



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

4/5/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION** IS **WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER GHG Insurance 1000 Riverside Ave, Ste 500 Jacksonville FL 32204	CONTACT NAME: Tiffany Peterson PHONE (A/C, No, Ext): 904-421-8600 E-MAIL ADDRESS: tpeterson@ghgins.com FAX (A/C, No): 904-421-8601
INSURED Fortitude Fire Protection, LLC 2430 University Blvd W Jacksonville FL 32217	INSURER(S) AFFORDING COVERAGE INSURER A: Bridgefield Employers Insurance Company INSURER B: AmGuard Insurance Company INSURER C: Nautilus Insurance Company INSURER D: INSURER E: INSURER F:
	NAIC # 10701 42390 17370

COVERAGES**CERTIFICATE NUMBER:** 1912077241**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
C	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Per Occ Ded \$2,500 GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			ECP2037335-10	4/3/2022	4/3/2023	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$100,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
B	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			FOAU259613	3/31/2022	3/31/2023	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y / N <input checked="" type="checkbox"/> N	N / A	83056296	1/17/2022	1/17/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
C	Pollution Professional			ECP2037335-10	4/3/2022	4/3/2023	Pollution Ea Occur Each Claim- Prof 1,000,000 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER**CANCELLATION**

Columbia County Building Department
135 NE Hernando Ave
Lake City FL 32055

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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Jimmy Patronis
CHIEF FINANCIAL OFFICER

Julius Halas
DIVISION DIRECTOR



John Gatlin
BUREAU CHIEF

Catherine Thrasher
SAFETY PROGRAM MANAGER

FLORIDA DEPARTMENT OF FINANCIAL SERVICES
DIVISION OF STATE FIRE MARSHAL
200 EAST GAINES STREET - Tallahassee, Florida 32399-0342
Tel. 850-413-3644

CERTIFICATE OF COMPETENCY
OFFICIAL COPY

THIS CERTIFIES THAT: Mark T Bohrer
2430 University Blvd. W
Jacksonville FL 32217
BUSINESS ORGANIZATION: Fortitude Fire Protection, LLC

Contractor II is limited to the execution of contracts requiring the ability to layout, fabricate, install, inspect, alter, repair, and service water sprinkler systems, water spray systems, foam-water sprinkler systems, foam-water spray systems, standpipes, combination standpipes and sprinkler risers, all piping that is an integral part of the system beginning at the point of service, sprinkler tank heaters, air lines, thermal systems used in connection with sprinklers, and tanks and pumps connected thereto, excluding pre-engineered systems.

Issue Date: 07/01/2022
Type: 07
Class: 12
County: Duval
License/Permit #: FPC15-000041
Expiration Date: 06/30/2024



Jimmy Patronis
Chief Financial Officer



2021 - 2022 LOCAL BUSINESS TAX RECEIPT
JIM OVERTON, DUVAL COUNTY TAX COLLECTOR

231 E. Forsyth Street, Suite 130, Jacksonville, FL 32202-3370
Phone: (904) 255-5700, option 3 Fax: (904) 255-8403
<https://taxcollector.coj.net/>

Note - A penalty is imposed for failure to keep this receipt exhibited conspicuously at your place of business. This business tax receipt is furnished pursuant to Municipal Ordinance Code, Chapters 770-772, for the period October 01, 2021 through September 30, 2022.

FORTITUDE FIRE PROTECTION LLC
2430 UNIVERSITY BLVD W
JACKSONVILLE, FL 32217

ACCOUNT NUMBER: 253045
BUSINESS NAME: FORTITUDE FIRE PROTECTION LLC
PHYSICAL ADDRESS: 2430 UNIVERSITY BLVD W
JACKSONVILLE, FL 32217

CLASSIFICATION CODE: 307001 CONTRACTOR- ALL TYPES

STATE LICENSE NO: FPC15000041

COUNTY TAX:	11.25
MUNICIPAL TAX:	61.25
COUNTY LATE PENALTY:	0.00
MUNICIPAL LATE PENALTY:	0.00
TOTAL TAX:	72.50

VALID UNTIL September 30, 2022

*****ATTENTION*****

THIS RECEIPT IS FOR BUSINESS TAX RECEIPT ONLY.
CERTAIN BUSINESSES MAY REQUIRE ADDITIONAL STATE LICENSING.

This is a business tax receipt only. It does not permit the receipt holder to violate any existing regulatory or zoning laws of the County or City. It does not exempt the receipt holder from any other license or permit required by law. This is not a certification of the receipt holder's qualifications.

JIM OVERTON, TAX COLLECTOR

THIS BECOMES A RECEIPT AFTER VALIDATION.

Paid NT-22-00113115

09/29/2021 \$ 72.50



2021 - 2022 LOCAL BUSINESS TAX RECEIPT
JIM OVERTON, DUVAL COUNTY TAX COLLECTOR

231 E. Forsyth Street, Suite 130, Jacksonville, FL 32202-3370
Phone: (904) 255-5700, option 3 Fax: (904) 255-8403
<https://taxcollector.coj.net/>

Note – A penalty is imposed for failure to keep this receipt exhibited conspicuously at your place of business. This business tax receipt is furnished pursuant to Municipal Ordinance Code, Chapters 770-772, for the period October 01, 2021 through September 30, 2022 .

BOHRER MARK TROY
2430 UNIVERSITY BLVD W
JACKSONVILLE, FL 32217

ACCOUNT NUMBER: 253049
BUSINESS NAME: BOHRER MARK TROY
PHYSICAL ADDRESS: 2430 UNIVERSITY BLVD W
JACKSONVILLE, FL 32217

CLASSIFICATION CODE: 5 QUALIFYING AGENT, CONTRACTORS

STATE LICENSE NO: FPC15-000041

COUNTY TAX:	0.00
MUNICIPAL TAX:	100.00
COUNTY LATE PENALTY:	0.00
MUNICIPAL LATE PENALTY:	0.00
TOTAL TAX:	100.00

VALID UNTIL September 30, 2022

*****ATTENTION*****

THIS RECEIPT IS FOR BUSINESS TAX RECEIPT ONLY.
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JIM OVERTON, TAX COLLECTOR

THIS BECOMES A RECEIPT AFTER VALIDATION.

Paid NT-22-00113115

09/29/2021 \$ 100.00

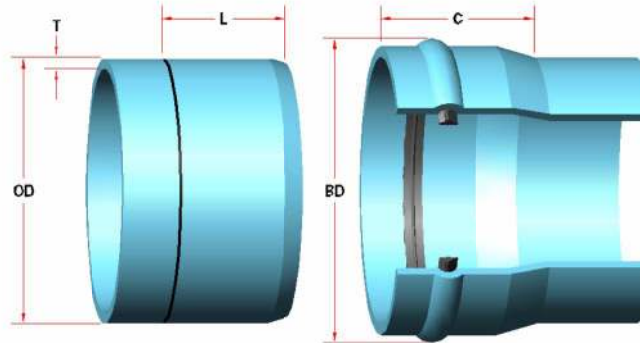
Fireline



** PVC pipe manufacturer to be determined at time of shipment due to material availability



AWWA C-900 Municipal Water Pipe



NOMINAL PIPE SIZE	OUTSIDE DIA. – NOM. (OD)	*APPROX. BELL DIA. (BD)	**APPROX. BELL DEPTH (C)	INSERT MARK (L)
4"	4.80	6.50	6.11	3.88
6"	6.90	9.25	7.34	5.13
8"	9.05	11.75	9.08	6.13
10"	11.10	14.25	9.75	6.63
12"	13.20	16.75	11.02	7.38

NOMINAL PIPE SIZE	PC 100 DR 25 (T)	PC 150 DR 18 (T)	PC 200 DR 14 (T)
4"	.192	.267	.343
6"	.276	.383	.493
8"	.362	.503	.646
10"	.444	.617	.793
12"	.528	.733	.943

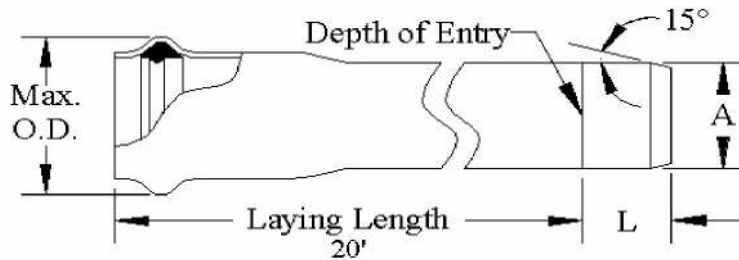
Note: These dimensions are for estimating purposes only * Dimension given for Approx. Bell Diameter (BD) is for highest pressure class ** Nominal depth, depth will vary by pressure class

Rev: 08/2006

PVC MUNICIPAL WATER DISTRIBUTION PIPE

Scope: This submittal designates the general requirements for **Unplasticized Polyvinyl Chloride Municipal Water Pipe from compound with a cell classification 12454 as defined in ASTM Standard D-1784.**

Pipe: All pipe shall meet the requirements of AWWA C-900, UL 1285, FM 1612, CAN/CSA-B137.3 and BNQ NQ3624-250 Standards, as indicated, for potable water transmission mains and for fire protection systems. Our pipe meets National Sanitation Foundation Standard #61 for plastic piping system components and related materials. The gasketed joint shall meet the requirements of ASTM D-3139, and the joint gasket shall conform to ASTM F-477. Pipe shall be furnished in laying lengths of 20' (+/- 1"). Other lengths may be available upon request.



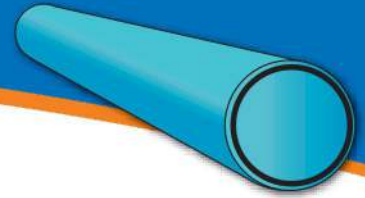
This product is manufactured in alternative colors for specific applications. **Purple** for Reclaimed Water application. Print legend will include the marking "Reclaimed Water". **Green** for Sanitary Sewer Force Main applications. Print legend will include "Force Main". Although manufactured in accordance with the same industrial standards and testing requirements, these products do not bear the NSF, CSA & BNQ Listing Mark, as they are used for different applications.

C-900 Water Pipe Size and Dimensions

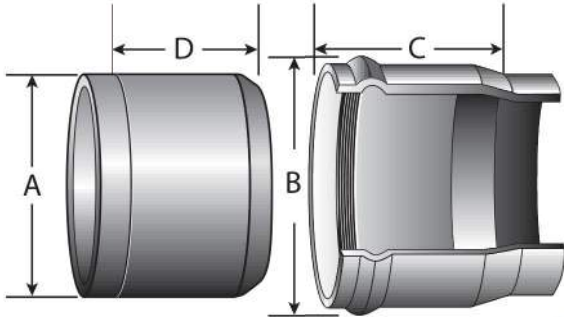
Nominal Size (in.)	Metric (m.m.)	Dimension Ration (DR)	Approvals	Pressure Class (PSI)	"A" Average (O.D.) Outside Diameter	Minimum Wall	Max. O.D. Reference	"L" Dimension Reference
4	100	25	*	165	4.800	0.192	5.920	4.500
		18	* * * * *	235		0.267	6.055	
		14	**	305		0.343	6.220	
6	150	25	*	165	6.900	0.276	8.300	5.750
		18	* * * * *	235		0.383	8.450	
		14	* * *	305		0.493	8.560	
8	200	25	*	165	9.050	0.362	10.730	6.750
		18	* * * * *	235		0.503	10.920	
		14	* * *	305		0.646	11.110	
10	250	25	*	165	11.100	0.444	13.105	7.625
		18	* * * * *	235		0.617	13.360	
		14	* * *	305		0.793	13.510	
12	300	25	*	165	13.200	0.528	15.465	7.750
		18	* * * * *	235		0.733	15.790	
		14	* * *	305		0.943	16.010	

* - CSA approval ** - BNQ approval *** - Factory Mutual





Reiber Joint Illustration



Extreme Testing Conditions

C900 PVC pressure pipe, available in pressure ratings for a wide range of water transfer applications (Available in sizes from 4" through 12")

C900™

AWWA C900 SPECIFICATION DATA

Tough

Nominal Pipe Size	Outside Diameter A Inches (mm)	Bell Diameter B Inches	Approximate Bell Depth C Inches	Spigot Insert Mark D Inches	C900 DR-14 Minimum Wall (t) Inches (mm)	C900 DR-18 Minimum Wall (t) Inches (mm)	C900 DR-25 Minimum Wall (t) Inches (mm)
4" (100)	4.800 (121.9)	6-1/2"	6	5	0.343 (8.71)	0.267 (6.78)	0.192 (4.88)
6" (150)	6.900 (175.3)	9-1/4"	6.5	6	0.493 (12.52)	0.383 (9.73)	0.276 (7.01)
8" (200)	9.050 (229.9)	11-3/4"	7	6.5	0.646 (16.41)	0.503 (12.78)	0.362 (9.19)
10" (250)	11.100 (281.9)	14-1/4"	7.5	7	0.793 (20.14)	0.617 (15.67)	0.444 (11.28)
12" (300)	13.200 (335.3)	16-3/4"	8	7.5	0.943 (23.95)	0.733 (18.62)	0.528 (13.41)

"Possession of this page does not constitute an offer of sale"

DIAMOND PLASTICS®
CORPORATION

Corporate Headquarters • 1212 Johnstown Road • P.O. Box 1608 • Grand Island, NE 68802-1608

DISTRIBUTION PIPE FOR THE 21st CENTURY

BLUE BRUTE™

SUBMITTAL AND DATA SHEET

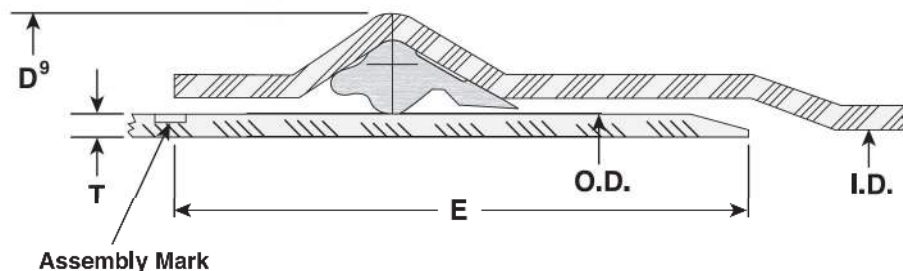


PIPE SIZE (IN)	AVERAGE O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	MIN. E (IN)	APPROX. D ⁹ (IN)	APPROX. WEIGHT (LBS/FT)
PRESSURE CLASS 165 psi (DR 25)						
4	4.80	4.39	0.192	5.25	5.57	1.9
6	6.90	6.31	0.276	6.40	8.00	3.9
8	9.05	8.28	0.362	7.05	10.50	6.7
10	11.10	10.16	0.444	8.20	12.88	10.1
12	13.20	12.08	0.528	8.80	15.31	14.4
PRESSURE CLASS 235 psi (DR 18)*						
4	4.80	4.23	0.267	5.25	5.87	2.6
6	6.90	6.09	0.383	6.40	8.43	5.3
8	9.05	7.98	0.503	7.05	11.06	9.2
10	11.10	9.79	0.617	8.20	13.57	13.9
12	13.20	11.65	0.733	8.80	16.13	19.7
PRESSURE CLASS 305 psi (DR 14)*						
4	4.80	4.07	0.343	5.25	6.17	3.2
6	6.90	5.86	0.493	6.40	8.87	6.7
8	9.05	7.68	0.646	7.05	11.63	11.6
10	11.10	9.42	0.793	8.20	14.27	17.6
12	13.20	11.20	0.943	8.80	16.97	25.1

Consult JM Eagle™ for CSA and other listing availability prior to shipment.

