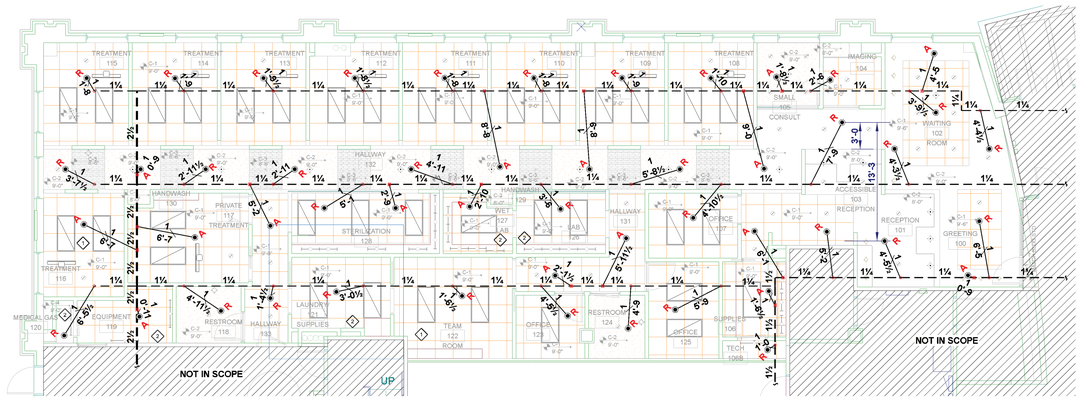


REMODEL LEGEND

- EXISTING SPRINKLER PIPE
- NEW SPRINKLER PIPE
- E EXISTING SPRINKLER
- A ADD NEW SPRINKLER
- R REPLACE AND RELOCATE EXISTING
- P PLUG EXISTING 1" OUTLET
- HANGER LOCATION ON NEW PIPE
- EXISTING 1" OUTLET
- NEW 1" MECHANICAL TEE

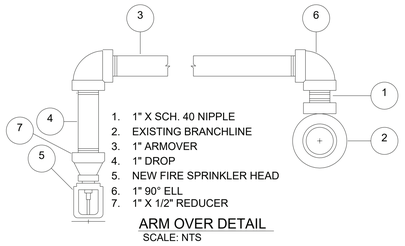
FIRE PROTECTION REMODEL PLAN

PLAN NORTH

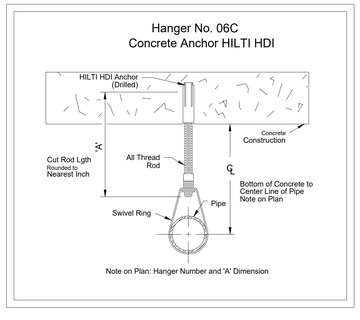
SCALE: 1/8" = 1'-0"

Sprinkler Legend

Symbol	Manufacturer	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature
R	Tyco	Royal Flush II	33	5.6	Concealed Pendent	½	Quick	Brass	200 °F
A	Tyco	Royal Flush II	17	5.6	Concealed Pendent	½	Quick	Brass	200 °F
			Total = 50						



ARM OVER DETAIL
SCALE: NTS



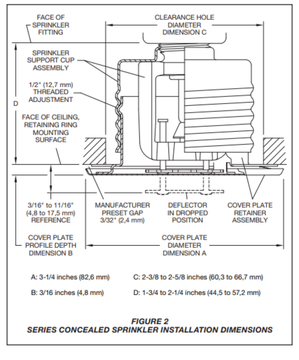


FIGURE 2
SERIES CONCEALED SPRINKLER INSTALLATION DIMENSIONS

TYCO RFII DETAIL
SCALE: NTS

PIPE SPECIFICATIONS

PER NFPA 13 2022 EDITION AND MANUFACTURERS' DATA SHEETS

NOMINAL PIPE SIZE (IN.)	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"
INSIDE DIAMETER	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.
EDDYTHREAD	.0856	1.083	1.418	1.654	2.123					
EDDYFLOW	N/A	N/A	1.530	1.728	2.203	2.705	3.334	4.310	N/A	N/A
SCH 40	N/A	1.049	1.380	1.610	2.067	2.469	3.068	4.026	5.047	6.065
SCH 10	N/A	1.097	1.442	1.682	2.157	2.635	3.260	4.260	5.295	6.357
CPVC	0.874	1.101	1.394	1.598	2.003	N/A	N/A	N/A	N/A	N/A
COPPER (TYPE M)	0.811	1.055	1.291	1.527	2.009	2.495	2.981	3.935	N/A	N/A

HANGER SPACING LEGEND

PER NFPA 13 TABLE 17.4.2.1 2022 EDITION

NOMINAL PIPE SIZE (IN.)	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
STEEL PIPE SCH 40, SCH 10, DF, EF	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
THREADED LIGHTWALL	12-0	12-0	12-0	12-0	12-0	N/A	N/A	N/A	N/A
COPPER	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0
CPVC	6-0	6-6	7-0	8-0	9-0	10-0	N/A	N/A	N/A

WHERE STATIC OR OPERATING PRESSURES EXCEED 100 PSI HANGERS SHALL BE PER NFPA 13 17.4.3.4.4 2022 EDITION

PROJECT CONTACTS

BUILDING ENGINEERING/OPERATIONS MANAGER
COMPANY: CBRE
CONTACT: CARL HOLMES
PHONE 720.641.7581
EMAIL CARL.HOLMES@CBRE.COM

ARCHITECTURAL DESIGN
COMPANY: BLOOM STUDIO
CONTACT: HEATHER RICHARDS
ADDRESS: 989 COMPASS DRIVE, ERIE, COLORADO 80516
PHONE: 303.505.7647
EMAIL: HEATHER@BLOOMSTUDIOLLC.COM

ELECTRICAL ENGINEER
COMPANY: HUTCHISON PAPESH ENGINEERING
CONTACT: BRENT PAPESH
ADDRESS: 13986 W. BOWLES AVENUE, SUITE 102, LITTLETON, CO 80127
PHONE: 303.973.9779
EMAIL: BRENT@HUTCHENGINEERING.COM

MECHANICAL/PLUMBING ENGINEER
COMPANY: MCDONALD CONSULTING
CONTACT: PETER MCDONALD
ADDRESS: 10698 AMESBURY WAY, HIGHLANDS RANCH, CO 80126
PHONE (303) 791-2732
EMAIL: PMCDESIGN@COMCAST.NET

GENERAL CONTRACTOR
COMPANY: BVB GENERAL CONTRACTORS
CONTACT: JON BJERDICK
ADDRESS: 1289 S 4TH AVENUE, BRIGHTON, CO 80601
PHONE 303.637.0981
EMAIL JON@BVBGCI.COM

DENTAL EQUIPMENT
COMPANY: HENRY SCHEIN
CONTACT: MIKE STANISLAWSKI
PHONE 480.296.4041
EMAIL: MIKE.STANISLAWSKI@HENRYSCHEIN.COM

TECHNOLOGY CONSULTANT
COMPANY: CORNERSTONE TECHNOLOGY CONSULTANTS
CONTACT: JORDAN JANZ
PHONE 303.241.9758
EMAIL: JJANZ@CSTONESOLUTIONS.NET

GENERAL NOTES

SCOPE OF WORK IS TO MODIFY THE EXISTING HYDRAULICALLY CALCULATED FIRE SPRINKLER SYSTEM TO ACCOMMODATE THE NEW TENANT FINISH AREA. NEW AND RELOCATED HEADS REQUIRED DUE TO NEW WALL AND CEILING CONFIGURATIONS.

INTEGRITY FIRE PROTECTION SHALL NOT BE HELD RESPONSIBLE FOR ANY LEAKS IN AREAS OUTSIDE OF THIS CONTRACT SPACE NOTICED WHILE CONDUCTING HYDROSTATIC TESTS (ONLY AS REQUIRED BY THE AHJ), UNLESS THE BASE SYSTEM WAS INSTALLED BY INTEGRITY FIRE PROTECTION AND THE BASE SYSTEM IS STILL UNDER WARRANTY.

ALL MATERIALS AND DEVICES USED ON THIS PROJECT SHALL BE UL LISTED AND/OR FACTORY MUTUAL APPROVED AS APPLICABLE.

ALL NEW INSTALLED PIPING SHALL BE SCHEDULE 40 OR EQUAL WITH CLASS 150 DUCTILE IRON FITTINGS UNLESS NOTED OTHERWISE.

PIPE HANGERS TO BE INSTALLED AND SPACED IN ACCORDANCE WITH MINIMUM NFPA 13, 2022, REQUIREMENTS.

SPRINKLERS TO BE INSTALLED IN ACCORDANCE WITH MINIMUM NFPA 13, 2022 REQUIREMENTS.

THE OWNER SHALL MAINTAIN A CLEARANCE OF 18" BETWEEN THE SPRINKLER DEFLECTOR AND THE TOP OF ANY STORAGE.

EXISTING OUTLETS NOT USED IN THIS CONTRACT AREA SHALL HAVE THE EXISTING HEADS REMOVED AND PLUGS INSTALLED IN THEIR PLACE WHERE NOTED.

NEW SPRINKLERS AND SPRINKLERS REQUIRING RELOCATION FOR CODE COMPLIANCE SHALL BE PLACED CENTER OF 2 X 2 TILES AND AT THE QUARTER POINT OF 2 X 4 TILES.

ALL AREAS IN SCOPE ARE LIGHT HAZARD. FOR LIGHT HAZARD AREAS, USE 225 SQ FT MAX. FOR SPRINKLER AREA COVERAGE.

