RSN: 1516104
Permit # 2021-1924227-CT
Sheet 1 of 46

GENERAL NOTES

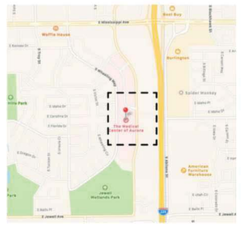
1. TO BE SUBMITTED TO THE CITY OF AURORA IN ACCORDANCE WITH NFPA 13 2013, AND 2020 NEC.
2. NO CHANGE TO MOST DEMANDING EXISTING HYDRAULIC DESIGN AREA SO NO HYDRAULIC CALCULATIONS ARE REQUIRED.
2. 24 SPRINKLERS TO BE RELOCATED, AND ADDING 1.
2. TMCA SOUTH CAMPUS NEW MRI SCOPE OF WORK IS AS FOLLOWS: RELOCATE HEADS FOR NEW WALLS, AND FEATURES, ADDING 1 SPRINKLER AND RELOCATING 24.
3. SPRINKLER SYSTEM DESIGN IS BASED OFF OF MODIFYING EXISTING ORDINARY HAZARD 1 SPACING AND COVERAGE, 130' SQ FT COVERAGE WITH MAX SPACING 15'.
4. SPRINKLER SYSTEM DESIGN IS BASED OFF OF MODIFYING LIGHT HAZARD SPACING AND COVERAGE, LIGHT HAZARD 225 SQ FT COVERAGE AND MAXIMUM SPACING 15' X 15'.
5. ALL NEW THREADED BRANCH LINE PIPING TO BE BLACK SCH 40 PIPE WITH DUCTILE IRON FITTINGS
6. ALL HANGERS SHALL BE PLACED AND SPACED IN ACCORDANCE WITH NFPA 13, DETAILS ON THIS SHEET, AND MANUFACTURER'S SPECIFICATIONS.
7. PAINTING OF PIPING IF REQUIRED IS BY OTHERS. FIRE SPRINKLERS SHALL NOT BE PAINTED OVER.
8. IT SHALL BE THE OWNERS RESPONSIBILITY TO MAINTAIN THE TEMPERATURE ABOVE 40° AT ALL TIMES.
9. NO GYP. BD. CEILINGS SHALL BE INSTALLED UNTIL ROUGH VISUAL INSPECTION IS COMPLETE.
10. SPRINKLER HEADS IN ROOMS MEETING THE REQUIREMENTS OF SECTION 9.3.19.6 OF NFPA 13, 2013 EDITION SHALL BE ALLOWED TO HAVE A MAX SPACING OF 9'-0" OFF OF A SINGLE WALL.
11. ALL NEW HEADS WILL MATCH EXISTING K FACTOR AND SPACING REQUIREMENTS FOR COMPLIANCE AND OCCUPANCY CLASSIFICATION.
12. NO MORE THAN 2 HEADS WILL BE PULLED OF A 1" OUTLET.
13. ALL RELOCATED & ADDED SPRINKLERS WILL BE NEW.

- **CODES/ LAWS:**
  CITY OF AURORA:
  2015 INTERNATIONAL BUILDING CODE (IBC)
  2015 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
  ~~2017~~ NATIONAL ELECTRICAL CODE (NEC)
  2015 INTERNATIONAL MECHANICAL CODE
  2015 INTERNATIONAL PLUMBING CODE
  2015 INTERNATIONAL FUEL GAS CODE
  2015 INTERNATIONAL FIRE CODE
  2015 INTERNATIONAL ENERGY CONSERVATION CODE
  STATE OF COLORADO:
  2006 COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT - HOSPITAL LICENSING RULES
  ~~2012~~ NFPA 101 - LIFE SAFETY CODE
  FEDERAL:
  2010 AMERICANS WITH DISABILITIES ACT GUIDELINES
  2009 ICC / ANSI 117.1 ACCESSIBILITY CODE
- **OCCUPANCY CLASSIFICATION:**
  2015 IBC - GROUP I-2 (SECTION 308.4)
  ~~2012~~ NFPA 101 - EXISTING HEALTHCARE OCCUPANCY (CHAPTER 19)
- **PRINCIPAL OCCUPANCY TYPE:** I-2
- **CONSTRUCTION TYPE:**
  EXISTING: SBC - TYPE I-A, UNRESTRAINED, FULLY SPRINKLERED
  NEW: 2015 IBC - TYPE I-A, FULLY SPRINKLERED
  2012 NFPA 220 - TYPE I (332)

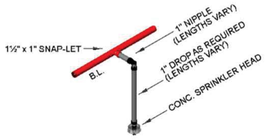
BUILDING INFORMATION



KEYPLAN
SCALE : N.T.S.



VICINITY MAP
SCALE : N.T.S.

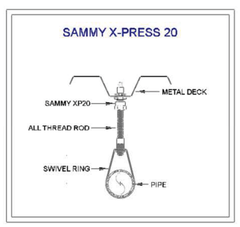


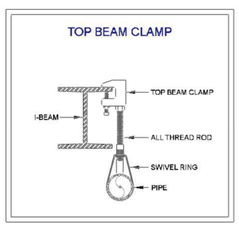
SPRINKLER DETAILS
SCALE : N.T.S.

STEEL PIPE HANGER SPACING UNDER 100PSI

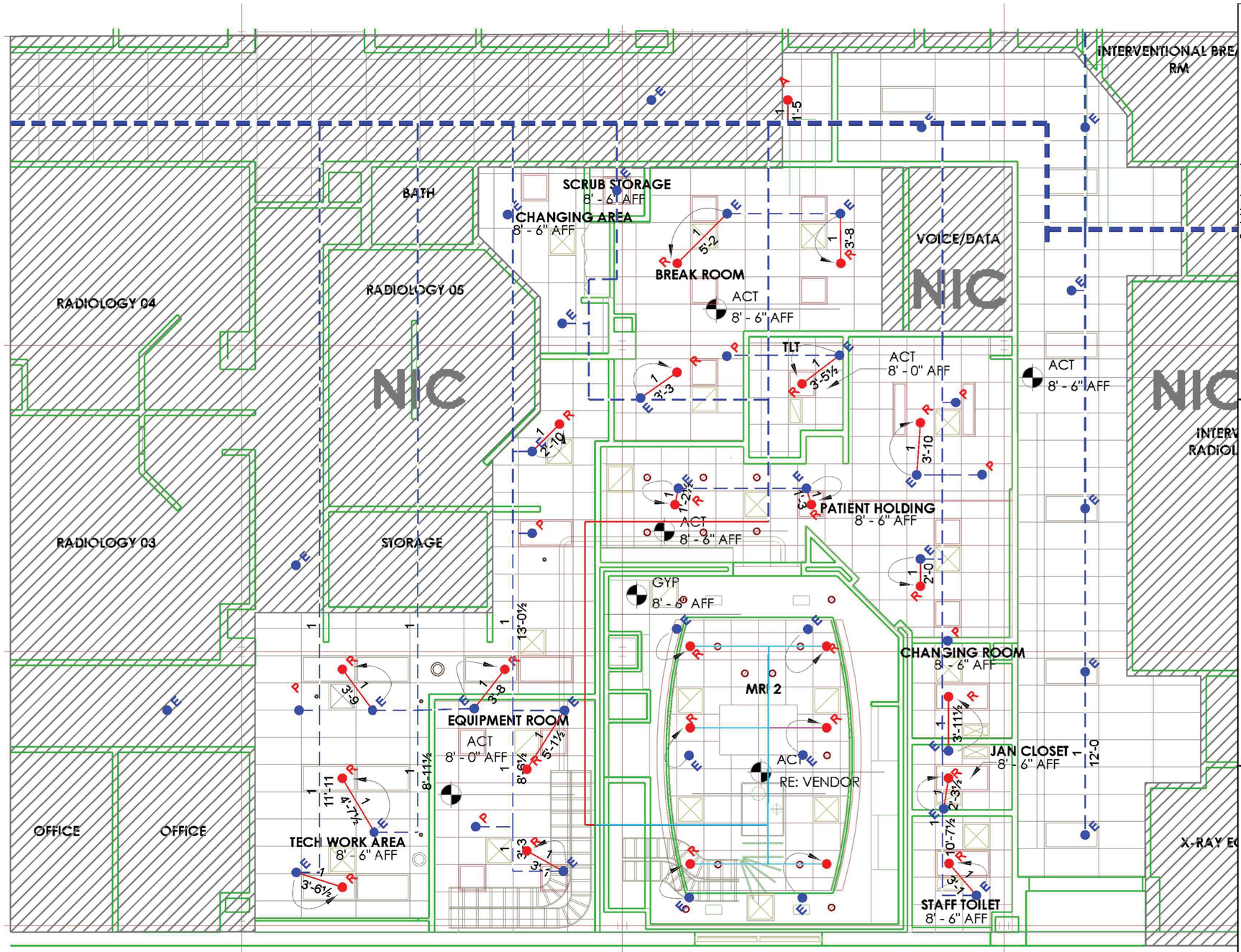
PIPE SIZE	BETWEEN HANGERS	TO END OF LINE	ARM-OVER. LENGTH MAX.
1"	12'-0"	(SSP) 3'-0" (SSU) 3'-0"	(SSP) 2'-0" (SSU) 2'-0"
1¼"	12'-0"	(SSP) 4'-0" (SSU) 4'-0"	(SSP) 2'-0" (SSU) 2'-0"
1½"	15'-0"	(SSP) 5'-0" (SSU) 5'-0"	(SSP) 2'-0" (SSU) 2'-0"
2"	15'-0"	(SSP) 5'-0" (SSU) 5'-0"	(SSP) 2'-0" (SSU) 2'-0"
2½"	15'-0"	(SSP) 5'-0" (SSU) 5'-0"	(SSP) 2'-0" (SSU) 2'-0"
3"	15'-0"	(SSP) 5'-0" (SSU) 5'-0"	(SSP) 2'-0" (SSU) 2'-0"
4"	15'-0"	(SSP) 5'-0" (SSU) 5'-0"	(SSP) 2'-0" (SSU) 2'-0"

PER NFPA 13 - 9.2.4.2.1 (A)
*NOTE: This table is based upon threadable thinwall pipe 1"-2" and 2½" and larger pipe is other steel pipe.





HANGER DETAILS
SCALE : N.T.S.



SYMBOL	ITEM	COUNT
E	EXISTING SPRINKLER	-
R	RELOCATED SPRINKLER	24
A	ADDED SPRINKLER	1
P	PLUGGED SPRINKLER	7
	EXISTING PIPE	-
	NEW STEEL PIPE	-
	DEMOED PIPE	-
	NEW CVPC PIPE	-

FIRE SPRINKLER LEGEND

City of Aurora
Adopted Codes & Standards for this project:
2015 ICC - 2020 NEC
2013 NFPA 13 - 2013 NFPA 72
Amendments to include Chapters 22 & 66

Items determined to be in violation of code during inspection are required to be corrected; this review does not grant approval of code violations.

City of Aurora Building Division
Counter Permit intake by: JLG
Date: Feb 02, 2021
RSN: 1516104
Permit: 2021-1924227-CT
2015 INTERNATIONAL CODES & AMENDMENTS Scope of permit to be field verified.

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

FIRE SPRINKLER PLAN LEVEL 1

0 1 2 3 4 5 6
SCALE: 1/8" = 1'-0"

Sprinkler Legend

Symbol	Manufacturer	Model	K-Factor	Type	Size	Response	Finish	Temp.	Quantity
●	Reliable	RASA15	5.6	Concealed Pendent	½	Quick	Brass	212° F	25

Frontier Fire
9430 East 40th Avenue, Denver CO 80238
PH: 303-629-0221 - www.frontierfireprotection.com
Designer PH: (719) 650-2089 — Email: aberte@frontierfireprotection.com

19-036 TMCA MRI
1501 S POTOMAC ST.
AURORA, CO 80012
SPRINKLER PLAN

Tracy Allen Skinner
Senior Engineering Technician
Water-Based Fire Protection Engineering Technology
NICET #97029 - Level IV - Expires 8.1.22
tskinner@frontierfireprotection.com

Tracy Skinner
Digitally signed by Tracy Skinner
DN: CN=TS, E=tskinner@frontierfireprotection.com, O=Frontier Fire, OU=Design Department, CN=Tracy Skinner
Reason: I have reviewed this document
Date: 2021.02.01 12:53:32-07'00'

DRAWN BY: ADAM BERTE
DATE: 02/01/21
CONTRACT #: 21-26-6287
FLOOR / AREA
LV1
SHEET NUMBER
FP-1

RSN: 1516104
Permit # 2021-1024327-CT
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Reliable®

Model F4FR-NF Non-Ferrous Quick Response Concealed Automatic Sprinkler

cULus Listed

Features

- Non-Ferrous design specifically tested in an MRI environment
- Cup and skirt fabricated from brass
- Simple sturdy cover attachment
- Smooth aesthetic ceiling profile
- Cover plate is available in a variety of finishes
- Ordinary temperature rating
- Threaded cover plate does not require clips or springs



Model F4FR-NF

Product Description

The Model F4FR-NF Non-Ferrous Concealer™ is a quick-response standard coverage sprinkler that uses either a 135°F (57°C) or a 155°F (68°C) 3mm diameter glass bulb in a concealed sprinkler frame with a drop-down deflector. This assembly is recessed into the ceiling and finished with a flat cover plate. The push-on/thread off cover plate provides ½" (13mm) of cover adjustment.