Note: *FM Approvals Pressure Class 150 psi for DR 18 and 200 psi for DR 14.

* Contact your JM eagle™ sales representative for location availability.

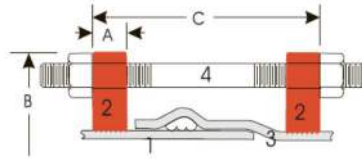


I.D. : Inside Diameter
O.D. : Outside Diameter
T : Wall Thickness
D⁹ : Bell Outside Diameter
E : Distance between Assembly Mark to the end of spigot.

Product Standard: ANSI/AWWA C900
Pipe Compound: ASTM D1784 Cells Class 12454
Gasket: ASTM F477
Integral Bell Joint: ASTM D3139
Certifications: ANSI/NSF Standard 61
UL Standard 1285
Pipe Length: 20 feet laying length
Installation: AWWA C605
JM Eagle™ Installation Guide

JM Eagle™ also manufactures this pipe in green for sewer force main applications and purple, specifically for reclaimed water systems. This pipe is made to the same requirements as our standard products. The only difference is that the pigment used is green or purple. These products will not be marked with UL or NSF listing marks. Additionally, the green pipe will be marked "Forced Sewer" and the purple pipe will be marked: "Reclaimed Water... Do Not Drink."

M Series PWP for Bell



1. Plain End Pipe
2. Restrainer Clamp
3. Bell End Pipe
4. Restraining Rod

Dimensions in Inches, Weights in Pounds:

Pipe Size	Item #	PVC pipe w DI Pipe OD	A	B	C (max)	Restraining Rods		Nuts for Res Rods		Clamping Bolts			Weight
						No.	Size	No.	Size	No.	Size	Min Torque	
4	PWP-C4	4.80	1.20	9.00	13.00	2	3/4x15	4	3/4	4	5/8x3 3/8	85	14.36
6	PWP-C6	6.90	1.20	11.52	13.00	2	3/4x18	4	3/4	4	5/8x3 3/8	85	16.44
8	PWP-C8	9.05	1.75	12.81	13.00	2	3/4x18	4	3/4	4	3/4x3 7/8	100	27.00
10	PWP-C10	11.10	1.75	16.88	16.00	4	3/4x24	8	3/4	4	7/8x4 3/8	125	44.40
12	PWP-C12	13.20	1.75	19.12	22.00	4	3/4x24	8	3/4	4	7/8x4 3/8	125	50.64
14	PWP-C14	15.30	3.50	21.10	22.00	6	3/4x30	12	3/4	8	7/8x6 1/4	130	101.61
16	PWP-C16	17.40	3.50	23.58	22.00	6	3/4x30	12	3/4	8	7/8x6 1/4	130	114.15
18	PWP-C18	19.50	4.25	25.80	22.00	8	3/4x30	16	3/4	8	1.00x6 1/4	130	164.97
20	PWP-C20	21.60	5.00	29.06	22.00	8	3/4x36	16	3/4	8	1-1/4x6-1/2	130	234.50
24	PWP-C24	25.80	5.00	34.64	22.00	10	3/4x36	20	3/4	8	1-1/4x6-1/2	130	288.50
30	PWP-C30	32.00	5.50	41.80	38.00	10	1x40	20	1	8	1-1/4x8-1/2	130	463.75
36	PWP-C36	38.30	5.50	49.04	38.00	12	1x40	24	1	8	1-1/4x8-1/2	130	520.40
42	PWP-C42	44.50	6.26	57.18	46.00	16	1 1/4x48	32	1 1/4	8	1 1/2x9	175	983.76
48	PWP-C48	50.80	6.26	63.48	46.00	16	1 1/4x48	32	1 1/4	24	1 1/2x9	175	1058.50

PV-LOK Products are rated with a working pressure equal to that of the PVC pipe to which they are applied.

Also suitable for use on ductile iron pipe in sizes 4-12" (350psi 4-6", 250psi 8-12")

*When calculating clearance for pipe in a casing, add a minimum of 1-1/2" to the "B" dimension above.

Pressure Rating:

Nominal Pipe Size	Item #	Pressure Rating											
		C900			ASTM D2241			C905					
		DR14	DR18	DR25	SDR17	SDR21	SDR26	DR18	DR21	DR25	DR32.5	DR41	DR51
4	PWP-C4	305	235	165	250	200	160	-	-	-	-	-	-
6	PWP-C6	305	235	165	250	200	160	-	-	-	-	-	-
8	PWP-C8	305	235	165	250	200	160	-	-	-	-	-	-
10	PWP-C10	305	235	165	250	200	160	-	-	-	-	-	-
12	PWP-C12	305	235	165	250	200	160	-	-	-	-	-	-
14	PWP-C14	-	-	-	-	-	-	235	200	165	125	100	-
16	PWP-C16	-	-	-	-	-	-	235	200	165	125	100	-
18	PWP-C18	-	-	-	-	-	-	235	200	165	125	100	80
20	PWP-C20	-	-	-	-	-	-	235	200	165	125	100	80
24	PWP-C24	-	-	-	-	-	-	235	200	165	125	100	80
30	PWP-C30	-	-	-	-	-	-	-	-	165	125	100	80
36	PWP-C36	-	-	-	-	-	-	-	-	165	125	100	80
42	PWP-C42	-	-	-	-	-	-	-	-	-	125	100	80
48	PWP-C48	-	-	-	-	-	-	-	-	-	125	100	80

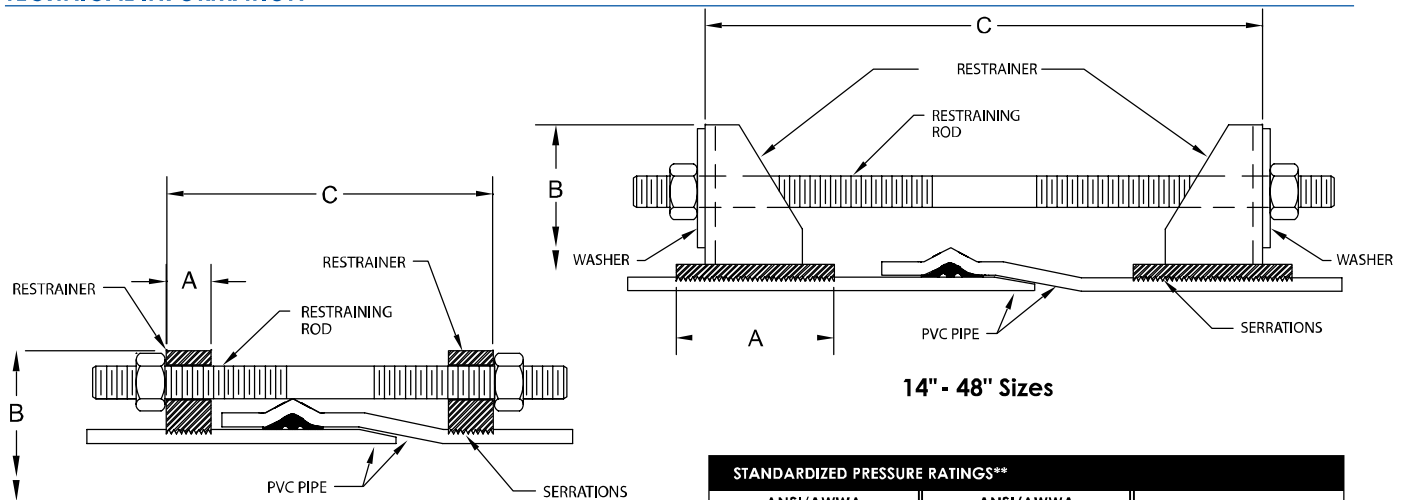




Pipe Restrainers series 1100

1100C Bell Restrainers for AWWA C900/C905 PVC Pipe
and 1100S Bell Joint for IPS PVC Pipe

TECHNICAL INFORMATION



4" - 12" Sizes

14" - 48" Sizes

STANDARDIZED PRESSURE RATINGS**

ANSI/AWWA C900 CI OD		ANSI/AWWA C905 CI OD		ASTMD2241 IPS OD	
DR 14	200 PSI	DR 18	235 PSI	SDR 17	250 PSI
DR 18	150 PSI	DR 21	200 PSI	SDR 21	200 PSI
DR 25	100 PSI	DR 25	165 PSI	SDR 26	160 PSI
		DR 32.5	125 PSI		

**For ordinary water works with transient surges only. Ratings are for PVC pipes with SERIES 1000 Restrainer.

PIPE RESTRAINERS 1100 SPECIFICATIONS*

NOM. SIZE	PVC PIPE WITH DUCTILE IRON PIPE O.D. STYLE 1100C	PVC PIPE WITH STEEL PIPE O.D. STYLE 1100S	A	B APPROX.	C MAX.	RESTRAINT BOLTS/ RODS		CLAMPING BOLTS		APPROX WT. (LBS)
	O.D.	O.D.				QTY	SIZE	QTY	SIZE	
4	4.80	4.50	1.12	9.12	12.00	2	3/4 x 17	4	5/8 x 3 1/2	16
6	6.90	6.63	1.15	11.12	13.00	2	3/4 x 17	4	5/8 x 3 1/2	20
8	9.05	8.63	1.47	14.75	15.00	2	3/4 x 17	4	3/4 x 4	32
10	11.10	10.75	1.38	16.82	16.00	4	3/4 x 24	4	7/8 x 5	52
12	13.20	12.75	1.42	19.46	18.00	4	3/4 x 24	4	7/8 x 5	56
14	15.30	N/A	4.00	22.68	24.00	6	3/4 x 30	8	7/8 x 7	150
16	17.40	N/A	3.75	24.65	28.00	6	3/4 x 30	8	7/8 x 6 1/2	117
18	19.50	N/A	4.25	26.65	28.00	8	3/4 x 30	8	7/8 x 6 1/2	147
20	21.60	N/A	5.00	28.88	28.00	8	3/4 x 36	8	1 1/8 x 8 1/2	206
24	25.80	N/A	5.00	33.98	34.00	12	3/4 x 36	8	1 1/8 x 8 1/2	265
30	32.00	N/A	7.00	42.48	38.00	12	1 x 48	12	1 1/8 x 6	492
36	38.30	N/A	9.00	49.10	38.00	12	1 x 48	12	1 1/8 x 6	561
42	44.50	N/A	11.00	57.00	46.00	16	1 1/4 x 54	12	1 1/2 x 10	1916
48	50.80	N/A	11.00	63.88	46.00	16	1 1/4 x 54	12	1 1/2 x 10	2242

*All dimensions in inches except where indicated.

Please
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Mechanical Joint and Flanged Fitting
Manufacturer to be determined at time
of shipment due to material availability

CAL JOINT FITTINGS**C153 DUCTILE IRON MECHANICAL JOINT FITTINGS****BASIC SPECIFICATIONS**

- SIZES:**
- 2" - 64"
- MATERIAL:**
- Ductile Iron ASTM A536, Grade 65-45-12, 60-42-10 or 70-50-05.
- PRESSURE:**
- 350 PSI Water Working Pressure 2" - 24".
 - 250 PSI Water Working Pressure 30" - 48".
 - 150 PSI Water Working Pressure 54" - 64".
- TESTING:**
- In accordance with ANSI/AWWA C153/A21.53.
 - In accordance with UL - FM requirements.
 - All fittings are hydrostatically tested in accordance with SIGMA Quality Management Standard.
 - All fittings are heat coded to ensure traceability and verification of metallurgical properties in accordance with the prevailing standards and SIGMA Quality Management Standards.
- LAYING LENGTH:**
- Short body design - straight section of body deleted to provide a compact and lighter fitting without reducing strength or flow characteristics.
 - In accordance with ANSI/AWWA C153/A21.53.
- DEFLECTION:**
- Maximum allowable deflection for MJ Joint on a full length pipe is as mentioned below:
 1. 3" - 4" = 8 Degrees
 2. 6" = 7 Degrees
 3. 8" - 12" = 5 Degrees
 4. 14" - 48" = 3 Degrees
- CEMENT LINING:**
- Double cement lined in accordance with ANSI/AWWA C104 / A21.4.
- COATING:**
- Interior of fitting is seal coated (asphaltic material) in accordance with ANSI AWWA C104/A21.4 and NSF61 approved.
 - Exterior of fitting is seal coated (asphaltic material) in accordance with ANSI/AWWA C153/A21.53 and NSF approved.
- GASKETS:**
- SBR in accordance with ANSI/AWWA C111/A21.11.
 - Also available in EPDM, NBR and CR.
- T-BOLTS:**
- Low Alloy corrosion resistant high strength steel in accordance with ANSI/AWWA C111/A21.11.
- APPROVALS:**
- 3"-16" Underwriters Laboratories listed and Factory Mutual Approved.
- STANDARDS:**
- Certified to NSF61 Standard including Annex G.
 - ANSI/AWWA C153/A21.53 for Compact Ductile Iron Fittings 2"-64" for water and other liquids.
- INSTALLATION:**
- Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900/C905.