EXISTING SPRINKLERS AND LOCATIONS ARE TO REMAIN AS IS UNLESS NOTED OTHERWISE.

ALL CEILING HEIGHTS ARE 9'-0" UNLESS OTHERWISE NOTED.

WE SHALL UTILIZE THE SMALL ROOM RULE AS ALLOWED PER NFPA 13, 2022 SECTION 10.2.4.1.2.

UNLESS OTHERWISE NOTED, ORDINARY-TEMPERATURE AND INTERMEDIATE-TEMPERATURE SPRINKLERS SHALL BE USED THROUGHOUT BUILDINGS PER NFPA 13, 2022 PARAGRAPH 9.4.2.1

THE MODIFICATIONS TO THE SYSTEM WILL NOT AFFECT THE EXISTING REMOTE AREA

PLAN CALL OUT LEGEND

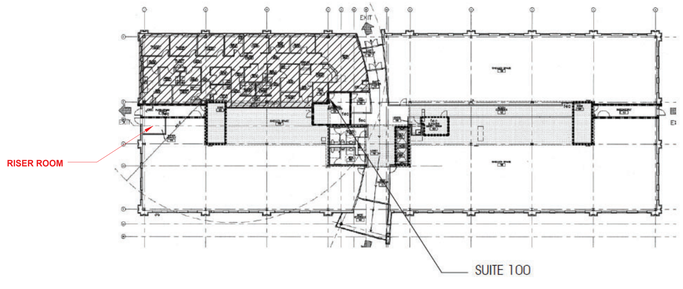
1. SMALL ROOM RULE UTILIZED PER 2019 NFPA 13, SECTION 10.2.5.2.3
2. ROOM IS DESIGNATED AS ORDINARY HAZARD. 130 SQFT MAX COVERAGE PER HEAD IN THIS ROOM.

SCOPE OF WORK

SCOPE OF WORK IS TO RELOCATE 33 PENDENTS AND ADD 17 PENDENTS TO THE NEW CEILING HEIGHT AND CONFIGURATION. CONTRACTOR IS DEMOING EXISTING WALLS/CEILING AND CREATING A NEW WALL AND CEILING LAYOUT.

PROJECT/BUILDING DATA

ZONING:	MU-OI
BUILDING CONSTRUCTION TYPE:	II-B, FULLY SPRINKLERED
BUILDING INFORMATION:	EXISTING 3 STORY BUILDING, 40' TALL 68,160 GROSS SF
PROJECT OCCUPANCY GROUP:	B - DENTAL OFFICE
PROJECT SQUARE FOOTAGE:	4,742 SF
PROJECT OCCUPANCY LOAD:	BUILDING GROSS AREA: 3,545 SF OCCUPANT LOAD RATIO 1:150 TOTAL: 24 OCCUPANTS
RESTROOMS:	BUILDING PROVIDES EXISTING FLOOR COMMON RESTROOMS - SEPARATE MENS FROM WOMENS FACILITIES. THIS BUILDING RELIES ON INDIVIDUAL TOILET FACILITIES IN EACH TENANT SUITE AS PART OF THE REQUIRED FIXTURE CALCULATIONS. TWO EXISTING SINGLE USER RESTROOMS EXIST IN THIS SUITE, AND BOTH ARE BEING DEMO'D AND REPLACED (2) SINGLE USER ACCESSIBLE RESTROOMS ARE PROVIDED AS A PART OF THIS PROJECT FOR TENANT USE
PLUMBING:	EXISTING COMMON AREA DRINKING FOUNTAINS ARE REQUIRED AND PROVIDED IN BUILDING COMMON SPACE EXISTING BUILDING COMMON UTILITY ROOM CONTAINS REQUIRED SERVICE SINK
SEPARATION OF USES:	MEDICAL GAS ROOM: 1 HOUR SEPARATION EXISTING EXIT PASSAGEWAY TO REMAIN : 1 HOUR SEPARATION EXISTING SHAFT WALLS TO REMAIN: 1 HOUR SEPARATION
REQUIRED EXITS:	2 ARE REQUIRED AND PROVIDED, SEE EGRESS PLAN SHEET A001
TRAVEL DISTANCE:	NOT TO EXCEED 300' PER 2021 IBC TABLE 1017.2
FIRE PROTECTION:	FULLY SPRINKLERED AND ALARMED BUILDING
REMOTENESS OF EXITS:	SHALL BE LESS THAN (⅔) OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL OF THE AREA SERVED PER 2015 IBC 1007.1.1 EXCEPTION 2 > (⅔) THE OVERALL DIAGONAL PROVIDED



KEY MAP- 1ST FLOOR

Integrity Fire
–Safety Services–

2695 W 3RD AVE
DENVER, CO 80219
CO LIC# 23-S-13372

DRAWN BY:
ZACH CARADONNA

CONTACT:
303-557-1820
ZACH.CARADONNA@INTEGRITYFIRESAFETYSERVICES.COM

City of Aurora Building Division
Counter Permit intake by: *RET*
Date: *Sep 01, 2023*
RSN: *1744402*
Permit: *2023 2378920 CT*
2021 INTERNATIONAL CODES & 2020 NEC Scope of permit to be field verified.

COA Adopted Codes for this project:
ICC-2021 - NEC-2020
NFPA 13-2019 - NFPA 72-2019
COA Amendments 22 & 66

Provide a full size set of legible approved construction documents **PRINTED IN COLOR** for review by the Field Inspector.

REVISIONS

STAMP

DAVID J OBERLEAS
NICET #119782
WATER BASE SYSTEMS LEVEL III
EXPIRES 11-1-2024
David Oberleas

PROJECT INFORMATION

SANDERS AND SOULT
FAMILY DENTISTRY TI

1444 S. POTOMAC SUITE 100
AURORA, CO 80012

DATE:	JOB NUMBER:
8/11/2023	30624480

SHEET NUMBER:
FP-01

Integrity Fire
–Safety Services–
Integral to your Safety. Because it Matters

303.523.7820
2695 West 3rd Avenue
Denver, CO 80219

RSN: 1744402
Permit # 2023-2378920-CT
Sheet 2 of 25

DATASHEETS FOR:

SANDERS AND SOULT
FAMILY DENTISTRY TI

@

1444 S. POTOMAC SUITE 100
AURORA, CO 80012

DAVID J OBERLEAS
NICET #119782
WATER BASE SYSTEMS LEVEL III
EXPIRES 11-1-2024
David Oberleas

City of Aurora Building Division
Counter Permit intake by: RET
Date: Sep 01, 2023
RSN: 1744402
Permit: 2023 2378920 CT
2021 INTERNATIONAL CODES & 2020 NEC Scope of permit to be field verified.

RSN 1741402
Permit # 2023-2378920-CT
Sheet 3 of 25

Reliable®

Model G5 Series Sprinklers

Standard Spray, Flat Concealed Pendent

Available with Gasketed Cover Plate

Features

- Standard Coverage, Concealed Pendent (K2.8, 4.2, 5.6, & 8.0 [40, 60, 80, & 115 metric])
- Flat concealed cover plate available in a variety of finishes.
- Available with Stainless Steel Clad cover plate (see Table I).
- 3/4-inch (19 mm) cover plate adjustment.
- Cover plate available with optional gasket.



Model G5 Cover Plate



Model G5 Cover Plate with QR Gasket



Model G5 Cover Plate with SR Gasket

Note: Gasket material is silicone rubber, available in white only.

Product Description

Model G5 series sprinklers are standard coverage, flat plate concealed sprinklers designed for installation in accordance with NFPA 13 and FM Global Property Loss Prevention Data Sheets. All Model G5 series sprinklers use a fusible-link operating element.

The sprinklers are offered with a standard Model G5 cover plate, a Model G5 cover plate with a quick-response (QR) gasket, or a Model G5 cover plate with a standard-response (SR) gasket. Model G5 sprinklers with a gasketed cover plate are intended for use in dust free environments such as clean rooms.

Model G5 sprinklers must only be used with the Model G5 cover plate listed or approved with the sprinkler. Table A provides a summary of available Model G5 series sprinklers, along with Listing and Approval information for each sprinkler and cover plate combination.

Model G5 Series Sprinkler Summary — **Table A**

Sprinkler Model	K-Factor gpm/psi$^{1/2}$ (L/min/bar$^{1/2}$)	Cover Plate Model	Listings and Approvals	Sensitivity	Max. Working Pressure psi (bar)	Sprinkler Identification Number (SIN)
G5-28	2.8 (40)	G5	cULus	QR	175 (12)	RA3411
			FM	SR		
		G5 QR Gasket	cULus	QR		
		G5 SR Gasket	cULus, FM	SR		
G5-42	4.2 (60)	G5	cULus	QR	175 (12)	RA3413
		G5 QR Gasket				
		G5 SR Gasket	cULus	SR		
G5-56	5.6 (80)	G5	cULus	QR	250 (17)	RA3415
			FM, LPCB, VdS, CE, UKCA	SR	175 (12)	
		G5 QR Gasket	cULus	QR	250 (17)	
		G5 SR Gasket	cULus	SR	250 (17)	
			FM	SR	175 (12)	
G5-56 300	5.6 (80)	G5	cULus	QR	300 (21)	RA4014
		G5 QR Gasket				
		G5 SR Gasket	cULus	SR		
G5-80	8.0 (115)	G5	cULus	QR	175 (12)	RA3412
		G5 QR Gasket				
		G5 SR Gasket	cULus	SR		
G5-80F	8.0 (115)	G5	FM	SR	175 (12)	RA3417
		G5 SR Gasket				

