings

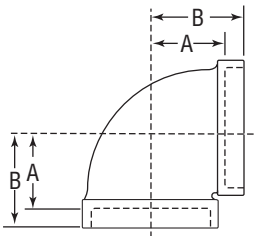
1) Inspect both male and female components prior to assembly.
   - Threads should be free from mechanical damage, dirt, chips and excess cutting oil.
   - Clean or replace components as necessary.

2) Application of thread sealant
   - Use a thread sealant that is fast drying, sets-up to a semi hard condition and is vibration resistant. Alternately, an anaerobic sealant may be utilized.
   - Thoroughly mix the thread sealant prior to application.
   - Apply a thick even coat to the male threads only. Best application is achieved with a brush stiff enough to force sealant down to the root of the threads.

3) Joint Makeup
   - For sizes up to and including 2" pipe, wrench tight makeup is considered three full turns past handtight. Handtight engagement for 1/2" through 2" thread varies from 4 1/2 turns to 5 turns.
   - For 2 1/2" through 4" sizes, wrench tight makeup is considered two full turns past handtight. Handtight engagement for 2 1/2" through 4" thread varies from 5 1/2 turns to 6 3/4 turns.

Class 125 (Standard)

FIGURE 351
90° Elbow



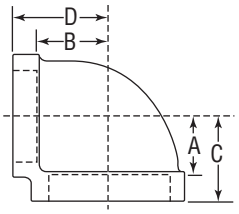
Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
1/4	*8*	1/2	*13*	13/16	*22*	0.16	*0.07*
3/8	*10*	9/16	*14*	15/16	*24*	0.25	*0.11*
1/2	*15*	11/16	*17*	1 1/8	*29*	0.40	*0.18*
3/4	*20*	13/16	*22*	1 15/16	*33*	0.60	*0.27*
1	*25*	15/16	*24*	1 1/2	*38*	0.92	*0.42*
1 1/4	*32*	1 1/8	*29*	1 3/4	*44*	1.44	*0.65*
1 1/2	*40*	1 5/16	*33*	1 15/16	*49*	1.95	*0.88*
2	*50*	1 9/16	*40*	2 1/4	*57*	3.13	*1.42*
2 1/2	*65*	1 13/16	*47*	2 11/16	*68*	4.94	*2.24*
3	*80*	2 3/16	*56*	3 1/8	*79*	7.21	*3.27*
3 1/2	*90*	2 7/16	*62*	3 7/16	*87*	9.67	*4.39*
4	*100*	2 11/16	*68*	3 13/16	*98*	12.17	*5.52*
5	*125*	3 5/16	*84*	4 1/2	*114*	21.46	*9.73*
6	*150*	3 7/8	*98*	5 1/8	*130*	31.33	*14.21*
8	*200*	5 3/16	*132*	6 9/16	*167*	64.56	*29.28*

Note: See following page for pressure-temperature ratings.

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

Class 125 (Standard)

FIGURE 352
90° Elbow, Reducing



Size				A		B		C		D		Unit Weight Black	
NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
1/2	*15*	1/4	*8*	5/8	*16*	3/4	*19*	1 1/16	*27*	1 1/16	*27*	0.40	*0.18*
		3/8	*10*	5/8	*16*	11/16	*17*	1 1/16	*27*	1 1/16	*27*	0.34	*0.15*
3/4	*20*	1/2	*15*	11/16	*17*	13/16	*22*	1 1/4	*32*	1 1/4	*32*	0.51	*0.23*
1	*25*	1/2	*15*	11/16	*17*	15/16	*24*	1 3/8	*35*	1 3/8	*35*	0.67	*0.30*
		3/4	*20*	13/16	*22*	15/16	*24*	1 7/16	*37*	1 7/16	*37*	0.76	*0.34*
1 1/4	*32*	1/2	*15*	11/16	*17*	1 1/16	*27*	1 1/2	*38*	1 1/2	*38*	1.07	*0.49*
		3/4	*20*	13/16	*22*	1 1/8	*29*	1 5/8	*41*	1 5/8	*41*	1.02	*0.46*
		1	*25*	15/16	*24*	1 1/8	*29*	1 11/16	*43*	1 11/16	*43*	1.21	*0.55*
1 1/2	*40*	1/2	*15*	3/4	*19*	1 1/4	*32*	1 5/8	*41*	1 5/8	*41*	1.53	*0.69*
		3/4	*20*	7/8	*22*	1 5/16	*33*	1 13/16	*47*	1 13/16	*47*	1.55	*0.70*
		1	*25*	1	*25*	1 1/4	*32*	1 13/16	*47*	1 13/16	*47*	1.44	*0.65*
		1 1/4	*32*	1 3/16	*30*	1 1/4	*32*	1 7/8	*48*	1 7/8	*48*	1.74	*0.79*
2	*50*	1/2	*15*	1 3/16	*30*	1 7/16	*37*	1 3/8	*35*	1 3/8	*35*	2.22	*1.01*
		3/4	*20*	1 5/16	*33*	1 1/2	*38*	2	*51*	2	*51*	2.20	*1.00*
		1	*25*	1 1/16	*27*	1 7/16	*37*	2	*51*	2	*51*	2.08	*0.94*
		1 1/4	*32*	1 3/16	*30*	1 7/16	*37*	2 1/16	*52*	2 1/16	*52*	2.33	*1.06*
		1 1/2	*40*	1 5/16	*33*	1 1/2	*38*	2 1/8	*54*	2 1/8	*54*	2.59	*1.17*
2 1/2	*65*	1	*25*	1	*25*	1 3/4	*44*	2 5/16	*59*	2 5/16	*59*	2.93	*1.33*
		1 1/4	*32*	1 3/16	*30*	1 3/4	*44*	2 3/8	*60*	2 3/8	*60*	3.41	*1.55*
		1 1/2	*40*	1 5/16	*33*	1 13/16	*47*	2 7/16	*62*	2 7/16	*62*	3.68	*1.67*
		2	*50*	1 9/16	*40*	1 7/8	*48*	2 9/16	*65*	2 9/16	*65*	4.01	*1.82*
3	*80*	1 1/4	*32*	1 5/8	*41*	2 5/16	*59*	2 15/16	*75*	2 15/16	*75*	5.98	*2.71*
		1 1/2	*40*	1 5/8	*41*	2 5/16	*59*	2 15/16	*75*	2 15/16	*75*	5.65	*2.56*
		2	*50*	1 5/8	*41*	2 1/4	*57*	2 15/16	*75*	2 15/16	*75*	5.25	*2.38*
		2 1/2	*65*	1 7/8	*48*	2 3/16	*56*	3 1/16	*78*	3 1/16	*78*	6.44	*2.92*
4	*100*	2	*50*	2 3/16	*56*	2 15/16	*75*	3 5/8	*92*	3 5/8	*92*	11.89	*5.39*
		2 1/2	*65*	2 3/16	*56*	2 3/4	*70*	3 5/8	*92*	3 5/8	*92*	11.27	*5.11*
		3	*80*	2 3/16	*56*	2 11/16	*68*	3 5/8	*92*	3 5/8	*92*	10.63	*4.82*
5	*125*	4	*100*	2 13/16	*73*	3 5/16	*84*	4 3/8	*111*	4 3/8	*111*	16.47	*7.47*
6	*150*	3	*80*	2 5/16	*59*	3 13/16	*98*	4 13/16	*124*	4 13/16	*124*	19.43	*8.81*
		4	*100*	2 13/16	*73*	3 7/8	*98*	4 15/16	*125*	4 15/16	*125*	23.53	*10.67*
		5	*125*	3 3/8	*86*	3 13/16	*98*	5	*127*	5	*127*	26.66	*12.09*

Note: See following page for pressure-temperature ratings.

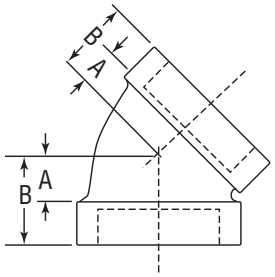
PROJECT INFORMATION	APPROVAL STAMP
Project:	☐ **Approved**
Address:	☐ **Approved as noted**
Contractor:	☐ **Not approved**
Engineer:	**Remarks:**
Submittal Date:	
Notes 1:	
Notes 2:	

Class 125 (Standard)

☐ **FIGURE 356 (Straight)**
☐ **FIGURE 356R (Reducing)**
45° Elbow

FIGURE 356 (Straight)

Figure 356R (Reducing)



Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
1/4	*8*	7/16	*11*	3/4	*19*	0.16	*0.07*
3/8	*10*	7/16	*11*	13/16	*22*	0.23	*0.10*
1/2	*15*	7/16	*11*	7/8	*22*	0.37	*0.17*
3/4	*20*	1/2	*13*	1	*25*	0.55	*0.25*
1	*25*	9/16	*14*	1 1/8	*29*	0.83	*0.38*
1 1/4	*32*	5/8	*16*	1 1/4	*32*	1.33	*0.60*
1 1/2	*40*	13/16	*22*	1 7/16	*37*	1.79	*0.81*
2	*50*	1	*25*	1 11/16	*43*	2.89	*1.31*
2 1/2	*65*	1 1/16	*27*	1 15/16	*49*	4.29	*1.95*
3	*80*	1 3/16	*30*	2 3/16	*56*	6.44	*2.92*
3 1/2	*90*	1 3/8	*35*	2 3/8	*60*	8.42	*3.82*
4	*100*	1 9/16	*40*	2 5/8	*67*	10.64	*4.83*
6	*150*	2 3/16	*56*	3 7/16	*87*	26.02	*11.80*
8	*200*	2 7/8	*73*	4 1/4	*108*	50.17	*22.75*

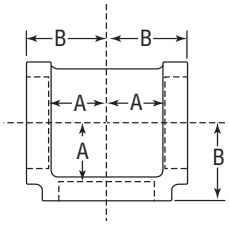
Size		A		B		C		D		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
1 x 1/2	*25 x 15*	1/2	*15*	7/8	*22*	1 1/16	*27*	1 5/16	*33*	0.95	*0.43*

Note: See following page for pressure-temperature ratings.

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

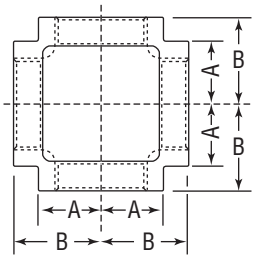
Class 125 (Standard)

FIGURE 358
Tee



Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
1/4	*8*	1/2	*13*	13/16	*22*	0.22	*0.10*
3/8	*10*	5/8	*16*	1	*25*	0.35	*0.16*
1/2	*15*	11/16	*17*	1 1/8	*29*	0.56	*0.25*
3/4	*20*	13/16	*22*	1 5/16	*33*	0.84	*0.38*
1	*25*	15/16	*24*	1 1/2	*38*	1.25	*0.57*
1 1/4	*32*	1 1/8	*29*	1 3/4	*44*	2.03	*0.92*
1 1/2	*40*	1 5/16	*33*	1 15/16	*49*	2.70	*1.22*
2	*50*	1 9/16	*40*	2 1/4	*57*	4.23	*1.92*
2 1/2	*65*	1 13/16	*47*	2 11/16	*68*	6.67	*3.02*
3	*80*	2 3/16	*56*	3 1/8	*79*	10.00	*4.54*
3 1/2	*90*	2 7/16	*62*	3 7/16	*87*	13.29	*6.03*
4	*100*	2 11/16	*68*	3 3/4	*95*	16.33	*7.41*
5	*125*	3 5/16	*84*	4 1/2	*114*	27.33	*12.39*
6	*150*	3 7/8	*98*	5 1/8	*130*	40.85	*18.53*
8	*200*	5 3/16	*132*	6 9/16	*167*	79.00	*35.83*

FIGURE 360
Cross



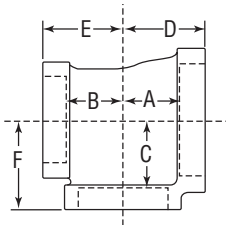
Size		A		B		Unit Weight Black	
NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
1/2	*15*	9/16	*14*	13/16	*22*	2.80	*1.27*
3/4	*20*	13/16	*22*	1 5/16	*33*	1.03	*0.47*
1	*25*	15/16	*24*	1 1/2	*38*	1.59	*0.72*
1 1/4	*32*	1 1/8	*29*	1 3/4	*44*	2.42	*1.10*
1 1/2	*40*	1 5/16	*33*	1 15/16	*49*	3.21	*1.46*
2	*50*	1 9/16	*40*	2 1/4	*57*	5.28	*2.39*
2 1/2	*65*	1 13/16	*47*	2 11/16	*68*	8.07	*3.66*
3	*80*	2 3/16	*56*	3 1/8	*79*	11.84	*5.37*
4	*100*	2 3/4	*70*	3 13/16	*98*	19.63	*8.90*

Note: See following page for pressure-temperature ratings.

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

Class 125 (Standard)

☐ **FIGURE 359**
Tee Reducing



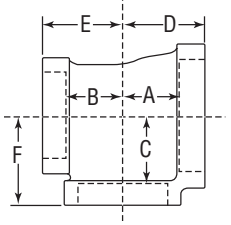
Size						A		B		C		D		E		F		Unit Weight Black	
NPS	DN	NPS	DN	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
1/2	15	1/2	15	1/4	8	1 1/16	17	11/16	17	13/16	22	1 1/8	29	1 1/8	29	1 1/8	29	0.57	0.26
				3/8	10	1 1/16	17	11/16	17	3/4	19	1 1/8	29	1 1/8	29	1 1/8	29	0.57	0.26
				3/4	20	1 3/16	22	13/16	22	11/16	17	1 1/4	32	1 1/4	32	13/16	22	0.68	0.31
				1	25	1	25	1	25	13/16	22	1 7/16	37	1 7/16	37	1 3/8	35	1.00	0.45
3/4	20	1/2	15	1/2	15	1 1/16	17	11/16	17	13/16	22	13/16	22	1 1/8	29	1 1/4	32	0.64	0.29
				3/4	20	1 3/16	22	13/16	22	13/16	22	15/16	24	1 1/4	32	15/16	24	0.75	0.34
		3/4	20	1/4	8	9/16	14	9/16	14	7/8	22	11/16	17	11/16	17	13/16	22	0.62	0.28
				3/8	10	1 1/16	17	11/16	17	15/16	24	13/16	22	13/16	22	1 1/4	32	0.75	0.34
				1/2	15	1 1/16	17	11/16	17	13/16	22	13/16	22	13/16	22	1 1/4	32	0.76	0.34
				1	25	1 5/16	24	15/16	24	13/16	22	1 7/16	37	1 7/16	37	1 3/8	35	0.99	0.45
1	25	1/4	8	1	25	1 5/16	24	15/16	24	15/16	24	1 1/2	38	1 1/4	32	1 1/2	38	1.08	0.49
		1/2	15	1/2	15	1 1/16	17	3/4	19	15/16	24	1 1/4	32	13/16	22	1 3/8	35	0.90	0.41
				3/4	20	1 3/16	22	13/16	22	15/16	24	1 3/8	35	1 1/4	32	1 7/16	37	0.91	0.41
				1	25	1 5/16	24	15/16	24	15/16	24	1 1/2	38	1 3/8	35	1 1/2	38	1.08	0.49
		3/4	20	1/2	15	1 1/16	17	11/16	17	15/16	24	1 1/4	32	13/16	22	1 3/8	35	0.89	0.40
				3/4	20	1 3/16	22	13/16	22	15/16	24	1 3/8	35	15/16	24	1 7/16	37	1.00	0.45
				1	25	1 5/16	24	15/16	24	15/16	24	1 1/2	38	1 7/16	37	1 1/2	38	1.13	0.51
		1	25	1/4	8	1 1/16	17	11/16	17	1 1/8	29	1 1/8	29	1 1/4	32	1 3/8	35	1.01	0.46
				1/2	15	1 1/16	17	11/16	17	15/16	24	1 1/4	32	1 1/4	32	1 3/8	35	1.01	0.46
				3/4	20	1 3/16	22	13/16	22	15/16	24	1 3/8	35	1 3/8	35	1 7/16	37	1.11	0.50
				1 1/4	32	1 1/8	29	1 1/8	29	15/16	24	1 11/16	43	1 11/16	43	1 9/16	40	1.49	0.68
				1 1/2	40	1 1/4	32	1 1/4	32	1	25	1 13/16	47	1 13/16	47	1 5/8	41	1.84	0.83
				2	50	1 7/16	37	1 7/16	37	1	25	2	50	2	50	1 3/4	44	2.70	1.22

Note: See page 6 for pressure-temperature ratings.