The cover plate is attached to the skirt using 135°F (57°C) ordinary temperature classification solder. When the ceiling temperature rises, the solder holding the cover plate fuses, releasing the plate and exposing the sprinkler.

As the temperature increases, the fluid within the glass bulb expands. Upon reaching activation temperature, the glass bulb shatters and opens the waterway causing the deflector to drop into position to properly distribute the water.

The Reliable Model F4FR-NF Non-Ferrous Concealer™ is designed specifically for MRI rooms. The sprinkler assembly was tested in a laboratory with a magnetic field of 6 Tesla. The test exposed the sprinklers to magnetic fields and field gradients that exceed a standard peripheral MRI room environment. There was no recorded influence of the magnetic field on the sprinklers.

Model F4FR Sprinkler Summary — **Table A**

Sprinkler Model	K-Factor gpm/psi$^{1/2}$ (lpm/bar$^{1/2}$)	Orientation	Listings & Approvals	Max. Working Pressure psi (bar)	Sprinkler Identification Number (SIN)
F4FR	5.6 (80)	Concealed Pendent	cULus*	175 (12.1)	RA0212

***Note:** Listed for use in Light and Ordinary hazard occupancies only.

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Model F4FR Concealed Sprinkler

Technical Specifications
Style: Concealed Pendent
Threads: 1/2" NPT or ISO 7-R1/2
Nominal K-Factor: 5.6 (80 metric)
Max. Working Pressure: 175 psi (12.1 bar)
Min. Spacing: 6 ft (1.8 m)

Material Specifications
Operating Element: Glass Bulb
Sprinkler Frame: Brass Alloy
Cap: Bronze Alloy
Sealing Washer: Titanium, PTFE Coated
Load Screw: Brass
Deflector: Brass
Cup: Brass

Sprinkler Finishes
Brass (Unfinished)

Sensitivity
Quick-Response

Sprinkler Temperature Ratings
135°F (57°C)
155°F (68°C)

Cover Plate Temperature Ratings
135°F (57°C)

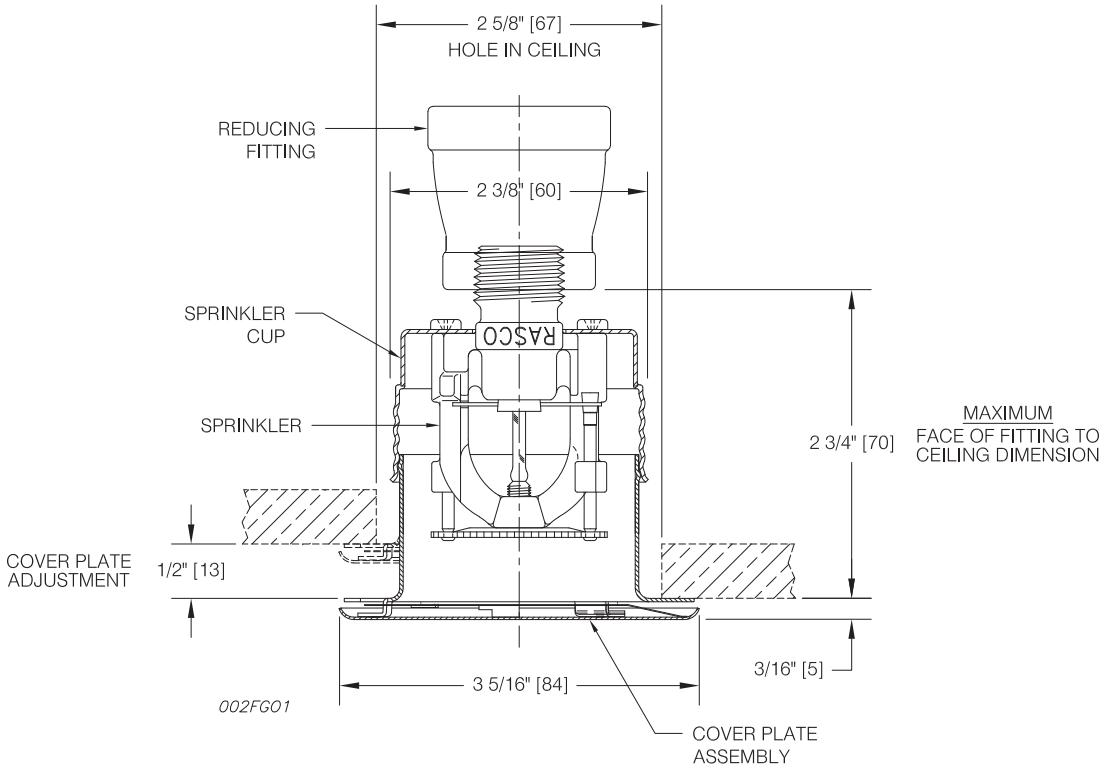
Cover Plate Finishes
(See Table B)

Sprinkler Wrenches
Model G4

Listings and Approvals
cULus Listed



Model F4FR Sprinkler Components and Dimensions — **Figure 1**



G4 Wrench



Installation

Model F4FR-NF 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.

Do not install The Non-Ferrous Concealer™ in ceilings which have positive pressure in the space above. In addition, inspect all sprinklers after installation to ensure that both the gap between the cover plate and ceiling and the four (4) slots in the cup are open and free from any air flow impediment.

After a 2-5/8" diameter hole is cut in the ceiling, the sprinkler is installed with the Model G4 Wrench. When installing a sprinkler, the wrench is first positioned into the sprinkler/cup assembly until two wrench tangs fully engage drive slots in the top of the cup (there are two pairs of drive slots in the cup). The sprinkler is then tightened into the pipe fitting to a torque of 8 to18 ft-lbs (11 to 24 N·m). Do not exceed the maximum recommended torque. Excessive torque may cause leakage or impairment of the sprinkler.

When inserting or removing the wrench from the sprinkler/cup assembly care should be taken to prevent damage to the sprinkler. DO NOT WRENCH ON ANY OTHER PART OF THE SPRINKLER/CUP ASSEMBLY. Replace any sprinklers that have been damaged.

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

Cover Plate Finishes* **Table B**

Standard Finishes	Special Application Finishes
Chrome	Bright Brass
White	Finished Bronze
	Black Plated
	Black Paint
	Off White
	Chrome Dull

***Note:** Other finishes and colors are available on special order. Consult factory for details. Cover plate custom paint is semi-gloss, unless specified otherwise.

Maintenance

Reliable Model F4FR series sprinklers 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 which has been painted (other than factory applied). A stock of spare sprinklers should be maintained to allow quick replacement 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.

Ordering Information

Specify:

Sprinkler
- F4FR-NF

Temperature
- 135°F (57°C)
- 155°F (68°C)

Cover Plate Finish
- See Table B

Sprinkler Wrench
- Model G4

Note: Paint or any other coatings applied over the factory finish will void all approvals and warranties.

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Permit # 20211024227 CT
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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.

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. The sprinklers are offered with a standard Model G4/G5 cover plate, a Model G4/G5 cover plate with a Quick-response (QR) gasket, or a Model G4/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 G4/G5 cover plate listed or approved with the sprinkler. All Model G5 series sprinklers use a fusible-link operating element. Table A provides a summary of available Model G5 series sprinklers, along with Listing and Approval in-formation for each sprinkler and cover plate combination.



Model G4/G5 Cover Plate



Model G4/G5 QR Gasket Cover Plate



Model G4/G5 SR Gasket Cover Plate

Model G4/G5 Series Sprinkler Cover Plates

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)	G4/G5	cULus	QR	175 (12)	RA3411
			FM	SR		
		G4/G5 QR Gasket	cULus	QR		
		G4/G5 SR Gasket	cULus, FM	SR		
G5-42	4.2 (60)	G5	cULus	QR	175 (12)	RA3413
		G4/G5 QR Gasket				
		G4/G5 SR Gasket	cULus	SR		
G5-56	5.6 (80)	G5	cULus	QR	250 (17)	RA3415
			FM, LPCB, VdS, CE	SR	175 (12)	
		G4/G5 QR Gasket	cULus	QR	250 (17)	
		G4/G5 SR Gasket	cULus	SR	250 (17)	
			FM	SR	175 (12)	
G5-56 300	5.6 (80)	G5	cULus	QR	300 (21)	RA4014
		G4/G5 QR Gasket				
		G4/G5 SR Gasket	cULus	SR		
G5-80	8.0 (115)	G5	cULus	QR	175 (12)	RA3412
		G4/G5 QR Gasket				
		G4/G5 SR Gasket	cULus	SR		
G5-80F	8.0 (115)	G5	FM	SR	175 (12)	RA3417
		G4/G5 SR Gasket				

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

Sprinkler Temperature Ratings
165°F (74°C)
212°F (100°C)

Sensitivity
(See Table B)

Cover Plates
Model G4/G5
Model G4/G5 QR Gasket (cULus only)
Model G4/G5 SR Gasket

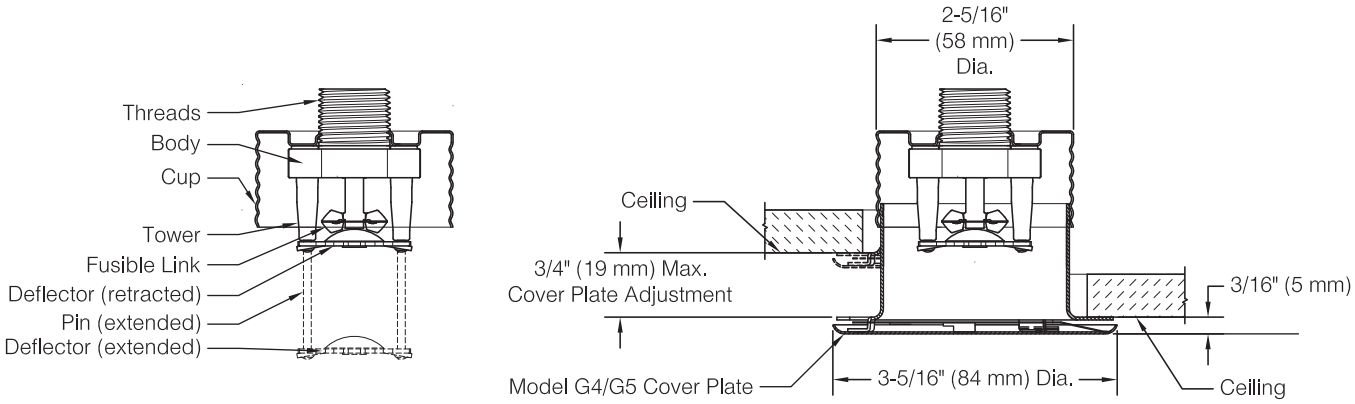
Cover Plate Finishes
(See Table I)

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
G4/G5	QR	SR
G4/G5 QR Gasket	QR	--
G4/G5 SR Gasket	SR	SR

QR: Quick-response
SR: Standard-response

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

Sprinkler Temperature Ratings
165°F (74°C)
212°F (100°C)

Sensitivity
(See Table C)

Cover Plates
Model G4/G5
Model G4/G5 QR Gasket
Model G4/G5 SR Gasket

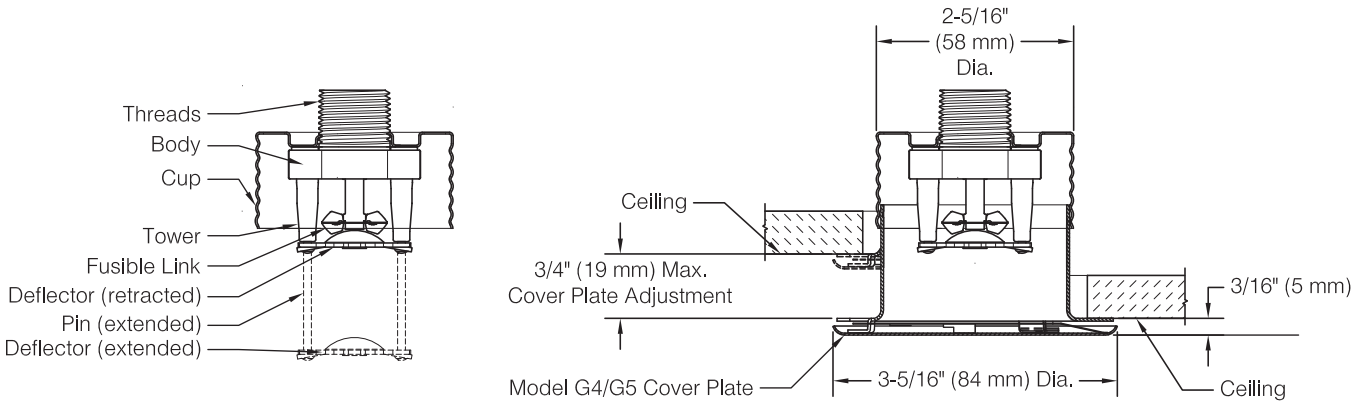
Cover Plate Finishes
(See Table I)