RSN: 1744402
Permit # 2023-2378920-CT
Sheet 4 of 25

Model G5-28 Standard Coverage, Concealed Pendent Sprinkler

SIN RA3411

Technical Specifications
Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 2.8 (40 metric)
Max. Working Pressure: 175 psi (12 bar)

Material Specifications
Fusible Link: Beryllium Nickel
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing washer: Nickel with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Temperature Ratings
Ordinary
165°F (74°C) (Sprinkler)
[135°F (57°C) (Cover Plate)]
Intermediate
212°F (100°C) (Sprinkler)
[165°F (74°C) (Cover Plate)]

Sensitivity
(See Table B)

Cover Plates
Model G5
Model G5 QR Gasket (cULus only)
Model G5 SR Gasket

Cover Plate Finishes
(See Table I)

Sprinkler Wrench
Model W3
Model FC

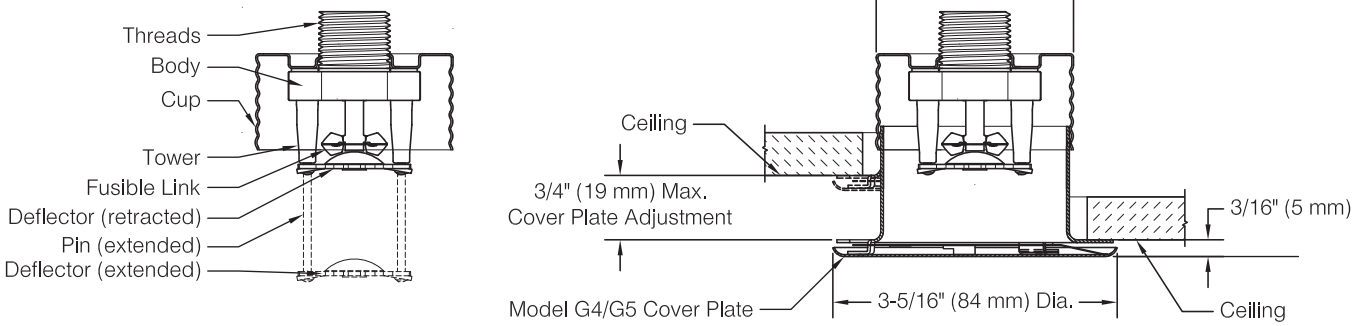
Listings and Approvals
cULus Listed (Light Hazard only)
FM Approved





Model G5-28 Sprinkler Components and Dimensions

Figure 1



Model G5-28 Sprinkler Sensitivity

Table B

Cover Plate Model	Listing or Approval Agency	
	cULus	FM
G5	QR	SR
G5 QR Gasket	QR	--
G5 SR Gasket	SR	SR

QR: Quick-response
SR: Standard-response

RSN: 1744402
Permit # 2023-2378920-CT
Sheet 5 of 25

Model G5-42 Standard Coverage, Concealed Pendent Sprinkler

SIN RA3413

Technical Specifications
Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 4.2 (60 metric)
Max. Working Pressure: 175 psi (12 bar)

Material Specifications
Fusible Link: Beryllium Nickel
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing washer: Nickel with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Temperature Ratings
Ordinary
165°F (74°C) (Sprinkler)
[135°F (57°C) (Cover Plate)]
Intermediate
212°F (100°C) (Sprinkler)
[165°F (74°C) (Cover Plate)]

Sensitivity
(See Table C)

Cover Plates
Model G5
Model G5 QR Gasket
Model G5 SR Gasket

Cover Plate Finishes
(See Table I)

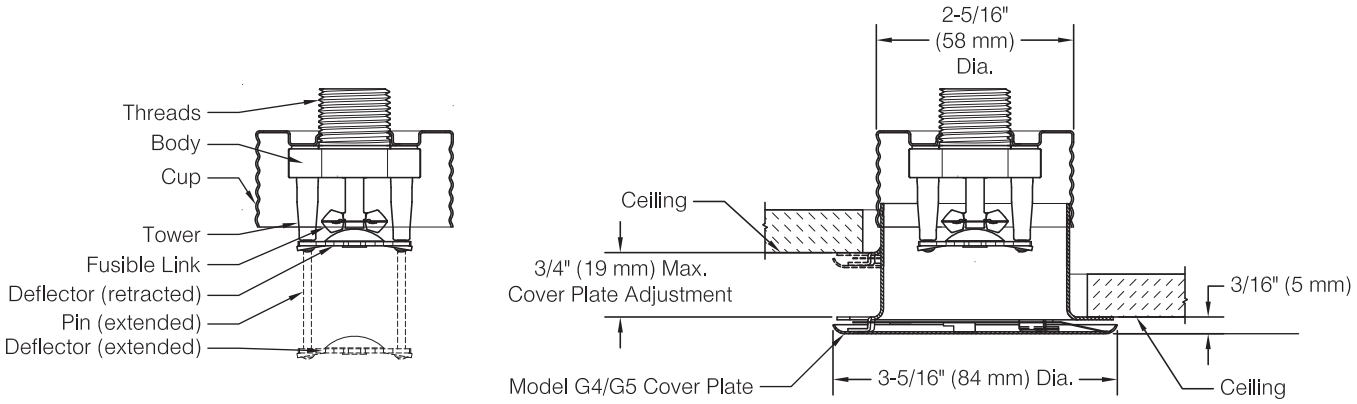
Sprinkler Wrench
Model W3
Model FC

Listings and Approvals
cULus Listed (Light Hazard only)



Model G5-42 Sprinkler Components and Dimensions

Figure 2



Model G5-42 Sensitivity

Table C

Cover Plate Model	Listing or Approval Agency
	cULus
G5	QR
G5 QR Gasket	QR
G5 SR Gasket	SR

QR: Quick-response
SR: Standard-response

RSN: 1744402
Permit # 2023-2378920-CT
Sheet 6 of 25

Model G5-56 Standard Coverage, Concealed Pendent Sprinkler

SIN RA3415

Technical Specifications
Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 5.6 (80 metric)
Max. Working Pressure:
175 psi (12 bar)
250 psi (17 bar) (cULus only)

Material Specifications
Fusible Link: Beryllium Nickel
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing washer: Nickel with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Temperature Ratings
Ordinary
165°F (74°C) (Sprinkler)
[135°F (57°C) (Cover Plate)]
Intermediate
212°F (100°C) (Sprinkler)
[165°F (74°C) (Cover Plate)]

Sensitivity
(See Table D)

Cover Plates
Model G5
Model G5 QR Gasket (cULus only)
Model G5 SR Gasket (cULus and FM only)

Cover Plate Finishes
(See Table I)

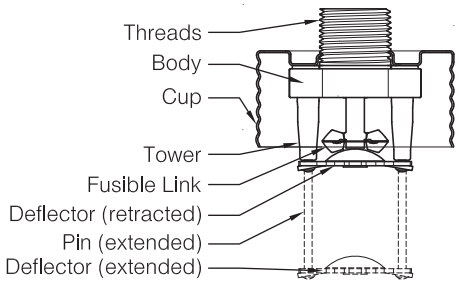
Sprinkler Wrench
Model W3
Model FC

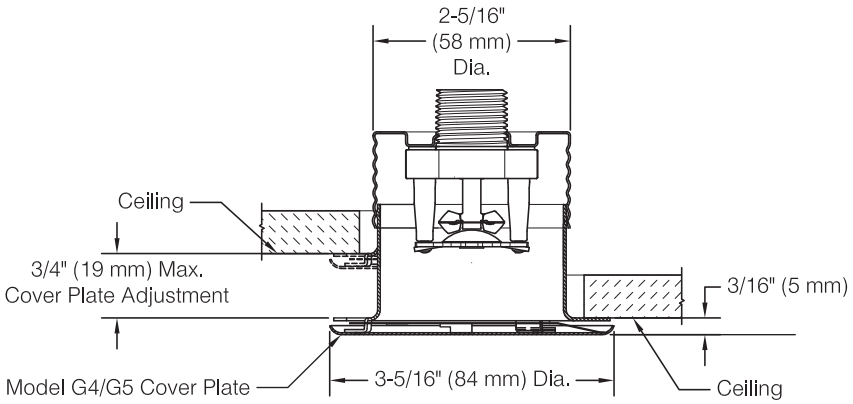
Listings and Approvals
cULus Listed (Light & Ordinary Hazard only)
FM Approved
LPCB Approved
VdS Approved [165°F (74°C) only]
CE Listed (2831-CPR-S2062)
UKCA: 0832-UKCA-CPR-S5045





Model G5-56 Sprinkler Components and Dimensions — **Figure 3**





Model G5-56 Sensitivity — **Table D**

Cover Plate Model	Listing or Approval Agency		
	cULus	FM	LPCB, VdS, CE, UKCA
G5	QR	SR	SR
G5 QR Gasket	QR	--	--
G5 SR Gasket	SR	SR	--

QR: Quick-response
SR: Standard-response

RSN: 1744402
Permit # 2023-2378920-CT
Sheet 7 of 25

Model G5-56 300 Standard Coverage, Concealed Pendent Sprinkler

SIN RA4014

Technical Specifications
Style: Flat Concealed Pendent
Threads: 1/2" NPT or ISO 7-1 R1/2
Nominal K-Factor: 5.6 (80 metric)
Max. Working Pressure: 300 psi (21 bar)

Material Specifications
Fusible Link: Beryllium Nickel
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing washer: Nickel with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Temperature Ratings
Ordinary
165°F (74°C) (Sprinkler)
[135°F (57°C) (Cover Plate)]
Intermediate
212°F (100°C) (Sprinkler)
[165°F (74°C) (Cover Plate)]