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

Class 125 (Standard)

FIGURE 359
Tee Reducing

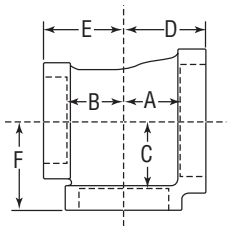


Size						A		B		C		D		E		F		Unit Weight Black	
NPS	DN	NPS	DN	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
1¼	32	½	15	½	15	13/16	22	13/16	22	1 1/8	29	1 7/16	37	15/16	24	1 5/8	41	1.00	0.45
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 3/8	35	1 11/16	43	1.38	0.63
				1¼	32	1 1/8	29	1 1/8	29	1 1/8	29	1 3/4	44	1 9/16	40	1 3/4	44	1.64	0.74
		¾	20	¾	20	13/16	22	13/16	22	1 1/8	29	1 7/16	37	15/16	24	1 5/8	41	1.27	0.58
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 7/16	37	1 11/16	43	1.43	0.65
				1¼	32	1 1/8	29	1 1/8	29	1 1/8	29	1 3/4	44	1 5/8	41	1 3/4	44	1.73	0.78
		1	25	½	15	1 1/16	17	11/16	17	1 1/8	29	15/16	24	1 1/4	32	1 9/16	40	1.27	0.58
				¾	20	1 3/16	22	13/16	22	1 1/8	29	1 7/16	37	1 3/8	35	1 5/8	41	1.36	0.62
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 9/16	40	1 11/16	43	1.53	0.69
				1¼	32	1 1/8	29	1 1/8	29	1 1/8	29	1 3/4	44	1 11/16	43	1 3/4	44	1.79	0.81
				1½	40	1 1/4	32	1 1/4	32	13/16	22	1 7/8	48	1 13/16	47	1 13/16	47	2.07	0.94
				2	50	1 7/16	37	1 7/16	37	13/16	22	2 1/16	52	2	50	1 7/8	48	2.66	1.21
		1¼	32	½	15	1 1/16	17	11/16	17	1 1/8	29	15/16	24	15/16	24	1 9/16	40	1.47	0.67
				¾	20	1 3/16	22	13/16	22	1 1/8	29	1 7/16	37	1 7/16	37	1 5/8	41	1.57	0.71
				1	25	1 5/16	24	15/16	24	1 1/8	29	1 9/16	40	1 9/16	40	1 11/16	43	1.73	0.78
				1½	40	1 1/4	32	1 1/4	32	13/16	22	1 7/8	48	1 7/8	48	1 13/16	47	2.29	1.04
				2	50	1 7/16	37	1 7/16	37	13/16	22	2 1/16	52	2 1/16	52	1 7/8	48	2.81	1.27
1½	40	½	15	1¼	32	13/16	22	1 1/8	29	1 1/4	32	1 13/16	47	1 9/16	40	1 7/8	48	1.93	0.88
				1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 11/16	43	1 15/16	49	2.14	0.97
		¾	20	1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 3/4	44	1 15/16	49	2.18	0.99
		1	25	½	15	13/16	22	3/4	19	1 1/4	32	1 7/16	37	15/16	24	1 11/16	43	1.75	0.79
				¾	20	7/8	22	13/16	22	1 1/4	32	1 1/2	38	1 3/8	35	1 3/4	44	1.70	0.77
				1	25	1	25	15/16	24	1 1/4	32	1 5/8	41	1 1/2	38	1 13/16	47	1.72	0.78
				1¼	32	13/16	22	1 1/8	29	1 1/4	32	1 13/16	47	1 11/16	43	1 7/8	48	2.08	0.94
				1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 13/16	47	1 15/16	49	2.29	1.04
				2	50	1 1/2	38	1 7/16	37	15/16	24	2 1/8	54	2	50	2	51	2.91	1.32
		1¼	32	½	15	13/16	22	11/16	17	1 1/4	32	1 7/16	37	15/16	24	1 11/16	43	1.67	0.76
				¾	20	7/8	22	13/16	22	1 1/4	32	1 1/2	38	1 7/16	37	1 3/4	44	1.79	0.81
				1	25	1	25	15/16	24	1 1/4	32	1 5/8	41	1 9/16	40	1 13/16	47	1.97	0.89
				1¼	32	13/16	22	1 1/8	29	1 1/4	32	1 13/16	47	1 3/4	44	17/8	48	2.28	1.03
				1½	40	15/16	24	1 1/4	32	15/16	24	1 15/16	49	1 7/8	48	1 15/16	49	2.50	1.13
				2	50	1 1/2	38	1 7/16	37	15/16	24	2 1/8	54	2 1/16	52	2	51	3.07	1.39
		1½	40	½	15	13/16	22	13/16	22	1 1/4	32	1 7/16	37	1 7/16	37	1 11/16	43	1.84	0.83
				¾	20	7/8	22	7/8	22	1 1/4	32	1 1/2	38	1 1/2	38	1 3/4	44	1.95	0.88
				1	25	1	25	1	25	1 1/4	32	1 5/8	41	1 5/8	41	1 13/16	47	2.13	0.97
				1¼	32	13/16	22	13/16	22	1 1/4	32	1 13/16	47	1 13/16	47	1 7/8	48	2.44	1.11
				2	50	1 1/2	38	1 1/2	38	15/16	24	2 1/8	54	2 1/8	54	2	51	3.23	1.46
				2½	65	1 13/16	47	1 13/16	47	15/16	24	2 7/16	62	2 7/16	62	2 3/16	56	4.15	1.88

Note: See page 6 for pressure-temperature ratings.

Class 125 (Standard)

FIGURE 359
Tee Reducing

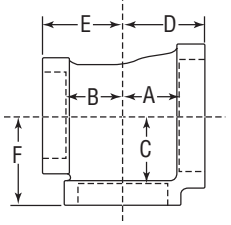


Size						A		B		C		D		E		F		Unit Weight Black	
NPS	DN	NPS	DN	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
				1 1/2	40	15/16	24	1 3/8	35	1 1/2	38	2	51	1 13/16	47	2 1/8	54	2.95	1.34
		1/2	15	2	50	1 9/16	40	1 7/16	37	1 9/16	40	2 1/4	57	1 7/8	48	2 1/4	57	3.30	1.50
				1 1/4	32	1 3/16	22	1 1/8	29	1 7/16	37	1 7/8	48	1 3/4	44	2 1/16	52	2.50	1.13
		3/4	20	1 1/2	40	1 5/16	24	15/16	24	1 1/2	38	2	51	1 13/16	47	2 1/8	54	3.40	1.54
				2	50	1 9/16	40	1 7/16	37	1 9/16	40	2 1/4	57	1 15/16	49	2 1/4	57	3.31	1.50
				1	25	11/16	17	11/16	17	1 7/16	37	1 3/4	44	1 5/8	41	2	51	2.70	1.22
				1 1/4	32	13/16	22	1 1/8	29	1 1/2	38	1 7/8	48	1 3/4	44	2 1/16	52	2.94	1.33
		1	25	1 1/2	40	15/16	24	1 1/4	32	1 1/2	38	2	51	1 13/16	47	2 1/8	54	2.85	1.29
				2	50	1 9/16	40	1 7/16	37	1 9/16	40	2 1/4	57	2	51	2 1/4	57	3.46	1.57
				2 1/2	65	1 7/8	48	1 13/16	47	1 9/16	40	2 9/16	65	2 3/8	60	2 7/16	62	4.88	2.21
				1/2	15	11/16	17	1	25	1 7/16	37	1 3/4	44	1 5/8	41	2	51	2.48	1.12
				3/4	20	7/8	22	7/8	22	1 7/16	37	1 9/16	40	1 1/2	38	1 15/16	49	2.50	1.13
				1	25	11/16	17	1	25	1 7/16	37	1 3/4	44	1 5/8	41	2	51	2.73	1.24
		1 1/4	32	1 1/4	32	13/16	22	1 1/8	29	1 7/16	37	1 7/8	48	1 3/4	44	2 1/16	52	2.90	1.32
				1 1/2	40	15/16	24	1 1/4	32	1 1/2	38	2	51	1 7/8	48	2 1/8	54	3.13	1.42
2	50			2	50	1 9/16	40	1 7/16	37	1 9/16	40	2 1/4	57	2 1/16	52	2 1/4	57	3.71	1.68
				2 1/2	65	1 7/8	48	1 3/4	44	1 9/16	40	2 9/16	65	2 3/8	60	2 7/16	62	4.54	2.06
				1/2	15	13/16	22	13/16	22	1 7/16	37	1 1/2	38	1 7/16	37	1 7/8	48	2.34	1.06
				3/4	20	7/8	22	7/8	22	1 7/16	37	1 9/16	40	1 1/2	38	1 15/16	49	2.46	1.12
				1	25	11/16	17	1	25	1 7/16	37	1 3/4	44	1 5/8	41	2	51	2.66	1.21
		1 1/2	40	1 1/4	32	13/16	22	13/16	22	1 7/16	37	1 7/8	48	1 13/16	47	2 1/16	52	2.98	1.35
				1 1/2	40	15/16	24	15/16	24	1 1/2	38	2	51	1 15/16	49	2 1/8	54	3.24	1.47
				2	50	1 9/16	40	1 1/2	38	1 9/16	40	2 1/4	57	2 1/8	54	2 1/4	57	3.70	1.68
				2 1/2	65	1 7/8	48	1 15/16	49	1 9/16	40	2 9/16	65	2 9/16	65	2 7/16	62	5.46	2.48
				1/2	15	13/16	22	13/16	22	1 7/16	37	1 1/2	38	1 1/2	38	1 7/8	48	2.74	1.24
				3/4	20	7/8	22	7/8	22	1 7/16	37	1 9/16	40	1 9/16	40	1 15/16	49	2.86	1.30
				1	25	11/16	17	11/16	17	1 7/16	37	1 3/4	44	1 3/4	44	2	51	3.05	1.38
		2	50	1 1/4	32	13/16	22	13/16	22	1 7/16	37	1 7/8	48	1 7/8	48	2 1/16	52	3.38	1.53
				1 1/2	40	15/16	24	15/16	24	1 1/2	38	2	51	2	51	2 1/8	54	3.59	1.63
				2 1/2	65	1 7/8	48	1 7/8	48	1 9/16	40	2 9/16	65	2 9/16	65	2 7/16	62	5.17	2.34
				3	100	3	76	3	76	2 7/16	62	3 11/16	94	3 11/16	94	3 1/2	89	7.87	3.57

Note: See page 6 for pressure-temperature ratings.

Class 125 (Standard)

FIGURE 359
Tee Reducing

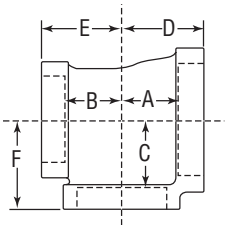


Size						A		B		C		D		E		F		Unit Weight Black	
NPS	DN	NPS	DN	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
2 1/2	65	1/2	15	2 1/2	65	1 13/16	47	1 13/16	47	1 13/16	47	2 11/16	68	2 1/4	57	2 11/16	68	5.20	2.36
		3/4	20	2 1/2	65	1 13/16	47	1 3/4	44	1 13/16	47	2 11/16	68	2 1/4	57	2 11/16	68	5.10	2.31
		1	25	2	50	1 9/16	40	1 9/16	40	1 7/8	48	2 7/16	62	2 1/8	54	2 9/16	65	5.03	2.28
				2 1/2	65	1 13/16	47	1 3/4	44	1 13/16	47	2 11/16	68	2 5/16	59	2 11/16	68	5.36	2.43
		1 1/4	32	2	50	1 9/16	40	1 1/2	38	1 7/8	48	2 7/16	62	2 1/8	54	2 9/16	65	4.96	2.25
				2 1/2	65	1 13/16	47	1 3/4	44	1 13/16	47	2 11/16	68	2 3/8	60	2 11/16	68	5.40	2.45
		1 1/2	40	1 1/2	40	15/16	24	15/16	22	1 13/16	47	2 3/16	56	1 15/16	49	2 7/16	62	4.23	1.92
				2	50	1 9/16	40	1 1/2	38	1 7/8	48	2 7/16	62	2 1/8	54	2 9/16	65	4.85	2.20
				2 1/2	65	1 13/16	47	1 13/16	47	1 13/16	47	2 11/16	68	2 7/16	62	2 11/16	68	4.85	2.20
		2	50	1/2	15	3/4	19	13/16	22	1 3/4	44	1 11/16	43	1 1/2	38	2 3/16	56	5.82	2.64
				3/4	20	7/8	22	7/8	22	1 3/4	44	1 3/4	44	1 9/16	40	2 1/4	57	3.62	1.64
				1	25	1	25	11/16	17	1 3/4	44	1 15/16	49	1 3/4	44	2 5/16	59	3.92	1.78
				1 1/4	32	13/16	22	13/16	22	1 3/4	44	2 1/16	52	1 7/8	48	2 3/8	60	4.26	1.93
				1 1/2	40	15/16	24	15/16	24	1 13/16	47	2 3/16	56	2	51	2 7/16	62	4.42	2.00
				2	50	1 9/16	40	1 9/16	40	1 7/8	48	2 7/16	62	2 1/4	57	2 9/16	65	5.17	2.34
				2 1/2	65	1 13/16	47	1 7/8	48	1 13/16	47	2 11/16	68	2 9/16	65	2 11/16	68	6.00	2.72
				3	80	2 1/16	52	2 1/8	54	1 7/8	48	3	80	2 7/8	73	2 13/16	73	7.35	3.33
		2 1/2	65	1/2	15	3/4	19	3/4	19	1 3/4	44	1 11/16	43	1 11/16	43	2 3/16	56	4.00	1.81
				3/4	20	7/8	22	7/8	22	1 3/4	44	1 3/4	44	1 3/4	44	2 1/4	57	4.29	1.95
				1	25	1	25	1	25	1 3/4	44	1 15/16	49	1 15/16	49	2 5/16	59	4.48	2.03
				1 1/4	32	13/16	22	13/16	22	1 3/4	44	2 1/16	52	2 1/16	52	2 3/8	60	4.83	2.19
				1 1/2	40	15/16	24	15/16	24	1 13/16	47	2 3/16	56	2 3/16	56	2 7/16	62	5.14	2.33
				2	50	1 9/16	40	1 9/16	40	1 7/8	48	2 7/16	62	2 7/16	62	2 9/16	65	5.88	2.67
				3	80	2 1/16	52	2 1/16	52	1 7/8	48	3	80	3	80	2 13/16	73	8.09	3.67
				4	100	2 3/4	70	2 13/16	73	2 7/16	62	3 11/16	94	3 11/16	94	3 1/2	89	14.03	6.36
3	80	3/4	20	3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	2 11/16	68	3 1/8	79	8.25	3.74
		1	25	3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	2 11/16	68	3 1/8	79	8.30	3.76
		1 1/4	32	3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	2 13/16	73	3 1/8	79	8.46	3.84
		1 1/2	40	3	80	2 1/8	54	2 3/16	56	2 1/8	54	3 1/8	79	2 13/16	73	3 1/8	79	8.13	3.69
		2	50	1 1/2	40	1 3/8	35	1 1/2	38	2 3/16	56	2 5/16	59	2 3/16	56	2 13/16	73	6.83	3.10
				2	50	1 9/16	40	1 9/16	40	2 3/16	56	2 9/16	65	2 1/4	57	2 15/16	75	7.29	3.31
				2 1/2	65	1 7/8	48	1 15/16	49	2 1/8	54	2 13/16	73	2 9/16	65	3 1/16	78	7.10	3.22
				3	80	2 1/8	54	2 3/16	56	2 1/8	54	3 1/8	79	2 15/16	75	3 1/8	79	8.79	3.99
		2 1/2	65	1	25	1	25	15/16	24	2 1/8	54	2 1/16	52	1 15/16	49	2 11/16	68	5.51	2.50
				1 1/4	32	1 1/4	32	13/16	22	2 1/8	54	2 3/16	56	2 1/16	52	2 3/4	70	5.92	2.68
				1 1/2	40	1 3/8	35	15/16	24	2 3/16	56	2 5/16	59	2 3/16	56	2 13/16	73	6.23	2.83
				2	50	1 9/16	40	1 1/2	38	2 3/16	56	2 9/16	65	2 7/16	62	2 15/16	75	6.81	3.09
				2 1/2	65	1 7/8	48	1 13/16	47	2 1/8	54	2 13/16	73	2 11/16	68	3 1/16	78	7.66	3.47
				3	80	2 1/8	54	2 1/8	54	2 1/8	54	3 1/8	79	3 1/16	78	3 1/8	79	9.13	4.14
		3	80	1/2	15	15/16	24	15/16	24	2 3/16	56	1 7/8	48	1 7/8	48	2 5/8	67	6.08	2.76
				3/4	20	15/16	24	15/16	24	2 1/8	54	1 7/8	48	1 7/8	48	2 5/8	67	6.06	2.75
				1	25	1	25	1	25	2 1/8	54	2 1/16	52	2 1/16	52	2 11/16	68	6.27	2.84
				1 1/4	32	1 1/4	32	1 1/4	32	2 1/8	54	2 3/16	56	2 3/16	56	2 3/4	70	6.75	3.06
				1 1/2	40	1 3/8	35	1 3/8	35	2 3/16	56	2 5/16	59	2 5/16	59	2 15/16	75	7.10	3.22
				2	50	1 9/16	40	1 9/16	40	2 3/16	56	2 9/16	65	2 9/16	65	2 7/8	73	7.75	3.51
				2 1/2	65	1 7/8	48	1 7/8	48	2 1/8	54	2 13/16	73	2 13/16	73	3 1/16	78	8.92	4.05
				4	100	2 11/16	68	2 11/16	68	2 7/16	62	3 11/16	94	3 11/16	94	3 1/2	89	12.80	5.80

Note: See page 6 for pressure-temperature ratings.