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
G4/G5	QR
G4/G5 QR Gasket	QR
G4/G5 SR Gasket	SR

QR: Quick-response
SR: Standard-response

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

Sprinkler Temperature Ratings
165°F (74°C)
212°F (100°C) (cULus, FM, LPCB, CE only)

Sensitivity
(See Table D)

Cover Plates
Model G4/G5
Model G4/G5 QR Gasket (cULus only)
Model G4/G5 SR Gasket (cULus and FM only)

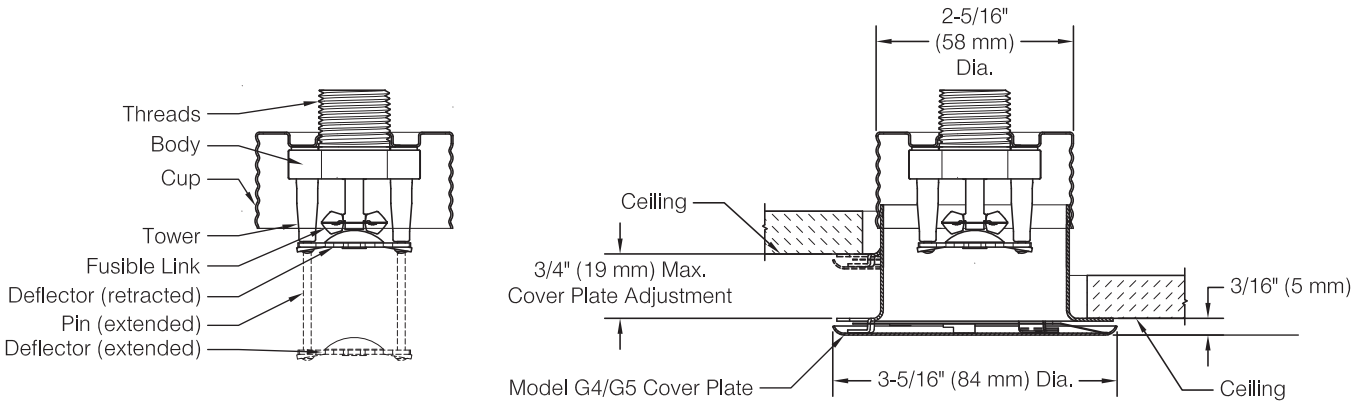
Cover Plate Finishes
(See Table I)

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)



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
G4/G5	QR	SR	SR
G4/G5 QR Gasket	QR	--	--
G4/G5 SR Gasket	SR	SR	--

QR: Quick-response
SR: Standard-response

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

Sprinkler Temperature Ratings
165°F (74°C)
212°F (100°C)

Sensitivity
(See Table E)

Cover Plates
Model G4/G5
Model G4/G5 QR Gasket
Model G4/G5 SR Gasket

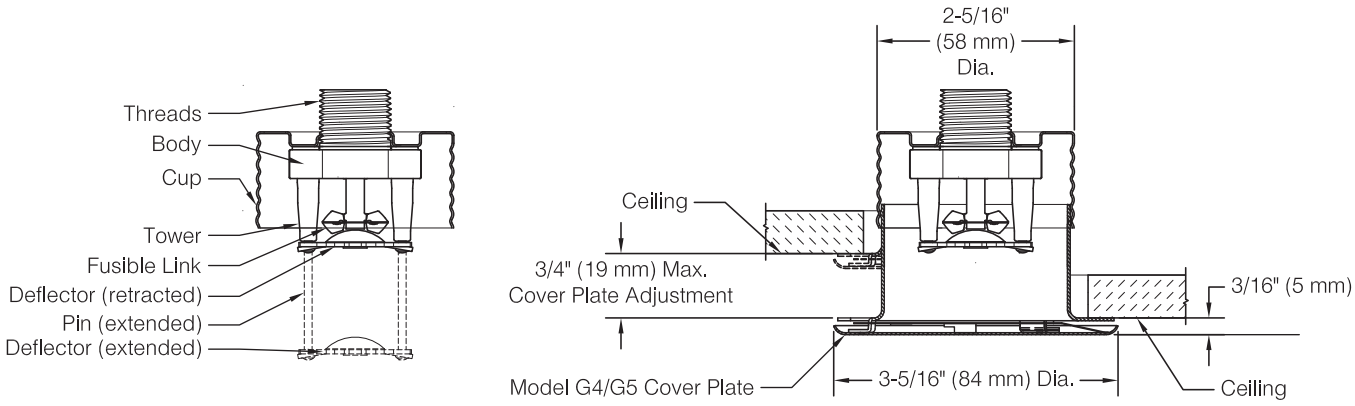
Cover Plate Finishes
(See Table I)

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
G4/G5	QR
G4/G5 QR Gasket	QR
G4/G5 SR Gasket	SR

QR: Quick-response
SR: Standard-response

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

Sprinkler Temperature Ratings
165°F (74°C)
212°F (100°C)

Sensitivity
(See Table F)

Cover Plates
Model G4/G5
Model G4/G5 QR Gasket
Model G4/G5 SR Gasket

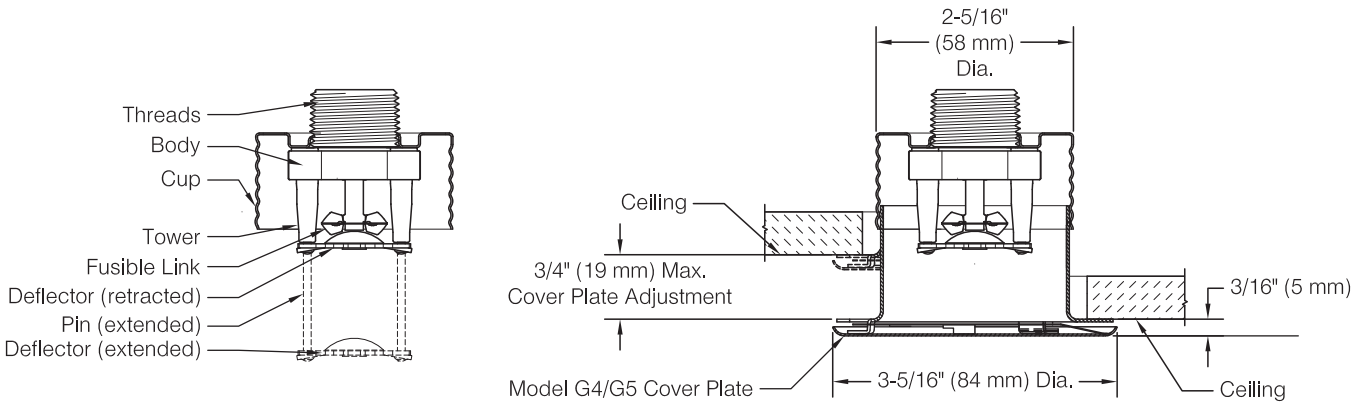
Cover Plate Finishes
(See Table I)

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
G4/G5	QR
G4/G5 QR Gasket	QR
G4/G5 SR Gasket	SR

QR: Quick-response
SR: Standard-response

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

Sprinkler Temperature Ratings
165°F (74°C)
212°F (100°C)

Sensitivity
Standard Response

Cover Plates
Model G4/G5
Model G4/G5 SR Gasket

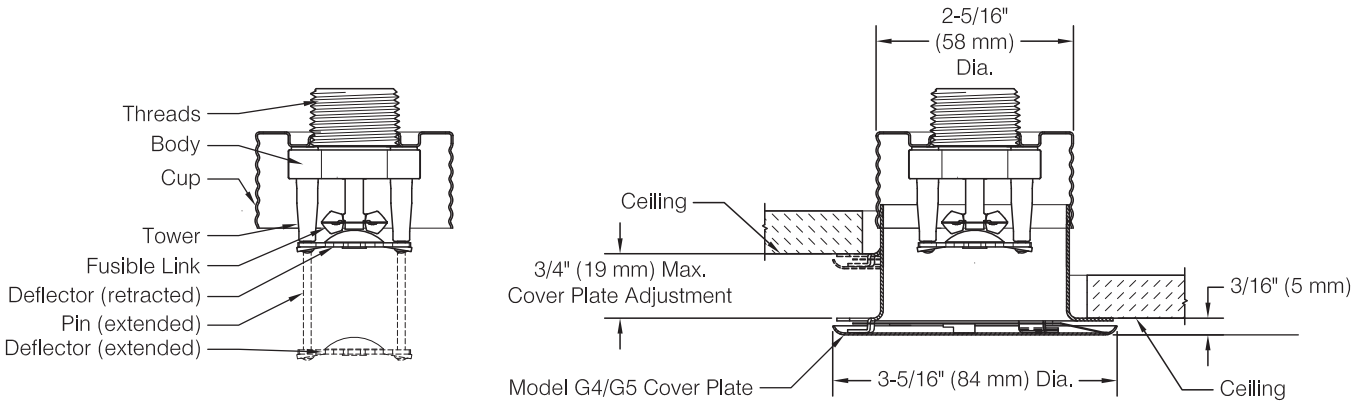
Cover Plate Finishes
(See Table I)

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
G4/G5	SR
G4/G5SR Gasket	SR

SR: Standard-response

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)
G4/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)
G4/G5 QR Gasket[2]	3-11/16 (94)					
G4/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 G4/G5 QR Gasket and Model G4/G5 SR Gasket cover plates are sold as assembled units including both the cover plate and gasket. Model G4/G5 QR Gasket and Model G4/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] — **Table I**

Standard Finishes	Special Application Finishes
White Paint Chrome	Off-White Paint Black Paint Custom Color Paint – Specify[2] Raw Brass (Lacquered) Bright Brass Finished Bronze Black Plated Satin Chrome Stainless Steel Clad[3]

Notes:

1. Paint or any other coating applied over the factory finish will void all approvals and warranties. Gaskets for Model G5 QR Gasket and Model G4/G5 SR Gasket cover plates are only available in white.
2. Custom color paint is semi-gloss unless specified otherwise.
3. Stainless steel clad cover plates are Type 316 Stainless Steel on the finished side and C102 Copper Alloy on the back side. Cover plates are not listed or approved as corrosion resistant.

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 G4/G5 flat cover plates. Model G4/G5 QR Gasket and G4/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)

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 G4/G5 QR Gasket and Model G4/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]

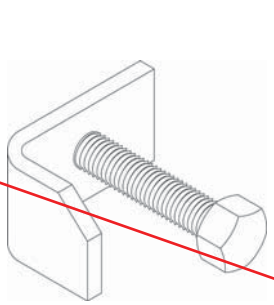
Cover Plate
- Model [G4/G5, G4/G5 QR Gasket, G4/G5 SR Gasket]
- Finish (See Table I)

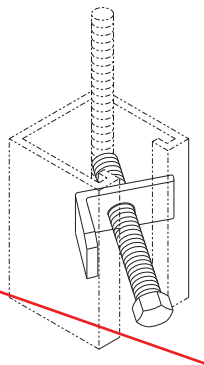
Sprinkler Wrench
- Model W3
- Model FC

P/N 9999970421

Fig. 98 - Rod Stiffener

Component of State of California OSHPD Approved Seismic Restraints System





Size Range — Secures 3/8" thru 7/8" hanger rod

Material — Carbon Steel

Function — Secures channel to hanger rod for vertical seismic bracing.

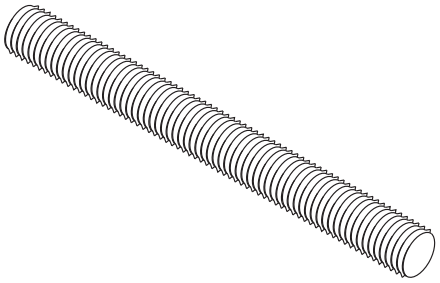
Approvals — Underwriters Laboratories Listed in the USA (**UL**) and Canada (**cUL**). Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (**OSHPD**). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines

Finish — Electro Galvanized

Note — Available in HDG finish or Stainless Steel materials.

Order By — Figure number

Fig. 99 - All Thread Rod Cut to Length



Size Range — Secures 3/8" thru 7/8" rod in 1" increments

Material — Carbon Steel

Maximum Temperature — 750°F

Finish — Plain

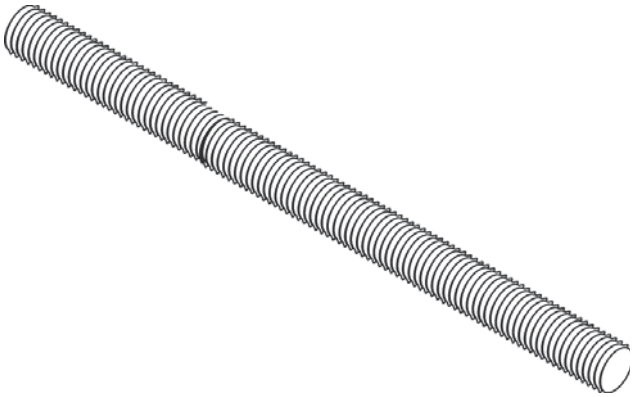
Note — Available in Electro-Galvanized and HDG finish or Stainless Steel materials.