Sensitivity
(See Table E)

Cover Plates
Model G5
Model G5 QR Gasket
Model G5 SR Gasket

Cover Plate Finishes
(See Table I)

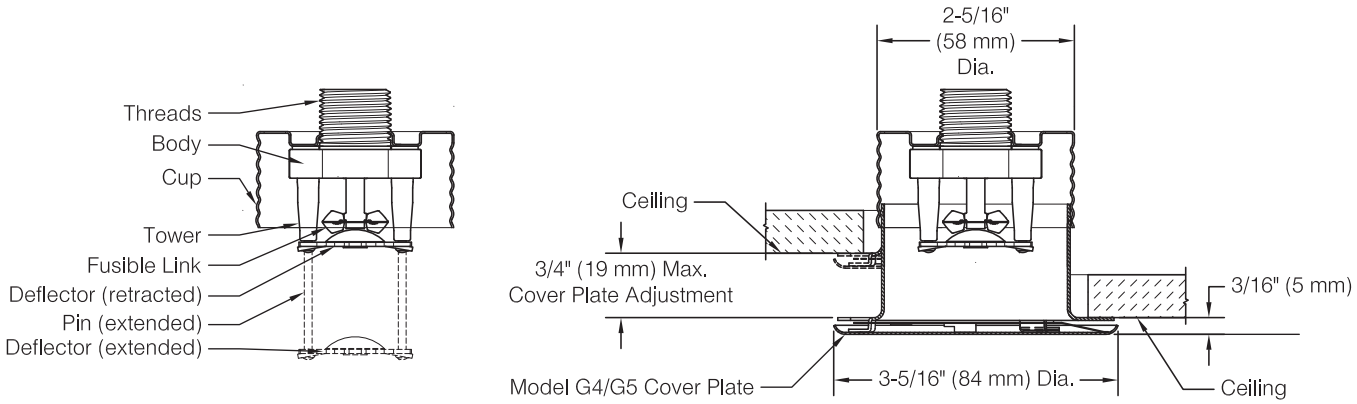
Sprinkler Wrench
Model W3
Model FC

Listings and Approvals
cULus Listed (Light & Ordinary Hazard only)



Model G5-56 300 Sprinkler Components and Dimensions

Figure 4



Model G5-56 300 Sensitivity

Table E

Cover Plate Model	Listing or Approval Agency
	cULus
G5	QR
G5 QR Gasket	QR
G5 SR Gasket	SR

QR: Quick-response
SR: Standard-response

RSN: 1744402
Permit # 2023-2378920-CT
Sheet 8 of 25

Model G5-80 Standard Coverage, Concealed Pendent Sprinkler

SIN RA3412

Technical Specifications
Style: Flat Concealed Pendent
Threads: 3/4" NPT or ISO 7-1 R3/4
Nominal K-Factor: 8.0 (115 metric)
Max. Working Pressure: 175 psi (12 bar)

Material Specifications
Fusible Link: Beryllium Nickel
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing washer: Nickel with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Bronze Alloy
Cup: Steel

Temperature Ratings
Ordinary
165°F (74°C) (Sprinkler)
[135°F (57°C) (Cover Plate)]
Intermediate
212°F (100°C) (Sprinkler)
[165°F (74°C) (Cover Plate)]

Sensitivity
(See Table F)

Cover Plates
Model G5
Model G5 QR Gasket
Model G5 SR Gasket

Cover Plate Finishes
(See Table I)

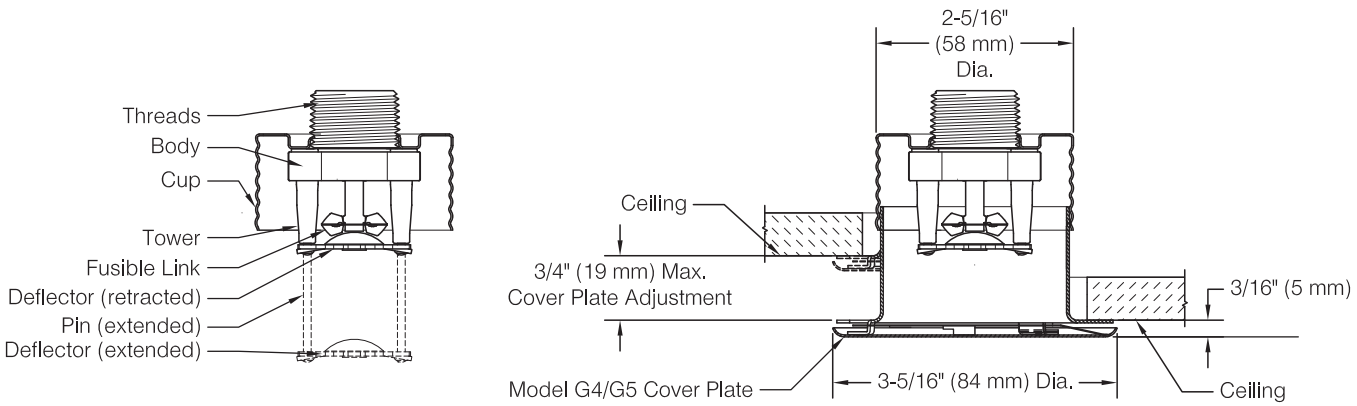
Sprinkler Wrench
Model W3
Model FC

Listings and Approvals
cULus Listed (Light & Ordinary Hazard only)



Model G5-80 Sprinkler Components and Dimensions

Figure 5



Model G5-80 Sensitivity

Table F

Cover Plate Model	Listing or Approval Agency
	cULus
G5	QR
G5 QR Gasket	QR
G5 SR Gasket	SR

QR: Quick-response
SR: Standard-response

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Model G5-80F Standard Coverage, Concealed Pendent Sprinkler

SIN RA3417

Technical Specifications
Style: Flat Concealed Pendent
Threads: 3/4" NPT or ISO 7-1 R3/4
Nominal K-Factor: 8.0 (115 metric)
Max. Working Pressure: 175 psi (12 bar)

Material Specifications
Fusible Link: Beryllium Nickel
Sprinkler Body: Brass Alloy
Levers: Bronze Alloy
Yoke: Brass Alloy
Sealing washer: Nickel with PTFE
Load Screw: Bronze Alloy
Towers: Copper Alloy
Pins: Stainless Steel
Deflector: Stainless Steel
Cup: Steel

Temperature Ratings
Ordinary
165°F (74°C) (Sprinkler)
[135°F (57°C) (Cover Plate)]
Intermediate
212°F (100°C) (Sprinkler)
[165°F (74°C) (Cover Plate)]

Sensitivity
Standard Response

Cover Plates
Model G5
Model G5 SR Gasket

Cover Plate Finishes
(See Table I)

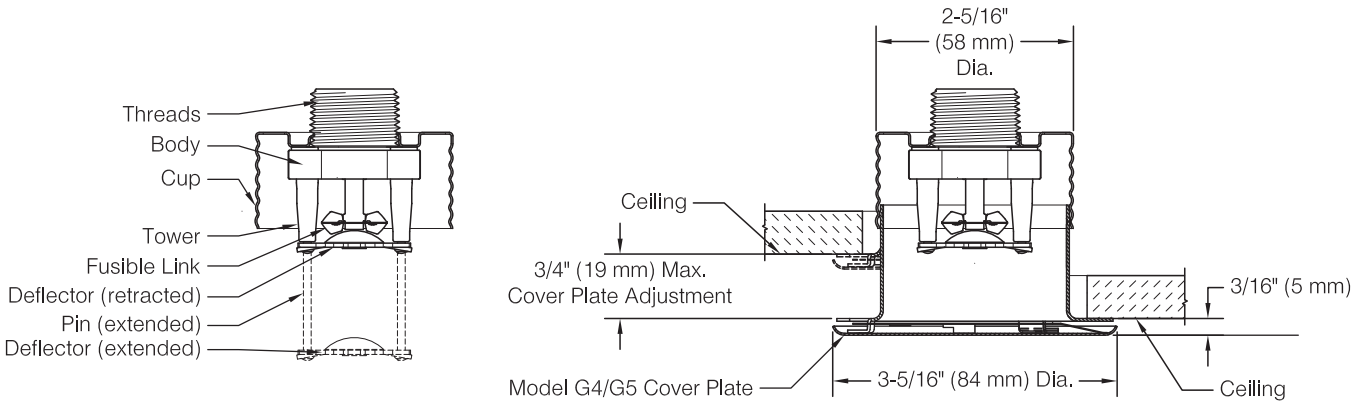
Sprinkler Wrench
Model W3
Model FC

Listings and Approvals
FM Approved



Model G5-80F Sprinkler Components and Dimensions

Figure 6



Model G5-80F Sensitivity

Table G

Cover Plate Model	Listing or Approval Agency
	FM
G5	SR
G5SR Gasket	SR

SR: Standard-response

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Installation Dimensions and Cover Plate Information

Table H

Cover Plate Model	Cover Plate Diameter Inch (mm)	Recommended Hole Diameter in Ceiling Inch (mm)	Cover Plate Adjustment Inch (mm)	Min. to Max. Face of Fitting to Ceiling[1] Inch (mm)	Min. to Max. Dropped Deflector Distance below Ceiling Inch (mm)	Cover Plate Temperature Rating °F (°C)
G5	3-5/16 (84)	2-5/8 (67)	3/4 (19)	1-1/2 to 2-1/4 (38 to 57)	1/4 to 1 (6 to 25)	135°F[3] (57°C) or 165°F[4] (74°C)
G5 QR Gasket[2]	3-11/16 (94)					
G5 SR Gasket[2]	4 (101 mm)					

Notes:

1. Face of fitting to ceiling dimensions are based on nominal thread make up. Verify dimensions based on fitting and thread sealing method prior to installation. A 1/2" x 1/2" brass nipple extension (Reliable P/N 6999991900) is available to assist with replacement of Reliable Model G4A sprinklers.
2. Model G5 QR Gasket and Model G5 SR Gasket cover plates are sold as assembled units including both the cover plate and gasket. Model G5 QR Gasket and Model G5 SR Gasket cover plates and gaskets are not interchangeable.
3. For use with 165°F (74°C) temperature rated sprinklers where the Maximum Ceiling Temperature does not exceed 100°F (38°C).
4. For use with 212°F (100°C) temperature rated sprinklers where the Maximum Ceiling Temperature does not exceed 150°F (66°C).