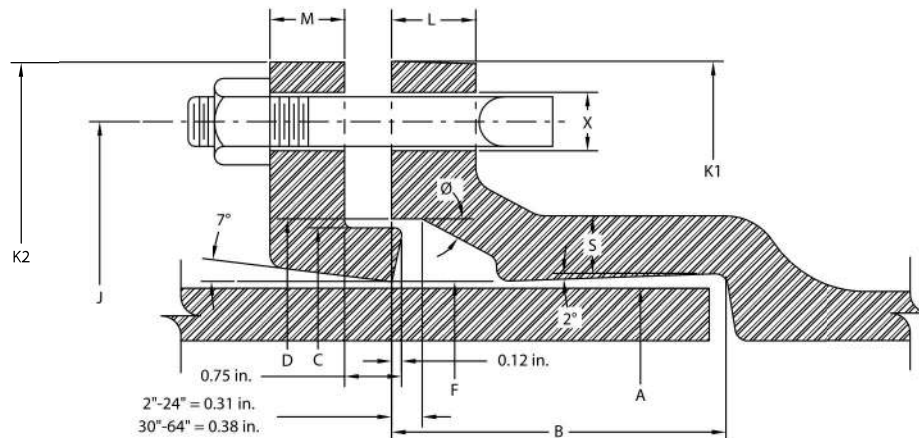
Compact MJ Fittings

ANSI/AWWA C153/A21.53

2" - 64" DUCTILE IRON MECHANICAL JOINT COMPACT FITTINGS

GENERAL SPECIFICATIONS

MATERIAL:	Ductile Iron per ASTM A536
PRESSURE:	350 PSI rating for 3" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 60" sizes
TESTING:	In accordance with ANSI/AWWA C153/A21.53 and UL requirements
LAYING LENGTH:	In accordance with ANSI/AWWA C153/A21.53 (fittings not listed in ANSI/AWWA have dimensions per Star design as noted in the catalog)
WEIGHTS:	Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
FLANGES:	Flanged ends on fittings match ANSI/AWW C115/A21.15 and ANSI B16.1 class 125 flanges
CEMENT LINING:	In accordance with ANSI/AWWA C104/A21.4 -- size 2" - 3" single thickness and sizes 4" - 64" double thickness
COATING:	Asphaltic seal coat inside and out in accordance with ANSI/AWWA C104/A21.4
GASKETS:	SBR in accordance with ANSI/AWWA C111/A21.11 (see pg. 17)
T-BOLTS/NUTS:	Low alloy steel in accordance with ANSI/AWWA C111/A21.11 (see pg. 16)
APPROVALS:	4" - 12" Underwriters Laboratories Listed 3" and greater are UL/NSF-61
DIMENSIONS:	All dimensions are in inches unless noted otherwise



MECHANICAL JOINT DIMENSIONS

NOM. SIZE	A DIA.	B	C DIA.	D DIA.	F DIA.	J DIA.	K1 DIA.	K2 DIA.	L	M	S	Ø	X DIA.	BOLTS	
														SIZE	NO.
★ 2	2.50	2.50	3.39	3.50	2.61	4.75	6.19	6.25	0.58	0.62	0.36	28°	3/4	5/8 x 3	2
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	0.58	0.62	0.39	28°	3/4	5/8 x 3	4
★ 4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	0.60	0.75	0.39	28°	7/8	3/4 x 3 1/2	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	0.63	0.88	0.43	28°	7/8	3/4 x 3 1/2	6
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	0.66	1.00	0.45	28°	7/8	3/4 x 3 1/2	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	0.70	1.00	0.47	28°	7/8	3/4 x 4	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	0.73	1.00	0.49	28°	7/8	3/4 x 4	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.25	20.25	0.79	1.25	0.55	28°	7/8	3/4 x 4 1/2	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.50	22.50	0.85	1.31	0.58	28°	7/8	3/4 x 4 1/2	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.75	24.83	1.00	1.38	0.68	28°	7/8	3/4 x 4 1/2	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.00	27.08	1.02	1.44	0.69	28°	7/8	3/4 x 4 1/2	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.50	31.58	1.02	1.56	0.75	28°	7/8	3/4 x 5	16
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	0.82	20°	1 1/8	1 x 6	20
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	20°	1 1/8	1 x 6	24
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	20°	1 3/8	1 1/4 x 6 1/2	28
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	20°	1 3/8	1 1/4 x 6 1/2	32
★ 54	{ Dimensions Available On Request }														
★ 60															
★ 64															



★Not Included in AWWA C153

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Tyler/Union

MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

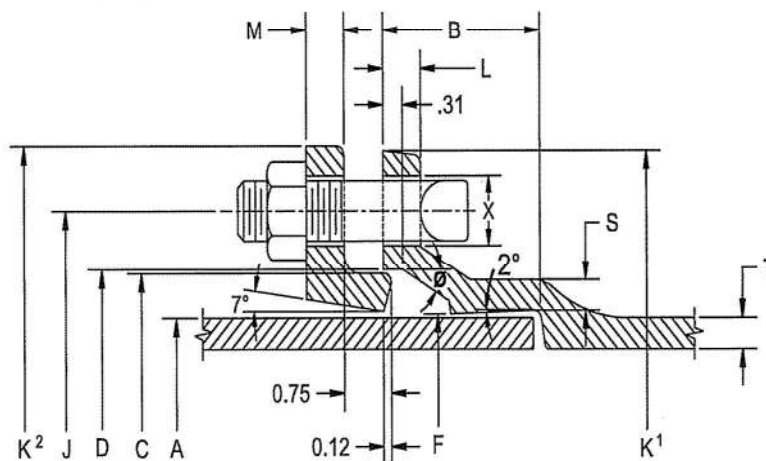
Sizes 3" thru 12" UL Listed For Fire Main Equipment

SAMPLE SPECIFICATIONS

Mechanical Joint watermain fittings with accessories, 3" through 48" shall be manufactured from Ductile Iron in accordance with and meet all applicable terms and provisions of standards ANSI/AWWA C153/A21.53 ANSI/AWWA C111/A21.11 (current revisions). Ductile Iron Mechanical Joint Fittings 3" through 24" shall be rated for 350 PSI working pressure. 30" through 48" shall be rated for 250 psi working pressure. All coated fittings meet requirements of NSF-61.

NOTE - EXCEPTIONS: Mechanical Joint Fittings with flanged branches are rated for water pressure of 250 PSI.

NOTE: Fittings are CEMENT LINED and seal coated in accordance with ANSI/AWWA C104/A21.4; also available double cement-lined, bare or epoxy coated.

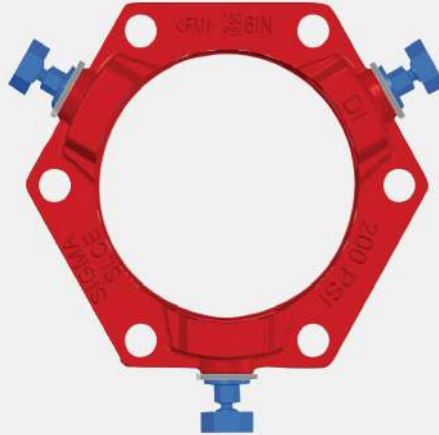
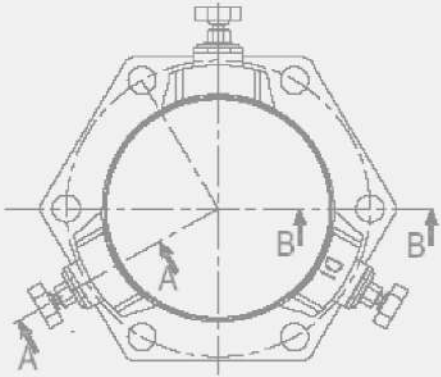


JOINT DIMENSIONS IN INCHES

BOLTS

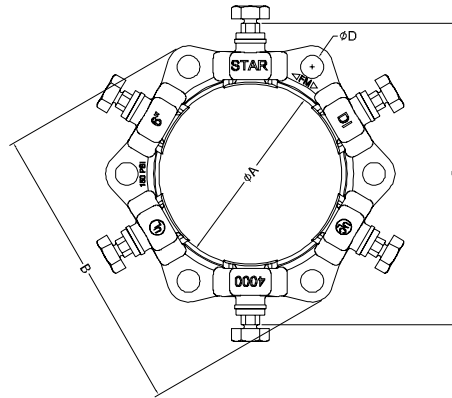
Size	A Dia.	B	C Dia.	D Dia.	F Dia.	J Dia.	K ¹ Dia.	K ² Dia.	L	M	S	T	X	Size	No.
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	.58	.62	.39	.33	3/4	5/8x3	4
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	.60	.75	.39	.34	7/8	3/4x3 1/2	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	.63	.88	.43	.36	7/8	3/4x3 1/2	6
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	.66	1.00	.45	.38	7/8	3/4x3 1/2	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	.70	1.00	.47	.40	7/8	3/4x3 1/2	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	.73	1.00	.49	.42	7/8	3/4x3 1/2	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.31	20.25	.79	1.25	.56	.47	7/8	3/4x4	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.56	22.50	.85	1.31	.57	.50	7/8	3/4x4	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	.68	.54	7/8	3/4x4	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	.69	.57	7/8	3/4x4	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	.75	.61	7/8	3/4x4 1/2	16
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	.82	.66	1 1/8	1x5 1/2	20
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	.74	1 1/8	1x5 1/2	24
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	.82	1 1/8	1 1/4x6 1/2	28
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	.90	1 1/8	1 1/4x6 1/2	32

ONE-LOK™ MODEL SLCE WEDGE RESTRAINT FOR PVC PIPE



PRODUCT SPECIFICATIONS

- MATERIAL:**
- Gland body, wedge inserts and break-off top actuating bolts are manufactured of high strength ductile iron in accordance with ASTM A536, Grade 65-45-12.
- SIZE RANGE:**
- 3" through 36"
- DIMENSION:**
- Conform to ANSI/AWWA C111/A21.11 & ANSI/AWWA C153/A21.53 standards
- PRESSURE RATING:**
- Equal to the water working pressure rating of the pipe upon which it is installed with a minimum 2:1 factor of safety.
- COATING:**
- Red Alkyd paint
 - Electro-deposition "CORRSAFE™" available upon request. For further information, please refer to our CORRSAFE Product Information sheet at <http://www.sigmaco.com/pipe-restraint-product-coatings-linings/>
- APPROVALS:**
- Underwriters Laboratories' listed in sizes 4"-12" to ASTM F1674 (latest revision) and Factory Mutual approved in sizes 4"-12".
- DEFLECTION:**
- 5° on 3"-12", 2° on 14"-16", 1.5° on 18"-30" and 1° on 36"
- TRACEABILITY:**
- Gland body, wedge inserts and break-off top actuating bolts are individually cast with exact heat code information.
- INSTALLATION:**
- In accordance with manufacturer's recommendation and applicable AWWA standards.

**PVC Stargrip® series 4000**Mechanical Joint Wedge Action Restraint
for AWWA C900/C905 and IPS PVC Pipe**TECHNICAL INFORMATION**

6" PVC Stargrip® Series 4000 for PVC Pipe

PVC STARGRIP® 4000 SPECIFICATIONS*

NOM. SIZE	C900/C905 PIPE CI OD	IPS PIPE OD (TRANSITION GASKET REQUIRED)	ØA	B	C¹	ØD	T-BOLTS SIZE (QTY)	WEDGES (QTY)	APPROX WT. (LBS)
3	N/A	3.50	4.09	7.69	8.50	3/4	5/8 (4)	4	7
4	4.80	4.50	4.93	9.12	9.53	7/8	3/4 (4)	4	9
6	6.90	6.63	7.03	11.12	11.63	7/8	3/4 (6)	6	13
8	9.05	8.63	9.18	13.37	13.97	7/8	3/4 (6)	6	17
10	11.10	10.75	11.23	15.62	16.18	7/8	3/4 (8)	8	23
12	13.20	12.75	13.33	17.87	18.18	7/8	3/4 (8)	8	28
14	15.30	N/A	15.45	20.75	20.36	7/8	3/4 (10)	10	50
16	17.40	N/A	17.55	23.00	22.46	7/8	3/4 (12)	12	60
18	19.50	N/A	19.65	25.25	24.56	7/8	3/4 (12)	12	65
20	21.60	N/A	21.75	27.50	26.66	7/8	3/4 (14)	14	76
24	25.80	N/A	25.95	32.00	30.86	7/8	3/4 (16)	16	98
30	32.00	N/A	32.18	39.38	36.82	1-1/8	1 (20)	20	173
36	38.30	N/A	38.48	46.25	43.12	1-1/8	1 (24)	24	219

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*All dimensions in inches except where indicated.

1 - dimension after assembly on pipe

MAXIMUM WORKING PRESSURE RATING WITH OCCASSIONAL & RECURRING SURGES

NOM. SIZE (IN)	C900			C905				ASTM D2241		
	DR14	DR18	DR25	DR18	DR21	DR25	DR32.5	SDR17	SDR21	SDR26
3								250	200	160
4	305	235	165					250	200	160
6	305	235	165					250	200	160
8	305	235	165					250	200	160
10	305	235	165					250	200	160
12	305	235	165					250	200	160
14				235	200	165	125			
16				235	200	165	125			
18				235	200	165	125			
20				235	200	165	125			
24				235	200	165	125			
30						165	125			
36						165	125			



FEATURES/BENEFITS/SPECIFICATIONS

FEATURES

The **Series 2500** Ductile Iron 250 p.s.i.g. AWWA Resilient Wedge Gate Valve is designed for use in drinking water, sewage, and fire protection systems as well as irrigation and backflow control systems.

Ductile Iron Construction

The ductile iron body, bonnet, and wedge provide strength and a pressure rating that meets or exceeds the requirements of AWWA C515. Strength more than doubles that provided by cast gray iron designs, and the pressure rating is 250 p.s.i.g. All this strength and higher pressure rating is provided in a compact, lightweight, and easy-to-handle ductile iron valve.

Fusion-Bonded Epoxy

The **Series 2500** valve is fully epoxy coated on the interior and the

exterior. The fusion-bonded coating is applied prior to assembly so that even the bolt holes and body-to-bonnet flange surfaces are fully epoxy coated.

Triple O-Ring Stem Seals

This valve features triple O-Ring stem seals. Two O-Rings are located above, and one O-Ring is located below the thrust collar. The lower two O-Rings provide a permanently sealed lubrication chamber that will make the valve easier to operate over a longer period of time. The upper O-Ring ensures that sand, dirt, or grit cannot enter the valve to cause damage to the lower O-Rings. This is especially important for buried and sewage service applications.

Thrust Washers

Two thrust washers are used. One is located above, and one is located below the thrust collar. These thrust washers ensure easy operation at all times.

No Flat Gaskets

The body-to-bonnet and bonnet-to-bonnet cover seals are pressure-energized O-Rings. This eliminates the need for excessive bolt loading, which is required by designs that use flat gaskets. The O-Rings are reusable, which eliminates downtime during any needed repair.