Order By — Figure number, rod diameter, rod length and finish

Dimensions • Weights

Rod Size	Max. Rec. Load Lbs. For Service Temps 650°F	750°F
3/8	610	540
1/2	1130	1010
5/8	1810	1610
3/4	2710	2420
7/8	3770	3360

Fig. 100 - All Thread Rod Full Lengths



Size Range — Secures 3/8" thru 7/8" rod in 10' lengths

Material — Carbon Steel

Maximum Temperature — 750°F

Finish — Plain

Note — Available in Electro-Galvanized and HDG finish or Stainless Steel materials.

Order By — Figure number, rod diameter and finish

Dimensions • Weights

Rod Size	Max Rec. Load Lbs. For Service Temps 650°F	750°F	Approx. Wt./100
1/4	240	215	12
3/8	610	540	29
1/2	1130	1010	53
5/8	1810	1610	84
3/4	2710	2420	123
7/8	3770	3360	169
1	4960	4420	222
1 1/4	8000	7140	360
1 1/2	11630	10370	510

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115 Standard Duty Loop Hanger

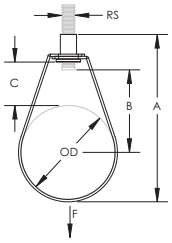






The 115 Standard Duty Loop Hanger is ideal for suspending stationary, non-insulated pipe lines, including CPVC pipes, in fire sprinkler systems. A knurled insert nut helps simplify vertical adjustments and flared edges on the base (1/2" to 4" sizes) help protect pipes from coming into contact with any sharp edges of the hanger.

- Flared edges help prevent any sharp surfaces from coming into contact with the pipe (1/2" to 4" sizes)
- Retained insert nut helps ensure the loop hanger and insert nut stay together
- Recommended for the suspension of stationary non-insulated pipe lines
- Manufactured to use the minimum rod size permitted by NFPA® for fire sprinkler piping
- Conforms with Federal Specification WW-H-171 (Type 10), Manufacturers Standardization Society (MSS) SP-58 (Type 10)



Material: Steel
Finish: Pregalvanized

Part Number	Pipe Size	Outer Diameter OD	Rod Size RS	A	B	C	Static Load F	Certifications
~~1150050EG~~	~~1/2"~~	~~0.840"~~	~~3/8"~~	~~2 13/16"~~	~~1 1/8"~~	~~1"~~	~~300 lb~~	~~cULus~~
1150075EG	3/4"	1.050"	3/8"	3"	1 3/16"	15/16"	300 lb	cULus, FM
1150100EG	1"	1.315"	3/8"	3 1/4"	1 3/8"	15/16"	300 lb	cULus, FM
1150125EG	1 1/4"	1.660"	3/8"	3 9/16"	1 1/2"	15/16"	300 lb	cULus, FM
1150150EG	1 1/2"	1.900"	3/8"	3 13/16"	1 5/8"	15/16"	300 lb	cULus, FM
1150200EG	2"	2.375"	3/8"	4 1/4"	1 7/8"	15/16"	300 lb	cULus, FM
1150250EG	2 1/2"	2.875"	3/8"	5 15/16"	3 7/16"	2"	525 lb	cULus, FM
1150300EG	3"	3.500"	3/8"	6 9/16"	3 1/2"	1 15/16"	525 lb	cULus, FM
1150350EG	3 1/2"	4.000"	3/8"	7 1/16"	3 3/4"	1 15/16"	585 lb	cULus, FM
1150400EG	4"	4.500"	3/8"	7 9/16"	4"	1 15/16"	650 lb	cULus, FM
1150500EG	5"	5.563"	1/2"	9 13/16"	4 3/4"	2 1/4"	1,000 lb	cULus, FM
1150600EG	6"	6.625"	1/2"	11 5/16"	6 5/16"	3 5/16"	1,000 lb	cULus, FM
1150800EG	8"	8.625"	1/2"	12 7/8"	6 7/8"	2 7/8"	1,000 lb	cULus, FM

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WARNING
nVent products shall be installed and used only as indicated in nVent's product instruction sheets and training materials. Instruction sheets are available at www.erico.com and from your nVent customer service representative. Improper installation, misuse, misapplication or other failure to completely follow nVent 's instructions and warnings may cause product malfunction, property damage, serious bodily injury and death and/or void your warranty.

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All other trademarks are the property of their respective owners. nVent reserves the right to change specifications without prior notice.

Fig. 65 and Fig. 66
Reversible C-Type Beam Clamps 3/4" and 1¼" Throat Openings

Component of State of California OSHPD Approved Seismic Restraints System

Size Range — (Fig. 65 and Fig. 66) 3/8", 1/2" and 5/8" rod

Material — Carbon Steel with hardened cup point set screw and jam nut

Function — Recommended for hanging from steel beam where flange thickness does not exceed 3/4" (Fig. 65) or 1¼" (Fig. 66).

Features — All steel construction eliminates structural deficiencies associated with casting type beam clamps. May be used on top or bottom flange of the beam. (Beveled lip allows hanging from top flange where clearance is limited.) May be installed with set screw in up or down position. Offset design permits unlimited rod adjustment by allowing the rod to be threaded completely through the clamp. Open design permits inspection of thread engagement.

Approvals — Underwriters' Laboratories Listed in the USA **(UL)** and Canada **(cUL)**. Factory Mutual Engineering approved. Conforms to Federal Specification WW-H-171E, Type 23 and Manufacturers Standardization Society SP-69, Type 19. Exceeds requirements of the National Fire Protection Association (NFPA), Pamphlet 13, 3/8" rod will support 1/2" thru 4" pipe, 1/2" rod will support 1/2" thru 8" pipe. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Finish — Plain

Note — Available in Electro-Galvanized and HDG finish.

Order By — Figure number, rod size and finish

Fig. 65 Patent #4,570,885

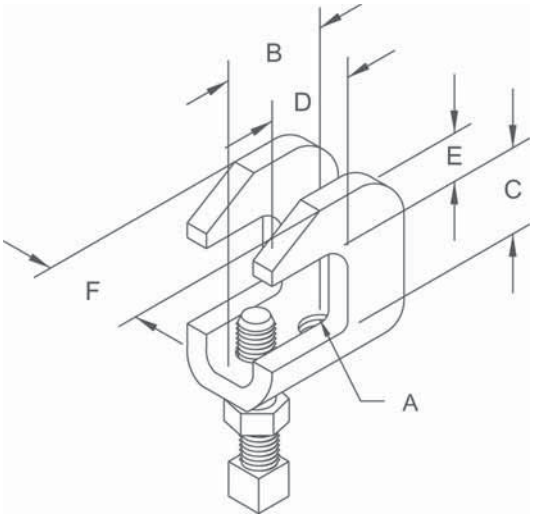


Fig. 65

Dimensions • Weights

Rod Size A	B	C	D	E	F	Max. Rec. Load Lbs.*	Approx. Wt./100
3/8	1 3/16	3/4	1	7/16	1	610	28
1/2	1 1/2	3/4	1	9/16	1 1/4	1130	55
5/8	1 1/2	3/4	1	9/16	1 1/4	1130	55

* Max. loads for clamp with set screw in up or down position.

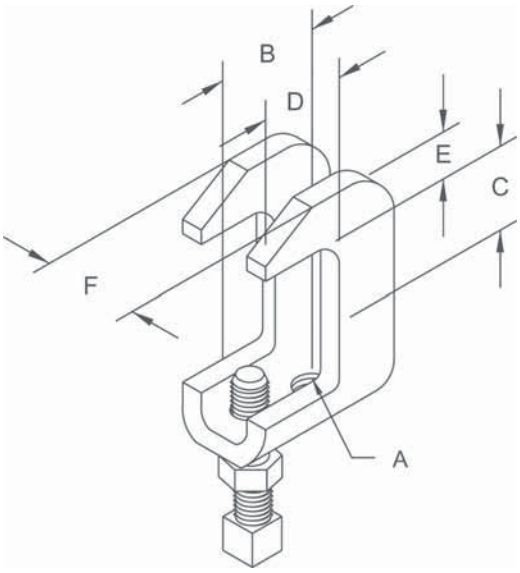


Fig. 66

Dimensions • Weights

Rod Size A	B	C	D	E	F	Max. Rec. Load Lbs.*	Approx. Wt./100
3/8	1 3/16	1 1/4	1	7/16	1	610	28
1/2	1 1/2	1 1/4	1	9/16	1 1/4	1130	55
5/8	1 1/2	1 1/4	1	9/16	1 1/4	1130	55

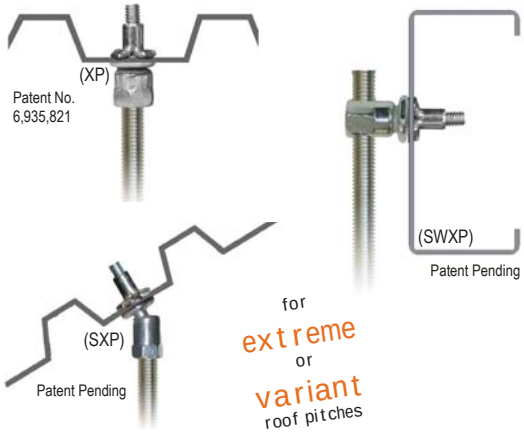
* Max. loads for clamp with set screw in up or down position.

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RSN: 1516104
Permit # 2021-1924227-CT
Sheet 18 of 46

Sammy X-Press® *Installs into Metal Deck, Purlin, or Tubular Steel*

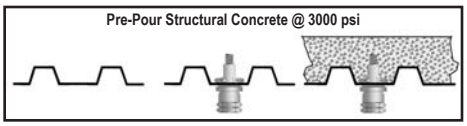


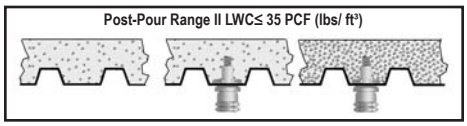


Product Features

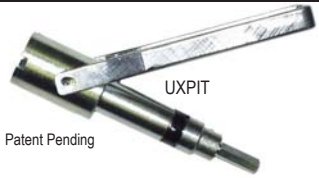
- The *Sammy X-Press* expands to provide direct vertical attachment in:
  - Metal Deck (22-16 gauge)
  - Z-Purlin (18-16 gauge)
- The *Sammy X-Press Swivel* allows you to hang plumb in extreme roof pitches:
  - 89° in Z-Purlin
  - 45° in metal deck for 12/12 pitch
- The *Sammy X-Press Sidewinder* expands to provide horizontal attachment in:
  - 16 ga - 3/16" steel - purlin, tubular steel.
- Installs in seconds, saving time & installation costs.
- Use in applications where access to the back of the installed fastener is prohibited. ie. metal roof deck, tubular steel, or vapor barrier fabric.
- Less jobsite material needed.
- No retaining nut required.
- Provides design flexibility.

Approvals	Rod Size	Part Number	Model	Description	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thick	Max Thick	Box Qty	Case Qty	Application
VERTICAL MOUNT												
	1/4"	8181922	XP 200	X-Press 200	1146 (22 ga)	185 (Luminaire) 250 (Luminaire)		.027" .056"	.125"	25	125	Metal Deck
	3/8"	8150922	XP 20	X-Press 20	1146 (22 ga)	850 (2½" Pipe) 185 (Luminaire) 250 (Luminaire) 283 (Conduit & Cable)	940 (2" Pipe) 1475 (4" Pipe)	.027" .027" .056"	.125"	25	125	Metal Deck
	3/8"	8153922	XP 35	X-Press 35	1783 (16 ga)	1500 (4" Pipe) 85 (Luminaire) 250 (Luminaire) 416 (Conduit & Cable)	940 (2" Pipe) 1475 (4" Pipe)	.060" .105" .027" .056"	.125"	25	125	Purlin
	3/8"	8294922	SXP 20	Swivel X-Press 20	1061 (22 ga Vertical) 829 (45° Off Vertical)	750 (2" Pipe) 170 vertical (Luminaire) 80 @ 45° (Luminaire) 283 vertical (Conduit & Cable) 233 @ 45° (Conduit & Cable)	635 (2" Pipe)	.027"	.125"	25	125	Metal Deck
	3/8"	8295922	SXP 35	Swivel X-Press 35	1675 (16 ga Vertical) 1558 (89° Off Vertical)	1500 (4" Pipe) 250 vertical (Luminaire) 80 @ 90° (Luminaire) 500 vertical (Conduit & Cable) 333 @ 89° (Conduit & Cable)	635 (2" Pipe)	.060"	.125"	25	125	Purlin
	3/8"	8150922	XP 20	Sammy X-Press 20	1146 (22 ga)	850 (2½ Pipe)	Pre-Pour Structural Concrete@ 3000 psi Post-Pour Range II LWC≤ 35 PCF (lbs/ft³)			25	125	Metal Deck (Pre-Pour) Metal Deck (Post-Pour)
HORIZONTAL MOUNT												
	3/8"	8293957	SWXP 35	Sidewinder X-Press 35	1798 (16 ga)	1250 (3¼" Pipe) 80 (Luminaire) 416 (Conduit & Cable)		.060"	.125"	25	125	Purlin





Sammy X-Press It® INSTALLATION TOOL



Part Number	Model	Description	Each Qty
8194910	UXPIT*	Universal X-Press It Tool	1
8195910	RXPIT	Retro Socket for 8151910	1
8152910	XPDB	25/64" Drill Bit	1

*Tool Includes: Sleeve, Bit Receiver, Hex Wrench, and 25/64" Drill Bit.