Cover Plate Finishes[1][2]

Table I

Standard Finishes	Special Application Finishes
White Paint Chrome[4]	Off-White Paint Black Paint Custom Color Paint (Specify)[3] Raw Brass (Lacquered) Bright Brass[4] Finished Bronze [4] Satin Chrome [4] Stainless Steel Clad[5] Custom Printed

Notes:

1. Paint or any other coating applied over the factory finish will void all approvals and warranties.
2. Cover plates do not carry corrosion resistant listings or approvals.
3. Custom color paint is semi-gloss unless specified otherwise.
4. Not listed for use with QR sealing gasket.
5. Stainless steel clad cover plates are Type 316 Stainless Steel on the finished side and C102 Copper Alloy on the back side.

Application

Model G5 series sprinklers are standard coverage, flat plate concealed pendent sprinklers. The sprinklers are intended for use in accordance with NFPA 13 and FM Global Property Loss Prevention Data Sheets, as well as the requirements of the applicable approval agencies.

Model G5 series sprinklers are available as either Quick-response (QR) or Standard-response (SR) depending on the approval agency and cover plate selected.

Model G5 series sprinklers use Model G5 flat cover plates. Model G5 QR Gasket and G5 SR Gasket cover plates are available to limit air and dust movement through the ceiling.

Listing & Approval Agencies

Individual Model G5 series sprinkler may be listed or approved by the following agencies:

- Underwriters Laboratories, Inc. and UL Canada (cULus)
  Listing Category: Sprinklers, Automatic and Open
  Guide Number: VNIV
- FM Approvals (FM)
- Loss Prevention Certification Board (LPCB)
- VdS Schadenverhütung GmbH (VdS)
- EC-Certificate of Conformity 0832-CPD-2062 (CE)
- UKCA EN12259-1 : 1999 +A3:2006

See Table A and the individual sprinkler data sheets in this Bulletin for listings and approvals applicable to each sprinkler.

Installation

Model G5 series sprinklers are intended to be installed in accordance with NFPA 13, FM Global Property Loss Prevention Data Sheets, and the requirements of applicable authorities having jurisdiction. Model G5 series sprinklers must not be installed in ceilings with positive pressure in the space above. Ensure that the 4 slots in the cup are open and unobstructed following installation.

Model G5 series sprinklers are shipped with a wrench-able protective cap that should remain on the sprinkler until the sprinkler system is placed in service following construction.

Model G5 series sprinklers can be installed without removing the wrench-able protective cap using the Model W3 wrench. Alternatively, Model G5 series sprinklers can be installed using the Model FC wrench by temporarily removing the protective cap during installation of the sprinkler. The use of any other wrench to installed Model G5 series sprinklers is not permitted and may damage the sprinkler.

Wrench





Model FC
For use with Model G5 Series sprinklers without wrench-able cap installed



Model W3
For use with Model G5 Series sprinklers with wrench-able cap installed



Fully insert the Model W3 wrench over the cap until it reaches the bottom of the cup, or the Model FC wrench over the sprinkler until the wrench engages the body. Do not wrench any other part of the sprinkler/cup assembly. The Model W3 and FC wrenches are designed to be turned with a standard 1/2" square drive. Tighten the sprinkler into the fitting after applying a PTFE based thread sealant to the sprinkler's threads. Recommended installation torque is specified in Table J.

Installation Torque — **Table J**

Sprinkler Threads	Recommended Installation Torque (min. – max.)	
	ft.lb	N·m
½" NPT or ISO7-1R1/2	8-18	11-24
¾" NPT or ISO7-1R3/4	14-20	19-27

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

Install the cover plate by hand, pushing and then turning the cover in the clockwise direction until it is tight against the ceiling. For Model G5 QR Gasket and Model G5 SR Gasket cover plates, the gasket should be attached to the flange of the cover plate skirt only. Do not glue the gasket in place or allow the gasket to overlap both the cover plate and the flange of the skirt.

Maintenance

Reliable Model G5 series sprinkler should be inspected and the sprinkler system maintained in accordance with NFPA 25, as well as the requirements of any Authorities Having Jurisdiction.

Prior to installation, sprinklers should remain in the original cartons and packaging until used. This will minimize the potential for damage to sprinklers that could cause improper operation or non-operation.

Do not clean sprinklers with soap and water, ammonia liquid or any other cleaning fluids. Remove dust by gentle vacuuming without touching the sprinkler.

Replace any sprinkler or cover plate which has been painted (other than factory applied). Properly installed Model G5 cover plates will have an air gap that is required for proper operation, do not seal the gap or paint the cover plates. Model G5 series sprinklers have holes in the cup that must remain unobstructed.

Replace any sprinkler which has been damaged. A stock of spare sprinklers should be maintained to allow quick re-placement of damaged or operated sprinklers. Failure to properly maintain sprinklers may result in inadvertent operation or non-operation during a fire event.

Guarantee

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

Patents

Model G5 series sprinklers may be covered by one or more of the following patents:

U.S. Patent 6,554,077, U.S. Patent 7,275,603, U.S. Patent 8,776,903, U.S. Patent 9,248,327

Ordering Information

Specify the following when ordering.

Sprinkler
- Model [G5-28] [G5-42] [G5-56] [G5-56 300] [G5-80] [G5-80F]
- Temperature Rating [165°F (74°C)] [212°F (100°C)]
- Threads [NPT or ISO 7-1]

Cover Plate
- Model [G5, G5 QR Gasket, G5 SR Gasket]
- Finish (See Table I)

Sprinkler Wrench
- Model W3
- Model FC

P/N 9999970421

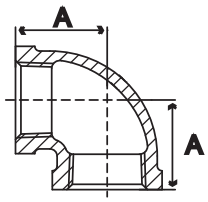
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TITUS DUCTILE IRON FITTINGS

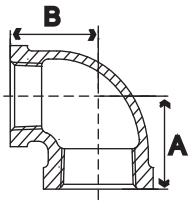
- Fittings are manufactured in accordance with ASME B16.3
- Approved by UL, ULC, and FM at 500 psi
- Bushings and Plugs are manufactured in accordance with ASME B16.4
- Unions are manufactured in accordance with ASME B16.39
- Threads NPT per ASME B1.20.1
- Available in 1/2” - 2 1/2”
- Fittings are 100% air tested
- Marked with BIS or TSP
- For current listing/approval details contact a Titus representative



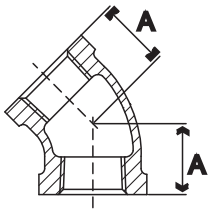
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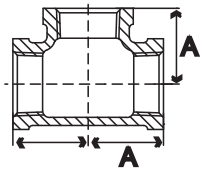
ELBOW 90°					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1/2	1.12	0.25	50	200	UL, FM
1	1.50	0.57	20	60	UL, FM
1 1/4	1.75	0.97	20	40	UL, FM
1 1/2	1.94	1.43	15	30	UL, FM
2	2.25	1.93	8	16	UL, FM
2 1/2	2.70	2.89	12	12	UL, FM



90° REDUCING ELBOW						
SIZE (INCH)	A (in)	B (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1 X 1/2	1.26	1.40	0.43	25	100	UL, FM
1 X 3/4	1.37	1.45	0.56	50	100	UL, FM
11/4 X 1/2	1.34	1.53	0.61	20	80	UL, FM
11/4 X 3/4	1.45	1.62	0.71	15	60	UL, FM
11/4 X 1	1.58	1.67	0.73	10	40	UL, FM
11/2 X 1/2	1.52	1.75	0.71	15	60	UL, FM
11/2 X 3/4	1.52	1.75	1.01	10	40	UL, FM
11/2 X 1	1.65	1.80	0.92	10	40	UL, FM
11/2 X 11/4	1.82	1.88	1.04	15	30	UL, FM
2 X 3/4	1.60	1.97	1.10	9	36	UL, FM
2 X 1	1.73	2.02	1.22	14	28	UL, FM
2 X 11/4	1.90	2.10	1.48	10	20	UL, FM
2 X 11/2	2.02	2.16	1.56	10	20	UL, FM



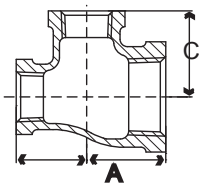
ELBOW 45°					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1	1.12	0.55	20	60	UL, FM
1 1/4	1.29	0.85	20	40	UL, FM
1 1/2	1.43	1.12	10	30	UL, FM
2	1.68	1.54	12	24	UL, FM



TEE					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1	1.50	0.83	20	40	UL, FM
1 1/4	1.75	1.30	14	28	UL, FM
1 1/2	1.94	1.68	12	24	UL, FM
2	2.25	2.79	8	16	UL, FM

c UL us FM APPROVED

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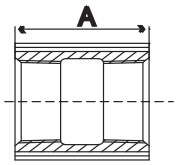