Class 125 (Standard)

FIGURE 359
Tee Reducing

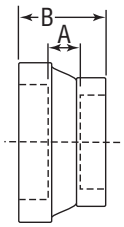


Size						A		B		C		D		E		F		Unit Weight Black	
NPS	*DN*	NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	in	*mm*	lbs	*kg*
3 1/2	*90*	3 1/2	*90*	1 1/2	*40*	1 3/8	*35*	1 3/8	*35*	2 7/16	*62*	2 3/8	*60*	2 3/8	*60*	3 1/16	*78*	8.87	*4.02*
				2	*50*	1 5/8	*41*	1 5/8	*41*	2 7/16	*62*	2 5/8	*67*	2 5/8	*67*	3 3/16	*81*	9.94	*4.51*
4	*100*	1	*25*	4	*100*	2 3/4	*70*	2 15/16	*75*	2 3/4	*70*	3 3/4	*95*	3 1/2	*89*	3 3/4	*95*	13.52	*6.13*
		1 1/2	*40*	4	*100*	2 3/4	*70*	2 7/8	*73*	2 3/4	*70*	3 3/4	*95*	3 1/2	*89*	3 3/4	*95*	13.47	*6.11*
		2	*50*	2	*50*	1 11/16	*43*	1 7/8	*48*	2 3/4	*70*	2 11/16	*68*	2 9/16	*65*	3 1/2	*89*	11.34	*5.14*
				4	*100*	2 3/4	*70*	2 3/4	*70*	2 3/4	*70*	3 3/4	*95*	3 1/2	*89*	3 3/4	*95*	13.89	*6.30*
		2 1/2	*65*	2 1/2	*65*	1 7/8	*48*	1 13/16	*47*	2 5/8	*67*	2 15/16	*75*	2 13/16	*73*	3 9/16	*90*	11.78	*5.34*
				4	*100*	2 3/4	*70*	2 3/4	*70*	2 3/4	*70*	3 3/4	*95*	3 5/8	*92*	3 3/4	*95*	15.75	*7.14*
		3	*80*	2 1/2	*65*	1 7/8	*48*	1 7/8	*48*	2 5/8	*67*	2 15/16	*75*	2 13/16	*73*	3 9/16	*90*	11.25	*5.10*
				3	*80*	2 1/4	*57*	2 1/8	*54*	2 11/16	*68*	3 1/4	*83*	3 1/8	*79*	3 5/8	*92*	12.50	*5.67*
				4	*100*	2 3/4	*70*	2 11/16	*68*	2 3/4	*70*	3 3/4	*95*	3 5/8	*92*	3 3/4	*95*	15.04	*6.82*
		4	*100*	1	*25*	13/16	*22*	13/16	*22*	2 3/4	*70*	2 5/16	*59*	2 5/16	*59*	3 5/16	*84*	10.40	*4.72*
				1 1/4	*32*	15/16	*24*	15/16	*24*	2 5/8	*67*	2 5/16	*59*	2 5/16	*59*	3 5/16	*84*	10.38	*4.71*
				1 1/2	*40*	1 7/16	*37*	1 7/16	*37*	2 11/16	*68*	2 7/16	*62*	2 7/16	*62*	3 5/16	*84*	10.75	*4.88*
				2	*50*	1 11/16	*43*	1 11/16	*43*	2 3/4	*70*	2 11/16	*68*	2 11/16	*68*	3 1/2	*89*	11.63	*5.27*
				2 1/2	*65*	2	*51*	2	*51*	2 5/8	*67*	2 15/16	*75*	2 15/16	*75*	3 9/16	*90*	12.85	*5.83*
				3	*80*	2 1/4	*57*	2 1/4	*57*	2 11/16	*68*	3 1/4	*83*	3 1/4	*83*	3 5/8	*92*	14.12	*6.40*
				5	*125*	3 3/8	*86*	3 3/8	*86*	2 13/16	*73*	4 3/8	*111*	4 3/8	*111*	4	*102*	20.88	*9.47*
				6	*150*	3 7/8	*98*	3 7/8	*98*	2 7/8	*73*	4 15/16	*125*	4 15/16	*125*	4 1/16	*103*	26.36	*11.95*
5	*125*	5	*125*	2	*50*	1 3/4	*44*	1 3/4	*44*	3 7/16	*87*	2 15/16	*75*	2 15/16	*75*	4 1/8	*105*	17.43	*7.90*
				3	*80*	2 5/16	*59*	2 5/16	*59*	3 1/4	*83*	3 1/2	*89*	3 1/2	*89*	4 1/4	*108*	20.00	*9.07*
				4	*100*	2 13/16	*71*	2 13/16	*71*	3 3/8	*86*	4	*102*	4	*102*	4 3/8	*111*	23.83	*10.81*
6	*150*	4		4	*100*	2 7/8	*73*	2 13/16	*71*	3 7/8	*98*	4 1/16	*103*	4	*102*	4 15/16	*125*	30.00	*13.61*
		6	*150*	2 1/2	*65*	2	*51*	2	*51*	3 13/16	*97*	3 1/4	*83*	3 1/4	*83*	4 3/4	*121*	25.67	*11.64*
				3	*80*	2 3/8	*60*	2 3/8	*60*	3 13/16	*97*	3 9/16	*90*	3 9/16	*90*	4 13/16	*122*	27.46	*12.45*
				4	*100*	2 7/8	*73*	2 7/8	*73*	3 7/8	*98*	4 1/16	*103*	4 1/16	*103*	4 15/16	*125*	32.44	*14.71*
				5	*125*	3 3/8	*86*	3 3/8	*86*	3 13/16	*97*	4 5/8	*117*	4 5/8	*117*	5	*127*	37.00	*16.78*

Note: See page 6 for pressure-temperature ratings.

Class 125 (Standard)

☐ **FIGURE 367**
Concentric Reducer



Size				A		B*		Unit Weight Black	
NPS	*DN*	NPS	*DN*	in	*mm*	in	*mm*	lbs	*kg*
3/4	*20*	1/2	*15*	5/8	*16*	1 9/16	*40*	0.40	*0.18*
1	*25*	1/2 (Hex)	*15*	11/16	*17*	1 11/16	*43*	0.54	*0.24*
		3/4 (Hex)	*20*	7/16	*11*	1 1/2	*38*	0.63	*0.29*
1 1/4	*32*	1/2	*15*	9/16	*14*	1 5/8	*41*	0.84	*0.38*
		3/4	*20*	1	*25*	2 1/8	*54*	0.90	*0.41*
		1	*25*	15/16	*24*	2 1/8	*54*	1.07	*0.49*
1 1/2	*40*	1/2	*15*	1/2	*13*	1 5/8	*41*	1.00	*0.45*
		3/4	*20*	1/2	*13*	1 5/8	*41*	1.20	*0.54*
		1	*25*	1/2	*13*	1 3/4	*44*	1.50	*0.68*
		1 1/4	*32*	1	*25*	2 1/4	*57*	1.45	*0.66*
2	*50*	1/2	*15*	5/8	*16*	2	*51*	2.00	*0.91*
		3/4	*20*	3/4	*19*	2	*51*	1.90	*0.86*
		1	*25*	3/4	*19*	2	*51*	1.83	*0.83*
		1 1/4	*32*	13/16	*22*	2 1/8	*54*	1.78	*0.81*
		1 1/2	*40*	7/8	*22*	2 3/16	*56*	1.98	*0.90*
2 1/2	*65*	1 1/2	*40*	3/4	*19*	2	*51*	3.10	*1.41*
		2	*50*	1	*25*	2 9/16	*65*	2.98	*1.35*
3	*80*	3/4	*20*	15/16	*24*	2 1/2	*64*	4.31	*1.95*
		2	*50*	1 1/16	*27*	2 3/4	*70*	3.96	*1.80*
		2 1/2	*65*	15/16	*24*	2 13/16	*73*	4.40	*2.00*
4	*100*	2	*50*	1 3/16	*30*	2 15/16	*75*	6.50	*2.95*
		2 1/2	*65*	1 3/16	*30*	3 1/8	*79*	7.78	*3.53*
		3	*80*	1 1/16	*27*	3 1/8	*79*	7.01	*3.18*
5	*125*	4	*100*	1 1/16	*27*	3 5/16	*84*	10.48	*4.75*
6	*150*	4	*100*	1 1/8	*29*	3 7/16	*87*	13.83	*6.27*
		5	*125*	1 1/8	*29*	3 9/16	*90*	15.53	*7.04*
8	*200*	6	*150*	1 1/4	*32*	3 7/8	*98*	29.10	*13.20*

* Dimension "B" does not conform to ASME standard.

Note: See following page for pressure-temperature ratings.

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

Class 125 (Standard)

FIGURE 387 Square Head Plugs, Cored

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
3/4*	*20*	0.13	*0.06*	0.13	*0.06*
1	*25*	0.25	*0.11*	0.25	*0.11*
1 1/4	*32*	0.39	*0.18*	0.39	*0.18*
1 1/2	*40*	0.50	*0.23*	0.50	*0.23*
2	*50*	0.82	*0.37*	0.82	*0.37*
2 1/2	*65*	1.32	*0.60*	1.32	*0.60*
3	*80*	1.87	*0.85*	1.87	*0.85*
3 1/2	*90*	2.50	*1.13*	2.50	*1.13*
4	*100*	4.00	*1.81*	4.00	*1.81*

* Zinc Plated

FIGURE 388 Square Head Plugs, Solid

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
1/2	*15*	0.10	*0.05*	0.10	*0.05*
3/4	*20*	0.17	*0.08*	0.17	*0.08*
1	*25*	0.32	*0.15*	0.32	*0.15*
1 1/4	*32*	0.53	*0.24*	0.53	*0.24*
1 1/2	*40*	0.76	*0.34*	0.76	*0.34*
2	*50*	1.23	*0.56*	1.23	*0.56*
2 1/2	*65*	2.00	*0.91*	2.00	*0.91*
3	*80*	3.18	*1.44*	3.18	*1.44*
3 1/2	*90*	4.38	*1.99*	–	–

FIGURE 389 Bar Plugs, Cored

Size		Unit Weight			
		Black		Galv.	
NPS	*DN*	lbs	*kg*	lbs	*kg*
4	*100*	3.82	*1.73*	3.82	*1.73*
5	*125*	6.50	*2.95*	6.50	*2.95*
6	*150*	9.94	*4.51*	9.94	*4.51*
8	*200*	20.26	*9.19*	20.26	*9.19*

FIGURE 380 Bar Plugs, Solid

Size		Unit Weight	
		Black	
NPS	*DN*	lbs	*kg*
4	*100*	5.68	*2.58*
5	*125*	9.60	*4.35*
6	*150*	14.78	*6.70*

According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

Note: See following page for pressure-temperature ratings.

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

Mechanical-T® Bolted Branch Outlets

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

STYLES 920 AND 920N

STYLES 920 AND 920N

STYLE 920 CROSS

PATENTED

Victaulic Mechanical-T® 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® 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.

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	CONTRACTOR	ENGINEER
System No. _____	Submitted By _____	Spec Sect _____ Para _____
Location _____	Date _____	Approved _____
		Date _____

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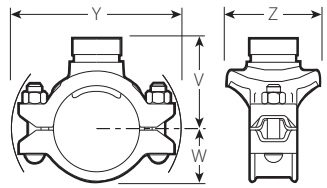
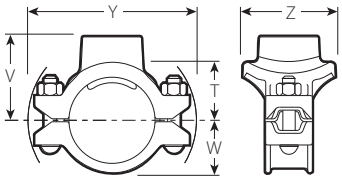
Mechanical-T® Bolted Branch Outlets

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

Size Run × Branch Nominal Size Inches mm		Style No. 920 or 920N	Max. Work Pressure@ psi kPa	Dimensions 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	Approx. Weight Each Female Thd. Lbs. kg	Grv. Lbs. kg
2 50	× ½ (a) ¤ 15	920N	500 3450	1.50 38.1	2.00 51	2.53 64	—	1.61 41	5.35 136	2.75 70	3.1 1.5	—
	¾ (a) ¤ 20	920N	500 3450	1.50 38.1	1.97 50	2.53 64	—	1.61 41	5.35 136	2.75 70	3.1 1.5	—
	1 (a) ¤ 25	920N	500 3450	1.50 38.1	1.85 47	2.53 64	—	1.61 41	5.35 136	2.75 70	3.0 1.4	—
	1 ¼ (a) †¤ 32	920N	500 3450	1.75 44.5	2.05 52	2.75 70	3.00 76	1.61 41	5.35 136	3.00 76	3.5 1.7	3.2 1.5
	1 ½ (a) †¤ 40	920N	500 3450	1.75 44.5	2.03 52	2.75 70	3.12 79	1.61 41	5.35 136	3.25 83	3.6 1.7	3.2 1.5
2 ½ 65	× ½ (a) §¤ 15	920N	500 3450	1.50 38.1	2.21 56	2.74 70	—	1.82 46	5.64 143	2.75 70	3.0 1.4	—
	¾ (a) §¤ 20	920N	500 3450	1.50 38.1	2.18 55	2.74 70	—	1.82 46	5.64 143	2.75 70	3.0 1.4	—
	1 (a) §¤ 25	920N	500 3450	1.50 38.1	2.06 52	2.74 70	—	1.82 46	5.64 143	2.75 70	2.9 1.4	—
	1 ¼ † (a) ¤ 32	920N	500 3450	1.75 44.5	2.30 58	3.00 76	3.25 83	1.82 46	6.29 160	3.00 76	3.5 1.7	3.2 1.5
	1 ½ † (a) ¤ 40	920N	500 3450	2.00 50.8	2.28 58	3.00 76	3.25 83	1.82 46	6.26 159	3.25 83	3.6 1.7	3.3 1.6
76.1	× ½ (a) 15	920N	300 2065	1.50 38.1	2.22 56	2.75 70	—	2.25 57	6.46 164	3.18 81	3.9 1.8	—
	¾ (a) 20	920N	300 2065	1.50 38.1	2.19 56	2.75 70	—	2.25 57	6.46 164	3.18 81	3.9 1.8	—
	1 (a) 25	920N	300 2065	1.50 38.1	2.07 53	2.75 70	—	2.25 57	6.46 164	3.18 81	3.8 1.7	—
	1 ¼ (a) ¤ 32	920N	500 3450	1.75 44.5	2.30 58	3.00 76	3.31 84	1.92 49	6.29 160	3.00 76	3.5 1.6	3.2 1.5
	1 ½ (a) ¤ 40	920N	500 3450	2.00 50.8	2.28 58	3.00 76	3.31 84	1.92 49	6.29 160	3.25 83	3.5 1.6	3.3 1.5
3 80	× ½ (a) ¤ 15	920N	500 3450	1.50 38.1	2.52 64	3.05 78	—	2.28 58	6.15 156	2.75 70	3.4 1.6	—
	¾ (a) ¤ 20	920N	500 3450	1.50 38.1	2.49 63	3.05 78	—	2.28 58	6.15 156	2.75 70	3.4 1.6	—
	1 (a) 25	920N	500 3450	1.50 38.1	2.38 61	3.06 78	—	2.28 58	6.15 156	2.75 70	3.3 1.6	—
	1 ¼ (a) †¤ 32 (b)	920N	500 3450	1.75 44.5	2.55 65	3.25 83	3.56 90	2.28 58	6.15 156	3.00 76	3.8 1.8	3.7 1.8
	1 ½ (a) †¤ 40 (b)	920N	500 3450	2.00 50.8	2.78 71	3.50 89	3.56 90	2.28 58	6.15 156	3.25 83	4.1 1.9	3.8 1.8
	2 (a) ¤ 50	920N	500 3450	2.50 63.5	2.75 70	3.50 89	3.56 90	2.28 58	6.75 172	3.88 99	4.9 2.3	4.6 2.1
3 ½ 90	× 2 50	920N	500 3450	2.50 63.5	3.00 76	—	3.75 95	2.44 62	6.72 171	3.88 99	—	3.8 1.8

TABLE CONTINUED ON PG. 3

** 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

Ø Approved for use in China by Tianjin Approvals Company.