To watch a video demonstration of the Sammy X-Press, visit http://www.sammysuperscrew.com/sammyxpress.htm

MADE IN U.S.A.

RoHS Compliant

SAMMYS®

Anchors for Steel

DESCRIPTION/SUGGESTED SPECIFICATIONS

Self drilling & self tapping into steel up to 1/2" thick—

The Steel Sammy is made using Teks® self-drilling fasteners, perfect for Hanging Sprinklers, Pipes, Electrical Fixture or HVAC Equipment to steel purlin, structural beams, and open web joist. The Steel Sammy is available in vertical mount, horizontal mount, and Swivel mount to accommodate all fastening situations.

Installs into steel structures easily and quickly!

Available in Vertical, Horizontal and Swivel Head



VERTICAL MOUNT

MADE WITH TEKS



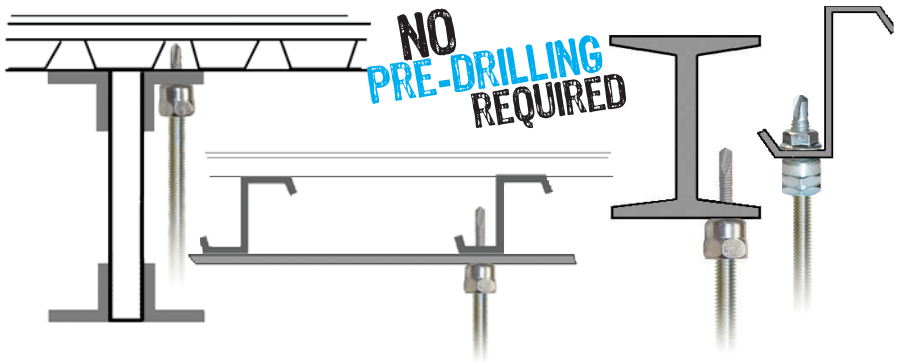
MADE WITH TEKS

SIDEWINDERS® FOR STEEL HORIZONTAL MOUNT

ADVANTAGES

- Made with Teks® self-drilling fasteners – no pre-drilling required.
- Install into steel range from 22 gauge – 1/2" thickness
- Saves time from traditional methods.
- Reduces installation cost.
- Quick to install using the Sammy Nut Driver with a no load speed 2000-2500 rpm, minimum 6 amps drill/driver.

Sammy's Vertical Mount Product Features



Sammy's Sidewinder® Product Features



NO PRE-DRILLING REQUIRED

ITW Construction Products
Call our toll free number **800-387-9692** or visit **www.itwconstruction.ca** for general information.
Visit ITW Buildex's *SAMMYS* web site **www.sammysuperscrew.com** for the most current product and technical information.

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APPLICATIONS



Sprinkler Systems

Pipes/Plumbing

Electrical Lighting and Fixtures

HVAC Equipment and Fixutres



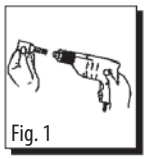


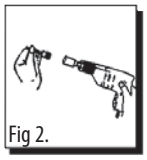


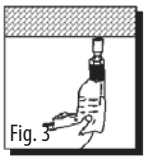
APPROVALS

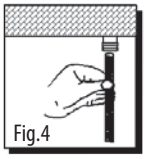
See Selection Chart for items with approvals.

INSTALLATION INSTRUCTIONS VERTICAL MOUNT


Fig. 1


Fig 2.


Fig. 3

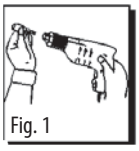

Fig.4

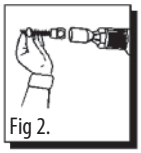
1. Insert the appropriate nut driver into a 3/8" or 1/2" portable drill.
2. Insert the SAMMYS into the #14 (black) nut driver (p/n 8113910). Drill should be in a vertical position.
3. Push the face of the nut driver tight to the member. When the nut driver spins freely on the SAMMYS, stop drill and remove.
4. The SAMMYS is now ready to receive 1/4", 3/8", 1/2" or metric all thread rod, bolt stock. (The 1/2" requires the #14SW red nut driver)

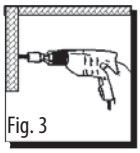
Important Vertical Installation Notes

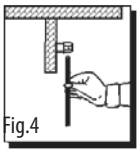
Warranty requires the use of appropriate nut drivers for installation.
Model #14 Nut Driver **Item No:** 100 **Color:** Black
Use With Sammys for 1/4" and 3/8" Rod PN 8113910
Eye protection should be worn at all times when installing this product.

INSTALLATION INSTRUCTIONS HORIZONTAL MOUNT


Fig. 1


Fig 2.


Fig. 3


Fig.4

1. Insert the appropriate nut driver into a 3/8" or 1/2" portable drill.
2. Insert the SAMMYS into the #14W (red) nut driver (p/n 8114910). With drill unit in a horizontal position and at a right angle to the structural member, begin installation.
3. When the nut driver spins free on the SAMMYS, stop drill and remove.
4. The unit is now ready to receive 1/4", 3/8", or metric all thread rod, bolt stock.

Important Horizontal Installation Notes

Warranty requires the use of appropriate nut drivers for installation. Sidewinders must be installed using **Model** #14SW (Red) nut driver only. **Item No:** 101 **PN:** 8114910
Eye protection should be worn at all times when installing this product.

Sammy Swivel Head Product Features

- Eliminates distortion of threaded rod in sloped roof applications.
- Accommodates up to 3 1/2" x 12 pitch.
- Installs into angled Z-Purlin; Allows threaded rod to hang plumb.
- Allows 17° deflection from vertical.



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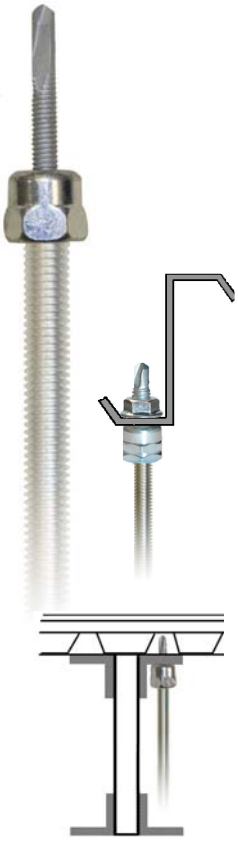
SELECTION CHART





SAMMYS Vertical Mount

■ Part # 8113910 ■ Part # 8114910 ■ Part # 8273910



ROD SIZE	PART NUMBER	MODEL	DESCRIPTION	ULTIMATE PULLOUT (LBS)	UL LISTED TEST LOAD (LBS)	FM APPROVED TEST LOAD (LBS)	MIN THICKNESS	MAX THICKNESS	BOX QTY	CASE QTY	NUT DRIVER
1/4"	8024957	DSTR 100 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)			.036"-20 ga	3/16"	25	125	Part # 8113910
1/4"	8025957	DST 100	1/4-14 x 1" TEKS 3	446 (20 ga.)			.036"-20 ga	3/16"	25	125	
1/4"	8030957	TEK 500	12-24 x 1-1/2" TEKS 5	3125 (3/16")			.187"-3/16"	1/2"	25	125	
3/8"	8038957	DSTR 1 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125	
3/8"	8039957	DSTR 516 *	5/16-18 x 1-1/4" TEKS 3	2200 (20 ga.)	1500	1475	.036"-20 ga	1/8"	25	125	
3/8"	8040957	DST 10	1/4-14 x 1" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125	
3/8"	8077925	DST 10-SS	1/4-14 x 1" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125	
3/8"	8041957	DST 15	1/4-14 x 1-1/2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125	
3/8"	8042957	DST 20	1/4-14 x 2 TEKS" 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125	
3/8"	8044957	DST 30	1/4-14 x 3" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125	
3/8"	8045957	DST 516	5/16-18 x 1-1/4" TEKS 3	1500 (3/16")	1500	1475	.125"-1/8"	1/8"	25	125	
3/8"	8046957	TEK 50	12-24 x 1-1/2" TEKS 5	3125 (3/16")	1500	1475	.187"-3/16"	1/2"	25	125	
1/2"	8034925	DSTR 5.16 *	5/16-18 x 1-1/4" TEKS 3	2220 (20 ga.)			.036"-20 ga	1/8"	25	125	Part # 8114910
1/2"	8036925	TEK 5.0	12-24 x 1-1/2" TEKS 5	3125 (3/16")			.187"-3/16"	1/2"	25	125	

*Includes retaining nut

SAMMYS Swivel Head®



ROD SIZE	PART NUMBER	MODEL	DESCRIPTION	ULTIMATE PULLOUT (LBS)	UL LISTED TEST LOAD (LBS)	FM APPROVED TEST LOAD (LBS)	MIN THICKNESS	MAX THICKNESS	BOX QTY	CASE QTY	NUT DRIVER
3/8"	8137957	SH-DSTR 1 *	1/4-20 x 1" TEKS 3	3220 (3/16")	1500	1475	0.35"	3/16"	25	125	Part # 8113910
3/8"	8268957	SH-TEK50	12-24 x 1-3/4" TEKS 5	2368 (1/2" steel Vertical) 1306 (45° off Vertical) 2281 (3/16" HSS) 1585 (3/16" HSS 45° off Vertical)	1500 (Vertical) 850 (45° off Vertical)	4" 2-1/2"	3/16"	1/2"	25	125	Part # 8273910
1/2"	8270957	SH-TEK 5.0	12-24 x 1-3/4" TEKS 5	2368 (1/2" steel Vertical) 1306 (45° off Vertical) 2281 (3/16" HSS) 1585 (3/16" HSS 45° off Vertical)			3/16"	1/2"	25	125	

*Includes retaining nut

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Call our toll free number **800-387-9692** or visit **www.itwconstruction.ca** for general information.
Visit ITW Buildex's *SAMMYS* web site **www.sammysuperscrew.com** for the most current product and technical information.

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■ Part # 8113910 ■ Part # 8114910 ■ Part # 8273910

SELECTION CHART

SAMMYS Horizontal Mount



ROD SIZE	PART NUMBER	MODEL	DESCRIPTION	ULTIMATE PULLOUT (LBS)	TEST LOAD (LBS)	TEST LOAD (LBS)	MIN THICKNESS	MAX THICKNESS	BOX QTY	CASE QTY	NUT DRIVER
3/8"	8050957	SWD 10	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125	Part # 8114910
3/8"	8080925	SWD 10-SS	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125	
3/8"	8051957	SWD 15	1/4-14 x 1-1/2" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125	
3/8"	8055957	SWDR 1 *	1/4-20 x 1" TEKS 3	1900 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125	
3/8"	8054957	SWDR 1-1/2 *	12-24 x 1-1/2" TEKS 5	2375 (3/16")	1500	1475	.188"-3/16"	1/2"	25	125	
3/8"	8056957	SWDR 516 *	5/16-18 x 1-1/4" TEKS 3	2480 (20 ga.)	1500	1475	.036"-20 ga	1/8"	25	125	
3/8"	8057957	SWT 15	12-24 x 1-1/2" TEKS 5	2375 (3/16")			.187"-3/16"	1/2"	25	125	

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

PERFORMANCE TABLES

Sheet Steel Gauges

GAUGE NO.	26	24	22	20	18	16	14	12	3/16"	1/4"
Nominal Decimal Equivalent	.018	.024	.030	.036	.048	.060	.075	.105	.188	.250

Ultimate Pullout Values
(avg. lbs. ultimate) - SAMMYS

FASTENER			STEEL GAUGE (lbs.)						
MODEL	DIA.	PT	20	18	16	14	12	3/16	1/4
DST	1/4	#3	446	613	970	1145	1544	3190	-----
DST 516	5/16	#3	457	568	1209	1712	2422	-----	-----
TEK 50	#12	#5	-----	487	699	913	1527	3270	3593
DSTR 1-1/2"	#12	#5	-----	-----	-----	-----	-----	3270	3593
DSTR 1"	1/4	#3	1510	-----	-----	-----	-----	-----	-----
DSTR 516	5/16	#3	2200	-----	-----	-----	-----	-----	-----

Aluminum Curtain Wall Extrusion
Ultimate Pullout Values

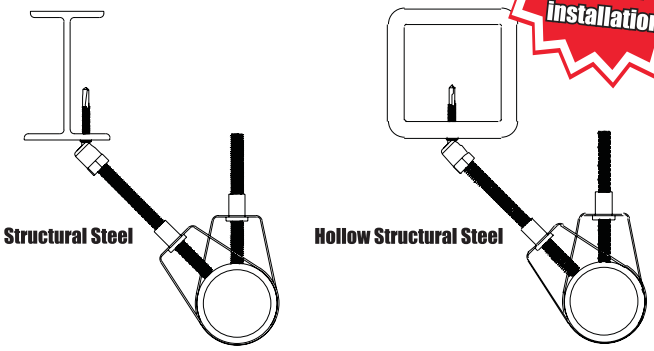
(AVERAGE LBS. ULTIMATE)						
FASTENER			THICKNESS			
MODEL	DIA.	PT.	.114	.092	.365	.132
DST 10	1/4	#3	1265	-----	2750	-----
SWD 10	1/4	#3	-----	1120	-----	1420

Ultimate Pullout Values
(avg. lbs. ultimate) - SIDEWINDERS

FASTENER			STEEL GAUGE (lbs.)						
MODEL	DIA.	PT	20	18	16	14	12	3/16	1/4
SWD	1/4	#3	-----	-----	1477	-----	-----	-----	-----
SWDR 1-1/2"	#12	#5	2375	-----	-----	-----	-----	-----	-----
SWDR 1"	1/4	#3	1900	-----	-----	1900	-----	-----	-----
SWDR 516	5/16	#3	2480	-----	-----	2480	-----	-----	-----

Swivel Head Teks for Seismic Restraint

Swivels to 45° to ensure proper installation!