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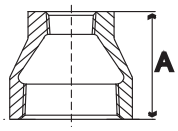
REDUCING TEE

SIZE (INCH)	A (in)	B (in)	C (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
3/4 X 3/4 X 1/2	1.20	1.20	1.22	0.52	20	80	UL, FM
3/4 X 3/4 X 1	1.45	1.45	1.37	0.63	40	80	UL, FM
3/4 X 3/4 X 11/4	1.62	1.62	1.45	0.82	20	60	UL, FM
1 X 1/2 X 1/2	1.26	1.12	1.40	0.48	20	80	UL, FM
1 X 1/2 X 3/4	1.37	1.22	1.45	0.54	20	80	UL, FM
1 X 1/2 X 1	1.50	1.22	1.45	0.69	15	60	UL, FM
1 X 3/4 X 1/2	1.26	1.20	1.40	0.58	20	80	UL, FM
1 X 3/4 X 3/4	1.37	1.31	1.44	0.66	15	60	UL, FM
1 X 3/4 X 1	1.50	1.45	1.50	0.75	30	60	UL, FM
1 X 1 X 1/2	1.26	1.26	1.40	0.64	15	60	UL, FM
1 X 1 X 3/4	1.37	1.37	1.45	0.70	12	48	UL, FM
1 X 1 X 11/4	1.67	1.67	1.58	1.09	11	44	UL, FM
1 X 1 X 11/2	1.80	1.80	1.65	1.22	9	36	UL, FM
1 X 1 X 2	2.02	2.02	1.93	1.54	12	24	UL, FM
11/4 X 1/2 X 1	1.58	1.36	1.67	0.88	20	40	UL, FM
11/4 X 1/2 X 11/4	1.75	1.53	1.75	1.03	20	40	UL, FM
11/4 X 3/4 X 3/4	1.45	1.31	1.62	0.81	10	40	UL, FM
11/4 X 3/4 X 1	1.58	1.45	1.67	0.94	10	40	UL, FM
11/4 X 3/4 X 11/4	1.75	1.62	1.75	1.09	20	40	UL, FM
11/4 X 1 X 1/2	1.34	1.26	1.53	0.83	20	40	UL, FM
11/4 X 1 X 3/4	1.45	1.37	1.62	0.87	20	40	UL, FM
11/4 X 1 X 1	1.58	1.50	1.67	1.01	20	40	UL, FM
11/4 x 1 x 11/4	1.75	1.67	1.75	1.16	15	30	UL, FM
11/4 x 1 x 11/2	1.88	1.88	1.82				UL, FM
11/4 x 11/4 x 1/2	1.34	1.34	1.53	0.87	20	40	UL, FM
11/4 x 11/4 x 3/4	1.45	1.45	1.62	0.97	20	40	UL, FM
11/4 x 11/4 x 1	1.58	1.58	1.67	1.06	20	40	UL, FM
11/4 x 11/4 x 11/2	1.88	1.88	1.82	2.13	12	24	UL, FM
11/4 x 11/4 x 2	2.10	2.10	1.90	1.83	12	24	UL, FM
11/2 x 1/2 x 11/2	1.94	1.66	1.94	1.46	12	24	UL, FM
11/2 x 3/4 x 11/2	1.94	1.75	1.94	1.44	12	24	UL, FM
11/2 x 1 x 1	1.65	1.50	1.80	1.21	15	30	UL, FM
11/2 x 1 x 11/4	1.82	1.67	1.88	1.33	12	24	UL, FM
11/2 x 1 x 11/2	1.94	1.80	1.94	1.58	12	24	UL, FM
11/2 x 11/4 x 1/2	1.41	1.34	1.66	1.01	12	24	UL, FM
11/2 x 11/4 x 3/4	1.52	1.43	1.75	1.10	12	24	UL, FM
11/2 x 11/4 x 1	1.65	1.58	1.80	1.25	12	24	UL, FM
11/2 x 11/4 x 11/4	1.82	1.75	1.88	1.41	12	24	UL, FM
11/2 x 11/4 x 11/2	1.94	1.88	1.94	1.54	12	24	UL, FM
11/2 x 11/4 x 2	2.16	2.16	2.02	2.02	8	16	UL, FM
11/2 x 11/2 x 1/2	1.41	1.41	1.66	1.03	18	36	UL, FM
11/2 x 11/2 x 3/4	1.52	1.52	1.75	1.28	15	30	UL, FM
11/2 x 11/2 x 1	1.65	1.65	1.80	1.40	10	30	UL, FM
11/2 x 11/2 x 11/4	1.82	1.82	1.88	1.51	12	24	UL, FM
11/2 x 11/2 x 2	2.16	2.16	2.02	2.05	8	16	UL, FM
2 x 1/2 x 2	2.25	1.88	2.25	2.20	8	16	UL, FM
2 x 3/4 x 2	2.25	1.97	2.25	1.62	8	16	UL, FM
2 x 1 x 11/2	2.02	1.80	2.16	1.89	10	20	UL, FM
2 x 1 x 2	2.25	2.02	2.25	2.20	8	16	UL, FM
2 x 11/4 x 11/4	1.90	1.75	2.10	1.76	8	16	UL, FM
2 x 11/4 x 11/2	2.02	1.88	2.16	2.21	8	16	UL, FM
2 x 11/4 x 2	2.25	2.10	2.25	2.20	8	16	UL, FM
2 x 11/2 x 1/2	1.73	1.65	2.02	1.70	10	20	UL, FM
2 x 11/2 x 1	1.73	1.65	2.02	1.60	10	20	UL, FM
2 x 11/2 x 11/4	1.90	1.82	2.10	1.76	8	16	UL, FM
2 x 11/2 x 11/2	2.02	1.94	2.16	1.90	8	16	UL, FM
2 x 11/2 x 2	2.25	2.16	2.25	1.88	8	16	UL, FM
2 x 2 x 1/2	1.49	1.49	1.88	1.71	10	20	UL, FM
2 x 2 x 3/4	1.60	1.60	1.97	1.70	10	20	UL, FM
2 x 2 x 1	1.73	1.73	2.02	1.80	10	20	UL, FM
2 x 2 x 11/4	1.90	1.90	2.10	2.05	8	16	UL, FM
2 x 2 x 11/2	2.02	2.02	2.16	2.09	8	16	UL, FM

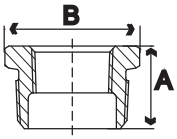
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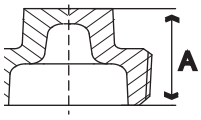
COUPLING					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1	1.67	0.47	25	100	UL, FM
1 1/4	1.93	0.66	16	64	UL, FM
1 1/2	2.15	0.94	18	36	UL, FM
2	2.53	1.49	12	24	UL, FM



REDUCING COUPLING					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
3/4 x 1/2	1.44	0.26	60	180	UL, FM
1 x 1/2	1.69	0.37	30	120	Hexagon small end, UL, FM
1 x 3/4	1.69	0.42	25	100	Hexagon small end, UL, FM
11/4 x 1/2	2.06	0.57	25	75	UL, FM
11/4 x 3/4	2.06	0.60	25	75	UL, FM
11/4 x 1	2.06	0.62	15	60	UL, FM



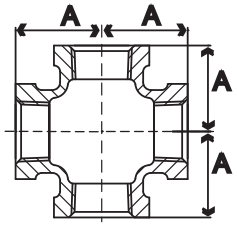
BUSHINGS					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
3/4 x 1/2	1.02	0.14	75	300	outside head, UL, FM
1 x 1/2	1.14	0.28	50	200	outside head, UL, FM
1 x 3/4	1.14	0.19	50	200	outside head, UL, FM
11/4 x 3/4	1.30	0.37	30	120	outside head, UL, FM
11/4 x 1	1.30	0.30	30	120	outside head, UL, FM
11/2 x 1	1.34	0.52	25	75	outside head, UL, FM
11/2 x 11/4	1.34	0.37	25	75	outside head, UL, FM
2 x 1/2	1.50	0.90	20	60	inside head, UL, FM
2 x 3/4	1.50	0.67	20	60	inside head, UL, FM
2 x 1	1.50	0.88	20	60	inside head, UL, FM
2 x 11/4	1.50	0.79	20	60	outside head, UL, FM
2 x 11/2	1.50	0.66	20	60	outside head, UL, FM



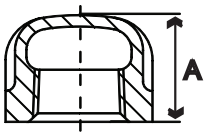
PLUG					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1/2	0.95	0.10	50	600	hollow, UL, FM
3/4	1.07	0.16	35	420	hollow, UL, FM
1	1.25	0.26	20	240	hollow, UL, FM
1 1/4	1.36	0.31	40	120	hollow, UL, FM
1 1/2	1.42	0.55	30	90	hollow, UL, FM
2	1.57	0.65	20	60	hollow, UL, FM

c UL us FM APPROVED

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CROSS					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1	1.50	0.98	15	30	UL, FM
1 1/4	1.75	1.55	10	20	UL, FM
1 1/2	1.94	1.84	8	16	UL, FM
2	2.25	3.26	5	10	UL, FM



CAP					
SIZE (INCH)	A (in)	WEIGHT (LBS.)	INNER BOX PCS/BOX	MASTER Ctn. PCS/Ctn.	Remarks
1	1.16	0.32	25	100	UL, FM
1 1/4	1.28	0.49	20	80	UL, FM
1 1/2	1.33	0.67	18	54	UL, FM
2	1.45	0.88	12	36	UL, FM