The **Series 2500** Resilient Wedge Gate Valve is furnished in configurations that are Listed by Underwriters Laboratories, Inc. and Approved by Factory Mutual Research Corp.

BENEFITS

The **Series 2500 Ductile Iron Resilient Wedge Gate Valve** has these standard features:

- UL Listed-FM Approved
- Seat Tested at 500 p.s.i.g.
- Fusion-Bonded-Epoxy Coating Complies With ANSI/AWWA C550
- 250# Raised Face Flanges Available
- Ductile Iron Body, Bonnet, Wedge, Operating Nut, and Stuffing Box
- Shell Tested at 500 p.s.i.g.
- 250 p.s.i.g. AWWA UL and FM Pressure Rating
- Rubber-Encapsulated Wedge
- Triple O-Ring Stem Seals
- Thrust Washers
- Smooth (No Pocket) Waterway
- 100% Leak-Tight Closure
- NSF Standard 61 Certified
- Complies with AWWA C515



SPECIFICATIONS

Valves 2"-12" shall be resilient wedge type rated for 250 p.s.i.g. cold water working pressure. All ferrous components shall be ductile iron, ASTM A536. Valves 3"-12" shall be in full compliance with AWWA C515. The words "D.I." or "Ductile Iron" shall be cast on the valve. The wedge shall be ductile iron or bronze encapsulated with EPDM rubber.

The wedge shall be symmetrical and seal equally well with flow in either direction.

The gate valve stem and wedge nut shall be copper alloy in accordance with Section 4.4.5.1 of the AWWA C515 Standard. Stainless Steel stems are not acceptable. The NRS stem must have an integral thrust collar in accordance with Section 4.4.5.3 of

AWWA C515 Standard. Two-piece stem collars are not acceptable. The wedge nut shall be independent of the wedge and held in place on three sides by the wedge to prevent possible misalignment.

Valves shall be certified by NSF to Standard 61.

Bolting materials shall develop the physical strength requirements of ASTM A307 and may have either regular square or hexagonal heads with dimensions conforming to ANSI B18.2.1. Metric size socket head cap screws, therefore, are not allowed.

The operating nut shall be constructed of ductile iron and shall have four flats at stem connection to ensure even input torque to the stem.

All gaskets shall be pressure-

energized O-Rings.

Stem shall be sealed by three O-Rings. The top two O-Rings shall be replaceable with valve fully open and while subject to full rated working pressure. O-Rings set in a cartridge shall not be allowed.

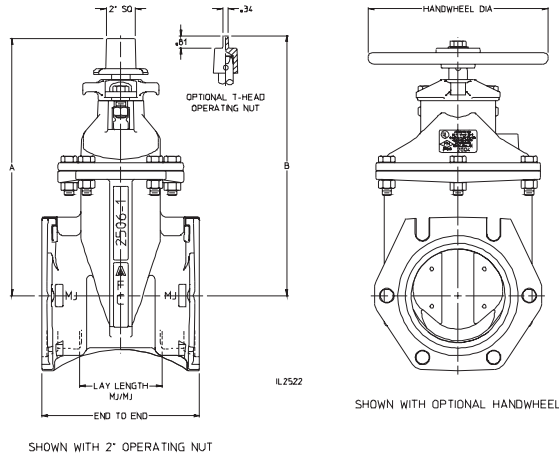
Valve shall have thrust washers located with (1) above and (1) below the thrust collar to ensure trouble-free operation of the valve.

All internal and external surfaces of the valve body and bonnet shall have a fusion-bonded-epoxy coating, complying with ANSI/AWWA C550, applied electrostatically prior to assembly.

Valves shall be American Flow Control's **Series 2500 Ductile Iron Resilient Wedge Gate Valve**.

DRAWING/DIMENSIONS

**SERIES 2500 – STANDARD NRS DIMENSIONS
2"-12" SIZES**



SUBMITTAL DATA

QUANTITY							
2"	2-1/2"	3"	4"	6"	8"	10"	12"
<input type="checkbox"/> NRS with 2" Sq. Oper. Nut <input type="checkbox"/> NRS with T-Head Oper. Nut <input type="checkbox"/> NRS with Handwheel <input checked="" type="checkbox"/> Post Indicator Valve (PIV) <input type="checkbox"/> OS & Y							
ACTUATOR (Check One) <input type="checkbox"/> NRS with Enclosed Miter Gearing <input type="checkbox"/> 2" Sq. Oper. Nut Parallel to Waterway <input type="checkbox"/> 2" Sq. Oper. Nut Perpendicular to Waterway <input type="checkbox"/> Handwheel Perpendicular to Waterway							
Open Direction: <input checked="" type="checkbox"/> Left (C.C.W.) <input type="checkbox"/> Right (C.W.)							
End Connections:							
Mechanical Joint Accessories: <input type="checkbox"/> Yes <input type="checkbox"/> No							
UL Listed, FM Approved: <input type="checkbox"/> Yes <input type="checkbox"/> No							
Other Requirements (List on a separate sheet):							

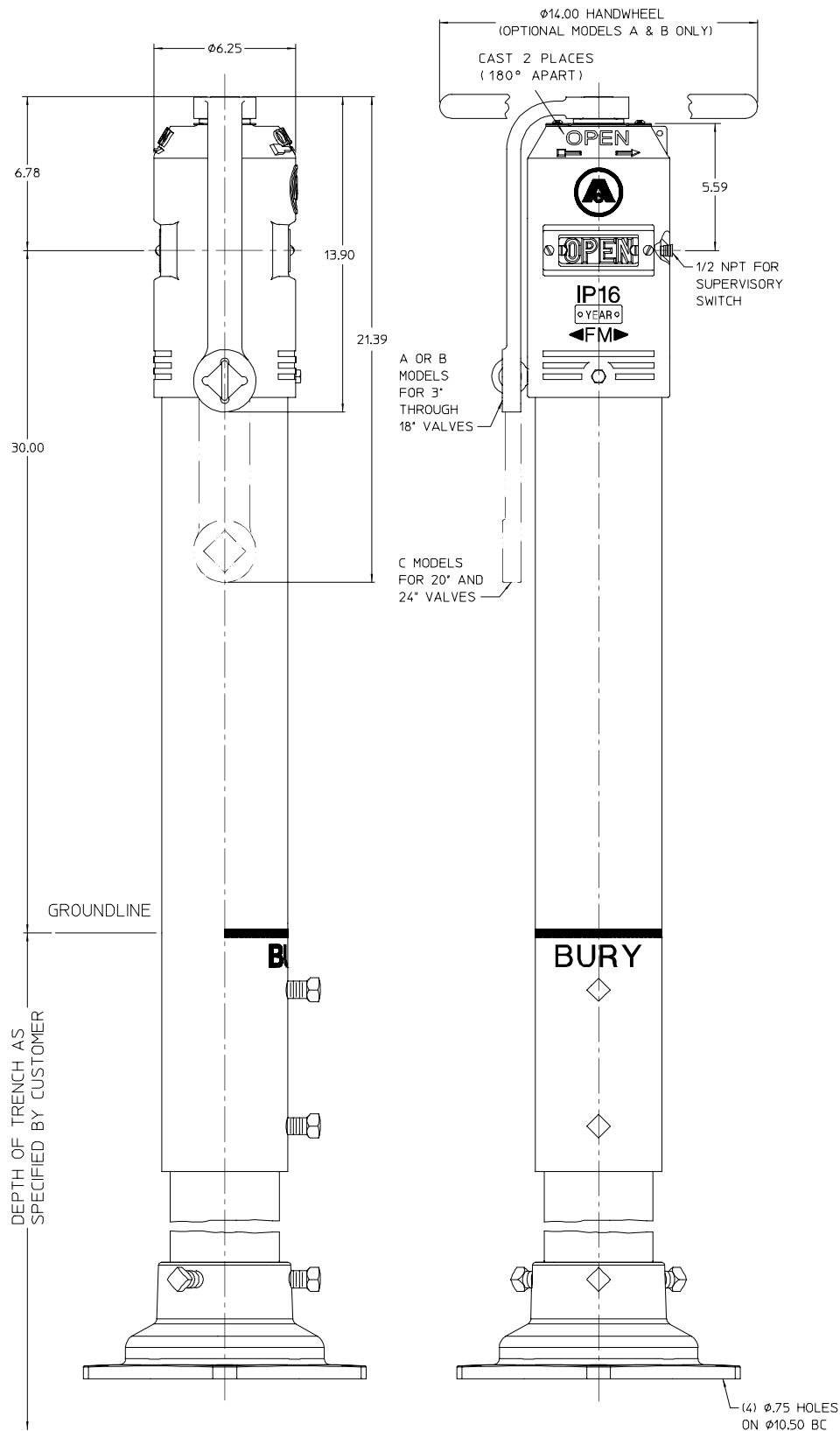
See notes at bottom of page.

DIMENSION	VALVE SIZE							
	Series 2500			Series 2500-1				
	2"	2-1/2"	3"	4"	6"	8"	10"	12"
A	9.25	11.03	11.84	13.91	17.12	20.47	24.06	27.59
B	10.22	12.00	N/A	N/A	N/A	N/A	N/A	N/A
End to End – MJ/MJ	8.25	N/A	8.62	10.00	10.50	11.50	12.50	13.50
Lay Length – MJ/MJ	3.25	N/A	3.62	5.00	5.50	6.50	7.50	8.50
End to End – FL/FL (Class 125)	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00
End to End – FL/FL (Class 250)	N/A	N/A	11.12	12.00	15.88	16.50	18.00	19.75
End to End – TY/TY	N/A	N/A	N/A	13.00	15.88	17.50	18.75	19.75
End to End – FL/MJ (Class 125)	N/A	N/A	N/A	9.50	10.50	12.28	13.62	14.38
End to End – FL/TY (Class 125)	N/A	N/A	N/A	11.00	13.19	14.50	15.88	16.88
End to End – PVC/PVC	10.75	11.12	11.38	13.00	15.88	17.50	N/A	N/A
End to End – Threaded	6.25	7.38	7.38	N/A	N/A	N/A	N/A	N/A
Handwheel Diameter	8.06	8.00	8.00	10.00	12.00	14.00	15.50	15.50
No. of Turns to Open	9	11	13	14	20	26	32	38

1. 3" through 12" valves meet or exceed requirements of ANSI/AWWA C515.
2. 2-1/2" through 12" valves may be ordered in configurations which are UL Listed and/or FM Approved.
3. 2" through 12" valves have 250 p.s.i.g. AWWA rated working pressure.
4. 2-1/2" through 12" valves have 250 p.s.i.g. UL and FM rated working pressure.
5. Fusion-bonded-epoxy coating meets or exceeds requirements of ASME/AWWA C550.
6. Flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1, Class 125).
7. Threaded ends are in accordance with ASME B16.4, Class 125.
8. Mechanical joint ends are in accordance with ANSI/AWWA C111/A21.11.
9. Tyton® ends and push-on ends are in accordance with ANSI/AWWA C111/A21.11 for use on cast iron (CI) size ductile iron pipe.
10. PVC ends are suitable for use on steel (IPS) sizes of PVC or steel pipe.
11. 4" through 36" valves are certified to ANSI/NSF Standard 61.
12. It is recommended that stems be vertical in raw sewage applications.

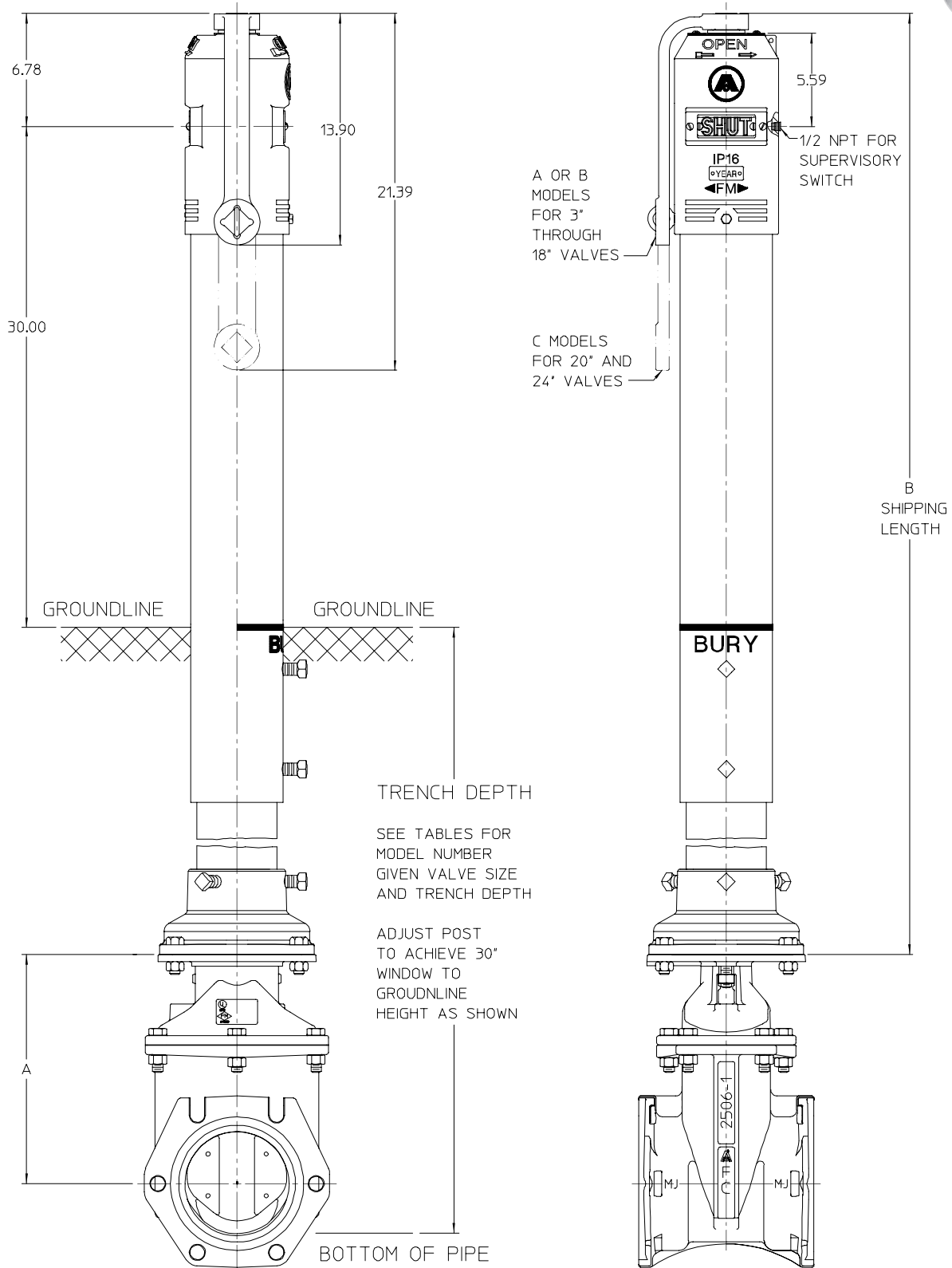


IP16 DIMENSIONS



NOTE:
UL Listed and FM Approved.