DESCRIPTION

FEATURES

- Structural attachment and restraint component combined; ready for selected rod.
- No pre-drilling.
- Access to the back of fastener not required.
- Does not require use of a retaining nut.
- Quick and easy installation.

BENEFITS

- Reduced installation cost.
- Reduced material coordination.
- Less on site material (GO GREEN).
- Aesthetically pleasing.

TESTED TO ZONE 4 REQUIREMENTS
RICHTER 8.4 SCALE
TESTED TO SEISMIC DESIGN CATEGORIES C, D, E, & F

FOR 3/8" AND 1/2" RODS

SH-TEK 50 FOR 3/8" ROD

Structural attachment for installation of branch/end of line restraint using 3/8" all thread (.299" OD) or end thread rod (.374" OD).

Designed for use in bar joist, I-beam, rectangular, square, and circular hollow structural steel ranging from 1/8" to 1/2" in low slope or pitched roof designs (12/12). It may be used to attach short length of rod to eliminate lateral sway bracing per NFPA 13, 9.3.5.3.8, (2007).

Provides upper structural attachment in a wide range of steel thicknesses, from 1/8" through 1/2". This fastening system provides a secure and economical attachment to the structure.

SH-TEK 5.0 FOR 1/2" ROD

Structural attachment for installation of branch/end of line restraint using 1/2" all thread (.405" OD) or end thread rod (.500" OD).

Designed for use in bar joist, I-beam, rectangular, square, and circular hollow structural steel ranging from 1/8" to 1/2" in low slope or pitched roof designs (12/12). It may be used to attach short length of rod to eliminate lateral sway bracing per NFPA 13, 9.3.5.3.8, (2007).

Provides upper structural attachment in a wide range of steel thicknesses, from 1/8" through 1/2". This fastening system provides a secure and economical attachment to the structure

SPECIFICATIONS

FOR 3/8" ROD AND 1/2" ROD

Restrained Pipe Size: Up to Schedule 40 pipe 2" or less

Max Length of Restraint Material: See Maximum Horizontal Load Tables below.

Maximum Angle: 45° from horizontal

Material: Carbon Steel

Screw Description: 12-24 x 1-3/8" Teks® 5 milled point

Finish: Electro-zinc (cap), Climaseal® (fastener)

Testing: Tested to GR-63-CORE Standard for performance in structural steel in seismic restraint applications as outlined for use in NFPA 13 (2007), 9.3 at an independent test lab. The calculated force used for the testing was equal to that found in a Zone 4 and an 8.4 Richter scale seismic event.

Listing for 3/8" Rod: UL 203 listed as pipe hanger File EX 5098
- Perpendicular to structural member – 4" Schedule 40 pipe
- 45° off vertical – 2-1/2" Schedule 40 pipe

UL 203A File EX 15565

Listing for 1/2" Rod: UL 203A File EX 15565

SELECTION CHART

SAMMYS Swivel Head Teks™ - Seismic Restraint

ROD SIZE	PART NUMBER	MODEL	MIN THICKNESS	MAX THICKNESS	APPLICATION	BOX QTY	CASE QTY	INSTALLATION TOOL
3/8"	8268957	SH-TEK 50	1/8"	1/2"	Structural Steel*	25	125	Must be installed with #14 SH Nut Driver (ORANGE) (Part No. 8273910)
1/2"	8270957	SH-TEK 5.0	1/8"	1/2"	Structural Steel*	25	125	

* I-Beam, Bar Joist, Hollow Structural Steel

PERFORMANCE TABLES

Maximum Rod Length for l/r=100, 200, 300, and 400

Restraint Shape and Size	Nominal Diameter	Area (in.²)	Least Radius of Gyration, r (in.)	Maximum Rod Length for l/r (ft)			
				l/r = 100	l/r = 200	l/r = 300	l/r = 400*
Rods (all thread)	3/8 in.	0.07	0.075	0.6	1.3	1.9	2.5
	1/2 in.	0.129	0.101	0.8	1.7	2.5	3.4
Rods (threaded at ends only)	3/8 in.	0.11	0.094	0.8	1.6	2.4	3.1
	1/2 in.	0.196	0.125	1.0	2.1	3.1	4.2

Reference: NFPA 13, (2007) * Reference: NFPA 13, (2010)

ITW Construction Products
Call our toll free number 800-387-9692 or visit www.itwconstruction.ca for general information.
Visit ITW Buildex's SAMMYS web site www.sammysuperscrew.com for the most current product and technical information.

DESCRIPTION (SIDEWINDER)

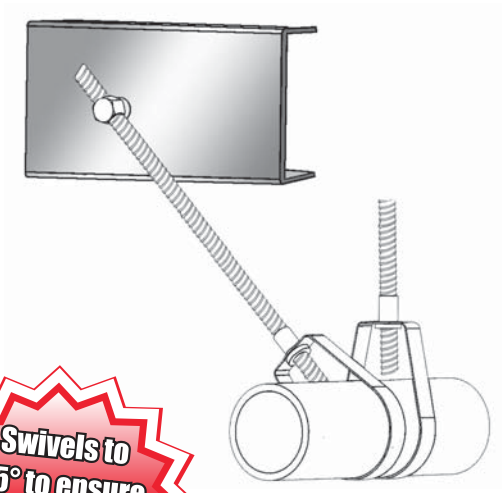
SWDR 1-1/2 AND SWDR 516 FOR 3/8" ROD

Structural attachment for installation of branch/end of line restraint using 3/8" threaded rod. Used primarily in purlin, bar joist, or other steel structural members. These fastening systems provide a secure and economical attachment to the structure.

The SWDR 1-1/2 model provides upper structural attachment in a range of steel thicknesses, from 3/16″ through 1/2″. A retaining nut is included with each fastener.

The SWDR 516 model provides upper structural attachment in a range of steel thicknesses, from 20 ga. through 1/8″. A retaining nut is included with each fastener.







SPECIFICATIONS

Restrained Pipe Size:	Up to Schedule 40 pipe 2″ or less
Max Length of Restraint Material:	See Maximum Horizontal Load Tables below.
Maximum Angle:	45° from horizontal
Material:	Carbon Steel
Screw Description:	(SWDR 1-1/2): 12-24 X 1-1/2″ Teks® 5 (SWDR 516): 5/16″-18 X 1-1/4″ Teks® 3
Finish (both):	Electro-Zinc (cap) Silver Climaseal® (screw)
Testing:	BX Report # R-1362
Listing:	UL 203 as a pipe hanger UL 203A pending

SELECTION CHART

SAMMYS Sidewinders for Steel - Seismic Restraint

ROD SIZE	PART NUMBER	MODEL	MIN THICKNESS	MAX THICKNESS	APPLICATION	BOX QTY	CASE QTY	INSTALLATION TOOL
3/8"	8054957	SWDR 1-1/2	16 ga.	1/2"	Steel Purlin or Bar Joist	25	125	The SWDR 1-1/2 and SWDR 516 must be installed with #14 SW Red Nut Driver (Part No. 8114910). No pre-drilling required.
3/8"	8056957	SWDR 516	16 ga.	1/8"	Steel Purlin or Bar Joist	25	125	

PERFORMANCE TABLES

Maximum Horizontal Loads for Restraint with l/r=100, 200, 300, and 400

Restraint Shape and Size	Nominal Diameter	Area (in.²)	Least Radius of Gyration, r (in.)	Maximum Rod Length for l/r (ft)			
				l/r = 100	l/r = 200	l/r = 300	l/r = 400*
Rods (all thread)	3/8 in.	0.07	0.075	0.6	1.3	1.9	2.5
	1/2 in.	0.129	0.101	0.8	1.7	2.5	3.4
Rods (threaded at ends only)	3/8 in.	0.11	0.094	0.8	1.6	2.4	3.1
	1/2 in.	0.196	0.125	1.0	2.1	3.1	4.2

Reference: NFPA 13, (2007) * Reference: NFPA 13, (2010)

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FIRE SPRINKLER PIPING

High pressure resistant.
A true fact.

TUNA

VILLACERO | TUBERÍA

FM Approvals
Member of the FM Global Group
EX3053080

UL
EX26410

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DATA SHEET

Sch 10 PIPE SPECIFICATIONS

DIAMETER	OUTSIDE DIAMETER		THICKNESS		PRESSURE HYDROSTATIC		WEIGHT				PACKAGE	
inch	inch	mm	inch	mm	lb/in²	kg/cm²	lb/ft	kg/m	kg x 6.40m	kg x 21 ft	kg x package	pipes per package
1	1.315	33.40	0.103	2.616	700	50	1.33	2.00	12.80	28.024	1164.80	91
1 1/4	1.660	42.16	0.103	2.616	1000	70	1.71	2.55	16.33	36.002	1485.96	91
1 1/2	1.900	48.26	0.103	2.616	1000	70	1.98	2.94	18.85	41.551	1715.01	91
2	2.375	60.33	0.103	2.616	1000	70	2.50	3.72	23.83	52.534	2168.34	91
2 1/2	2.875	73.03	0.120	3.048	1000	70	3.53	5.26	33.66	74.216	605.92	18
3	3.500	88.90	0.120	3.048	1000	70	4.34	6.45	41.30	91.053	784.68	19
4	4.500	114.30	0.120	3.048	1200	85	5.62	8.36	53.52	117.992	1016.83	19
6	6.625	168.28	0.134	3.4040	1000	70	9.30	13.84	88.56	195.260	885.64	10

TEX-FLOW SPECIFICATIONS

DIAMETER	OUTSIDE DIAMETER		THICKNESS		PRESSURE HYDROSTATIC		WEIGHT				PACKAGE	
inch	inch	mm	inch	mm	lb/in²	kg/cm²	lb/ft	kg/m	kg x 6.40m	kg x 21 ft	kg x package	pipes per package
2 1/2	2.875	73.03	0.075	1.905	300	21	2.24	3.34	21.38	47.143	384.89	18
3	3.500	88.90	0.095	2.413	300	21	3.46	5.15	32.94	72.617	625.80	19
4	4.500	114.30	0.095	2.413	300	21	4.47	6.66	42.61	93.943	809.59	19

TEX-TUBE (SPRINKLER) SPECIFICATIONS

DIAMETER	OUTSIDE DIAMETER		THICKNESS		PRESSURE HYDROSTATIC		WEIGHT				PACKAGE	
inch	inch	mm	inch	mm	lb/in²	kg/cm²	lb/ft	kg/m	kg x 6.40m	kg x 21 ft	kg x package	pipes per package
6	6.625	168.28	0.134	3.404	1000	70	9.30	13.84	88.56	195.260	885.64	10
8	8.625	219.08	0.188	4.775	800	56	16.96	25.24	161.51	356.076	1130.54	7

PIPE NORM

SPECIFICATION	DESCRIPTION
ASTM-A-795	CARBON PIPES WITH OR WITHOUT SEAMS FOR FIRE PREVENTION APPLICATIONS

MAXIMUM CHEMICAL COMPOSITION IN

% C	0.25
% MN	0.95
% P	0.035
% S	0.035

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CERTIFICATE OF COMPLIANCE

Certificate Number	20140716-EX26410
Report Reference	EX26410-20140711
Issue Date	2014-JULY-16

Issued to:

LAMINA Y PLACA COMERCIAL S A DE C V
AV OCAMPO 250 PTE 6 PISO LETRA A
COL CENTRO
64000 MONTERREY
NL MEXICO

This is to certify that representative samples of

METALLIC SPRINKLER PIPE
See addendum page

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety:	UL 852, Metallic Sprinkler Pipe for Fire Protection Service
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Listing Mark should be considered as being covered by UL's Listing and Follow-Up Service.

The UL Listing Mark generally includes the following elements: the symbol UL in a circle: (UL) with the word "LISTED"; a control number (may be alphanumeric) assigned by UL; and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.