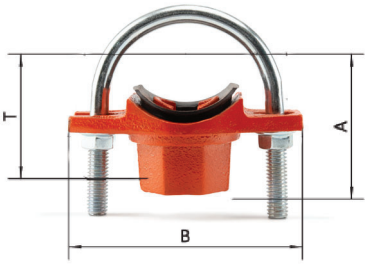
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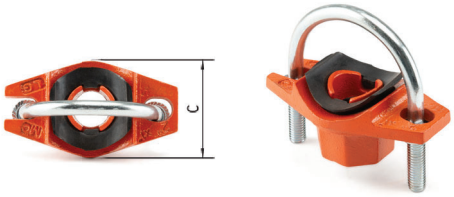
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41 SADDLE-LET OUTLET TEE

U BOLT MECHANICAL TEE

- Ductile Iron ASTM A-536 Grade 65-45-12.
- Female NPT Threads conform to ASME B1.20.1
- Finish available in electro zinc plated or orange epoxy paint
- Gasket: Grade E – EPDM with operating temperature of -30F to 230F (-34C to 110C) and is marked by a green stripe
- Bolts are SAE J429 Grade 5
- Pressure rated up to 300p
- For current listing/approval details contact a Titus representative





Nominal Size in/mm	Hole Dia.∓ +0.04,-0 /+1,-0	Dimensions - in/mm			Take-Out T in/mm	Bolt Size in	Bolt Torque Lbs-Ft/N-M
		A	B	C			
1×1/2 25×15	**0.95** 24	**1.81** 46	**2.91** 74	**1.73** 44	**1.57** 40	**U-Bolt** 5/16Φ	**18-22** 25-30
1×3/4 25×20	**0.95** 24	**1.81** 46	**2.91** 74	**1.73** 44	**1.57** 40	**U-Bolt** 5/16Φ	**18-22** 25-30
1-1/4x1/2 32×15	**1.18** 30	**2.09** 53	**3.50** 89	**2.20** 56	**1.73** 44	**U-Bolt** 3/8Φ	**22-29** 30-40
1-1/4x3/4 32×20	**1.18** 30	**2.09** 53	**3.50** 89	**2.20** 56	**1.73** 44	**U-Bolt** 3/8Φ	**22-29** 30-40
1-1/4x1 32×25	**1.18** 30	**2.20** 56	**3.50** 89	**2.20** 56	**1.85** 47	**U-Bolt** 3/8Φ	**22-29** 30-40
1-1/2x1/2 40×15	**1.18** 30	**2.17** 55	**3.50** 89	**2.20** 56	**1.81** 46	**U-Bolt** 3/8Φ	**22-29** 30-40
1-1/2x3/4 40×20	**1.18** 30	**2.17** 55	**3.50** 89	**2.20** 56	**1.81** 46	**U-Bolt** 3/8Φ	**22-29** 30-40
1-1/2x1 40×25	**1.18** 30	**2.28** 58	**3.50** 89	**2.20** 56	**1.93** 49	**U-Bolt** 3/8Φ	**22-29** 30-40
2x1/2 50×15	**1.18** 30	**2.52** 64	**3.86** 98	**2.20** 56	**2.09** 53	**U-Bolt** 3/8Φ	**22-29** 30-40
2x3/4 50×20	**1.18** 30	**2.52** 64	**3.86** 98	**2.20** 56	**2.09** 53	**U-Bolt** 3/8Φ	**22-29** 30-40
2x1 50×25	**1.18** 30	**2.64** 67	**3.86** 98	**2.20** 56	**2.20** 56	**U-Bolt** 3/8Φ	**22-29** 30-40
2-1/2x1/2 65×15	**1.18** 30	**2.72** 69	**4.37** 111	**2.20** 56	**2.28** 58	**U-Bolt** 3/8Φ	**22-29** 30-40
2-1/2x3/4 65×20	**1.18** 30	**2.72** 69	**4.37** 111	**2.20** 56	**2.28** 58	**U-Bolt** 3/8Φ	**22-29** 30-40
2-1/2x1 65×25	**1.18** 30	**2.83** 72	**4.37** 111	**2.20** 56	**2.40** 61	**U-Bolt** 3/8Φ	**22-29** 30-40
3×1 80×25	**1.18** 30	**3.17** 80.5	**5.04** 128	**2.20** 56	**2.64** 67	**U-Bolt** 3/8Φ	**22-29** 30-40

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ASC Engineered Solutions

Drop-in Anchors
Fig. 05-470



Specifications

Materials:
Zinc Plated Steel

Part Numbers:

05-470-00	3/8"
05-471-00	1/2"
05-472-00	3/8", mini

Use With:

05-475-00 Setting Tool	3/8"
05-474-00 Setting Tool	1/2"
05-476-00 Setting Tool	3/8", mini

Description

FPPI Drop-In Anchors and Mini Drop-In Anchors are UL listed in accordance with NFPA requirements. Zinc plating provides corrosion resistance. Follow NFPA requirements and installation instructions for proper use.

Installation

STEP 1: Using a masonry bit suitable for the material being drilled, drill an appropriate diameter hole at the correct depth according to the table below.

Anchor Size	Drill Size	Minimum Hole Depth
3/8" Standard	1/2"	1 9/16"
1/2" Standard	5/8"	2"
3/8" Mini	1/2"	3/4"

STEP 2: Insert the anchor into the hole until the edge of the anchor is flush* with the surface of the material the anchor is being installed in. *The Anchor may be installed at a greater depth by drilling the hole to the desired depth and threading the correct size bolt for the size anchor being installed and tapping the anchor into the drilled hole.

STEP 3: After inserting the anchor to the desired depth, insert the correct size setting tool into the anchor and drive the plug into the anchor until the shoulder of the setting tool meets the edge of the anchor. The anchor is now installed and ready to be used.

Note: It is recommended that when used in cinder block, that the anchor be placed between the cells.

Average Pullout Values For 4000psi Concrete

Part Number	Bolt Size	Pullout Value
Standard Drop-In		
05-470-00	3/8"	5,530 lbs
05-471-00	1/2"	8,080 lbs
Mini Drop-In		
05-472-00	3/8"	1,980 lbs

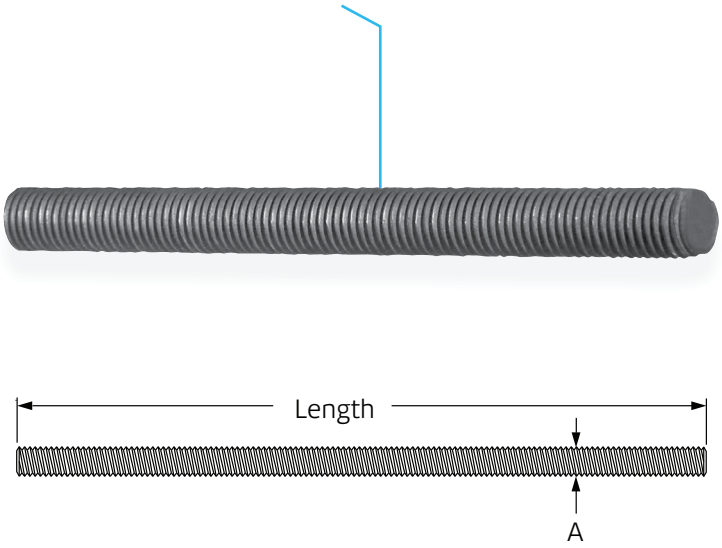
FPPI
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PROJECT INFORMATION	APPROVAL STAMP
Project:	☐ Approved
Address:	☐ Approved as noted
Contractor:	☐ Not approved
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ASC Engineered Solutions

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



Size Range: ¼" through 1½" 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.

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Fig. 146: Dimensions (in) • **Loads** (lbs) • **Weight** (lbs)

Rod Size A	Threads per Inch	Max Load 650˚ F	Weight per Ft.
¼	20	240	0.12
⅜	16	730	0.30
½	13	1,350	0.53
⅝	11	2,160	0.84
¾	10	3,230	1.20
⅞	9	4,480	1.70
1	8	5,900	2.30
1¼	7	9,500	3.60
1½	6	13,800	5.10

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ASC Engineered Solutions

Adjustable Swivel Ring
Fig. 69



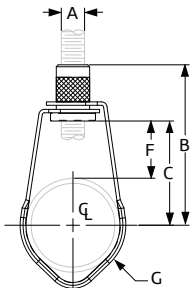
½" through 2" Size
Rounded Edge Design



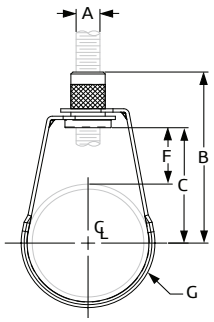
2½" through 8" Size

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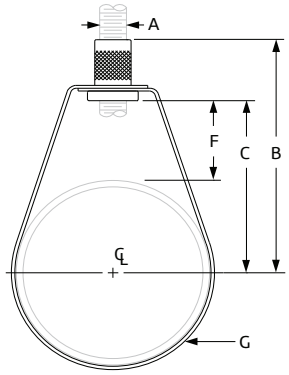
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½" through 1" pipe



1¼" through 2" pipe



2½" through 8" pipe

Size Range: ½" 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 ¾" – 8").

Features:

- ½" – 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 ½" 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.