IMPORTANT NOTES:

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

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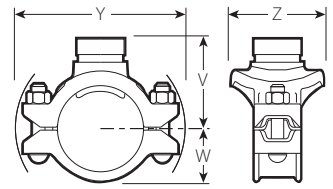
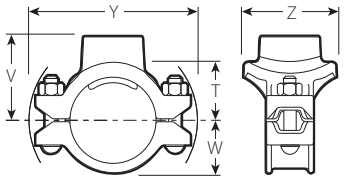
Mechanical-T® Bolted Branch Outlets

STYLES 920 AND 920N

DIMENSIONS



GROOVED OUTLET



FEMALE THREADED OUTLET

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- 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

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	Grv. Lbs. kg
TABLE CONTINUED FROM PAGE 2												
4 100 ×	½ (a) ¤ 15	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) ¤ 20	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) ¤ 25	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) †¤ 32 (b)	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) †¤ 40 (b)	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) †¤ 50	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) † 65	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) † 80	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)¤ 32	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)¤ 40	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) 50	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) 80	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) † 40	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) † 50	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) † 65	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) † 80	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												

IMPORTANT NOTES:

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

** 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.

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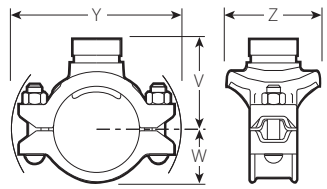
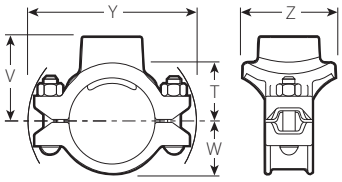
Mechanical-T® Bolted Branch Outlets

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	Grv. Lbs. kg
TABLE CONTINUED FROM PAGE 3												
139.7 ×	1 ½ † 40	920N	500 3450	2.00 50.8	3.78 96	4.50 114	—	3.30 84	8.23 209	3.25 83	7.0 3.2	—
	2 † 50	920N	500 3450	2.50 63.5	3.75 95	4.50 114	—	3.30 84	8.23 209	3.88 99	9.0 4.1	—
6 150 ×	1 ¼ (a) 32 (b)	920N	500 3450	1.75 44.5	4.43 112	5.13 130	5.13 130	3.79 96	9.15 232	3.25 83	5.1 2.3	4.8 2.2
	1 ½ (a) †¤ 40 (b)	920N	500 3450	2.00 50.8	4.40 112	5.13 130	5.13 130	3.79 96	9.15 232	3.25 83	5.4 2.4	5.1 2.3
	2 (a) †¤ 50	920N	500 3450	2.50 63.5	4.38 111	5.13 130	5.13 130	3.79 96	9.15 232	3.88 99	6.0 2.7	5.6 2.5
	2 ½ 65	920	500 3450	2.75 69.9	4.01 110	5.13 130	5.12 130	3.69 94	10.51 267	4.63 118	8.3 3.8	7.6 3.4
	76.1 mm ¤	920	500 3450	2.75 69.9	4.15 105	—	5.21 132	3.69 94	10.51 267	4.63 118	—	8.4 3.8
	3 (a) † 80	920	500 3450	3.50 88.9	4.31 110	5.50 140	5.13 130	3.69 94	10.51 267	5.31 135	9.9 4.5	8.4 3.8
	4 (a) †¤ 100	920	500 3450	4.50 114.3	3.81 97	5.75 146	5.38 137	3.69 94	10.51 267	6.25 159	10.1 4.6	10.1 4.6
159.0 ×	1 ½ (a) 40	920N	500 3450	2.00 50.8	4.41 112	5.13 130	—	3.63 92	9.40 239	3.25 83	7.8 3.5	—
	2 (a) 50	920N	500 3450	2.50 63.5	4.38 111	5.13 130	—	3.63 92	9.40 239	3.88 99	8.0 3.6	—
	76.1 mm	920	500 3450	2.75 69.9	4.38 111	5.50 140	5.13 130	3.63 92	9.40 239	4.63 118	9.5 4.3	9.5 4.3
	3 80	920	500 3450	3.50 88.9	4.31 110	5.50 140	5.13 130	3.63 92	9.40 239	5.31 135	8.1 3.7	14.0 6.4
	108.0 mm	920	500 3450	4.50 114.3	4.45 113	—	5.38 137	3.63 92	9.40 239	6.12 155	—	10.0 4.5
	4 100	920	500 3450	4.50 114.3	3.81 96.80	5.75 146	—	3.63 92	9.40 239	6.25 159	18.0 8.2	—
TABLE CONTINUED ON PG. 5												

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

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‡ 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.

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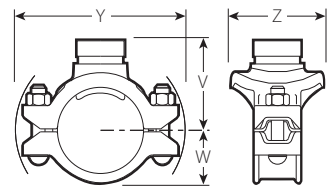
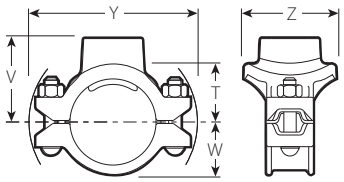
Mechanical-T® Bolted Branch Outlets

STYLES 920 AND 920N

DIMENSIONS



GROOVED OUTLET



FEMALE THREADED OUTLET

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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	Grv. Lbs. kg
TABLE CONTINUED FROM PAGE 4												
165.1 ×	1 25	920N	500 3450	1.50 38.1	3.88 99	4.56 116	—	3.79 96	9.34 237	2.75 70	8.0 3.6	—
	1 ¼ ¤ 32	920N	500 3450	1.75 44.5	4.43 113	5.13 130	—	3.79 96	9.34 237	3.25 83	8.4 3.8	—
	1 ½ (a) †¤ 40	920N	500 3450	2.00 50.8	4.41 112	5.13 130	5.13 130	3.79 96	9.34 237	3.25 83	8.4 3.8	5.4 2.4
	2 (a) † 50	920N	500 3450	2.50 63.5	4.38 111	5.13 130	5.13 130	3.79 96	9.34 237	3.88 99	8.5 3.9	6.0 2.7
	76.1 mm	920	500 3450	2.75 69.9	4.01 110	5.13 130	5.21 132	3.63 92	10.51 267	4.63 118	8.6 3.9	7.6 3.4
	3 (a) † ø 80	920	500 3450	3.50 88.9	4.31 110	5.50 140	5.13 130	3.63 92	10.51 267	5.31 135	10.2 4.6	8.4 3.8
	4 (a) †¤ 100	920	500 3450	4.50 114.3	3.81 97	5.75 146	5.38 137	3.63 92	10.51 267	6.25 159	10.5 4.8	8.4 3.8
8 200 ×	2 (a) † 50	920	500 3450	2.75 69.9	5.44 138	6.19 157	6.25 159	4.81 122	12.42 316	4.50 114	11.6 5.3	11.6 5.3
	2 ½ (a) † 65	920	500 3450	2.75 69.9	5.07 129	6.19 157	6.19 157	4.81 122	12.42 316	4.50 114	11.6 5.3	11.6 5.3
	76.1 mm ¤	920	500 3450	2.75 69.9	5.25 133	—	6.25 159	4.81 122	12.42 316	4.56 116	—	11.6 5.3
	3 (a) †¤ 80	920	500 3450	3.50 88.9	5.31 135	6.50 165	6.50 165	4.81 122	12.42 316	5.31 135	12.6 5.7	11.6 5.3
	4 (a) †¤ 100	920	500 3450	4.50 114.3	4.81 122	6.75 171	6.38 162	4.81 122	12.42 316	6.25 159	15.3 6.9	12.5 5.7

** 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.

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IMPORTANT NOTES:

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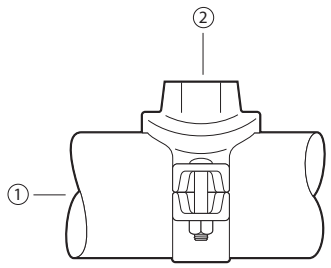
Mechanical-T® Bolted Branch Outlets

STYLES 920 AND 920N

FLOW DATA



Exaggerated for clarity

Flow test data has shown that the total head loss between point (1) and (2) for the Style 920, 920N and 929 Mechanical-T® fittings can best be expressed in terms of the pressure difference across the inlet and branch. The pressure difference can be obtained from the relationship below.

C_V and Kv Values

Values for flow of water at +60°F/+16°C are shown in the table below.

Formulas for C_V /K_v Values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (GPM)
ΔP = Pressure Drop (psi)
C_v = Flow Coefficient

$$\Delta P = \frac{Q^2}{K_v^2}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (m^3/hr)
ΔP = Pressure Drop (Bar)
K_v = Flow Coefficient

OUTLET SIZE		Equivalent Length of Outlet Size Schedule 40 Carbon Steel Pipe (per UL 213, Sec. 16) (C = 120)ŧ FT		C_V/K_V Values	
NOMINAL DIAMETER In/mm	ACTUAL O.D. In/mm	GROOVED	THREADED	GROOVED	THREADED
½ 15	0.840 21.3	-	2	-	11 9.4
¾ 20	1.050 26.7	-	4	-	16 13.7
1 25	1.315 33.7	3**	8	-	21 1.8
1 ¼ 32	1.660 42.7	5 ½	6	50 42.9	48 41.1
1 ½ 40	1.900 48.3	11	11	53 45.4	53 45.4
2 50	2.375 60.3	9	10 ½	112 96	104 89.1
2 ½ 65	2.875 73.0	20	12 ½	119 102	150 128.5
76.1 mm	3.000 76.1	16*	-	161 138.1	-
3 80	3.500 88.9	14	15 ½	249 213.4	237 203.1
4 100	4.500 114.3	20	22	421 360.8	401 343.6

ŧ Hazen-Williams coefficient of friction is 120.
* Pipe with a wall thickness of 0.165in./4.2mm.
** 1" FireLock™ Innovative Groove System (IGS) outlet

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Mechanical-T® Bolted Branch Outlets

STYLES 920 AND 920N

FIRE PROTECTION APPROVALS AND PRESSURE RATINGS

The information provided below is based on the latest listing and approval data at the time of publication. Listings/Approvals are subject to change and/or additions by the approvals agencies. Contact Victaulic for performance on other pipe and the latest listings and approvals.

Run Size		Outlet Size	Pipe	Approval Agency Rated Working Pressures – psi/kPa					
Nominal Size Inches/mm	Actual Outside Diameter Inches/mm	Inches/mm	Schedule	UL	ULC	FM	LPCB	Vds (Style 920)	Vds (Style 920N)
21/2 - 6 65 - 150	2.875 - 6.625 73.0 - 168.3	All	10, 40	400 2755	400 2755	400 2755	290 1999	232 1599	362 2496
21/2 - 4 65 - 100	2.875 - 4.500 73.0 - 114.3	All	DF	300 2065	300 2065	300 2065	290 1999	232 1599	362 2496
21/2 - 4 65 - 100	2.875 - 4.500 73.0 - 114.3	All	SF	300 2065	300 2065	300 2065	290 1999	232 1599	362 2496
6 150	6.625 168.3	3, 4	10	300 2065	300 2065	250 1724	290 1999	232 1599	362 2496
6 150	6.625 168.3	3,4	30, 40	300 2065	300 2065	300 2065	290 1999	232 1599	362 2496
8 200	8.625 219.1	21/2	10, 40	400 2755	—	—	—	145 1000	—
8 200	8.625 219.1	3,4	10	300 2065	—	250 1724	—	145 1000	—
8 200	8.625 219.1	3,4	30, 40	300 2065	—	300 2065	—	145 1000	—

NOTES:

10 refers to Listed/Approved Schedule 10 steel sprinkler pipe.

40 refers to Listed/Approved Schedule 40 steel sprinkler pipe.

DF refers to Listed/Approved Dyna-Flow steel sprinkler pipe manufactured by American Tube Company.

SF refers to Listed/Approved Super-Flo steel sprinkler pipe manufactured by Allied Tube and Conduit Corporation.

VIC-TAP II HOLE CUTTING TOOL FOR 4 - 8"/100 - 200 MM CARBON STEEL PIPE

The Vic-Tap II hole cutting tool is designed for use with the Style 931 Vic-Tap II Mechanical-T unit, which is a combination of the Style 920 Mechanical-T and Series 726 Vic-Ball Valve. The Vic-Tap II is capable of tapping into carbon steel pipe systems under pressures up to 500 psi/3450 kPa.

The Style 931 Vic-Tap II Mechanical-T unit is a full port ball valve which can be mounted on 4"/100 mm, 5"/125 mm, 6"/150 mm and 8"/200 mm diameter pipe. The Style 931 comes with a 2½"/65 mm grooved outlet.

The drill motor is an electric motor with ground fault circuit interrupter (GFCI) in accordance with safety codes.

For more information, refer to publication 24.01.

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Mechanical-T® Bolted Branch Outlets

STYLES 920 AND 920N

INSTALLATION

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

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Welded Outlet Fittings

For Fire Protection & Other Low Pressure Piping Systems

SPF Welded Outlet Fittings offer the user a high strength, low cost forged threaded and grooved line of fittings specifically designed and manufactured to be installed on proprietary thin wall flow pipe, Schedule 5, 10, and 40 standard wall pipes.

SPF Welded Outlets are forged steel welding outlet fittings. The material used in manufacture meets the chemical and physical requirements of ASTM A 53. SPF Welded Outlet Fittings employ a low weld volume design to provide either a partial or full penetration weld employing a single pass with minimum burn-through and pipe distortion. Threads comply with ANSI B1.20.1. The SPF Welded Outlets are UL Listed and FM Approved for use conforming to the requirements of NFPA 13. SPF Welded Outlet Fittings are rated for 300 psi when used in fire sprinkler system applications.

c UL us LISTED FM APPROVED

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

SPF WELDED OUTLET FITTINGS

Outlet Model	Outlet Pipe Size	Header Pipe Size	Rated Pressure
	In.	*In.*	*psig*
MTM-40	½, ¾, 1	½ - 8 (Sch.10, 40)	300
	1¼, 1½, 2, 2½, 3, 4	½ - 4 (Sch. 5, DynaFlow)	
	2	4, 6 (EZ-Flow)	
GR-40	1 - 8	1¼ - 8 (Sch.10, 40)	300
	2½ - 8	2½ - 8 (Sch. 5, DynaFlow)	

1) Size-on size (i.e. 2 x 2) SPF Welded Outlet Fittings are not FM Approved.
2) FM rated working pressure when welded on Sch. 5 or lightwall pipe is 175 psi.
3) Refer to the UL and FM websites for the most current pressure ratings.

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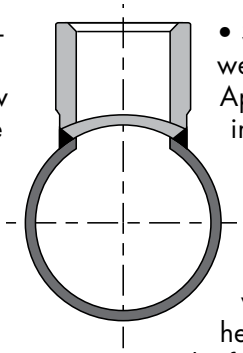
Notes 2:	

SPF Welded Outlets are designed and Manufactured to reduce the amount of weld required to install the Tee-Lets on thin wall or proprietary flow pipe. Typically only one weld-pass completes the installation. SPF Welded Outlets install with less weld volume than any other brand of welding outlet fittings for fire sprinkler applications. To accomplish this:



- The contoured end of the fittings employs a reduced outside diameter. Two major advantages are immediately apparent:
- The thinner wall on the contoured end permits welding temperatures to be matched to the thickness of the branch line or main thereby insuring complete penetration without cold welds, weld roll-off, burn-through or excessive distortion.
- On smaller sizes a heavier section is maintained on the threaded end of the fitting. This protects the threads from damage during shipping and handling prior to installation as well as from weld distortion.
- Each outlet size 1½" and larger, whether female threaded, cut grooved or beveled requires the same hole size in the header pipe. This simplifies the installation process.

GENERAL SPECIFICATIONS

- Welded outlet fittings are manufactured from highly weldable steel which conforms to the chemical and physical requirements of ASTM A-53, Grades A or B, Type E. Ease of installation is assured when automatic welding equipment is used to install SPF Welded Outlets.
- Threads are cut in accordance with the requirements of ANSI B1.20.1, national standard for tapered pipe threads.
- SPF Welded Outlets threaded and grooved welding outlet fittings are UL/ULC Listed and FM Approved for use in the fire sprinkler systems installed in accordance with the requirements of NFPA 13. They are rated for 300 PSI operation in fire sprinkler systems, and higher pressures in other non-critical piping systems.
- SPF Welded Outlets are offered in a wide variety of header sizes. The consolidated header sizes shown in the following charts allow the fittings to be installed on more than one header size, permitting the first size listed to fit the header perfectly, while a small gap along the longitudinal center line of the header will appear for the second size listed.
- SPF Welded Outlets are identified by a lot number that provides full traceability.

FOR YOUR PIPING SYSTEMS SPECIFY SPF WELDED OUTLETS

Branch Outlet Fittings shall be SPF Welded Outlets, Lightweight forged steel, employing low weld volume profile to provide for full penetration welds with minimum burn through and pipe distortion on Schedule 5 thru 10, proprietary thin wall, and standard wall pipe. Threads are to be ANSI B1.20.1 and the bore of the fittings calculated to improve flow. Welding outlets to be UL Listed, FM Approved for use conforming to NFPA 13, and pressure rated for 300 PSI maximum.

SPF MTM 300 Welded Out-Let Fittings

SPF/ANVIL

Choose the MTM 300
Choose *Engineered Efficiency:*

- Unique Saddle Design – Out-Lets Cover Broader Range of Pipe Sizes Reducing Inventory and Lowering Costs.
- Engineered for Fast One-Pass Welding – More Efficient to Install; Saving Time, Labor and Money
- Thick Wall – Easy to Install While Reducing Heat Distortion & Burn Through
- Threads Are Quality Controlled to Aeronautical Standards – Superior Reliability Over Standard NPT Thread Forms. Fewer Leaks Translate into Lower Costs.
- Modern Design – Developed to Maximize Production Efficiencies of NAP Universal Welders, NAP Line Welders and other Current Weld Equipment.

c UL us LISTED FM APPROVED

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

GENERAL SPECIFICATIONS

MTM 300 Tee-Lets are manufactured from highly weldable steel which conforms to the chemical and physical requirements of ASTM A-53, Grades A or B, Type E

That is why MTM 300 Tee-Let thread-forms are quality controlled to Aeronautical National Form standards, which requires gaging both L-1 hand tight and L-3 wrench tight threads. This results in superior thread engagement and a more forgiving Tee-Let than those inspected only to traditional NPT L-1 gaging standards.

RECOMMENDED HOLE SIZES

Holes may be cut by mechanical means including hole sawing, mechanical flame cutting (oxy-acetylene or propane), and air plasma cutting machines. When installing MTM 300 Products, Anvil International recommends using NAP fabrication equipment for consistent operations.