William R. Carney

William R. Carney, Director, North American Certification Programs

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CERTIFICATE OF COMPLIANCE

Certificate Number	20140716-EX26410
Report Reference	EX26410-20140711
Issue Date	2014-JULY-16

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Schedule 10 steel sprinkler pipe, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, and 6 inch nominal diameter for wet, dry, preaction and deluge type sprinkler systems with unthreaded ends intended to be joined by welding or Listed Rubber Gasketed Fittings when installed in accordance with the fitting manufacturer's specifications.

William R. Carney

William R. Carney, Director, North American Certification Programs

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Permit # 2021-1924227-CT
Sheet 29 of 46

Mechanical-T® Bolted Branch Outlets

STYLES 920 AND 920N

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS



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

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

Date _____

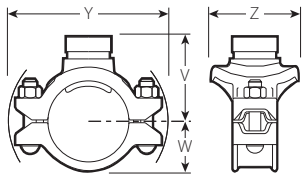
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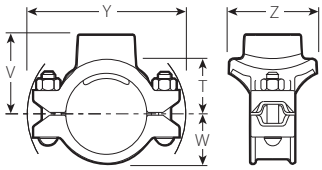
Mechanical-T® Bolted Branch Outlets

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		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
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.

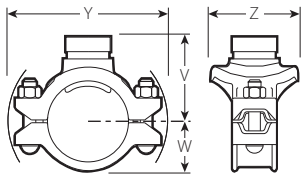
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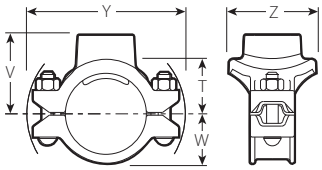
Mechanical-T® Bolted Branch Outlets

STYLES 920 AND 920N

DIMENSIONS



GROOVED OUTLET



FEMALE THREADED OUTLET

- 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		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.

§ Vds approved for fire protection services

¤ LPCB approved for fire protection services

Ø Approved for use in China by Tianjin Approvals Company.

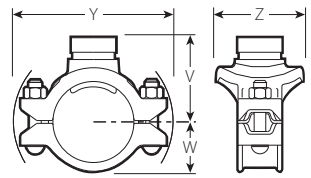
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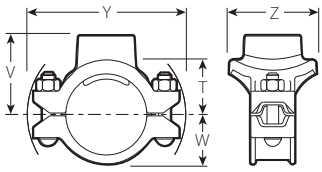
Mechanical-T® Bolted Branch Outlets

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 ×	1½ † 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 ×	1¼ (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
	1½ (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
	2½ 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 ×	1½ (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).

† 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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Ø Approved for use in China by Tianjin Approvals Company.

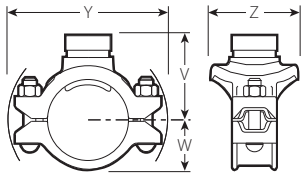
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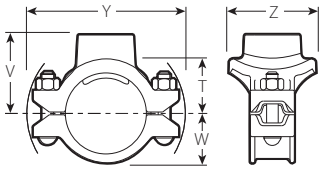
Mechanical-T® Bolted Branch Outlets

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		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
	2½ (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.
§ 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 each other to achieve cross connections.

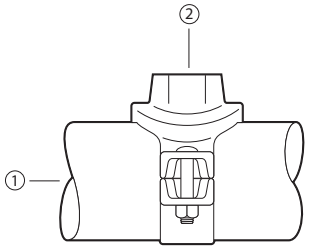
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Mechanical-T® Bolted Branch Outlets

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 2 ½"/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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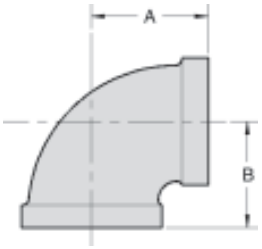
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D.I. THREADED FITTINGS

S.P FITTINGS
A Division of Star Pipe Products

LISTED LISTED APPROVED

For fire protection services request submittal GRS 1.3

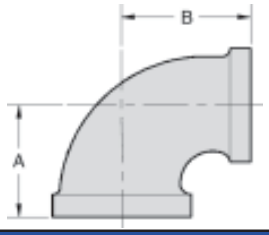


DUCTILE IRON THREADED FITTINGS ARE UL, ULC LISTED AND FACTORY MUTUAL APPROVED FOR 500 PSI SERVICE. DUCTILE IRON PER ASTM A 536 GRADE 65-45-12. DIMENSIONS CONFORM TO ANSI B16.3 CLASS 150. THREADS ARE NPT PER ANSI/ASME B1.20.1

NOTICE: DUCTILE IRON FITTINGS HAVE HIGHER TENSILE STRENGTH THEN THAT OF STEEL PIPE. THEREFORE, OVER TIGHTENING CAN CAUSE DAMAGE TO PIPE THREADS WHICH MAY CAUSE LEAKAGE. DUCTILE IRON FITTINGS SHOULD BE TIGHTENED THREE TURNS BEYOND HAND TIGHT, BUT NO MORE THAN FOUR TURNS.

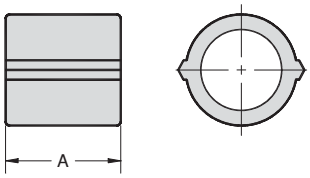
DUCTILE IRON 90 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1	DB90033	500	1.50	1.50	0.62
1 1/4	DB90044	500	1.75	1.75	0.90
1 1/2	DB90055	500	1.94	1.94	1.20
2	DB90066	500	2.25	2.25	1.85



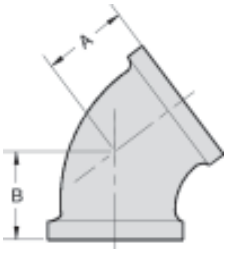
DUCTILE IRON RED.90 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1X1/2	DB90031	500	1.26	1.36	0.44
1X3/4	DB90032	500	1.37	1.45	0.52
1 1/4X1/2	DB90041	500	1.34	1.53	0.64
1 1/4X3/4	DB90042	500	1.45	1.62	0.72
1 1/4X1	DB90043	500	1.58	1.67	0.75
1 1/2X1	DB90053	500	1.65	1.80	0.92
1 1/2X1 1/4	DB90054	500	1.82	1.88	1.08
2X1/2	DB90061	500	1.49	1.88	1.08
2X3/4	DB90062	500	1.60	1.97	1.24
2X1	DB90063	500	1.73	2.02	1.40
2X1 1/4	DB90064	500	1.90	2.10	1.52
2X1 1/2	DB90065	500	2.02	2.16	1.65



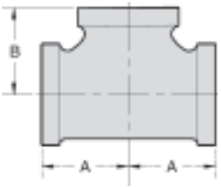
DUCTILE IRON COUPLING

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION A	WEIGHT EACH PIECE
1	DCL033	500	1.67	0.40
1 1/4	DCL044	500	1.93	0.57
1 1/2	DCL055	500	2.15	0.75
2	DCL066	500	2.53	1.15



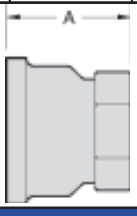
DUCTILE IRON 45 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1	DB45033	500	1.12	1.12	0.46
1 1/4	DB45044	500	1.29	1.29	0.73
1 1/2	DB45055	500	1.43	1.43	0.92
2	DB45066	500	1.68	1.68	1.50



DUCTILE IRON STRAIGHT TEE

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1	DT333	500	1.50	1.50	0.85
1 1/4	DT444	500	1.75	1.75	1.22
1 1/2	DT555	500	1.94	1.94	1.55
2	DT666	500	2.25	2.25	2.45



DUCTILE IRON RED. COUPLING

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION A	WEIGHT EACH PIECE
1X1/2	DRC031	500	1.69	0.39
1X3/4	DRC032	500	1.69	0.53

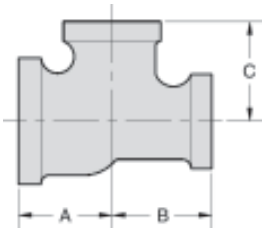
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D.I. THREADED FITTINGS

S.P FITTINGS
A Division of Star Pipe Products

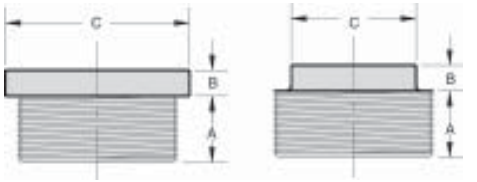
LISTED LISTED APPROVED

For fire protection services request submittal GRS 1.3



DUCTILE IRON REDUCING TEE

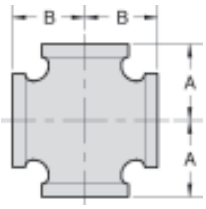
NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	B	C	WEIGHT EACH PIECE
1X1X1/2	DT331	500	1.26	1.26	1.36	0.64
1X1X3/4	DT332	500	1.37	1.37	1.45	0.73
1X1/2X1	DT313	500	1.50	1.36	1.50	0.71
1X3/4X1	DT323	500	1.50	1.45	1.50	0.76
1X1X1 1/4	DT334	500	1.67	1.67	1.58	0.98
1X1X1 1/2	DT335	500	1.80	1.80	1.65	1.16
1 1/4X1X1/2	DT431	500	1.34	1.26	1.53	0.82
1 1/4X1X3/4	DT432	500	1.45	1.37	1.62	0.90
1 1/4X1X1	DT433	500	1.58	1.50	1.67	1.00
1 1/4X1X1 1/4	DT434	500	1.75	1.67	1.75	1.08
1 1/4X1X1 1/2	DT435	500	1.88	1.80	1.82	1.42
1 1/4X1 1/4X1/2	DT441	500	1.34	1.34	1.53	0.86
1 1/4X1 1/4X3/4	DT442	500	1.45	1.45	1.62	0.92
1 1/4X1 1/4X1	DT443	500	1.58	1.58	1.67	0.95
1 1/4X1 1/4X1 1/2	DT445	500	1.88	1.88	1.82	1.45
1 1/4X1 1/4X2	DT446	500	2.10	2.10	1.90	1.75
1 1/2X1X1/2	DT531	500	1.41	1.34	1.66	0.95
1 1/2X1X3/4	DT532	500	1.52	1.37	1.75	1.14
1 1/2X1X1	DT533	500	1.65	1.50	1.80	1.17
1 1/2X1X1 1/4	DT534	500	1.82	1.67	1.88	1.34
1 1/2X1X1 1/2	DT535	500	1.94	1.80	1.94	1.45
1 1/2X1 1/4X1/2	DT541	500	1.41	1.34	1.66	1.05
1 1/2X1 1/4X3/4	DT542	500	1.52	1.45	1.75	1.15
1 1/2X1 1/4X1	DT543	500	1.65	1.58	1.80	1.25
1 1/2X1 1/4X2	DT546	500	2.16	2.10	2.02	1.90
1 1/2X1 1/2X1/2	DT551	500	1.41	1.41	1.16	1.15
1 1/2X1 1/2X3/4	DT552	500	1.52	1.52	1.75	1.24
1 1/2X1 1/2X1	DT553	500	1.65	1.65	1.80	1.30
1 1/2X1 1/2X1 1/4	DT554	500	1.82	1.82	1.88	1.48
1 1/2X1 1/2X2	DT556	500	2.16	2.16	2.02	1.98
2X1X2	DT636	500	2.25	2.02	2.25	2.15
2X1 1/4X2	DT646	500	2.25	2.10	2.25	2.30
2X1 1/2X1/2	DT651	500	1.49	1.41	1.88	1.50
2X1 1/2X3/4	DT652	500	1.60	1.52	1.97	1.62
2X1 1/2X1	DT653	500	1.73	1.65	2.02	1.64
2X1 1/2X1 1/4	DT654	500	1.90	1.82	2.10	1.80
2X1 1/2X1 1/2	DT655	500	2.02	1.94	2.16	2.00
2X1 1/2X2	DT656	500	2.25	2.16	2.25	2.35
2X2X1/2	DT661	500	1.49	1.49	1.88	1.60
2X2X3/4	DT662	500	1.60	1.60	1.97	1.68
2X2X1	DT663	500	1.73	1.73	2.02	1.85
2X2X1 1/4	DT664	500	1.90	1.90	2.10	2.04
2X2X1 1/2	DT665	500	2.02	2.02	2.16	2.18
2X2X2 1/2	DT667	500	2.60	2.60	2.39	3.61
2 1/2X2X3/4	DT762	500	1.74	1.60	2.32	2.28



OUTSIDE HEAD INSIDE HEAD

DUCTILE IRON BUSHINGS

NOMINAL SIZE (INCH)	ITEM CODE #	DIMENSIONS A	B	C	STYLE	WT. EACH
1x1/2	DBUSH31	0.75	0.25	1.42	OUT	0.22
1x3/4	DBUSH32	0.75	0.25	1.42	OUT	0.17
1 1/4x1	DBUSH43	0.80	0.28	1.76	OUT	0.28
1 1/2x1	DBUSH53	0.83	0.31	2.00	OUT	0.44
1 1/2x1 1/4	DBUSH54	0.83	0.31	2.00	OUT	0.30
2x1	DBUSH63	0.88	0.41	1.95	IN	0.66
2x1 1/4	DBUSH64	0.88	0.34	2.48	OUT	0.72
2x1 1/2	DBUSH65	0.88	0.34	2.48	OUT	0.61