Fig. 69: Dimensions (in) • **Loads** (lbs) • **Weight** (lbs)

Pipe Size	Max Load	Weight	Rod Size A	B	C	F	G Width
½	300	0.10	⅜	2 7/8	2	1 9/16	⅝
¾		0.10		2 ¾	1 ⅞	1 5/16	
1		0.10		2 9/16	1 11/16	1	
1¼		0.10		2 ⅝	1 ¾	⅞	
1½		0.10		2 ¾	1 ⅞		
2		0.11		3 ¼	2 ⅜	1 ⅛	
2½	525	0.20		4	2 ¾	1 5/16	¾
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	½	5 5/16	4 ⅜		
6		0.65		6 11/16	5 9/16	2 ¼	
8		1.00		8 9/16	7 9/16	3 ¼	

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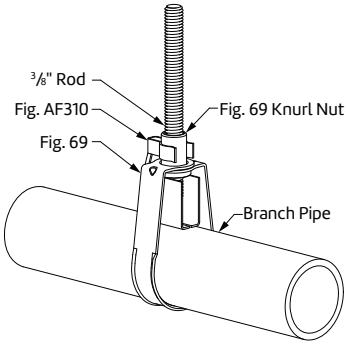
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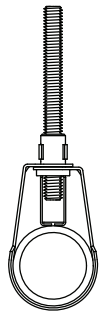
ASC Engineered Solutions

Surge Restrainer
Fig. AF310

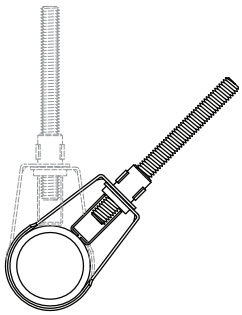


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Surge Restraint Assembly



Seismic Restraint Assembly

Loads (Lbs) • Dimensions (In) • Weight (Lbs)

Service Pipe Size	Rod Size	UL Max Seismic Restraint Load (UL 203a)	Approx. Weight/100
1 thru 2	3/8	300	4

Notes
ASC Engineered Solutions™ brand bracing components are designed to be compatible ONLY with other ASC Engineered Solutions brand bracing components, resulting in a Listed seismic bracing assembly. Updated UL listing information may be viewed at www.ul.com

Disclaimer
ASC Engineered Solutions does not provide any warranties and specifically disclaims any liability whatsoever with respect to ASC Engineered Solutions bracing products and components that are used in combination with products, parts or systems not manufactured or sold by ASC Engineered Solutions. In no event shall ASC Engineered Solutions be liable for any incidental, direct, consequential, special or indirect damages or lost profits where non-ASC Engineered Solutions bracing components have been, or are used.

Material Specifications

Size Range
1" through 2" Figure 69, Swivel Ring Hanger

Material
Carbon steel

Finish
Pre-Galvanized per ASTM A653

Restrainer Service
Prevents vertical movement of horizontal sprinkler piping from thrust loads due to sprinkler activation. The surge restrainer is intended to be installed with Anvil's Figure 69 Swivel Ring Hanger.

Restraint Service
May be installed as part of a branch line seismic restraint assembly per the requirements of NFPA 13. The surge restrainer is intended to be installed with Anvil's Figure 69 Swivel Ring Hanger.

Approvals
cULus Listed (UL 203 and UL 203a). Complies with the hanging and restraint requirements listed in NFPA 13.

Features
- One universal size accommodates Fig. 69 sizes 1" through 2".
- Simple design allows for quick installation on existing sprinkler systems

Installation Instructions
- Snap surge restrainer onto the Fig. 69 knurl nut.
- The gap between the surge restrainer and service pipe shall not exceed 1/8".
- Fire Protection applications shall also be installed per the requirements of NFPA 13.

Ordering
Specify figure number and description.

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Contractor:	☐ Not approved
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Fire Sprinkler Pipe

Schedule 10

Submittal Data Sheet



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

Wheatland Tube is the only manufacturer with FM Approval on 10 NPS Schedule 10 steel fire sprinkler pipe.

Approvals and Specifications
Schedule 10 meets or exceeds the following standards:

- ASTM A135, Type E, Grade A (Schedule 10, 1–10 NPS)
- NFPA® 13 and NFPA 14

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

Finishes and Coatings
Schedule 10 can be ordered in black or hot-dip galvanized to meet FM/UL requirements for dry systems that meet the zinc coating specifications of ASTM A53 or A795.

Schedule 10 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.

Every black steel Schedule 10 pipe also receives our MIC SHIELD™ antimicrobial coating to limit corrosion from microbes on the interior of the pipe.

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

SUBMITTAL INFORMATION

PROJECT: _____ CONTRACTOR: _____ DATE: _____

ENGINEER: _____ SPECIFICATION REFERENCE: _____ SYSTEM TYPE: _____

LOCATIONS: _____ COMMENTS: _____

☐ BLACK ☐ HOT-DIP GALVANIZED

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Fire Sprinkler Pipe

Schedule 10

Submittal Data Sheet



SCHEDULE 10 WEIGHTS AND DIMENSIONS

NPS	NOMINAL OD		NOMINAL ID		NOMINAL WALL		WT./FT.	WT./FT. H_2O FILLED	PCS./LIFT	WT./LIFT 21'	WT./LIFT 24'	WT./LIFT 25'	UL
	in.	mm	in.	mm	in.	mm	lbs.	lbs.		lbs.	lbs.	lbs.	CRR*
1	1.315	33.4	1.097	27.9	0.109	2.77	1.405	1.814	70	2065	2360	2459	11.4
1¼	1.660	42.2	1.442	36.6	0.109	2.77	1.807	2.514	61	2315	2645	2756	7.3
1½	1.900	48.3	1.682	42.7	0.109	2.77	2.087	3.049	61	2673	3055	3183	5.8
2	2.375	60.3	2.157	54.8	0.109	2.77	2.640	4.222	37	2051	2344	2442	4.7
2½	2.875	73.0	2.635	66.9	0.120	3.05	3.354	5.895	30	2226	2544	2651	3.5
3	3.500	88.9	3.260	82.8	0.120	3.05	4.336	7.949	19	1730	1977	2060	2.6
4	4.500	114.3	4.260	108.2	0.120	3.05	5.619	11.789	19	2242	2562	2669	1.6
5	5.563	141.3	5.295	134.5	0.134	3.40	7.780	17.309	13	2124	2427	2529	1.5
6	6.625	168.3	6.357	161.5	0.134	3.40	9.298	23.038	10	1953	2232	2325	1.0
8	8.625	219.1	8.249	209.5	0.188	4.78	16.960	40.086	7	2493	2849	2968	1.7
10**	10.750	273.0	10.374	263.5	0.188	4.78	21.230	57.803	2	892	1019	1062	—

** 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).*

*** 10 NPS Schedule 10 is FM Approved but not UL Listed.*

WFS-072921

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Fire Sprinkler Pipe

Schedule 40

Submittal Data Sheet



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

Approvals and Specifications
Schedule 40 meets or exceeds the following standards:

- ASTM A795, Type E, Grade A (Schedule 40, 1–2 NPS)
- ASTM A53, Type E, Grade B (Schedule 40, 2–8 NPS)
- ASTM A53, Type F, Grade A (Schedule 40, 1–4 NPS)
- NFPA® 13 and NFPA 14

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

Finishes and Coatings
Schedule 40 can be ordered in black or hot-dip galvanized to meet FM/UL requirements for dry systems that meet the zinc coating specifications of ASTM A53 or A795.

Schedule 40 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.

Every black steel Schedule 40 pipe also receives our MIC SHIELD™ antimicrobial coating to limit corrosion from microbes on the interior of the pipe.

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

SUBMITTAL INFORMATION

PROJECT: _____ CONTRACTOR: _____ DATE: _____

ENGINEER: _____ SPECIFICATION REFERENCE: _____ SYSTEM TYPE: _____

LOCATIONS: _____ COMMENTS: _____

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Fire Sprinkler Pipe

Schedule 40

Submittal Data Sheet



SCHEDULE 40 WEIGHTS AND DIMENSIONS

NPS	NOMINAL OD		NOMINAL ID		NOMINAL WALL		WT./FT.	WT./FT. H_2O FILLED	PCS./LIFT	WT./LIFT 21'	WT./LIFT 24'	WT./LIFT 25'	UL
	in.	mm	in.	mm	in.	mm	lbs.	lbs.		lbs.	lbs.	lbs.	CRR*
1	1.315	33.4	1.049	26.6	0.133	3.38	1.68	2.055	70	2470	2822	2940	1.000
1¼	1.660	42.2	1.380	35.1	0.140	3.56	2.27	2.922	51	2431	2778	2894	1.000
1½	1.900	48.3	1.610	40.9	0.145	3.68	2.72	3.602	44	2513	2872	2992	1.000
2	2.375	60.3	2.067	52.5	0.154	3.91	3.66	5.109	24	1845	2108	2196	1.000
2½	2.875	73.0	2.469	62.7	0.203	5.16	5.80	7.871	20	2436	2784	2900	1.000
3	3.500	88.9	3.068	77.9	0.216	5.49	7.58	10.783	13	2069	2365	2464	1.000
3½	4.000	101.6	3.548	90.1	0.226	5.74	9.12	13.400	10	1915	2189	2280	1.000
4	4.500	114.3	4.026	102.3	0.237	6.02	10.80	16.311	10	2268	2592	2700	1.000
5	5.563	141.3	5.047	158.2	0.258	6.55	14.63	23.262	7	2151	2458	2560	1.000
6	6.625	168.3	6.065	154.1	0.280	7.11	18.99	31.498	5	1994	2279	2374	1.000
8**	8.625	219.1	7.981	202.7	0.322	8.18	28.58	50.240	5	3001	3430	3573	1.000

** 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).*

*** 8 NPS Schedule 40 is FM Approved but not UL Listed.*

WFS-072921

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