RECOMMENDED WELD PROCEDURES

As a general rule, the weld should be only as hot as required to allow the weld to penetrate the materials being welded while allowing gases developed in the welding process to escape. **Excessive heat may cause the threads near the weld zone to distort while also causing the branch line pipe to bend.**

APPROVED PIPE MANUFACTURERS

MTM 300 Tee-Lets are designed to be installed on Schedule 40, Schedule 10 and Proprietary Flow Pipe. Please visit www.anvilintl.com for a complete listing or contact your local Anvil International Representative.

AGENCY APPROVALS

MTM 300 Tee-Lets are UL/ULC Listed and FM Approved for use in Automatic Fire Sprinkler Systems installed in accordance with the requirements of NFPA Bulletin 13. The Tee-Lets are rated for 300psi for fire sprinkler systems.

CAUTION:
MTM 300 Tee-lets described herein must be installed and maintained in compliance with this document as well as the applicable standards of the National Fire Protection Association in addition to the standards of any other authorities having jurisdiction.

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Contractor:	☐ **Not approved**
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Notes 1:	
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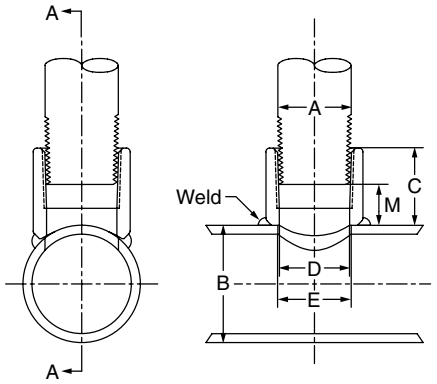
SPF MTM 300 Welded Out-Let Fittings



MTM 300 Tee-Let

Nominal Outlet or Branch Size A	Nominal Header or Run Size B	Outlet Length C	Inside Diameter D	Recommended Hole Size** E	Make Up M	Weight Per Unit
In (mm)	*In (mm)*	*In (mm)*	*In (mm)*	*In (mm)*	*In (mm)*	*Lb. (kg)*
½ x *15 x*	1¼ - 2½ *40 - 65*	1.063 *27.000*	0.763 *19.38*	0.813 *20.638*	0.531 *13.487*	0.18 *0.08*
	3 - 8 *80 - 200*					0.18 *0.08*
¾ x *20 x*	1¼ - 2 *40 - 50*	1.125 *28.575*	0.910 *23.114*	0.938 *23.813*	0.578 *14.681*	0.28 *0.13*
	2½ - 8 *65 - 200*					0.27 *0.12*
1 x *25 x*	1¼ *32*	1.250 *31.750*	1.140 *28.956*	1.188 *30.163*	0.594 *15.088*	0.34 *0.15*
	1½ - 2 *40 - 50*					0.34 *0.15*
	2½ - 4 *65 - 100*					0.33 *0.15*
	5 - 8 *125 - 200*					0.32 *0.15*
1¼ x *32 x*	1½ *40*	1.375 *34.925*	1.480 *37.592*	1.500 *38.100*	0.688 *17.475*	0.46 *.21*
	2 - 2½ *50 - 65*					0.46 *.21*
	3 - 4 *80 - 100*					0.44 *.20*
	5 - 8 *125 - 200*					0.43 *.20*
1½ x *40 x*	1½ *40*	1.625 *41.275*	1.610 *40.894*	1.625 *41.275*	0.938 *23.825*	0.48 *.022*
	2 *50*					0.48 *.022*
	2½ *65*					0.48 *.022*
	3 - 4 *80 - 100*					0.48 *.022*
	4 *100*					0.48 *.022*
	5 - 8 *125 - 200*					0.48 *.022*
2 x *50 x*	2 *50*	1.750 *44.450*	2.067 *52.502*	2.125 *53.975*	1.047 *26.594*	0.86 *0.39*
	2½ *65*					0.83 *0.38*
	3 *80*					0.83 *0.38*
	4 *100*					0.80 *0.36*
	6 *150*					0.74 *0.34*
	8 *200*					0.74 *0.34*

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative.

**Hole sizes are recommendations only. Fabricator/installer must account for different cutting methods to comply with applicable codes and regulations.

FIG. 7063

Tee w/ Threaded Branch

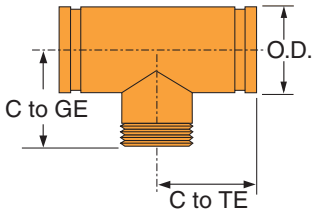


FIGURE 7063
TEE WITH THREADED BRANCH

Nominal Size	O.D.	C to GE	C to TE	Approx. Wt. Ea.
In./DN(mm)	*In./mm*	*In./mm*	*In./mm*	*Lbs./Kg*
1 *25*	1.315 *33.4*	2¼ *57*	2¼ *57*	0.9 *0.4*
1¼ *32*	1.660 *42.2*	2¾ *70*	2¾ *70*	1.4 *0.6*
1½ *40*	1.900 *48.3*	2¾ *70*	2¾ *70*	1.7 *0.8*
2 *50*	2.375 *60.3*	3¼ *83*	4¼ *108*	2.9 *1.3*
2½ *65*	2.875 *73.0*	3¾ *95*	3¾ *95*	4.7 *2.1*
3 *80*	3.500 *88.9*	4¼ *108*	6 *152*	8.1 *3.7*
4 *100*	4.500 *114.3*	5 *127*	7¼ *184*	13.5 *6.1*
5 *125*	5.563 *140*	5½ *140*	5½ *140*	16.7 *7.6*
6 *150*	6.625 *168.3*	6½ *165*	6½ *165*	25.6 *11.6*
8 *200*	8.625 *219.1*	7¾ *197*	7¾ *197*	45.0 *20.4*
10 *250*	10.750 *273.1*	9 *229*	9 *229*	73.0 *33.1*
12 *300*	12.750 *323.9*	10 *254*	10 *254*	98.0 *44.5*

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Notes 1:	
Notes 2:	

FIG. 7450* Short Pattern 90° Elbow

GRUVLOK®

GRUVLOK® FIRE-RITE™ SHORT PATTERN FITTING SYSTEM

The Gruvlok® Fire-Rite™ short pattern fitting system incorporates 90° elbows and tees in 2" to 8" size range with a 300 psi pressure rating.

Fire-Rite™ fittings are painted to industry specification and are available galvanized for more corrosive environments.

CAD design increases internal diameters and provides superior flow capability.

Fire-Rite™ fittings are cast from ASTM A-536 Ductile Iron to Grade 65-45-12.

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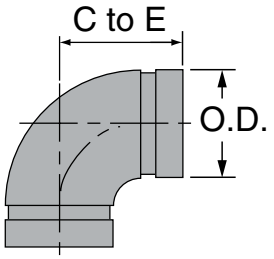
For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

Fire-Rite™ – Light Weight – Heavy Value!

– Available galvanized.

* When ordering, refer to product as FP7450.



MATERIAL SPECIFICATIONS

CAST FITTINGS:

Ductile Iron conforming to ASTM A-536

COATINGS:

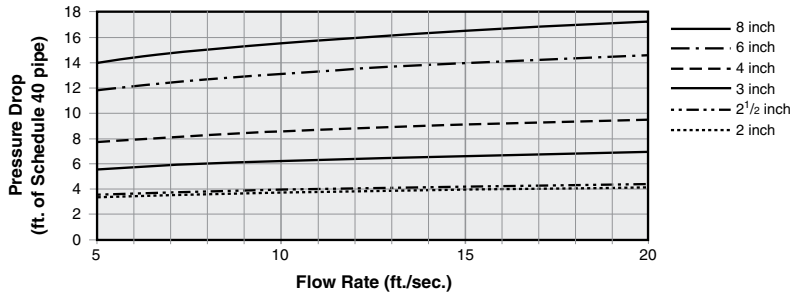
☐ Rust inhibiting paint Color: ORANGE (standard) or
☐ Hot Dipped Zinc Galvanized conforming to ASTM A-153 (optional)
☐ Other available options: Example: RAL3000 or RAL9000 Series

FIGURE 7450 90° ELBOW

Nominal Size	O.D.	Center to End	Approx. Wt. Ea.
In./DN(mm)	*In./mm*	*In./mm*	*Lbs./Kg*
2 *50*	2.375 *60.3*	2¾ *70*	1.7 *0.8*
2½ *65*	2.875 *73.0*	3 *76*	2.6 *1.2*
3 *80*	3.500 *88.9*	3⅜ *86*	3.5 *1.6*
4 *100*	4.500 *114.3*	4 *102*	6.5 *3.0*
6 *150*	6.625 *168.3*	5½ *140*	14.8 *6.7*
8 *200*	8.625 *219.1*	6⅞ *175*	25.6 *11.6*

Additional sizes available, see Gruvlok Catalog or contact an Anvil Representative.

FIGURE 7450 90° ELBOW SHORT PATTERN FITTING – PRESSURE DROP



Gruvlok short pattern fittings exceed the headloss requirements of NFPA 13.

For Fig. 7450 90° grooved end elbows use the value shown.

Note: Above values are shown for Schedule 40 pipe to be consistent with industry practices.

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Project:	☐ **Approved**
Address:	☐ **Approved as noted**
Contractor:	☐ **Not approved**
Engineer:	**Remarks:**
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Notes 1:	
Notes 2:	

☐ FIG. 7050

90° Elbow*

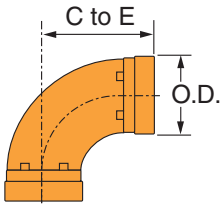

FIGURE 7050
90° ELBOW*

Nominal Size	O.D.	Center to End	Approx. Wt. Ea.
In./DN(mm)	In./mm	In./mm	Lbs./Kg
1 25	1.315 33.4	2¼ C 57	0.6 0.3
1¼ 32	1.660 42.2	2¾ C 70	1.0 0.5
1½ 40	1.900 48.3	2¾ C 70	1.2 0.5
2 50	2.375 60.3	3¼ C 83	1.7 0.8
2½ 65	2.875 73.0	3¾ C 95	2.6 1.2
3 O.D. 76.1	2.996 76.1	4 C 102	3.6 1.6
3 80	3.500 88.9	4¼ C 108	4.0 1.8
3½ 90	4.000 101.6	4½ C 114	5.5 2.5
4¼ O.D. 108.0	4.250 108.0	4¾ C 121	7.7 3.5
4 100	4.500 114.3	5 C 127	7.7 3.5
5¼ O.D. 133.0	5.236 133.0	5¼ C 133	10.4 4.7
5½ O.D. 139.7	5.500 139.7	5¼ C 133	10.9 4.9
5 125	5.563 141.3	5½ C 140	11.1 5.0
6¼ O.D. 159.0	6.259 159.0	6 C 152	15.2 6.9
6½ O.D. 165.1	6.500 165.1	6½ C 165	17.4 7.9
6 150	6.625 168.3	6½ C 165	16.5 7.5
8 200	8.625 219.1	7¾ C 197	30.6 13.9
10 250	10.750 273.1	9 C 229	53.5 24.3
12 300	12.750 323.9	10 C 254	82 37.2
14* 350	14.000 355.6	21 533	169.0 76.7
16* 400	16.000 406.4	24 610	222.0 100.7
18* 450	18.000 457.2	27 686	280.0 127.0
20* 500	20.000 508.0	30 762	344.0 156.0
24* 600	24.000 609.6	36 914	490.0 222.3

☐ FIG. 7051

45° Elbow*

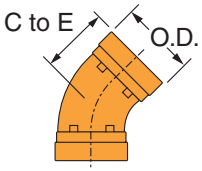

FIGURE 7051
45° ELBOW*

Nominal Size	O.D.	Center to End	Approx. Wt. Ea.
In./DN(mm)	In./mm	In./mm	Lbs./Kg
1 25	1.315 33.4	1¾ C 44	0.5 0.2
1¼ 32	1.660 42.2	1¾ C 44	0.7 0.3
1½ 40	1.900 48.3	1¾ C 44	0.9 0.4
2 50	2.375 60.3	2 C 51	1.5 0.7
2½ 65	2.875 73.0	2¼ C 57	1.9 0.9
3 O.D. 76.1	2.996 76.1	2½ C 64	2.2 1.0
3 80	3.500 88.9	2½ C 64	3.3 1.5
3½ 90	4.000 101.6	2¾ C 70	4.3 2.0
4¼ O.D. 108.0	4.250 108.0	2⅞ C 83	4.4 2.0
4 100	4.500 114.3	3 C 76	5.4 2.4
5¼ O.D. 133.0	5.236 133.0	3¼ C 83	7.3 3.3
5½ O.D. 139.7	5.500 139.7	3¼ C 83	7.8 3.5
5 125	5.563 141.3	3¼ C 83	9.0 4.1
6¼ O.D. 159.0	6.259 159.0	3½ C 89	10.1 4.6
6½ O.D. 165.1	6.500 165.1	3½ C 89	11.1 5.0
6 150	6.625 168.3	3½ C 89	11.2 5.1
8 200	8.625 219.1	4¼ C 108	19.8 9.0
10 250	10.750 273.1	4¾ C 121	34.3 15.6
12 300	12.750 323.9	5¼ C 133	50.0 22.7
14* 350	14.000 355.6	8¾ 222	92.0 41.7
16* 400	16.000 406.4	10 254	117.0 53.1
18* 450	18.000 457.2	11¼ 286	146.0 66.2
20* 500	20.000 508.0	12½ 317	179.0 81.2
24* 600	24.000 609.6	15 381	255.0 115.7

☐ FIG. 7052

22 ½° Elbow

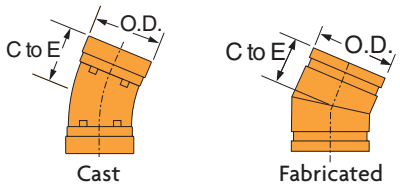

FIGURE 7052
22½° ELBOW*

Nominal Size	O.D.	Center to End	Approx. Wt. Ea.
In./DN(mm)	In./mm	In./mm	Lbs./Kg
1 25	1.315 33.4	3¼ 83	0.5 0.2
1¼ 32	1.660 42.2	1¾ 44	0.7 0.3
1½ 40	1.900 48.3	1¾ 44	0.8 0.4
2 50	2.375 60.3	1⅞ C 48	1.5 0.7
2½ 65	2.875 73.0	2 51	1.9 0.9
3 80	3.500 88.9	2¼ C 57	3.2 1.5
3½ 90	4.000 101.6	2½ 64	4.0 1.8
4 100	4.500 114.3	2⅝ C 67	5.3 2.4
5 125	5.563 141.3	2⅞ 73	7.2 3.3
6 150	6.625 168.3	3⅛ C 79	8.2 3.7
8 200	8.625 219.1	3⅞ C 98	17.8 8.1
10 250	10.750 273.1	4⅜ 111	30.0 13.6
12 300	12.750 323.9	4⅞ 124	40.4 18.3
14 350	14.000 355.6	5 127	46.0 20.9
16 400	16.000 406.4	5 127	52.2 23.7
18 450	18.000 457.2	5½ 140	65.0 29.5
20 500	20.000 508.0	6 152	80.0 36.3
24 600	24.000 609.6	7 178	112.0 50.8

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For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

C - Cast ductile iron, all others are fabricated steel.
* 14"-24" Standard Radius 90° & 45° Elbows are 1½ Long Radius.
Center to end dimensions and weights may differ from those shown in chart, contact an Anvil Representative for more information.

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

FIG. 7062 Bullhead Tee

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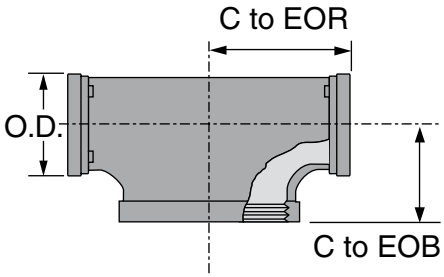

FIGURE 7062 BULLHEAD TEE (GR x GR x FPT)

Nominal Size	O.D.	Max. Rated Pressure	Center to End of Run	Center to End of Branch	Approx. Wt. Ea.
In./DN(mm)	*In./mm*	*PSI/bar*	*In./mm*	*In./mm*	*Lbs./Kg*
5 x 5 x 8	5.563	300	7¾	5½	31.0
125 x 125 x 200	*141.3*	*20.7*	*197*	*140*	*14.1*
6 x 6 x 8	6.625	300	7¾	6½	37.6
150 x 150 x 200	*168.3*	*20.7*	*197*	*165*	*17.1*

These fittings are designed to provide minimal pressure drop and uniform strength.

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– Available galvanized.

MATERIAL SPECIFICATIONS

FABRICATED FITTINGS:
Carbon Steel, Schedule 40, conforming to ASTM A-53, Grade B

COATINGS:
- ☐ Rust inhibiting paint Color: ORANGE (standard) or
- ☐ Hot Dipped Zinc Galvanized conforming to ASTM A-153 (optional)
- ☐ Other available options: Example: RAL3000 or RAL9000 Series

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

FIG. 7065 Standpipe Tee

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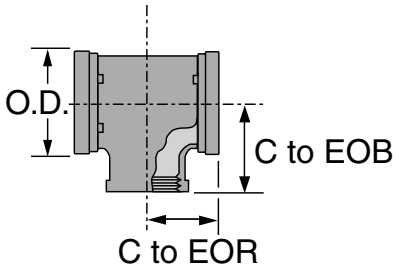

FIGURE 7065 STANDPIPE TEE (GR x GR x FPT)

Nominal Size	O.D.	Max. Rated Pressure	Center to End of Run	Center to End of Branch	Approx. Wt. Ea.
In./DN(mm)	*In./mm*	*PSI/bar*	*In./mm*	*In./mm*	*Lbs./Kg*
4 x 4 x 2½	4.500	300	3¼	4	7.6
100 x 100 x 65	*114.3*	*20.7*	*83*	*102*	*3.4*
6 x 6 x 2½	6.625	300	3¼	5⅛	11.2
150 x 150 x 65	*168.3*	*20.7*	*83*	*130*	*5.1*

These fittings are designed to provide minimal pressure drop and uniform strength.