DUCTILE IRON CROSS

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I	DIMENSIONS A	B	WEIGHT EACH PIECE
1	DX033	500	1.50	1.50	0.98
1 1/4	DX044	500	1.75	1.75	1.50
1 1/2	DX055	500	1.94	1.94	1.90
2	DX066	500	2.25	2.25	2.95
1 1/4X1	DX043	500	1.58	1.67	1.27
1 1/2X1	DX053	500	1.65	1.80	1.48
2X1	DX063	500	1.73	2.02	2.10



DUCTILE IRON CAP

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION A	WEIGHT EACH PIECE
1	DCP003	500	1.16	0.32
1 1/4	DCP004	500	1.28	0.43
1 1/2	DCP005	500	1.33	0.60
2	DCP006	500	1.45	0.91

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TYCO CPVC
TFP-500 One Step Solvent Cement
SDS (Safety Data Sheet)

Tyco

GHS SAFETY DATA SHEET

TFP-500 RED Low VOC Cement for CPVC Plastic Pipe

Date Revised: **JUL 2018**
Supersedes: **JAN 2015**

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **TFP-500 RED Low VOC Cement for CPVC Plastic Pipe**

PRODUCT USE: Low VOC Solvent Cement for CPVC Plastic Pipe

SUPPLIER:

MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

Medical: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2				

GHS LABEL:



Signal Word:
Danger

WHMIS CLASSIFICATION: CLASS B, DIVISION 2
CLASS D, DIVISION 2B

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P337+P313: Get medical advice/attention
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
H351: Suspected of causing cancer	P501: Dispose of contents/container in accordance with local regulation
EUH019: May form explosive peroxides	

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	30 - 60
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	2 - 25
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	5 - 15
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	1 - 5

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	
Health	2	2	1-Slight
Flammability	3	3	2-Moderate
Reactivity	0	0	3-Serious
PPE	B		4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

IMPORTANT
Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

Sections 1-6 excerpt from: Filename: TFP-500 RED LoVoc 7-18.xls

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.

Storage: Store in ventilated room or shade below 33°C (90°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL	OSHA PEL-Ceiling	CAL/OSHA PEL	CAL/OSHA Ceiling	CAL/OSHA STEL
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	N/E	N/E	200 ppm	N/E	250 ppm
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	N/E	N/E	200 ppm	N/E	300 ppm
Acetone	500 ppm	750 ppm	1000 ppm	N/E	N/E	500 ppm	3000 ppm	750 ppm
Cyclohexanone	20 ppm	50 ppm	50 ppm	N/E	N/E	25 ppm	N/E	N/E

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion. Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above. With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Orange or gray, heavy syrupy liquid
Odor: Ketone
pH: Not Applicable
Melting/Freezing Point: -108.5°C (-163.3°F) Based on first melting component: THF
Boiling Point: 66°C (151°F) Based on first boiling component: THF
Flash Point: -20°C (-4°F) TCC based on THF
Specific Gravity: 0.989 @23°C (73°F)
Solubility: Solvent portion soluble in water. Resin portion separates out.
Partition Coefficient n-octanol/water: Not Available
Auto-ignition Temperature: 321°C (610°F) based on THF
Decomposition Temperature: Not Applicable
VOC Content: When applied as directed, per SCAQMD Rule 1168, Test Method 316A, VOC content is: ≤ 490 g/l.

Odor Threshold: 0.88 ppm (Cyclohexanone)
Boiling Range: 66°C (151°F) to 156°C (313°F)
Evaporation Rate: > 1.0 (BUAC = 1)
Flammability: Category 2
Flammability Limits: **LEL:** 1.1% based on Cyclohexanone
UEL: 11.8% based on THF
Vapor Pressure: 129 mm Hg @ 20°C (68°F)based on THF
Vapor Density: <2 (Air = 1)
Other Data: Viscosity: Heavy bodied

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable
Hazardous decomposition products: None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid: Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials: Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Eye and Skin Contact
Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.
Chronic (long-term) effects: Category 2 Carcinogen

Toxicity:	LD_{50}	LC_{50}	**Target Organs**
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)	STOT SE3
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)	STOT SE3
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)	STOT SE3
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)	

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: None Known
Mobility: In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 490 g/l.
Degradability: Not readily biodegradable
Bioaccumulation: Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name: Adhesives
Hazard Class: 3
Secondary Risk: None
Identification Number: UN 1133
Packing Group: PG II
Label Required: Class 3 Flammable Liquid
Marine Pollutant: NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D" .

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

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SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant, Carc. Cat. 2
Symbols: F, Xi
Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

Risk Phrases:
R11: Highly flammable.
R36/37: Irritating to eyes and respiratory system.
R66: Repeated exposure may cause skin dryness or cracking
R67: Vapors may cause drowsiness and dizziness

Safety Phrases:
S2: Keep out of the reach of children
S9: Keep container in a well-ventilated place.
S16: Keep away from sources of ignition - No smoking.
S25: Avoid contact with eyes.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S33: Take precautionary measures against static discharges.

SECTION 16 - OTHER INFORMATION

Specification Information: All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
Department issuing data sheet: Safety Health & Environmental Affairs
Training necessary: Yes, training in practices and procedures contained in product literature.
Reissue date / reason for reissue: 7/18/2018 / Updated GHS Standard Format
Intended Use of Product: Solvent Cement for CPVC Plastic Pipe

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

Final Sections 15-16 excerpt from: Filename: TFP-500 RED LoVoc 7-18.xls

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

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Johnson Controls

Viking Plastics

BlazeMaster® CPVC Pipe

Features

- **Sizes Available (Nominal):** 3/4" (DN20) through 3" (DN80) pipe diameters, with a Standard Dimension Ratio (SDR) of 13.5 as specified in ASTM F442.
- **Environmental Specifications:** Indoor use only. Maximum Ambient Temperature: 150°F (65°C)
- **Hazen-Williams C Value:** 150
- **Pressure Data: Working Pressure:** 175 PSI (12.1 bar) at 150°F (65°C)
- **Specifications:**
  - Meets NFPA 13R and 13D standards for residential occupancies as well as NFPA 13 standards for light hazard occupancies.
  - Pipe meets or exceeds ASTM F442.
  - Certified by NSF International for potable water services.
  - CPVC pipe from Viking Plastics use compound cell class 23547 (demonstrated highest structural properties).
  - cULus Listed, FM Approved, New York City (MEA) Approved, LPCB Approved.

CPVC PIPE PHYSICAL DATA

Nominal Pipe Size		Actual Outside Diameter		Average Inside Diameter		*Weight per 15' (4,6 m) length		Length		Approvals	Part Number
Inch	DN	Inch	mm	Inch	mm	Lb.	Kg.	Feet	M		
3/4"	DN20	1.050	26,670	0.874	22,199	2.52	1,14	15	4.6	cULus, FM, NSF	34PIPE
1"	DN25	1.315	33,401	1.101	27,965	3.93	1,78	15	4.6		1PIPE
1 1/4"	DN32	1.660	42,164	1.394	35,408	6.27	2,84	15	4.6		114PIPE
1 1/2"	DN40	1.900	48,260	1.598	40,589	8.22	3,73	15	4.6		112PIPE
2"	DN50	2.375	60,325	2.003	50,876	12.89	5,85	15	4.6		2PIPE
2 1/2"	DN65	2.875	73,000	2.423	61,500	18.86	8,55	15	4.6		212PIPE
3"	DN80	3.500	88,900	2.950	74,900	28.01	12,71	15	4.6		3PIPE
Nominal Pipe Size		**Actual Outside Diameter**		**Average Inside Diameter**		***Weight per 10' (3,05 m) length**		**Length**		**Approvals**	**Part Number**
Inch	**DN**	**Inch**	**mm**	**Inch**	**mm**	**Lb.**	**Kg.**	**Feet**	**M**		
3/4"	DN20	1.050	26,670	0.874	22,199	1.68	0,76	10	3,05	cULus, FM, NSF	34PIPE10
1"	DN25	1.315	33,401	1.101	27,965	2.62	1,19	10	3,05		1PIPE10
1 1/4"	DN32	1.660	42,164	1.394	35,408	4.18	1,90	10	3,05		114PIPE10
1 1/2"	DN40	1.900	48,260	1.598	40,589	5.48	2,49	10	3,05		112PIPE10
2"	DN50	2.375	60,325	2.003	50,876	8.59	3,90	10	3,05		2PIPE10
2 1/2"	DN65	2.875	73,000	2.423	61,500	12.57	5,70	10	3,05		212PIPE10
3"	DN80	3.500	88,900	2.950	74,900	18.67	8,47	10	3,05		3PIPE10

NOTE: CPVC Pipe is produced in SDR 13.5 Dimensions in accordance with ASTM F442. Standard Dimension Ratio is the ratio of the outside pipe diameter to the wall thickness of the pipe.

Blazemaster® is a registered trademark of Lubrizol.

Specifications subject to change without notice

*Empty pipe weights

IMPORTANT: Installers should receive thorough hands-on training in the proper methods of assembly and installation of CPVC products.

Viking Plastics

BlazeMaster® CPVC Pipe

CPVC Pipe Product Specifications

Corrosion resistant CPVC fire sprinkler pipe, when installed in strict accordance with the manufacturer's design and installation instructions, is UL and c-UL Listed by Underwriters Laboratories for use in the following:

- Meets NFPA 13R and 13D standards for residential occupancies as well as NFPA 13 standards for light hazard occupancies.
- Residential occupancies up to and including four stories in height as defined by NFPA 13R.
- Residential occupancies as defined in the Standard for Sprinkler Systems in One and Two Family Dwellings, NFPA 13D.
- Installation of private fire service mains and their appurtenances, NFPA 24.

CPVC fire sprinkler pipe from Viking Plastics shall be employed in wet pipe systems only and are not listed for outdoor use. CPVC pipe must never be used in a system using compressed air or other gases.

CPVC pipe from Viking Plastics also carries the following enhanced listings and approvals:

- According to UL Listing
  - Can be flush at return air plenums
  - Exposed system risers NFPA 13D, 13R
  - Exposed basement NFPA 13D (solid wood joist)
  - Extended coverage (exposed)
    - 20' spacing on pendent in lieu of 15'
    - 18' spacing on sidewall in lieu of 14'
  - Use with combustible concealed sprinklers
  - Tyco attic sprinkler head (to protect the floor below)
  - Tyco attic sprinkler head with wet system piping (feed main and ridge installation)
  - Exposed sidewall sprinkler listing for exposed pipe & fittings
    - 24' extended coverage sidewall sprinkler, 12" drop, 155°F sprinkler head
    - 18' extended coverage sidewall sprinkler, 12" drop, 165°F sprinkler head
    - 16' extended coverage sidewall sprinkler, 12" drop, 175°F sprinkler head
    - 14' standard coverage sidewall sprinkler, 12" drop, 200°F sprinkler head
- Factory Mutual Approved*****
  - Factory Mutual Approval exposed
  - Factory Mutual Approval above drop-in ceilings
  - Factory Mutual Approval exposed w/Soffi-Steel soffiting covering system

New and enhanced listings and approvals are being pursued. Always check with the appropriate Listing and Approval agency for details on current listing parameters.

CPVC pipe meets all applicable standards for pressure rated application as required in ANSI-NSF Standard 14 and complies with ANSI-NSF Standard 61 for health effects and are marked with the NSF-pw end use marking.

All CPVC fire sprinkler pipe shall be Listed by Underwriters Laboratories for wet pipe systems, and shall carry a rated working pressure of 175 psi @ 150°F (12 bar @ 65.5°C). *****The FM Approval is limited to use in wet pipe fire protection sprinkler systems for light hazard occupancies in both concealed and exposed applications with certain restrictions.

Piping must always be installed in strict accordance to the manufacturer's DESIGN AND INSTALLATION GUIDE, including product storage and handling, joining methods, supporting and bracing, expansion and contraction allowance and testing, etc. National Fire Protection Association (NFPA) Standards 13, 13D, and 13R must be referenced for design and installation requirements in conjunction with the installation instructions.

All CPVC fire sprinkler pipe from Viking Plastics is manufactured in the USA. All CPVC pipe shall be packaged immediately after its manufacture to prevent damage and shall be stored indoors after production, at the manufacturing site, until shipped from the factory. The pipe shall bear the logo of the listing agencies, and shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications.

CPVC products are intended for use in areas where the maximum ambient temperature does not exceed 150°F (65.5°C). If the ambient temperature is expected to exceed this limitation, refer to the manufacturer's DESIGN AND INSTALLATION GUIDE for additional information on methods to reduce the pipe exposure temperatures. CPVC pipe is not intended to be installed in outdoor applications. CPVC pipe is intended to be used in wet pipe systems only and have not been investigated for use in dry pipe systems. Special installation and design criteria relative to pipe hanger spacings, piping and sprinkler restraint, sprinkler temperature rating, piping locations, testing procedures and friction loss characteristics are specified in the manufacturer's installation instructions provided with the pipe. The manufacturer's installation instructions should be reviewed and the Authority Having Jurisdiction consulted before installation.