IP16 DIMENSIONS





IP16 WEIGHTS AND SHIPPING LENGTHS

Model	Weight with Ductile Iron Lower Barrel	Weight with Steel Lower Barrel	Dimension B Shipping Length
1	144 lbs	143 lbs	52.45"
2	187 lbs	186 lbs	72.50"
3	214 lbs	213 lbs	100.43"
4	243 lbs	242 lbs	124.43"
5	272 lbs	270 lbs	148.43"
6	300 lbs	298 lbs	172.43"
7	329 lbs	327 lbs	196.43"
8	357 lbs	355 lbs	220.43"

IP16 DIMENSIONS

Model	Valve Size					
	3"	4"	6"	8"	10"	12"
	Trench Depth	Trench Depth	Trench Depth	Trench Depth	Trench Depth	Trench Depth
1A	2'6" - 4'0"	2'6" - 4'0"	2'6" - 4'6"	3'0" - 5'0"	3'6" - 5'6"	4'0" - 5'6"
2A	4'6" - 6'0"	4'6" - 6'0"	4'6" - 6'6"	5'0" - 7'0"	5'6" - 7'6"	6'0" - 7'6"
3A	6'6" - 8'0"	6'6" - 8'0"	6'6" - 8'6"	7'0" - 9'0"	7'6" - 9'6"	8'0" - 9'6"
4A	8'6" - 10'0"	8'6" - 10'0"	8'6" - 10'6"	9'0" - 11'0"	9'6" - 11'6"	10'0" - 11'6"
5A	10'6" - 12'0"	10'6" - 12'0"	10'6" - 12'6"	11'0" - 13'0"	11'6" - 13'6"	12'0" - 13'6"
6A	12'6" - 14'0"	12'6" - 14'0"	12'6" - 14'6"	13'0" - 15'0"	13'6" - 15'6"	14'0" - 15'6"
7A	14'6" - 16'0"	14'6" - 16'0"	14'6" - 16'6"	15'0" - 17'0"	15'6" - 17'6"	16'0" - 17'6"
8A	16'6" - 18'0"	16'6" - 18'0"	16'6" - 18'6"	17'0" - 19'0"	17'6" - 19'6"	18'0" - 19'6"

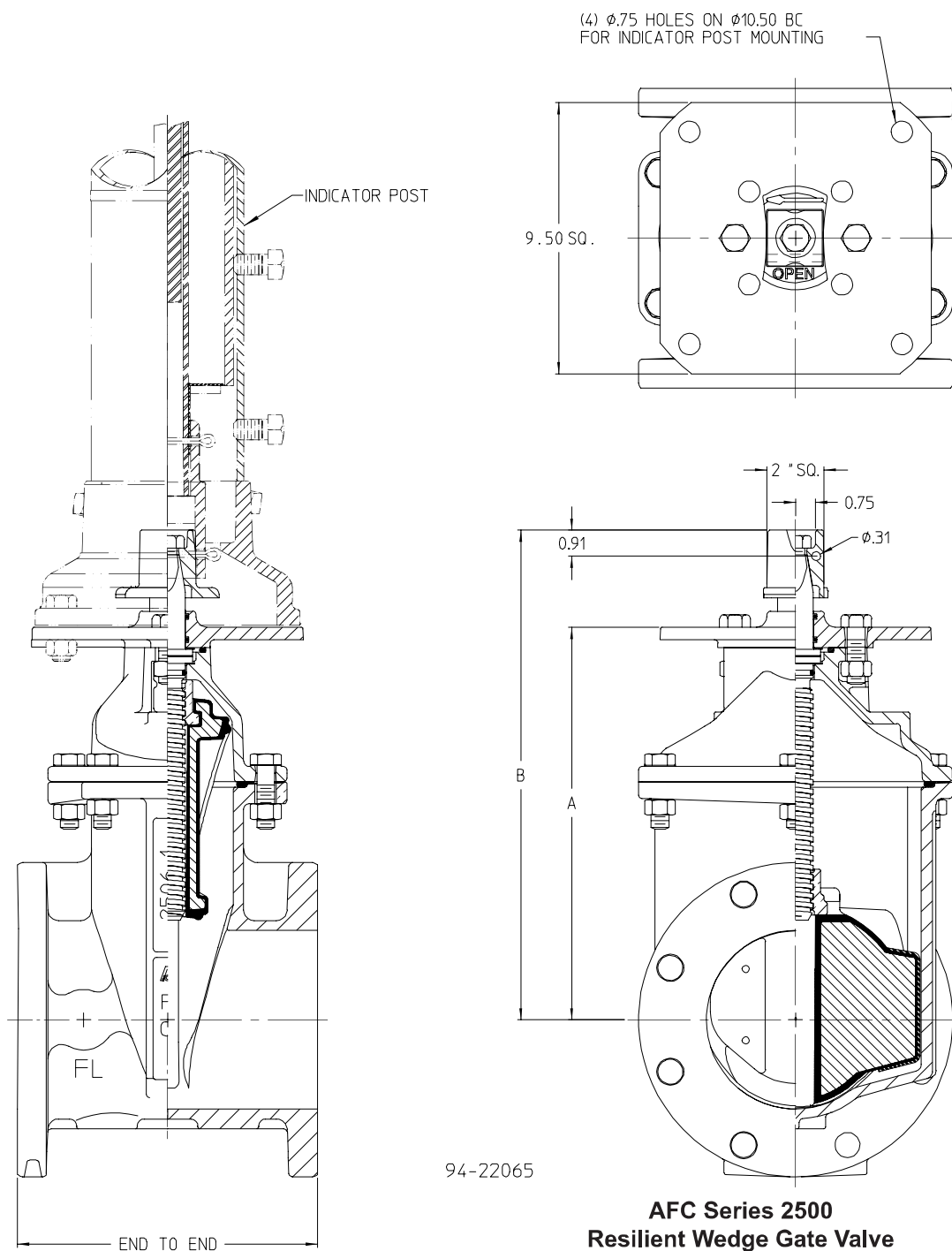
Model	Valve Size		
	14"	16"	18"
	Trench Depth	Trench Depth	Trench Depth
1B	4'6" - 6'0"	5'0" - 6'6"	5'6" - 7'0"
2B	6'0" - 8'0"	7'0" - 8'6"	7'6" - 9'0"
3B	8'0" - 10'0"	9'0" - 10'6"	9'6" - 11'0"
4B	10'0" - 12'0"	11'0" - 12'6"	11'6" - 13'0"
5B	12'0" - 14'0"	13'0" - 14'6"	13'6" - 15'0"
6B	14'0" - 16'0"	15'0" - 16'6"	15'6" - 17'0"
7B	16'0" - 18'0"	17'0" - 18'6"	17'6" - 19'0"
8B	18'0" - 20'0"	19'0" - 20'6"	19'6" - 21'0"

Model	Valve Size	
	20"	24"
	Trench Depth	Trench Depth
1C	5'6" - 7'6"	6'6" - 8'0"
2C	7'6" - 9'6"	8'6" - 10'0"
3C	9'6" - 11'6"	10'6" - 12'0"
4C	11'6" - 13'6"	12'6" - 14'0"
5C	13'6" - 15'6"	14'6" - 16'0"
6C	15'6" - 17'6"	16'6" - 18'0"
7C	17'6" - 19'6"	18'6" - 20'0"
8C	19'6" - 21'6"	20'6" - 22'0"

NOTE: For trench depths that fall between those listed, the installer may choose to use the next longer available model.

Dimension	Valve Size										
	Series 2500	Series 2500-1					Series 2500				
	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	8.97	10.38	13.75	16.94	20.34	23.78	29.25	32.75	35.62	39.69	47.84

VALVE WITH INDICATOR PLATE DIMENSIONS



Dimension	Valve Size										
	Series 2500		Series 2500-1					Series 2500			
	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	8.97	10.38	13.75	16.94	20.34	23.78	29.25	32.75	35.62	39.69	47.84
B	11.84	13.91	17.12	20.47	24.06	27.59	33.25	36.75	39.62	43.25	51.25
End to end - FL x FL (Class 125)	8.00	9.00	10.50	11.50	13.00	14.00	15.0	16.00	17.00	18.00	20.00
End to End - MJ x MJ	8.62	10.00	10.50	11.50	12.50	13.50	20.50	20.88	23.00	23.50	25.50

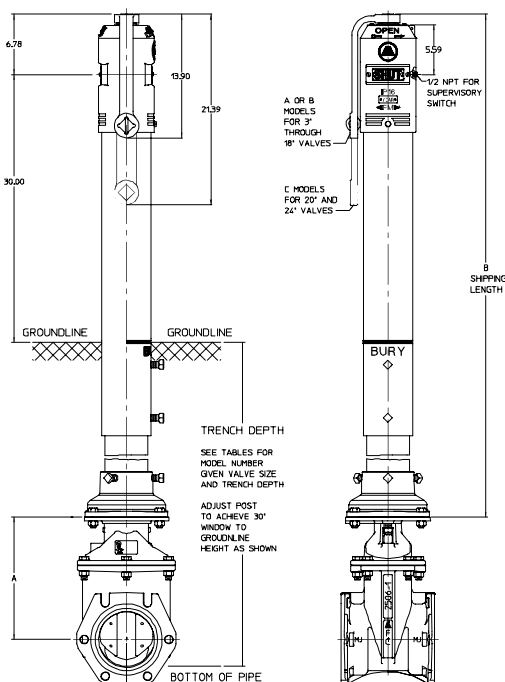


AMERICAN Flow Control®

IP16 (UNDERGROUND) INDICATOR POST

SUBMITTAL SHEET

Quantity:	
Direction to Open:	<input type="checkbox"/> Left (CCW) <input type="checkbox"/> Right (CW)
Actuator:	<input type="checkbox"/> Wrench <input type="checkbox"/> Handwheel
Valve Size Post Used On:	<input type="checkbox"/> 3" <input checked="" type="checkbox"/> 4" <input type="checkbox"/> 6" <input type="checkbox"/> 8" <input type="checkbox"/> 10" <input type="checkbox"/> 12" <input type="checkbox"/> 14" <input type="checkbox"/> 16" <input type="checkbox"/> 18" <input type="checkbox"/> 20" <input type="checkbox"/> 24"
Model:	
Other Requirements (List):	



Note: Trench depths are listed in 6-inch increments. For trench depths that fall between those listed, the installer may choose to use the next longer available model.

Model	Valve Size					
	3"	4"	6"	8"	10"	12"
	Trench Depth	Trench Depth	Trench Depth	Trench Depth	Trench Depth	Trench Depth
1A	2'6" - 4'0"	2'6" - 4'0"	2'6" - 4'6"	3'0" - 5'0"	3'6" - 5'6"	4'0" - 5'6"
2A	4'6" - 6'0"	4'6" - 6'0"	4'6" - 6'6"	5'0" - 7'0"	5'6" - 7'6"	6'0" - 7'6"
3A	6'6" - 8'0"	6'6" - 8'0"	6'6" - 8'6"	7'0" - 9'0"	7'6" - 9'6"	8'0" - 9'6"
4A	8'6" - 10'0"	8'6" - 10'0"	8'6" - 10'6"	9'0" - 11'0"	9'6" - 11'6"	10'0" - 11'6"
5A	10'6" - 12'0"	10'6" - 12'0"	10'6" - 12'6"	11'0" - 13'0"	11'6" - 13'6"	12'0" - 13'6"
6A	12'6" - 14'0"	12'6" - 14'0"	12'6" - 14'6"	13'0" - 15'0"	13'6" - 15'6"	14'0" - 15'6"
7A	14'6" - 16'0"	14'6" - 16'0"	14'6" - 16'6"	15'0" - 17'0"	15'6" - 17'6"	16'0" - 17'6"
8A	16'6" - 18'0"	16'6" - 18'0"	16'6" - 18'6"	17'0" - 19'0"	17'6" - 19'6"	18'0" - 19'6"

Model	Valve Size			Model	Valve Size	
	14"	16"	18"		20"	24"
	Trench Depth	Trench Depth	Trench Depth		Trench Depth	Trench Depth
1B	4'6" - 6'0"	5'0" - 6'6"	5'6" - 7'0"	1C	5'6" - 7'6"	6'6" - 8'0"
2B	6'0" - 8'0"	7'0" - 8'6"	7'6" - 9'0"	2C	7'6" - 9'6"	8'6" - 10'0"
3B	8'0" - 10'0"	9'0" - 10'6"	9'6" - 11'0"	3C	9'6" - 11'6"	10'6" - 12'0"
4B	10'0" - 12'0"	11'0" - 12'6"	11'6" - 13'0"	4C	11'6" - 13'6"	12'6" - 14'0"
5B	12'0" - 14'0"	13'0" - 14'6"	13'6" - 15'0"	5C	13'6" - 15'6"	14'6" - 16'0"
6B	14'0" - 16'0"	15'0" - 16'6"	15'6" - 17'0"	6C	15'6" - 17'6"	16'6" - 18'0"
7B	16'0" - 18'0"	17'0" - 18'6"	17'6" - 19'0"	7C	17'6" - 19'6"	18'6" - 20'0"
8B	18'0" - 20'0"	19'0" - 20'6"	19'6" - 21'0"	8C	19'6" - 21'6"	20'6" - 22'0"

Dimension	Valve Size										
	Series 2500	Series 2500-1					Series 2500				
	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	8.97	10.38	13.75	16.94	20.34	23.78	29.25	32.75	35.62	39.69	47.84

Visit our website at <http://american-usa.com/afc>

UL Listed and FM Approved.