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For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

– Available galvanized.

MATERIAL SPECIFICATIONS

FABRICATED FITTINGS:

Carbon Steel, Schedule 40, conforming to ASTM A-53, Grade B

COATINGS:

- ☐ Rust inhibiting paint Color: ORANGE (standard) or
- ☐ Hot Dipped Zinc Galvanized conforming to ASTM A-153 (optional)
- ☐ Other available options: Example: RAL3000 or RAL9000 Series

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

FIG. 7050DR 90° Drain Elbow

GRUVLOK®

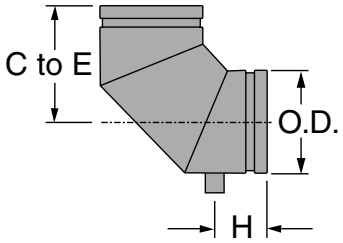

FIGURE 7050DR 90° DRAIN ELBOW

Nominal Size	O.D.	Max. Working Pressure	Dimensions		Approx. Wt. Ea.
			Center to End	H	
In./DN(mm)	*In./mm*	*PSI/bar*	*In./mm*	*In./mm*	*Lbs./Kg*
1¼ *32*	1.660 *42.2*	300 *20.7*	2¾ *70*	1¾ *44*	0.7 *0.3*
1½ *40*	1.900 *48.3*	300 *20.7*	2¾ *70*	1¾ *44*	1.7 *0.8*
2 *50*	2.375 *60.3*	300 *20.7*	3¼ *83*	1¾ *44*	2.0 *0.9*
2½ *65*	2.875 *73.0*	300 *20.7*	3¾ *95*	1⅞ *48*	2.5 *1.1*
3 *80*	3.500 *88.9*	300 *20.7*	4¼ *108*	2 *51*	3.2 *1.5*
4 *100*	4.500 *114.3*	300 *20.7*	5 *127*	2¼ *57*	4.6 *2.1*
5 *125*	5.563 *141.3*	300 *20.7*	5½ *140*	2⅜ *60*	11.5 *5.2*
6 *150*	6.625 *168.3*	300 *20.7*	6½ *165*	2⅜ *60*	9.6 *4.4*
8 *200*	8.625 *219.1*	300 *20.7*	7¾ *197*	2½ *64*	15.8 *7.2*
10 *250*	10.750 *273.1*	300 *20.7*	9 *229*	2¾ *69*	48.5 *22*
12 *300*	12.750 *323.9*	300 *20.7*	10 *254*	2¾ *69*	66 *29*

Additional sizes available, see Gruvlok Catalog or contact an Anvil Representative.

Drain elbow has a standard 1″ female NPT outlet.

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For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

– Available galvanized.
Available fabricated Schedule 10 only.

MATERIAL SPECIFICATIONS

FABRICATED FITTINGS:

1¼″ - 6″ are Carbon Steel, A-135, Schedule 10
8″ - 12″ are Carbon Steel, A-795/A-135/.188 Wall

COATINGS:

☐ Rust inhibiting paint Color: ORANGE (standard) or
☐ Hot Dipped Zinc Galvanized conforming to ASTM A-153 (optional)
☐ Other available options: Example: RAL3000 or RAL9000 Series

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

FIG. 7460* Short Pattern Tee

GRUVLOK®

GRUVLOK® FIRE-RITE™ SHORT PATTERN FITTING SYSTEM

The Gruvlok® Fire-Rite™ short pattern fitting system incorporates 90° elbows and tees in 2" to 8" size range with a 300 psi pressure rating.

Fire-Rite™ fittings are painted to industry specification and are available galvanized for more corrosive environments.

CAD design increases internal diameters and provides superior flow capability.

Fire-Rite™ fittings are cast from ASTM A-536 Ductile Iron to Grade 65-45-12.

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For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

– Available galvanized.

* When ordering, refer to product as FP7460.

Fire-Rite™ – Light Weight – Heavy Value!

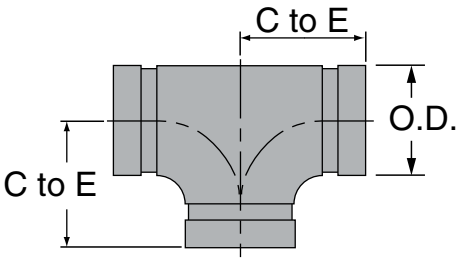


FIGURE 7460 TEE

Nominal Size	O.D.	Center to End	Approx. Wt. Ea.
In./DN(mm)	*In./mm*	*In./mm*	*Lbs./Kg*
2 *50*	2.375 *60.3*	2¾ *70*	2.5 *1.1*
2½ *65*	2.875 *73.0*	3 *76*	3.5 *1.6*
3 *80*	3.500 *88.9*	3⅜ *86*	4.8 *2.2*
4 *100*	4.500 *114.3*	4 *102*	8.1 *3.7*
6 *150*	6.625 *168.3*	5½ *140*	19.1 *8.7*
8 *200*	8.625 *219.1*	6⅞ *175*	35.2 *16.0*

Additional sizes available, see Gruvlok Catalog or contact an Anvil Representative.

MATERIAL SPECIFICATIONS

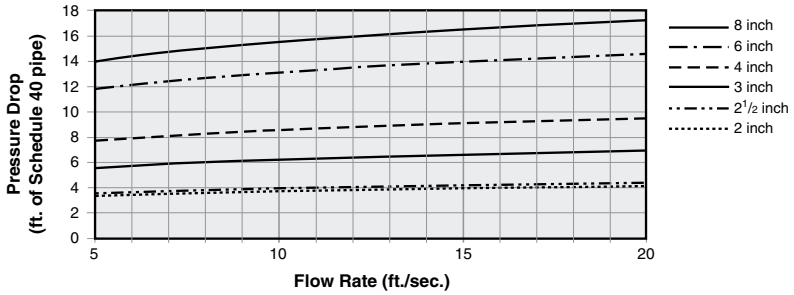
CAST FITTINGS:

Ductile Iron conforming to ASTM A-536

COATINGS:

☐ Rust inhibiting paint Color: ORANGE (standard) or
☐ Hot Dipped Zinc Galvanized conforming to ASTM A-153 (optional)
☐ Other available options: Example: RAL3000 or RAL9000 Series

FIGURE 7460 TEE SHORT PATTERN FITTING – PRESSURE DROP



Gruvlok short pattern fittings exceed the headloss requirements of NFPA 13.

For Fig. 7460 Tee branch use $2^{1}/_{2}$ times the value shown.

For Fig. 7460 Tee run use the value shown.

Note: Above values are shown for Schedule 40 pipe to be consistent with industry practices.

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

FIG. 7072 Concentric Reducer

GRUVLOK®

ANVIL® INTERNATIONAL

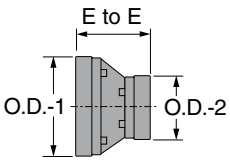
Available as a fabricated fitting.
– Available galvanized.

MATERIAL SPECIFICATIONS

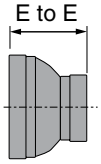
CAST FITTINGS:
Ductile Iron conforming to ASTM A-536

FABRICATED FITTINGS:
1"-10" Carbon Steel, Schedule 40, conforming to ASTM A-53, Grade B
12" and above Carbon Steel, Standard Wall, conforming to ASTM A-53, Grade B

COATINGS:
☐ Rust inhibiting paint Color: ORANGE (standard) or
☐ Hot Dipped Zinc Galvanized conforming to ASTM A-153 (optional)
☐ Other available options: Example: RAL3000 or RAL9000 Series



Cast



Weld

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FM APPROVED
LPCB
VdS

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FIGURE 7072 CONCENTRIC REDUCER (GROOVE BY GROOVE)

Nominal Size	O.D.-1	O.D.-2	End to End	Approx. Wt. Ea.
In./DN(mm)	*In./mm*	*In./mm*	*In./mm*	*Lbs./Kg*
1¼ x 1 *32 x 25*	1.660 *42.2*	1.315 *33.4*	2½ *64*	0.6 *0.3*
1½ x 1 *40 x 25*	1.900 *48.3*	1.315 *33.4*	2½ *64*	0.6 *0.3*
1½ x 1¼ *40 x 32*	1.900 *48.3*	1.660 *42.2*	2½ *64*	0.6 *0.3*
2 x 1 *50 x 25*	2.375 *60.3*	1.315 *33.4*	2½ *64*	0.8 *0.4*
2 x 1¼ ■ *50 x 32*	2.375 *60.3*	1.660 *42.2*	2½ *64*	1.3 *0.6*
2 x 1½ ■ *50 x 40*	2.375 *60.3*	1.900 *48.3*	2½ *64*	1.3 *0.6*
2½ x 1 *65 x 25*	2.875 *73.0*	1.315 *33.4*	2½ *64*	1.0 *0.5*
2½ x 1¼ *65 x 32*	2.875 *73.0*	1.660 *42.2*	2½ *64*	1.0 *0.5*
2½ x 1½ *65 x 40*	2.875 *73.0*	1.900 *48.3*	2½ *64*	1.3 *0.6*
2½ x 2 ■ *65 x 50*	2.875 *73.0*	2.375 *60.3*	2½ *64*	1.6 *0.7*
3 x 1 *80 x 25*	3.500 *88.9*	1.315 *33.4*	2½ *64*	1.2 *0.5*
3 x 1¼ *80 x 32*	3.500 *88.9*	1.660 *42.2*	2½ *64*	1.3 *0.6*
3 x 1½ *80 x 40*	3.500 *88.9*	1.900 *48.3*	2½ *64*	1.3 *0.6*
3 x 2 ■ *80 x 50*	3.500 *88.9*	2.375 *60.3*	2½ *64*	1.4 *0.6*
3 x 2½ ■ *80 x 65*	3.500 *88.9*	2.875 *73.0*	2½ *64*	1.6 *0.7*
3½ x 3 *90 x 80*	4.000 *101.6*	3.500 *88.9*	3 *76*	1.8 *0.8*
4 x 1 *100 x 25*	4.500 *114.3*	1.315 *33.4*	3 *76*	2.2 *1.0*
4 x 1¼ *100 x 32*	4.500 *114.3*	1.660 *42.2*	3 *76*	2.2 *1.0*
4 x 1½ *100 x 40*	4.500 *114.3*	1.900 *48.3*	3 *76*	2.3 *1.0*
4 x 2 ■ *100 x 50*	4.500 *114.3*	2.375 *60.3*	3 *76*	2.4 *1.1*
4 x 2½ ■ *100 x 65*	4.500 *114.3*	2.875 *73.0*	3 *76*	2.6 *1.2*
4 x 3 ■ *100 x 80*	4.500 *114.3*	3.500 *88.9*	3 *76*	3.2 *1.5*
4 x 3½ *100 x 90*	4.500 *114.3*	4.000 *101.6*	3 *76*	3.6 *1.6*
5 x 2 *125 x 50*	5.563 *141.3*	2.375 *60.3*	3½ *89*	4.6 *2.1*
5 x 2½ *125 x 65*	5.563 *141.3*	2.875 *73.0*	3½ *89*	4.5 *2.0*
5 x 3 *125 x 80*	5.563 *141.3*	3.500 *88.9*	3½ *89*	4.4 *2.0*
5 x 4 ■ *125 x 100*	5.563 *141.3*	4.500 *114.3*	3½ *89*	4.5 *2.0*
6 x 1 *150 x 25*	6.625 *168.3*	1.315 *33.4*	4 *102*	6.8 *3.1*
6 x 1½ *150 x 40*	6.625 *168.3*	1.900 *48.3*	4 *102*	6.9 *3.1*
6 x 2 ■ *150 x 50*	6.625 *168.3*	2.375 *60.3*	4 *102*	6.0 *2.7*
6 x 2½ *150 x 65*	6.625 *168.3*	2.875 *73.0*	4 *102*	6.0 *2.7*
6 x 3 ■ *150 x 80*	6.625 *168.3*	3.500 *88.9*	4 *102*	5.4 *2.4*
6 x 4 ■ *150 x 100*	6.625 *168.3*	4.500 *114.3*	4 *102*	5.6 *2.5*
6 x 5 ■ *150 x 125*	6.625 *168.3*	5.563 *141.3*	4 *102*	6.0 *2.7*
8 x 3 *200 x 80*	8.625 *219.1*	3.500 *88.9*	5 *127*	12.0 *5.5*
8 x 4 ■ *200 x 100*	8.625 *219.1*	4.500 *114.3*	5 *127*	9.0 *4.1*
8 x 5 *200 x 125*	8.625 *219.1*	5.563 *141.3*	5 *127*	11.5 *5.2*
8 x 6 ■ *200 x 150*	8.625 *219.1*	6.625 *168.3*	5 *127*	15.5 *7.0*
10 x 4 *250 x 100*	10.750 *273.1*	4.500 *114.3*	6 *152*	20.0 *9.1*
10 x 5 *250 x 125*	10.750 *273.1*	5.563 *141.3*	6 *152*	20.0 *9.1*
10 x 6 ■ *250 x 150*	10.750 *273.1*	6.625 *168.3*	6 *152*	20.0 *9.1*
10 x 8 *250 x 200*	10.750 *273.1*	8.625 *219.1*	6 *152*	23.9 *10.8*
12 x 4 *300 x 100*	12.750 *323.9*	4.500 *114.3*	7 *178*	25.0 *11.3*
12 x 6 *300 x 150*	12.750 *323.9*	6.625 *168.3*	7 *178*	29.0 *13.2*
12 x 8 *300 x 200*	12.750 *323.9*	8.625 *219.1*	7 *178*	29.0 *13.2*
12 x 10 *300 x 250*	12.750 *323.9*	10.750 *273.1*	7 *178*	32.4 *14.7*

Additional sizes available, see Gruvlok Catalog or contact an Anvil Representative.
■ – Cast fittings, all others are fabricated steel.

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

Reliable®

Model G Riser Check Valve

1-1/2”, 2”, 2-1/2”, 3”, 4”, 6”, 8”, & 10” Sizes

cULus Listed, FM Approved

Features

- Grooved end connections.
- Compact, lightweight design.
- Non-slamming, spring loaded clapper to minimize water hammer.
- Approved for horizontal and vertical installation.
- Stream-lined body design provides very low friction loss.
- Gage ports provided both sides for universal application.

Product Description

Reliable Model G Riser Check Valves are intended for installation as wet pipe fire protection system risers. When used with a water flow detector to provide an electric alarm, the Model G Riser Check Valve is a cost effective alternative in installations not requiring a mechanical alarm.

Grooved end connections provide fast and easy installation using listed or approved mechanical grooved couplings. Rigid style grooved couplings can be used for positive clamping to resist flexural and torsional loads where required.

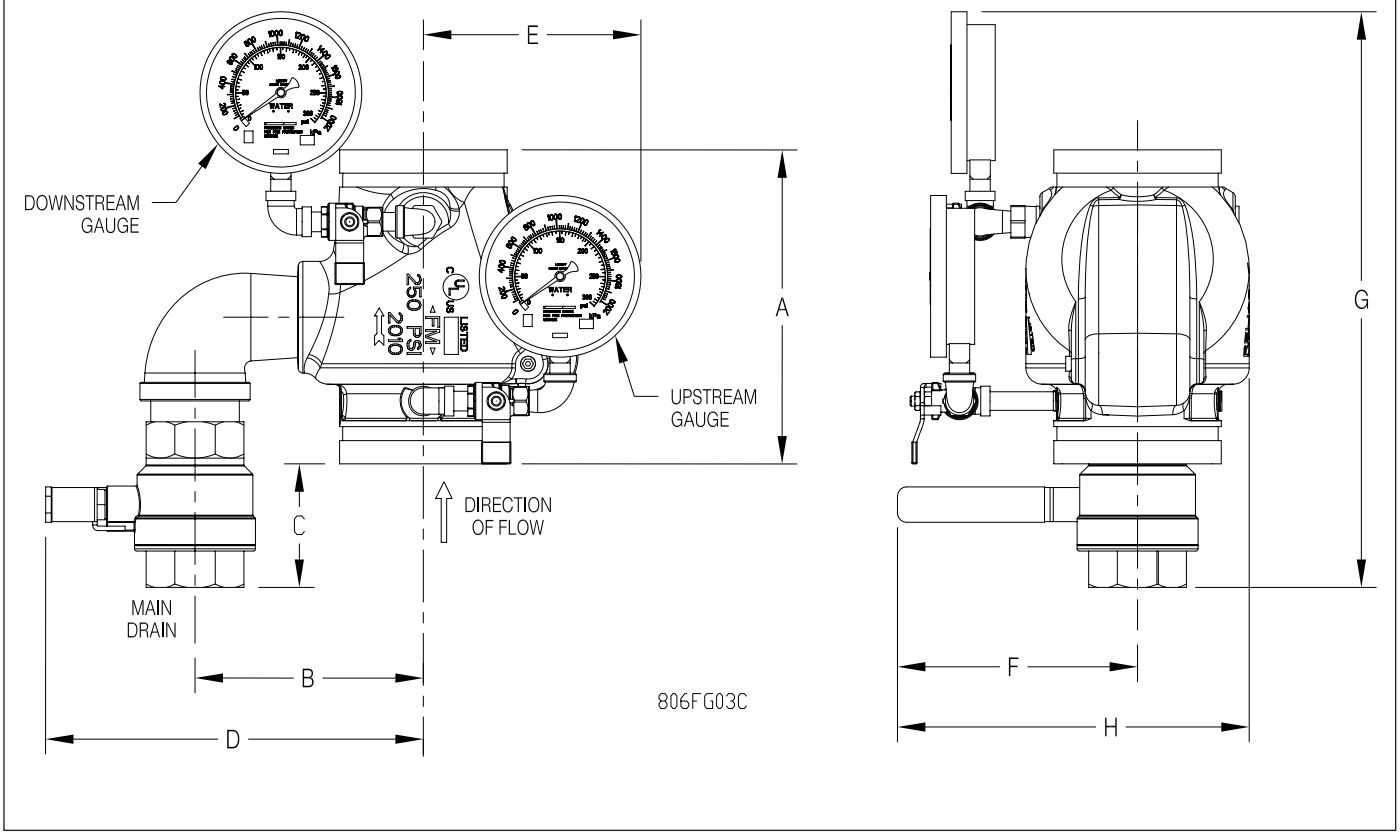
Model G Riser Check Valves are factory tapped for 3/4”, 1-1/4”, or 2” NPT drain depending on size. Factory tapped outlets (1/4” NPT upstream and 1/2” NPT) downstream are provided on each side of the valve to facilitate universal positioning (refer to Figure 2).