PCVS-2
CONTROL VALVE
SUPERVISORY SWITCH

Potter Electric Signal & Mfg., LTD.
55 Glen Cameron Road
Thornhill, Ontario, Canada L3T 1P2
(905) 882-1833

Potter Electric Signal Company
2081 Craig Road • St. Louis, MO 63146-4161
(314) 878-4321 • (800) 325-3936
www.pottersignal.com



PCVS-2 STOCK NO. 1010207

UL and CSFM LISTED, FM APPROVED, NYMEA ACCEPTED

Dimensions: 4.75"L x 2.25"W x 7.2"H (stem extended)
12.1cm L x 5.7cm W x 18.3cm H

Weight: 1.35 lb. / .61 kg

Enclosure: Cover - Die-cast
Finish - Red Spatter Enamel
Base - Die Cast Zinc
All parts have corrosion resistant finishes

Cover Tamper: Tamper Resistant Screws,
Optional cover tamper kit available

Mounting: 1/2" NPT

Contact Rating: PCVS-2: Two sets of SPDT (Form C)
15.00 Amps at 125/250VAC
2.50 Amps at 30VDC resistive

Environmental Limitations: -40°F / +140°F (-40°C to 60°C)
NEMA 4 and NEMA 6P Enclosure (IP67)
Indoor or Outdoor Use (Not for use in hazardous locations.)

See Bulletin No. 5400694 PIVS-U-EX for hazardous locations.

Conduit Entrances: Two knockouts for 1/2" conduit provided

Service Use:
Automatic Sprinkler NFPA-13
One or two family dwelling NFPA-13D
Residential occupancy up to four stories NFPA-13R
National Fire Alarm Code NFPA-72

The Model PCVS is a weather proof and tamper resistant switch for monitoring the open position of fire sprinkler control valves of the post indicator, butterfly and other types. Depending on the model, one or two SPDT (Form C) contacts are provided which will operate when the valve position is altered from an open state.

The unit mounts in a 1/2" NPT tapped hole in the post indicator or butterfly valve housing. The device is engaged by the indicating assembly of the post indicator or the operating mechanism of the butterfly valve, actuating switch(es) when the valve is fully open. The unit should be installed where it is accessible for service.

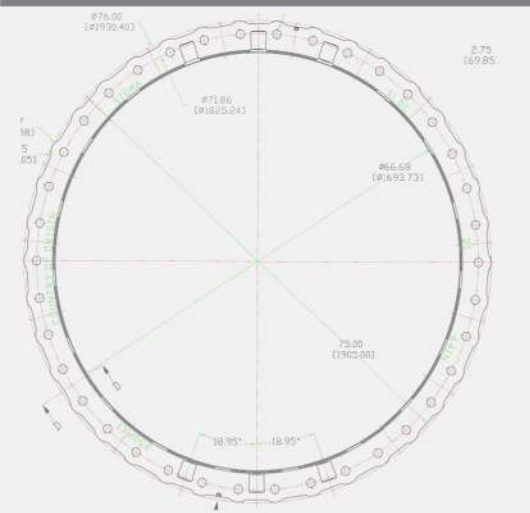
The cover is held in place by two tamper resistant screws that require a special tool to remove. The tool is fur-

nished with each device and should be left with the building owner or responsible party. Replacement or additional cover screws and hex keys are available. See ordering information on page 6.

OPTIONAL COVER TAMPER SWITCH: A field installable cover tamper switch is available as an option which may be used to indicate removal of the cover. See ordering information on page 6.

TESTING: The PCVS and its associated protective monitoring system should be tested in accordance with applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

ONE-LOK™ MODEL SLDE WEDGE RESTRAINT FOR DUCTILE IRON PIPE



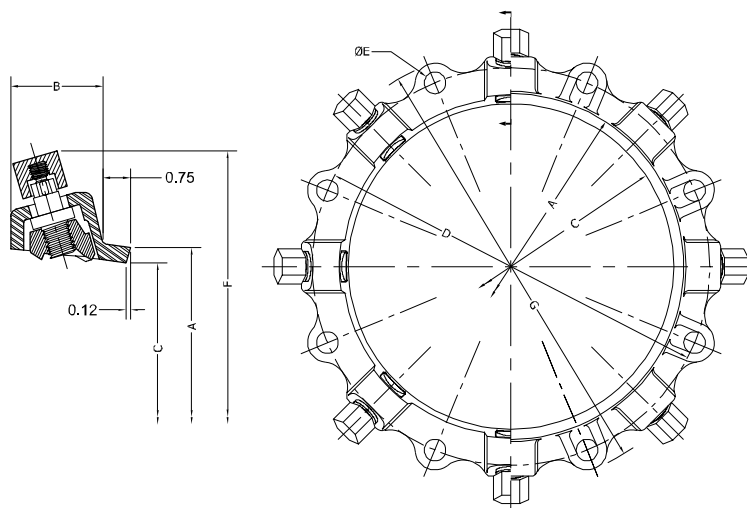
PRODUCT SPECIFICATIONS

- MATERIAL:**
- Gland body, wedge inserts and break-off top actuating bolts are manufactured of high strength ductile iron in accordance with ASTM A536, Grade 65-45-12. Wedge inserts are heat-treated to a hardness of 370 BHN minimum.
- SIZE RANGE:**
- 3" through 64"
- DIMENSION:**
- Conform to ANSI/AWWA C111/A21.11 & ANSI/AWWA C153/A21.53 standards
- PRESSURE RATING:**
- Sizes 3"-16" carry a 350 psi WWP and sizes 18"- 64" carry a 250 psi WWP while providing a minimum 2:1 factor of safety.
- COATING:**
- Asphaltic black enamel
 - Electro-deposition "CORRSafe™" available upon request. For further information, please refer to our CORRSafe Product Information sheet at <http://www.sigmaco.com/pipe-restraint-product-coatings-linings/>
- APPROVALS:**
- Underwriters Laboratories' listed in sizes 3"-36" and Factory Mutual approved in sizes 3"-12".
- DEFLECTION:**
- 5° on 3"-12", 2° on 14"-16", 1.5° on 18"-30" and 1° on 36"- 64"
- TRACEABILITY:**
- Gland body, wedge inserts and break-off top actuating bolts are individually cast with exact heat code information.
- INSTALLATION:**
- In accordance with manufacturer's recommendation and applicable AWWA standards.

Stargrip® series 3000

Mechanical Joint Wedge Action Restraint
for Ductile Iron Pipe
Patent #5,772,252

TECHNICAL INFORMATION



STARGRIP® 3000 SPECIFICATIONS*

*Please
check sizes:*

[illegible]

NOM. SIZE	MAX PRESSURE RATING (PSI)	A	B	C	D	E	F	F W/NUTS TWISTED OFF	G	NO. OF WEDGES	NO. OF T-BOLTS	APPROX WT. (LBS)
3	350	4.84	2.40	4.06	6.19	3/4	9.85	8.78	8.13	2	4	6
4	350	5.92	2.40	4.90	7.50	7/8	11.06	9.62	9.12	2	4	8
6	350	8.02	2.40	7.00	9.50	7/8	13.06	11.72	11.12	3	6	12
8	350	10.17	2.51	9.15	11.75	7/8	15.25	13.84	13.37	4	6	17
10	350	12.22	2.51	11.20	14.00	7/8	17.25	15.88	15.62	6	8	24
12	350	14.32	2.51	13.30	16.25	7/8	19.50	17.98	17.88	8	8	34
14	350	16.40	2.91	15.44	18.75	7/8	21.25	20.12	20.90	10	10	49
16	350	18.50	2.91	17.54	21.00	7/8	23.34	22.22	23.00	12	12	56
18	250	20.60	2.91	19.64	23.25	7/8	26.40	24.90	25.25	12	12	59
20	250	22.70	2.67	21.74	25.50	7/8	28.56	27.00	27.50	14	14	75
24	250	26.90	3.50	25.94	30.00	7/8	33.86	32.34	31.54	16	16	139
30	250	33.29	3.49	32.17	36.88	1-1/8	40.12	38.62	39.12	20	20	199
36	250	39.59	3.49	38.47	43.75	1-1/8	46.42	44.92	46.00	24	24	232
42	250	45.79	5.15	44.75	50.62	1-3/8	54.86	53.32	53.12	28	28	400
48	250	52.09	5.15	51.05	57.50	1-3/8	61.16	59.62	60.00	32	32	488

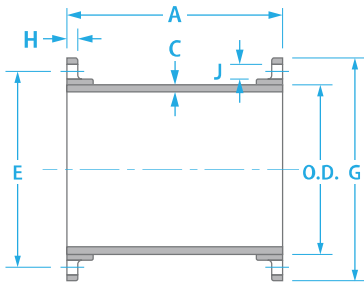
*All dimensions in inches except where indicated.

Notes:

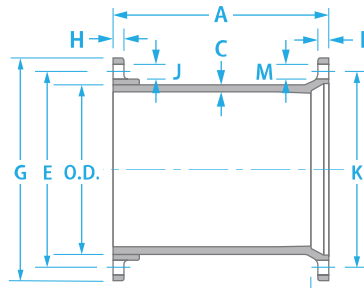
- *Stargrips® must be adequately wrapped or protected if they are covered by concrete to ensure that concrete does not enter the wedge pocket.*
- *For applications exceeding the maximum pressure ratings listed, please contact Star Pipe Products for recommendations (see Tandem Stargrip®).*
- *For applications on existing pipe, the pipe needs to be structurally sound and the surface needs to be relatively free of any corrosive by-products in order for the wedges to function properly. Please contact Star Pipe Products for technical assistance.*
- *Sizes 42" & 48" require extra long 1 1/4" x 8 1/2" T-bolts.*

Fabricated Flange Pipes

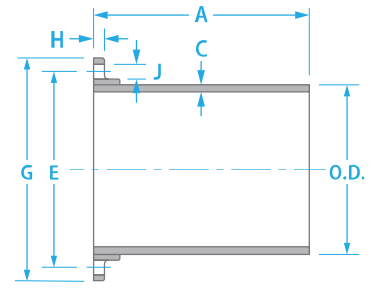
Rev. 02072020



FLG. x FLG.



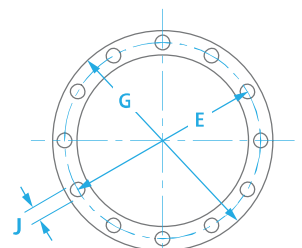
FLG. x M.J.



FLG. x P.E.

Size	A	B	C	O.D.		E	G	H		No. of Flg'd Bolt Holes	J	K		L		No. Of M.J. Bolt H0es	M		P
				Min.	Max.			Min.	Max.			Min.	Max.	Min.	Max.		Min.	Max.	
3	•	•	0.31	3.90	4.02	6.00	7.50	0.63	0.87	4	0.750	6.13	6.25	0.88	0.94	4	0.75	0.81	2.50
4	A	A	0.32	4.74	4.86	7.50	9.00	0.82	1.06	4	0.750	7.44	7.56	0.94	1.00	4	0.875	0.935	2.50
6	S	S	0.34	6.84	6.96	9.50	11.00	0.88	1.12	8	0.875	9.44	9.56	1.00	1.06	6	0.875	0.935	2.50
8	•	•	0.36	8.99	9.11	11.75	13.50	1.00	1.24	8	0.875	11.69	11.81	1.04	1.12	6	0.875	0.935	2.50
10	•	•	0.38	11.04	11.16	14.25	16.00	1.07	1.31	12	1.000	13.94	14.06	1.11	1.19	8	0.875	0.935	2.50
12	R	R	0.40	13.14	13.26	17.00	19.00	1.13	1.37	12	1.000	16.19	16.31	1.17	1.25	8	0.875	0.935	2.50
14	E	E	0.42	15.22	15.35	18.75	21.00	1.19	1.57	12	1.125	18.69	18.81	1.19	1.31	10	0.875	0.935	3.50
16	Q	Q	0.43	17.32	17.45	21.25	23.50	1.25	1.63	16	1.125	20.94	21.06	1.26	1.38	12	0.875	0.935	3.50
18	U	U	0.44	19.42	19.55	22.75	25.00	1.37	1.75	16	1.250	23.19	23.31	1.32	1.44	12	0.875	0.935	3.50
20	I	I	0.45	21.52	21.65	25.00	27.50	1.50	1.88	20	1.250	25.44	25.56	1.38	1.50	14	0.875	0.935	3.50
24	R	R	0.47	25.72	25.85	29.50	32.00	1.69	2.07	20	1.375	29.94	30.06	1.50	1.62	16	0.875	0.935	3.50
30	E	E	0.51	31.94	32.08	36.00	38.75	1.87	2.37	28	1.375	36.82	36.94	1.69	1.81	20	1.125	1.185	4.00
36	D	D	0.58	38.24	38.38	42.75	46.00	2.13	2.63	32	1.625	43.69	43.81	1.88	2.00	24	1.125	1.185	4.00
42	•	•	0.65	44.44	44.58	49.50	53.00	2.37	2.87	36	1.625	50.56	50.68	1.88	2.00	28	1.375	1.435	4.00
48	•	•	0.72	50.74	50.88	56.00	59.50	2.50	3.00	44	1.625	57.44	57.56	1.88	2.00	32	1.375	1.435	4.00
54	•	•	0.81	57.40	57.64	62.75	62.75	2.75	3.25	44	1.875	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60	•	•	0.83	61.51	61.65	69.25	73.00	2.87	3.37	52	2.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
64	•	•	0.87	65.57	65.71	76.00	80.00	3.13	3.63	52	2.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

1. Tolerance on length of FLG. x FLG. and FLG. x M.J. pipe shall be $\pm 0.125"$.
2. Tolerance on length of FLG. x P.E. shall be $\pm 0.25"$.
3. Above material shall meet all applicable sections of ANSI A21.10, A21.15, A21.51, B2.1, B16.1 & AWWA C110, C115, C150, C151 and all revisions thereto.
4. Flanged pipe shall be ductile iron pipe with ductile iron flanges threaded on.
5. Flange pipe is provided with cement lining per AWWA C104/A21.4. If other linings are required, contact your local sales representative.
6. The mechanical joint bell for 30" and 36" sizes of ductile iron pipe have thicknesses different from those shown in ANSI A21.11, which are based on gray iron pipe. These reduced thicknesses provide a lighter-weight bell which is compatible with the wall thickness of ductile iron pipe.
7. Submitted material only. Consult your engineer for application.
8. 250 lb. faced and drilled flanges available upon request.
9. Flange-Tyte gaskets are included with all 14" or larger ductile iron flanged joint products supplied by U.S. Pipe. These are required during installation, and failure to use these gaskets could result in voiding the manufacturer's warranty. Refer to product data sheets for additional information.



FLG. DETAIL

C110 DUCTILE IRON FLANGED FITTINGS**BASIC SPECIFICATIONS**

- SIZES:**
- 2" - 64"
- MATERIAL:**
- Ductile Iron ASTM A536 Grade 60-42-10, 65-45-12 or 70-50-05.
- PRESSURE:**
- 250 PSI Water Working Pressure for Ductile Iron sizes 2" - 48".
 - 150 PSI Water Working Pressure for Ductile Iron sizes 54" - 64".
- TESTING:**
- In accordance with ANSI / AWWA C110 / A21.10 where applicable.
 - Other items are in accordance with manufacturer's standards.
 - 54" and above Flanged Fittings are manufactured as per AWWA C153/A21.53.
 - All fittings are hydrostatically tested in accordance with SIGMA Quality Management Standard.
 - All fittings are heat coded to ensure traceability and verification of metallurgical properties in accordance with SIGMA Quality Management Standards.
- LAYING LENGTH:**
- In accordance with ANSI / AWWA C110 / A21.10 where applicable.
 - Other items are in accordance with manufacturer's standards.
 - 54" and above Flanged Fittings are manufactured as per AWWA C153/A21.53.
- CEMENT LINING:**
- Double cement lined in accordance with ANSI/AWWA C104 / A21.4.
- COATING:**
- Interior of fitting is seal coated (asphalt material) in accordance with ANSI / AWWA C104/A21.4 and NSF61 approved.
 - Red Primer Outside.
 - For special conditions, other types of coatings and linings are available.
 - Please specify when ordering.
- GASKETS:**
- SBR in accordance with ANSI/AWWA C111/A21.11 & ANSI/AWWA C111/A21.11.
 - Also available in EPDM, NBR and CR.
- APPROVALS:**
- 2"-16" Underwriters Laboratories listed and Factory Mutual Approved.
- STANDARDS:**
- Certified to NSF61 Standard including Annex G.
 - ANSI / AWWA C110 / A21.10 Where applicable.
 - Other items are in accordance with manufacturer's standards.
 - 54" and above Flanged Fittings are manufactured as per AWWA C153/A21.53.
- INSTALLATION:**
- Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900/C905.





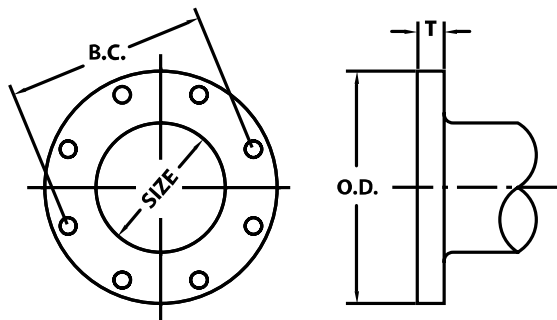
Flanged Fittings

ANSI/AWWA C110/A21.10

1" - 64" DUCTILE IRON FLANGED FITTINGS

GENERAL SPECIFICATIONS

MATERIAL:	Ductile iron per ASTM A536
PRESSURE:	250 PSI rating for 1" - 48" sizes and 150 PSI rating for 54" - 64"
TESTING:	In accordance with ANSI/AWWA C110/A21.10, UL and FM requirements
LAYING LENGTH:	2" - 48" sizes in accordance with ANSI/AWWA C110/A21.10 and ANSI B16.1 and 54" - 64" sizes in accordance with ANSI/AWWA C153/A21.53 (fittings not listed in ANSI/AWWA have dimensions per Star design as noted in the catalog)
WEIGHTS:	Are in pounds, unless noted otherwise and do not include accessories, cement lining and coatings
DRILLING:	In accordance with ANSI/AWWA C110/A21.10, ANSI/AWWA C153/A21.53 and ANSI B16.1 Class 125 Flanges
CEMENT LINING:	In accordance with ANSI/AWWA C104/A21.4 -- sizes 1"- 3" single thickness and sizes 4"- 64" double thickness
COATING:	Asphaltic seal coat inside in accordance with ANSI/AWWA C104/A21.4 and prime coat outside
APPROVALS:	4" - 12" Underwriters Laboratories Listed and Factory Mutual approved for 300 PSI rating 2" and greater are UL/NSF-61
DIMENSIONS:	All dimensions are in inches unless noted otherwise



FLANGE DETAILS

	NOM. SIZE	O.D.	B.C.	T	BOLT HOLE DIA.	BOLTS	
						SIZE	NO.
★	1	4.25	3.12	0.44	0.62	1/2 x 2	4
★	1 1/2	5.00	3.88	0.56	0.62	1/2 x 2	4
★	2	6.00	4.75	0.62	0.75	5/8 x 2 1/4	4
★	2 1/2	7.00	5.50	0.69	0.75	5/8 x 2 1/2	4
	3	7.50	6.00	0.75	0.75	5/8 x 2 1/2	4
	4	9.00	7.50	0.94	0.75	5/8 x 3	8
★	5	10.00	8.50	0.94	0.88	3/4 x 3	8
	6	11.00	9.50	1.00	0.88	3/4 x 3 1/2	8
	8	13.50	11.75	1.12	0.88	3/4 x 3 1/2	8
	10	16.00	14.25	1.19	1.00	7/8 x 4	12
	12	19.00	17.00	1.25	1.00	7/8 x 4	12
	14	21.00	18.75	1.38	1.13	1 x 4 1/2	12
	16	23.50	21.25	1.44	1.13	1 x 4 1/2	16
	18	25.00	22.75	1.56	1.25	1 1/8 x 5	16
	20	27.50	25.00	1.69	1.25	1 1/8 x 5	20
	24	32.00	29.50	1.88	1.38	1 1/4 x 5 1/2	20
	30	38.75	36.00	2.12	1.38	1 1/4 x 6 1/2	28
	36	46.00	42.75	2.38	1.63	1 1/2 x 7	32
	42	53.00	49.50	2.62	1.63	1 1/2 x 7 1/2	36
	48	59.50	56.00	2.75	1.63	1 1/2 x 8	44
★	54	66.25	62.75	3.00	2.00	1 3/4 x 8 1/2	44
★	60	73.00	69.25	3.12	2.00	1 3/4 x 9	52
★	64	80.00	76.00	3.38	2.00	1 3/4 x 9	52



★Not Included in AWWA C110

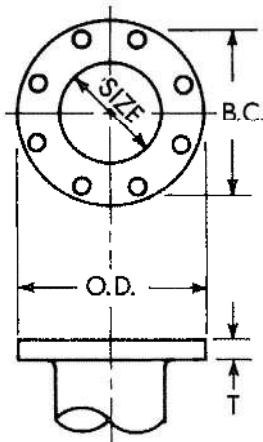
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SAMPLE SPECIFICATION

Flanged Fittings, 2" through 48" shall be manufactured of Ductile Iron in accordance with all applicable terms and provisions of standards ANSI/AWWA C110/A21.10 (current revisions). Flange surface shall be faced and drilled in accordance with ANSI Class 125 B16.1. All Ductile Iron Flanged Fittings shall be rated for water pressure of 250 PSI. NOTE: Fittings are CEMENT-LINED and seal coated in accordance with ANSI/AWWA C104/A21.4, also available prime coated, bare or epoxy coated. All coated fittings shall be in accordance with NSF-61. Interiors shall be lined and seal coated in accordance with ANSI/AWWA C104/A21.04, "Cement-mortar Lining for Ductile Iron Pipe and Fittings for Water" unless otherwise specified.



NOTE: No flange joint material furnished.

FLANGE DETAILS

Nominal Pipe Size Inch	Flange O.D.	Dia. of Bolt Circle	Flange Thickness T	Bolt Hole Diameter	Number of Bolts	Bolt Dia. and Lengths
2	6	4.75	.62	.75	4	$\frac{5}{8}$ x 2 $\frac{1}{4}$
3	7.5	6	.75	.75	4	$\frac{5}{8}$ x 2 $\frac{1}{2}$
4	9	7.5	.94	.75	8	$\frac{3}{4}$ x 3
6	11	9.5	1.00	.875	8	$\frac{3}{4}$ x 3 $\frac{1}{2}$
8	13.5	11.75	1.12	.875	8	$\frac{3}{4}$ x 3 $\frac{1}{2}$
10	16	14.25	1.19	1.00	12	$\frac{7}{8}$ x 4
12	19	17	1.25	1.00	12	$\frac{7}{8}$ x 4
14	21	18.75	1.38	1.125	12	1 x 4 $\frac{1}{2}$
16	23.5	21.25	1.44	1.125	16	1 x 4 $\frac{1}{2}$
18	25	22.75	1.56	1.25	16	1 $\frac{1}{8}$ x 5
20	27.5	25	1.69	1.25	20	1 $\frac{1}{8}$ x 5
24	32	29.5	1.88	1.375	20	1 $\frac{1}{4}$ x 5 $\frac{1}{2}$
30	38.75	36	2.12	1.375	28	1 $\frac{1}{4}$ x 6 $\frac{1}{2}$
36	46	42.75	2.38	1.675	32	1 $\frac{1}{2}$ x 7
42	53	49.50	2.62	1.625	36	1 $\frac{1}{2}$ x 7 $\frac{1}{2}$
48	59.50	56.00	2.75	1.625	44	1 $\frac{1}{2}$ x 8

NOTE: Drilling templates are in multiples of four, so that fittings may be made to face in any quarter. Bolt holes shall straddle the center line.

Application

Designed for installation on water lines in fire protection systems to protect against both backsiphonage and backpressure of polluted water into the potable water supply. Model 350DA shall provide protection where a potential health hazard does not exist. Incorporates metered by-pass to detect leaks and unauthorized water use.

Standards Compliance

(Sizes 2 1/2" - 10" Horiz. & Vert.)

(12" Horizontal Only)

- ASSE® Listed 1048 (Sizes 2 1/2" thru 12")
- CSA® Certified B64.5 (Sizes 2 1/2" thru 8", & 12")
- AWWA Compliant C510 (Sizes 2 1/2" thru 12"), and C550
- UL® Classified (Sizes 2 1/2" thru 12")
- C-UL® Classified (Sizes 2 1/2" thru 12")
- FM® Approved (Sizes 2 1/2" thru 10")
- NYC MEA 147-99-M Vol 4 (2-1/2" - 10")
- Approved by the Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California (Sizes 2 1/2" thru 12")
- Meets the requirements of NSF/ANSI 61*

*(0.25% MAX. WEIGHTED AVERAGE LEAD CONTENT)

By-Pass Backflow Assembly 3/4" Model 950XLD

Materials

Main valve body	Ductile Iron ASTM A 536
Access covers	Ductile Iron ASTM A 536
Coatings	NSF Approved fusion epoxy finish
Internals	Stainless steel, 300 Series NORYL™
Fasteners	Stainless Steel, 300 Series
Elastomers	EPDM (FDA approved) Buna Nitrile (FDA approved)
Polymers	NORYL™
Springs	Stainless Steel, 300 Series

Features

Sizes: 2 1/2", 3", 4", 6", 8", 10", 12"

Maximum working water pressure 175 PSI

Maximum working water temperature 140°F

Hydrostatic test pressure 350 PSI

End connections (Grooved for steel) AWWA C606
(Flanged) ANSI B16.1
Class 125



Options

(Suffixes can be combined)

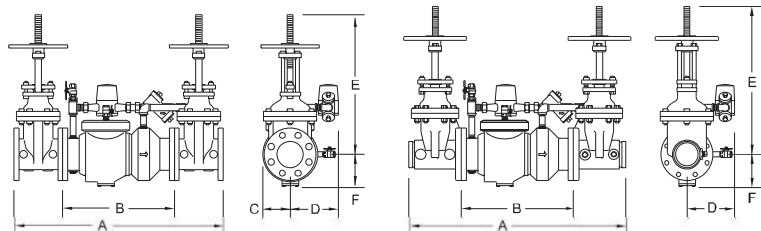
- ☐ - with OS & Y gate valves (standard)
- ☐ L - less shut-off valves (flanged body connections)
- ☐ LM - less water meter
 - with remote reading meter
 - with gallon meter (standard)
- ☐ CFM - with cu ft meter
- ☐ CMM - with cu meter meter
- ☐ G - with groove end gate valves
- ☐ FG - with flanged inlet connection and grooved outlet connection
- ☐ PI - with Post Indicator Gate Valve
- ☐ GF - with flanged inlet connection and grooved outlet connection
- ☐ BG - with grooved end butterfly valves with integral monitor switches (2 1/2" - 10")
- ☐ -509 - with AWWA C509 gate valves

Accessories

- ☐ Repair kit (rubber only)
- ☐ Thermal expansion tank (Model XT)
- ☐ OS & Y Gate valve tamper switch (OSY-40)

Attention:

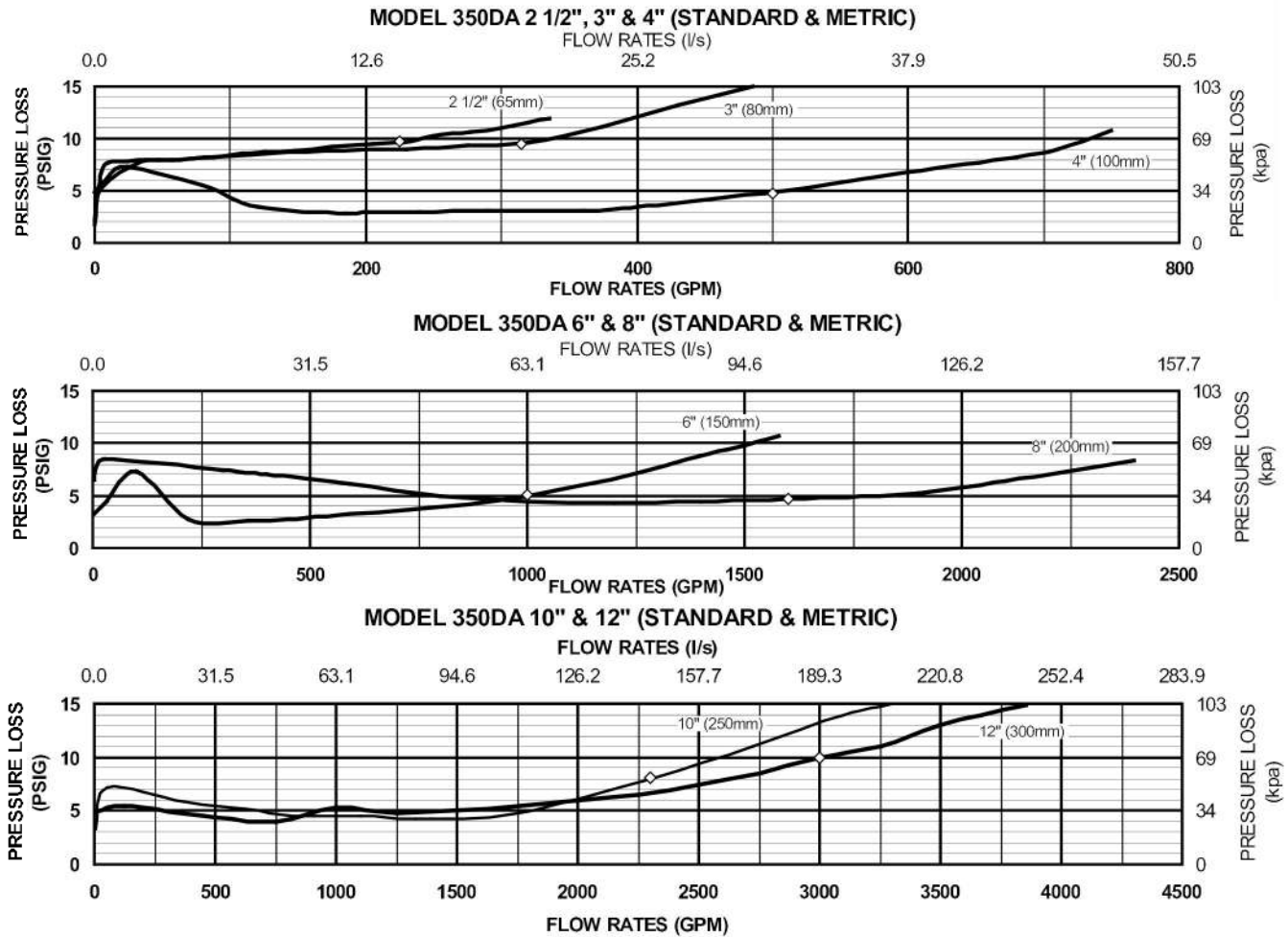
Model 350DA (flange body) and Model 350ADA (grooved body) have different lay lengths.