Technical Data — **Table A**

Valve Size	Pressure Rating	Face-to-Face Dimension	Eq. Length C = 120	Eq. Length C = 100	Cv Factor	Valve Shipping Weight	Trim Shipping Weight
1-1/2” (40 mm)	300 psi (20.7 bar)	6-1/4 “ (160 mm)	6.7’ (2.0 m)	4.8’ (1.5 m)	36	5 lbs (2.3 kg)	4 lbs. (1.8 kg)
2” (50 mm)		6-1/2” (165 mm)	9.6’ (2.9 m)	6.8’ (2.1 m)	67	6 lbs (2.7 kg)	
2-1/2” (65 mm)	250 psi (17.3 bar)	7-1/8” (180 mm)	6.0’ (1.8m)	4.3’ (1.3m)	212	9 lbs (4.1 kg)	6 lbs. (2.7 kg)
76 mm		7-1/8” (180 mm)	6.0’ (1.8m)	4.3’ (1.3m)	212	9 lbs. (4.1 kg)	
3” (80 mm)		7-5/8” (195 mm)	5.3’ (1.6m)	3.8’ (1.2m)	376	11 lbs. (5.0 kg)	
4” (100 mm)		8-7/16” (215 mm)	7.1’ (2.2m)	5.0’ (1.5m)	656	17 lbs. (7.7 kg)	9.25 lbs. (4.2 kg)
6” (150 mm)		10-1/4” (260 mm)	13.7’ (4.2m)	9.8’ (3.0m)	1395	38 lbs. (17.2 kg)	
165 mm		10-1/4” (260 mm)	13.7’ (4.2m)	9.8’ (3.0m)	1395	38 lbs. (17.2 kg)	
8” (200 mm)		12-1/2” (320 mm)	15.9’ (4.8m)	11.3’ (3.4m)	2818	63 lbs. (28.6 kg)	
10” (250 mm)	300 psi (20.7 bar)	14-1/2” (370 mm)	28.8’ (8.8m)	20.6’ (6.3m)	3928	102 lbs. (46.3 kg)	

Model G Riser Check Valve Components (refer to Table B)

Figure 1



Model G Riser Check Valve Dimensions (refer to Fig. 1)

Table B

Valve Size	Dimensions							
	A	B	C	D	E	F	G	H
1-1/2" (40 mm)	6-1/4" (160mm)	3-1/2" (90mm)	3/8" (9.5mm)	4-15/16" (125mm)	5-3/4" (146mm)	3-5/16" (84mm)	10-5/8" (270mm)	4-7/8" (124mm)
2" (50 mm)	6-1/2" (165mm)	3-3/4" (95mm)	3/8" (9.5mm)	5-3/16" (132mm)	5-3/4" (146mm)	3-5/16" (85mm)	10-7/8" (276mm)	5-3/16" (132mm)
2-1/2" (65 mm)	7-1/8" (180mm)	4-11/16" (120mm)	1-15/16" (49.2mm)	5-3/16" (132mm)	5-3/4" (146mm)	5-1/2" (140mm)	13-1/8" (333mm)	7-3/4" (197mm)
76 mm	7-1/8" (180mm)	4-11/16" (120mm)	1-15/16" (49.2mm)	5-3/16" (132mm)	5-3/4" (146mm)	5-1/2" (140mm)	13-1/8" (333mm)	7-3/4" (197mm)
3" (80 mm)	7-5/8" (195mm)	4-15/16" (125mm)	1-15/16" (49.2mm)	7-11/16" (195mm)	5-3/4" (146mm)	5-1/2" (140mm)	13-1/8" (333mm)	8-1/8" (265mm)
4" (100 mm)	8-7/16" (215 mm)	6-1/8" (156mm)	3-5/16" (84.1mm)	10-1/8" (257mm)	5-3/4" (145mm)	6-7/16" (165mm)	15-1/2" (395mm)	9-7/16" (240mm)
6" (150 mm)	10-1/4" (260 mm)	7" (178mm)	3-5/16" (84.1mm)	11" (280mm)	5-3/4" (146mm)	6-7/16" (165mm)	15-1/2" (395mm)	10-7/16" (265mm)
165 mm	10-1/4" (260 mm)	7" (178mm)	3-5/16" (84.1mm)	11" (280mm)	5-3/4" (146mm)	6-7/16" (165mm)	15-1/2" (395mm)	10-7/16" (265mm)
8" (200 mm)	12-1/2" (320 mm)	8-1/8" (205mm)	3-5/16" (84.1mm)	12-1/8" (308mm)	5-3/4" (145mm)	6-7/16" (165mm)	17-3/4" (450mm)	11-7/16" (290mm)
10" (250mm)	14-1/2" (368mm)	9-1/8" (232mm)	3-5/16" (84.1mm)	13-1/8" (333mm)	5-3/4" (145mm)	6-7/16" (165mm)	19-3/4" (502mm)	12-7/16" (316mm)

Figure Components (refer to Table C) **Figure 2**

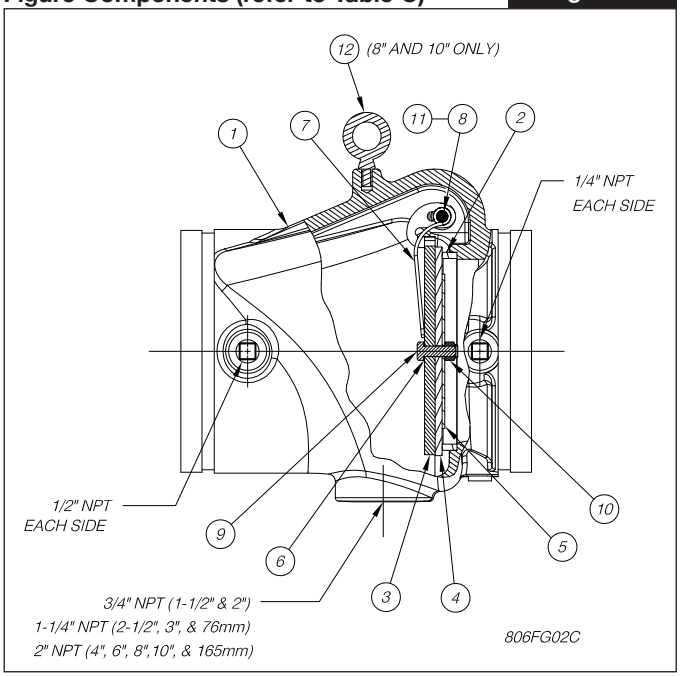


Figure Components (refer to Figure 2) **Table C**

Item No.	Part Name	Material
1	Valve Body	Gray Iron, ASTM–A48 Class 30A
2	Seat	Bronze C83600 or C93200, ASTM–B505
3	Clapper	Stainless Steel 304, ASTM–A240
4	Facing Seal *	EPDM Rubber
5	Clamping Ring	Stainless Steel 304, ASTM–A240
6	Gasket *	EPDM Rubber
7	Spring	Stainless Steel 302, ASTM–A313
8	Hinge Pin	Stainless Steel 303, ASTM–A582
9	Bolt	Stainless Steel 304, ASTM–F593
10	Locknut *	Stainless Steel 303, ASTM–F594
11	Plug, 1/8"NPT	Steel
12	Shoulder Eye	Steel

* Part of Replacement Seal Kit

Replacement Seal Kits **Table D**

	Part Number									
	1-½" (40mm)	2" (50mm)	2-½" (65mm)	76mm	3" (80mm)	4" (100mm)	6" (150mm)	165mm	8" (200mm)	10" (250mm)
Replacement Seal Kit	6888040015	6888040020	6888040025	6888040025	6888040030	6888040040	6888040060	6888040060	6888040080	6888040090
Body Seat Sub Assembly	9100520A	9100520B	91005202	91005201	91005203	91005204	91005206	91005205	91005218	91005210

Installation

The Model G Riser Check Valve shall be installed in accordance with NFPA 13, "Standard for the Installation of Sprinkler Systems," as well as the requirements of any authorities having jurisdiction. When installed vertically, the direction of flow shall be up through the assembly. For horizontal installations, the hinge pin must be located to the top. Failure to follow installation instructions may void the warranty and/or listing of the valve. Verify compatibility of the Model G Riser Check Valve materials with the water supply and the environment where the valve will be installed prior to installation.

Maintenance

The owner is responsible for maintaining the fire protection system in proper operating condition. Any system maintenance or testing that involves placing a system out of service may eliminate the fire protection that is provided by the fire protection system. Notify any required authorities having jurisdiction and implement appropriate precautions prior to proceeding.

The Reliable Model G Riser Check Valve shall periodically be given a thorough inspection and test. NFPA 25, "Inspection, Testing and Maintenance of Water Based Fire Protection Systems," provides minimum maintenance requirements. Replace any components found to be corroded, damaged, worn or non-operable. Increase the frequency of inspections when the valve is exposed to corrosive conditions or chemicals that could impact materials and/or operation of the assembly.

Guarantee

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

Ordering Information

Specify:

1. Reliable Model G Riser Check Valve
2. Size

FireLock® Butterfly Valve
Series 705 with Weatherproof Actuator

10.81

1.0 PRODUCT DESCRIPTION

- Available Sizes: 2 – 12"/50 – 300 mm
- cULus Listed, LPCB Listed, FM and VdS Approved for service up to 300 psi/2068 kPa /20 bar.
- Designed for fire protection services only.
- Features a weatherproof actuator housing Approved for indoor and outdoor use.
- Actuation options: Hand wheel (2 – 12"/50 – 300 mm)
- Exclusively for use with pipe and Victaulic products which feature ends formed with the Victaulic Original Groove System (OGS) groove profile (see section 7.0 for Reference Materials).

2.0 CERTIFICATION/LISTINGS

c UL us LISTED FM VdS G410001 LPCB 104j/04

NOTES

- Refer to Victaulic submittal publication 10.01 for details

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

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2.1 CERTIFICATION/LISTINGS

Size	Approval/Listing Service Pressures Series 705 Butterfly Valve			
	cULus	FM	Vds	LPCB
2 50	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa	up to 300psi/2068kPa
2½ 65	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
76.1 mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
3 80	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
4 100	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
5 125	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
139.7 mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
6 150	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
165.1 mm	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
8 200	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
10 250	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
12 300	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa

3.0 SPECIFICATIONS – MATERIAL

Body: Ductile Iron conforming to ASTM A-536, Grade 65-45-12

End Face, 2 – 6"/50 – 150 mm: Ductile Iron conforming to ASTM A-536, Grade 65-45-12

Seal Retainer, 8 – 12"/200 – 300 mm: Ductile Iron conforming to ASTM A-536, Grade 65-45-12

Body Coating: Black alkyd enamel

Disc: Ductile Iron conforming to ASTM A-536, Grade 65-45-12, with electroless nickel coating conforming to ASTM B-733

Seat: Grade "E" EPDM

Stems: 416 stainless steel conforming to ASTM A-582

Stem Seal Cartridge: C36000 brass

Bearings: Stainless steel with TFE lining

Stem Seals: EPDM

Stem Retaining Ring: Carbon steel

Actuator:

- ☐ 2 – 8"/50 – 200 mm: Brass or bronze traveling nut on a steel lead screw, in a ductile iron housing
- ☐ 10 – 12"/250 – 300 mm: Steel worm and cast iron quadrant gear, in a cast iron housing

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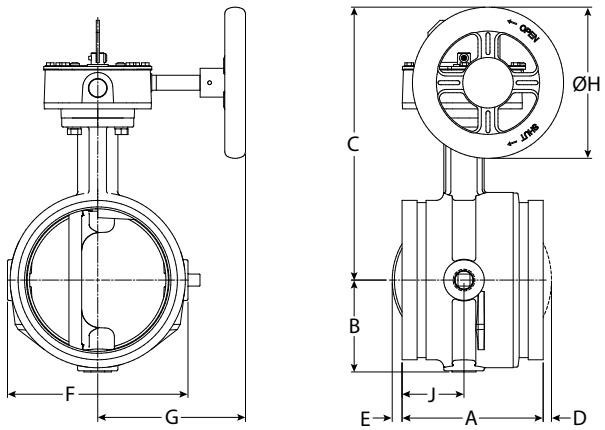
4.0 DIMENSIONS

Series 705



Size		Dimensions								
Nominal inches mm	**Actual Outside Diameter** inches mm	**E to E A** inches mm	**B** inches mm	**C** inches mm	**D** inches mm	**E** inches mm	**F** inches mm	**G** inches mm	**DIA H** inches mm	**J** inches mm
2 60.3	2.375 60.3	4.25 108.0	2.28 57.9	6.41 162.8	–	–	4.00 101.6	4.22 107.2	4.50 114.3	2.12 53.8
2½ 73	2.875 73.0	3.77 95.8	2.28 57.9	7.54 191.5	–	–	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0
76.1 mm	3.000 76.1	3.77 95.8	2.28 57.9	7.54 191.5	–	–	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0
3 88.9	3.500 88.9	3.77 95.8	2.53 64.3	7.79 197.9	–	–	4.50 114.3	4.22 107.2	4.50 114.3	1.77 45.0
108 mm	4.250 108.0	4.63 117.6	2.88 73.2	8.81 223.8	–	–	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9
4 114.3	4.500 114.3	4.63 117.6	2.88 73.2	8.81 223.8	–	–	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9
133 mm	5.250 133.0	5.88 149.4	3.35 85.1	10.88 276.4	–	–	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5
139.7 mm	5.500 139.7	5.88 149.4	3.35 85.1	10.88 276.4	–	–	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.6
5 141.3	5.563 141.3	5.88 149.4	3.35 85.1	10.88 276.4	–	–	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5
159 mm	6.250 159.0	5.88 149.4	3.84 97.5	11.38 289.1	–	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5
165.1mm	6.500 165.1	5.88 149.4	3.84 97.5	11.38 289.1	–	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5
6 168.3	6.625 168.3	5.88 149.4	3.84 97.5	11.38 289.1	–	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	1.90 48.3
8 219.1	8.625 219.1	5.33 135.4	5.07 128.8	13.53 343.6	0.80 20.3	1.47 37.3	10.00 254.0	6.19 157.2	8.10 205.7	2.33 59.2
10 273	10.750 273.0	6.40 162.6	6.37 161.8	15.64 397.3	1.41 35.8	1.81 46.0	12.25 311.2	8.10 205.7	9.00 228.6	–
12 323.9	12.750 323.9	6.50 165.1	7.36 186.9	16.64 422.7	2.30 58.4	2.80 71.1	14.25 362.0	8.10 205.7	9.00 228.6	–

NOTE

- Optional ½"/15 mm tap available. Contact Victaulic for details.

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5.0 PERFORMANCE

Series 705

The chart expresses the frictional resistance of Victaulic Series 705 Butterfly Valve in equivalent feet/meters of straight pipe.

Nominal Size mm inches	**Outside Diameter** mm inches	**Equivalent** Feet/m of pipe
2 50	2.375 60.3	6 1.8
2½ 65	2.875 73.0	6 1.8
76.1 mm	3.000 76.1	6 1.8
3 80	3.500 88.9	7 2.1
4 100	4.500 114.3	8 2.4
108 mm	108 mm	8 2.4
5 125	5.563 141.3	12 3.7
133 mm	133 mm	12 3.7
139.7 mm	5.500 139.7	12 3.7
6 150	6.625 168.3	14 4.2
159 mm	159 mm	14 4.3
165.1 mm	6.500 165.1	14 4.2
8 200	8.625 219.1	16 4.9
10 250	10.750 273.0	18 5.5
12 300	12.750 323.9	19 5.8

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5.1 PERFORMANCE

Series 705

C_V values for flow of water at +60°F/+16°C through a fully open valve are shown in the table below.
For additional details, contact Victaulic.

Formulas for C_v values

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (GPM)
ΔP = Pressure Drop (psi)
C_v = Flow Coefficient

Formulas for K_v values

$$\Delta P = \frac{Q^2}{K_v^2}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (m^3/hr)
ΔP = Pressure Drop (Bar)
K_v = Flow Coefficient

Valve Size		Full Open
Nominal Size inches mm	**Actual Outside Diameter** inches mm	**Flow Coefficient** C_v
2 50	2.375 60.3	170
2½ 65	2.875 73.0	260
76.1 mm	3.000 76.1	260
3 80	3.500 88.9	440
4 100	4.500 114.3	820
108 mm	108 mm	820
5 125	5.563 141.3	1200
133 mm	133 mm	1200
139.7 mm	5.500 139.7	1200
6 150	6.625 168.3	1800
159 mm	159 mm	1800
165.1 mm	6.500 165.1	1800
8 200	8.625 219.1	3400
10 250	10.750 273.0	5800
12 300	12.750 323.9	9000

Valve Size		Full Open
Nominal Size inches mm	**Actual Outside Diameter** inches mm	**Flow Coefficient** K_v
2 50	2.375 60.3	147
2½ 65	2.875 73.0	225
76.1 mm	3.000 76.1	225
3 80	3.500 88.9	380
4 100	4.500 114.3	710
108 mm	108 mm	710
5 125	5.563 141.3	1040
133 mm	133 mm	1040
139.7 mm	5.500 139.7	1040
6 150	6.625 168.3	1560
159 mm	159 mm	1560
165.1 mm	6.500 165.1	1560
8 200	8.625 219.1	2940
10 250	10.750 273.0	5020
12 300	12.750 323.9	7790

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6.0 NOTIFICATIONS

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear safety glasses, hardhat, and foot protection.**

Failure to follow these instructions could result in death or serious personal injury and property damage.

7.0 REFERENCE MATERIALS

Switch and Wiring

1. The supervisory switch contains two single pole, double throw, pre-wired switches.
2. Switches are rated:

   10 amps @ 125 or 250 VAC/60 Hz

   0.50 amps @ 125 VDC

   0.25 amps @ 250 VDC
3. Switches supervise the valve in the “OPEN” position.
5. One switch has two #18 insulated wires per terminal, which permit complete supervision of leads (refer to diagrams and notes below). The second switch has one #18 insulated wire per terminal. This double circuit provides flexibility to operate two electrical devices at separate locations, such as an indicating light and an audible alarm, in the area that the valve is installed.
6. A #14 insulated ground lead (green) is provided.

   Switch #1 = S1

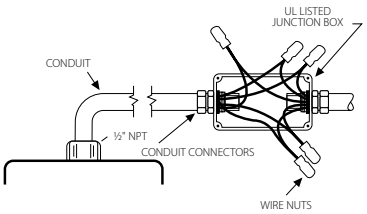
   For connection to the supervisory circuit of a UL Listed alarm control panel

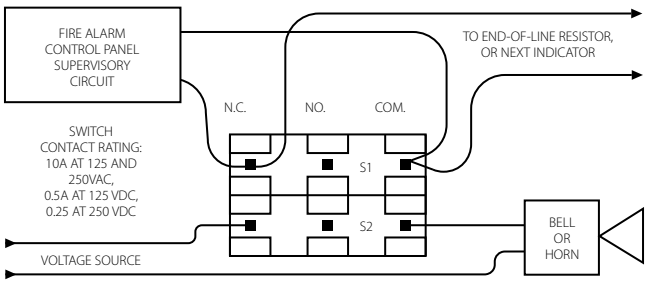
   Switch #2 = S2

   Auxiliary switch that may be connected to auxiliary devices, per the authority having jurisdiction

S1
- Normally Closed: (2) Blue
- Common: (2) Yellow

S2
- Normally Closed: Blue with Orange Stripe
- Normally Open: Brown with Orange Stripe
- Common: Yellow with Orange Stripe





Switch 1: 2 leads per terminal
Switch 2: 1 lead per terminal

NOTES

- The above diagram shows a connection between the common terminal (yellow – S1 and yellow-with-orange stripe – S2) and the normally closed terminal (blue – S1 and blue-with-orange stripe – S2). In this example, the indicator light and alarm will stay on until the valve is fully open. When the valve is fully open, the indicator light and alarm will go out. Cap off any unused wires (e.g. brown with orange stripe).
- Only S1 (two leads per terminal) may be connected to the fire alarm control panel.
- The connection of the alarm switch wiring shall be in accordance with NFPA 72 and the auxiliary switch per NFPA 70 (NEC).

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7.1 REFERENCE MATERIALS

10.01: Regulatory Approval Reference Guide

29.01: Terms and Conditions/Warranty

I-100: Field Installation Handbook

User Responsibility for Product Selection and Suitability
Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note
This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation
Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty
Refer to the Warranty section of the current Price List or contact Victaulic for details.

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Fig. 69 (Formerly Afcon Fig. 300) Adjustable Swivel Ring, Tapped Per NFPA Standards

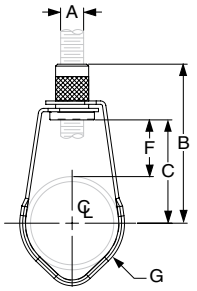
Size Range: 1/2" through 8"
Material: Carbon steel
Finish: Strap is Pre-Galvanized Zinc Material. Nut is Zinc Plated.
Service: Recommended for suspension of non-insulated **stationary** pipe line.
Maximum Temperature: 450° F
Approvals: Complies with Federal Specification A-A-1192A (Type 10), *WW-H-171-E (Type 10)*, and ANSI/MSS SP-58 (Type 10). UL Listed and FM Approved (Sizes 3/4" - 8").
Features:

- 1/2" - 2" sizes designed for use with steel and CPVC piping and manufactured with FBC System Compatible oil.
- Threads are countersunk so that they cannot become burred or damaged.
- Knurled swivel nut provides vertical adjustment after piping is in place.
- Captured swivel nut in the 1/2" through 6" sizes. The capture is permanent in the bottom portion of the band, allowing the hanger to be opened during installation if desired, but not allowing the nut to fall completely out.

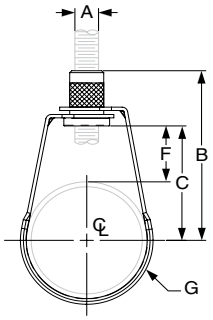
Ordering: Specify size, figure number and name.
Non-captured nut also available upon request.

1/2" through 2" Size
Rounded Edge Design

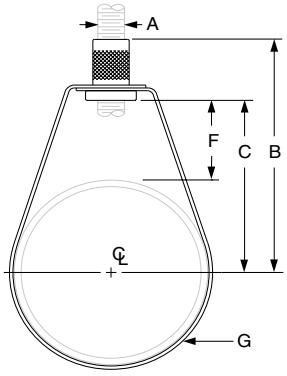
c UL us LISTED FM APPROVED



1/2" through 1" pipe



1 1/4" through 2" pipe



2 1/2" through 8" pipe

2 1/2" through 8" Size

FIG. 69: DIMENSIONS (IN) • LOADS (LBS) • WEIGHT (LBS)

Pipe Size	Max Load	Weight	Rod Size A	B	C	F	G Width
1/2	300	0.10	3/8	2 7/8	2	1 9/16	5/8
3/4		0.10		2 3/4	1 7/8	1 5/16	
1		0.10		2 9/16	1 11/16	1	
1 1/4		0.10		2 5/8	1 3/4	7/8	
1 1/2		0.10		2 3/4	1 7/8		
2		0.11		3 1/4	2 3/8	1 1/8	
2 1/2	525	0.20		4	2 3/4	1 5/16	3/4
3		0.20		3 13/16	2 15/16	1 3/16	
4	650	0.30		4 11/16	3 13/16	1 9/16	
5	1,000	0.54	1/2	5 5/16	4 3/8		
6		0.65		6 11/16	5 9/16	2 1/4	
8		1.00		8 9/16	7 9/16	3 1/4	

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

Fig. 146 (Formerly Afcon Fig. 650) Continuous Threaded Rod

Size Range: 1/4" through 1 1/2" Stocked in six, ten, and twelve foot lengths. Other even foot lengths can be furnished to order.
Material: Carbon steel or Stainless Steel Gr 304
Threads: National Coarse (USS), rod threaded complete length.
Finish: ☐ Plain or ☐ Zinc Plated (Hot-Dip Galvanized optional)
Maximum Temperature: Zinc Plated 450˚F, Stainless Steel 650˚ F
Approvals: Complies with MSS SP-58.
Ordering: Specify rod diameter and length, figure number, name and finish.
Note: The acceptability of galvanized coatings at temperatures above 450˚F is at the discretion of the end user.

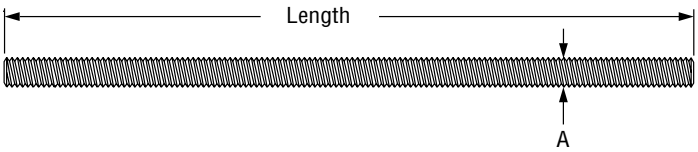


FIG. 146:
DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)

Rod Size A	Threads per Inch	Max Load 650˚ F	Weight per Ft.
1/4	20	240	0.12
3/8	16	730	0.30
1/2	13	1,350	0.53
5/8	11	2,160	0.84
3/4	10	3,230	1.20
7/8	9	4,480	1.70
1	8	5,900	2.30
1 1/4	7	9,500	3.60
1 1/2	6	13,800	5.10

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

Fig. 92 (Formerly Afcon Fig. 100) Universal C-type Clamp (Standard Throat)

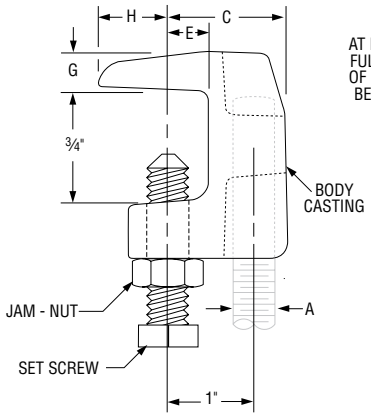
Size Range: 3/8" and 1/2"
Material: Ductile iron, hardened steel cup point set screw and locknut.
Finish: ☐ Plain or ☐ Zinc Plated (Hot-Dip Galvanized optional)
Service: Recommended for use under roof installations with bar joist type construction, or for attachment to the top or bottom flange of structural shapes where the vertical hanger rod is required to be offset from the edge of the flange and where the thickness of joist or flange does not exceed 3/4".
Approvals: Complies with Federal Specification A-A-1192A (Type 19 & 23) *WW-H-171-E (Type 23)*, ANSI/MSS SP-69 and MSS SP-58 (Type 19 & 23).
UL, ULC Listed and FM Approved.
How to size: Size of clamp is determined by size of rod to be used.
Installation: Follow recommended set screw torque values per MSS-SP-69.
Features:

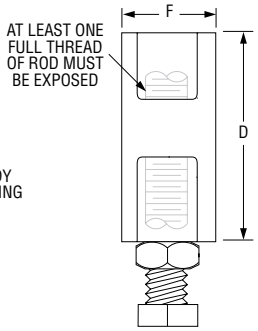
- They may be attached to horizontal flanges of structural members in either the top beam or bottom beam positions.
- Secured in place by a cup-pointed Set Screw tightened against the flange. A Jam Nut is provided for tightening the Set Screw against the Body Casting.
- Thru tapping of the body casting permits extended adjustment of the threaded rod.
- Can be used with Fig 89X retaining clip for seismic applications.

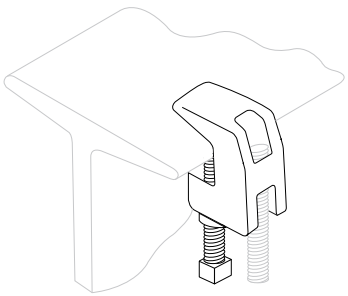
Ordering: Specify rod size, figure number, name of clamp and finish.

c UL us LISTED

FM APPROVED







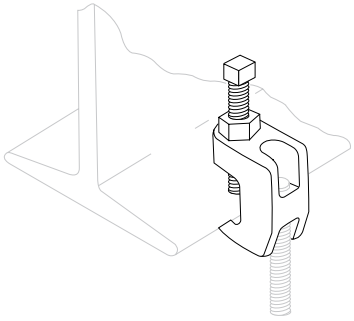


FIG. 92: DIMENSIONS (IN) • LOAD (LBS) • TORQUE (IN-LBS) • WEIGHT (LBS)											
Rod Size A	Set Screw Size	Torque Value	Max Loads ■		Weight	C	D	E	F	G	H
			Top	Bottom							
3/8	3/8	60	500	250	0.34	1 5/16	1 9/16	9/16	1 3/16	3/8	1/2
1/2	1/2	125	950	760	0.63	1 3/8	1 13/16	1/2	1 1/16	7/16	23/32

■ Maximum temperature of 450° F

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

HDI-P Drop-in Anchor 3.3.12

3.3.12.1 Product description

The HDI-P drop-in anchor is an internally threaded, flush mounted expansion anchor for solid and hollow concrete.

Product features

- Optimized anchor length to allow reliable fastenings in hollow core panels, precast plank and post tensioned slabs
- Shallow drilling enables fast installation
- Lip provides flush installation, consistent anchor depth and easy rod alignment
- HSD-G 3/8 setting tool with hand guard leaves mark on flange when anchor is set properly to enable inspection and verification of proper expansion

Guide specifications

Expansion anchor shall be flush or shell type and zinc plated in accordance with ASTM B633, SC 1, Type III. Anchors shall be Hilti HDI-P anchors as supplied by Hilti.

Install shell or flush type anchors in holes drilled with Hilti carbide tipped drill bits. Install anchors in accordance with manufacturer's instructions.

Listings/Approvals

FM (Factory Mutual) for 3/8-in. model

FM APPROVED

3.3.12.2 Material specifications

The HDI-P is manufactured from mild carbon steel, which is zinc plated for corrosion protection in accordance with ASTM B633, SC 1, Type III.

3.3.12.3 Technical data

Table 1 - Hilti HDI-P loads in normal-weight concrete and hollow core concrete panels

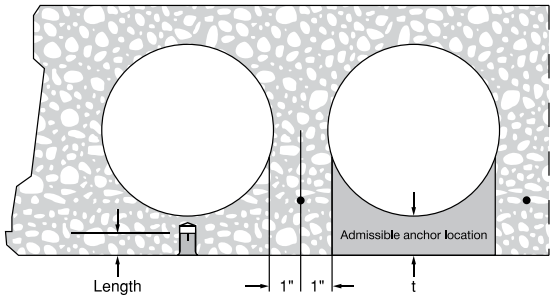
Nominal anchor diameter	Length in. (mm)	Nom. bit dia. in.	Ultimate loads, lb (kN)						Allowable loads, lb (kN)[3]					
			f'_c = 4,000 psi concrete		Hollow core[1,2]		f'_c = 4,000 psi concrete		Hollow core[1,2]			
			Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear		
1/4	5/8 (15.9)	3/8	1,430 (6.4)	1,870 (8.3)	1,550 (6.9)	2,275 (10.1)	285 (1.3)	375 (1.7)	310 (1.4)	455 (2.0)		
3/8	3/4 (19.1)	1/2	1,900 (8.5)	3,000 (13.3)	2,100 (9.3)	4,000 (17.8)	380 (1.7)	600 (2.7)	420 (1.9)	800 (3.6)		
1/2	1 (25.4)	5/8	3,000 (13.3)	6,075 (27.0)	3,110 (13.8)	5,495 (24.5)	600 (2.7)	1215 (5.4)	620 (2.8)	1,100 (4.9)		

1 The Admissible Anchor Location must be established to prevent damage to the prestressed cable during the drilling process. Verify the location and height of the cable with the hollow core plank supplier to confirm Admissible Anchor Location.

2 Minimum compressive strength of hollow core panels is 7,000 psi at the time of installation. The minimum thickness "t" is 1-3/8 inches.

3 Allowable loads calculated with a 5:1 factor-of-safety.

Figure 1 - Installation of Hilti HDI-P in hollow core concrete



3.3.12.4 Installation instructions

Installation Instructions For Use (IFU) are included with each product package. They can also be viewed or downloaded online at www.hilti.com (Canada). Because of the possibility of changes, always verify that downloaded IFU are current when used. Proper installation is critical to achieve full performance. Training is available on request. Contact Hilti Technical Services for applications and conditions not addressed in the IFU.

3.3.12.5 Ordering information

HDI-P anchor

Description	Bit diameter	Qty / box
HDI-P 1/4	3/8	100
HDI-P 3/8	1/2	100
HDI-P 1/2	5/8	50

Setting tools for HDI-P anchors

Description
HST-P 1/4 Hand Setting Tool
HST-P 3/8 Hand Setting Tool
HSD-G 3/8 Hand Setting Tool with hand guard
HST-P 1/2 Hand Setting Tool