Dimensions & Weights (do not include pkg.)

MODEL 350DAG SHOWN ABOVE

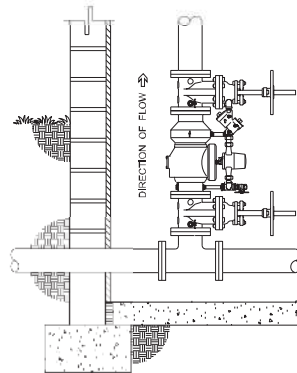
MODEL 350DA SIZE	DIMENSION (approximate)																WEIGHT										
	A		A WITH BUTTERFLY VALVES		B LESS GATE VALVES		C		D		E OS&Y OPEN		E OS&Y CLOSED		E WITH BUTTERFLY VALVES		F		LESS SHUTOFF VALVES		OS&Y GATE VALVES FLANGED		OS&Y GATE VALVES GROOVED		BUTTERFLY VALVES GROOVED		
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	
2 1/2	65	31	787	28	711	15 7/8	403	3 3/4	95	9	229	17 3/4	451	15 3/8	391	8 1/4	210	3 1/2	89	68	31	178	81	160	73	140	64
3	80	32	813	28 1/2	724	15 7/8	403	3 3/4	95	9	229	20 1/4	514	17	432	8 1/2	216	3 1/2	89	68	31	198	90	150	68	120	54
4	100	37 5/8	956	32 8/9	835	19 1/2	495	4 1/2	114	9	229	22 1/2	572	18 1/4	464	9	229	6	152	106	48	296	134	282	128	190	86
6	150	44 3/4	1137	37 5/8	956	23 1/2	597	6	152	10 1/2	267	30 1/2	775	24 1/4	616	10 1/4	260	7	178	180	82	480	218	454	206	298	135
8	200	60 3/4	1543	53 7/8	1369	37 3/4	959	10	254	12	305	37	940	28 1/2	724	12	305	8 1/2	216	374	170	850	386	802	364	548	249
10	250	63 3/4	1619	57 7/8	1470	37 3/4	959	10	254	12	305	45 5/8	1159	34 3/4	883	13	330	8 1/2	216	404	183	1222	554	1156	524	792	359
12	300	66 1/4	1683	n/a	n/a	38	965	10	254	12	305	53	1346	40 1/2	1029	n/a	n/a	8 7/8	226	463	210	1623	736	n/a	n/a	n/a	n/a



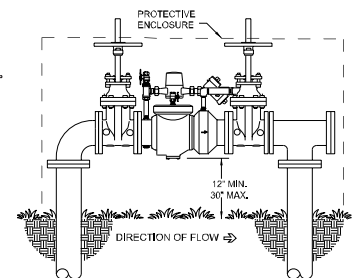
Typical Installation

Local codes shall govern installation requirements. Unless otherwise specified, the assembly shall be mounted at a minimum of 12" (305mm) and a maximum of 30" (762mm) above adequate drains with sufficient side clearance for testing and maintenance. The installation shall be made so that no part of the unit can be submerged.

Capacity thru Schedule 40 Pipe (GPM)				
Pipe size	5 ft/sec	7.5 ft/sec	10 ft/sec	15 ft/sec
2 1/2"	75	112	149	224
3"	115	173	230	346
4"	198	298	397	595
6"	450	675	900	1351
8"	780	1169	1559	2339
10"	1229	1843	2458	3687
12"	1763	2644	3525	5288



VERTICAL INSTALLATION



OUTDOOR INSTALLATION

Specifications

The Double Check Detector Backflow Prevention Assembly shall be certified to NSF/ANSI 61, ASSE® Listed 1048, and supplied with full port gate valves. The main body and access cover shall be epoxy coated ductile iron (ASTM A 536), the seat ring and check valve shall be Noryl™, the stem shall be stainless steel (ASTM A 276) and the seat disc elastomers shall be EPDM. The first and second check valves shall be accessible for maintenance without removing the device from the line. The Double Check Detector Backflow Prevention Assembly shall be a ZURN WILKINS Model 350DA.



UL, ULC and CSFM Listed, FM Approved, NYMEA Accepted, CE Marked

Dimensions: 6.19"L X 2.25"W X 5.88"H
15,7cm L X 5,7cm W X 14,6cm H

Weight: 2 lbs (0,9 kg)

Enclosure: Cover - Die-Cast
Finish - Red Spatter Enamel
Base - Die Cast Zinc
All parts have corrosion resistant finishes

Cover Tamper: Tamper Resistant Screws
Optional Cover Tamper Switch Available

Contact Ratings:
OSYSU-1: One set of SPDT (Form C)
OSYSU-2: Two sets of SPDT (Form C)
15 Amps at 125/250VAC
2.5 Amps at 30VDC resistive

Environmental Limitations:
-40°F to 140°F (-40°C to 60°C)
NEMA 4 and NEMA 6P Enclosure (IP67)
Indoor or outdoor use (Not for use in hazardous locations. See Bulletin No. 5400705 OSYS-U-EX for hazardous locations).

Conduit Entrances:
2 knockouts for 1/2" conduit provided

Service Use:
Automatic Sprinkler NFFPA-13
One or two family dwelling NFFPA-13D
Residential occupancy up to four stories NFFPA-13R
National Fire Alarm Code NFFPA-72

General Information

The OSYSU is used to monitor the open position of an OS&Y (outside screw and yoke) type gate valve. This device is available in two models; the OSYSU-1, containing one set of SPDT (Form C) contacts and the OSYSU-2, containing two sets of SPDT (Form C) contacts. These switches mount conveniently to most OS&Y valves ranging in size from 2" to 12" (50mm to 300mm). They will mount on some valves as small as 1/2" (12,5mm).

The cover is held in place by two tamper resistant screws that require a special tool to remove. The tool is furnished with each device and should be left with the building owner or responsible party. Replacement or additional cover screws and hex keys are available. See Ordering Information.

Optional Cover Tamper Switch

A field installable cover tamper switch is available as an option which may be used to indicate removal of the cover. See Ordering Information.

Testing

The OSYSU and its associated protective monitoring system should be inspected and tested in accordance with applicable

NFFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

Ordering Information

Model	Description	Stock No.
OSYSU-1	Outside Screw & Yoke Supervisory Switch (Single switch)	1010106
OSYSU-2	Outside Screw & Yoke Supervisory Switch (Double switch)	1010206
	Cover Screw	5490424
	Hex Key for Cover Screws and Installation Adjustments	5250062
	Optional Cover Tamper Switch Kit	0090131

Description

FPPI's brass plugs feature all cast construction of B124 brass alloy. Each plug is accurately machined and will provide years of service. Our pin lug design is compatible with all fire service pin lug hydrant wrenches. Each plug is shipped complete with a brass chain and "S" type hook for attachment to hydrant or fire department connection equipped for this use. Protects swivel threads and discourages the introduction of debris into the hydrant or connection. This use helps keep moisture from accumulating inside the Fire Department Connection. Designed for horizontal installation only.



Installation

Each plug is easily threaded in a clockwise fashion into the female swivel. Prior to installation of the plug make sure the swivel is complete with a swivel gasket for a water tight seal. Tighten using two pin lug type hydrant wrenches. Tested to a maximum working pressure of 300 PSI.

Specifications

Material:
B124 brass

Size:
2½" MNST[†]
MBCT
MQST
MONT
MPHX
MTEM
MCLV
MDET
1½" MNST[†]
3" MNST^{††}
3" NYFD^{†††}

Finish:
Rough Brass
Polished Chrome (NST only)

[†] Also available in ABS Plastic or forged aluminum.

^{††} Available in ABS Plastic or forged aluminum only.

^{†††} Available in red, yellow or green forged aluminum only.

The information above is believed to be reliable and accurate, but meant for reference only. FPPI and its agents cannot be held responsible or liable for incidental or consequential damages or loss suffered by any person as a result of the use or misuse of any of the information or its product by any person whose methods and qualifications are beyond our control. It is the user's responsibility to assure that products and methods of use are suitable for the intended purpose, and the preparation prior to installation, and the installation is executed properly and according to existing code, regulations where applicable and accepted industry practices. If you are not trained on the installation of this product, seek guidance from a qualified installer.



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 **WARNING:** Cancer and Reproductive Harm -
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Fire Department

Connection, 90 Degree Pattern



Description

The 90 Degree Fire Department Connection is Underwriters' Laboratories listed and Factory Mutual Approved. Manufactured from solid brass* components to increase service life. The single clapper design features brass* clapper and brass seats within a cast brass body. The 2 1/2" swivels are pin lug design for ease of use and compatibility with local fire service districts. Swivel gaskets are included.

Installation

Installation of the Fire Department Connection is achieved with readily available job site tools. Prior to installation make sure the proper identification sign has been installed on the nipple. Coat male threads of 4" IPS nipple liberally with a suitable pipe thread sealant such as Pipefit®. Tighten FDC one

full turn past hand tight. Make sure FDC is aligned according to requirements.

**DO NOT OVER TIGHTEN.
OVERTIGHTENING MAY
CAUSE SEVERE STRETCH-
ING AND POSSIBLE
CRACKING OF THE OF
THE FDC BODY.**

*Contains lead. Not for use in water systems intended for human consumption.

Specifications

Size:

4" IPS Inlet

(2) 2 1/2" Swivel Outlets

Type:

90 Degree Pattern

Material:

Brass*

*Swivels:

NST	3.0686 x 7.5T
CF	2.9900 x 7.5T
BCT	3.0000 x 8 TP
NYFD	3.0300 x 8 TP
QST	3.0310 x 7 TP
CIN-new	3.0580 x 6 TP
PHX	3.0620 x 6 TP
TEM	3.0750 x 6 TP
CLV	3.0780 x 8 TP
CIN-old	3.0930 x 6 TP
ONT	3.1250 x 5 TP
DET	3.1250 x 7.5T
NovaSco	3.2300 x 5 TP
Dayton	3.2340 x 6 TP
Richmon	3.3120 x 8 TP
Raleigh	3.3400 x 6 TP

Approvals:

UL Listed 300psi

FM Approved 300psi



IN-BUILDING RISERS TO BE REVIEWED
BY THE MEP DESIGN TEAM.
- KH (5/2/22)

ES-A-InBuildingRiser

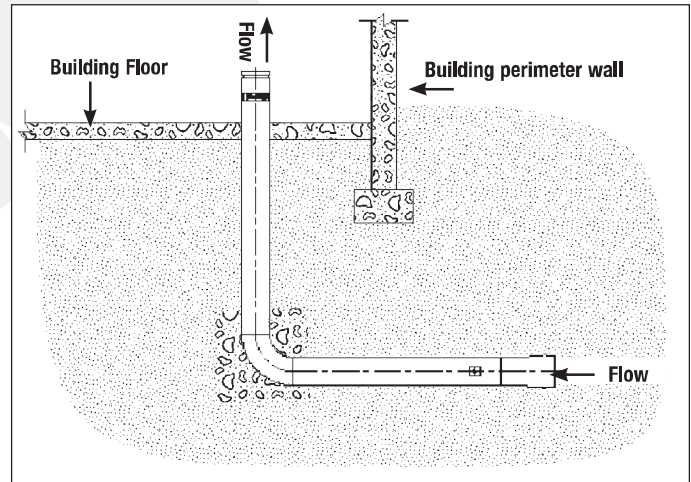


Series IBR

In-Building Risers

Sizes: 4" – 10" (100 – 250mm)

LEAD FREE*



Features

- Cost savings
- Corrosion resistant stainless steel construction, type 304
- Ease of installation and light weight allows one person to position and handle the riser
- Minimal site preparation; joint restraint one-piece construction reduces time and labor; no missing parts, no leaks; easily identifiable for approvals
- Includes Test Cap and Coupler
- UL/FM approved
- Sizes: available in 4" – 10" (100-250mm) with various lengths to meet all local requirements
- Designed to meet NFPA 24-2007 Section 10.6.5
- AWWA C900 Inlet/DIP
- AWWA C606 Outlet

Series IBR In-Building Risers are used to connect the main fire supply to the building overhead fire system. The fitting passes under the foundation without joints and extends up through the floor. Provided with installation tabs, the unit has a CIPS (Cast Iron Pipe Size) coupler for easy connection to the underground supply (AWWA C900 PVC and Ductile Iron Pipe) and industry standard grooved-end connection (AWWA C606) on the building side for easy connection to the overhead fire sprinkler system.

Ames In-Building Risers are precision engineered and manufactured to provide exceptional reliability and reduce installation time & labor costs associated with field assembly. In accordance with NFPA 24-2007, the UL/FM approved In-Building Risers replace numerous fittings, elbows & spools and reduces the possibility of leaks or failure in comparison to traditional installation methods and materials. Factory tested integrity ensures the highest quality installation. The use of stainless steel significantly increases the reliability and life of the riser.

*The wetted surface of this product contacted by consumable water contains less than one quarter of one percent (0.25%) of lead by weight.

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

Ames product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Ames Technical Service. Ames reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Ames products previously or subsequently sold.

www.amesfirewater.com

Specifications

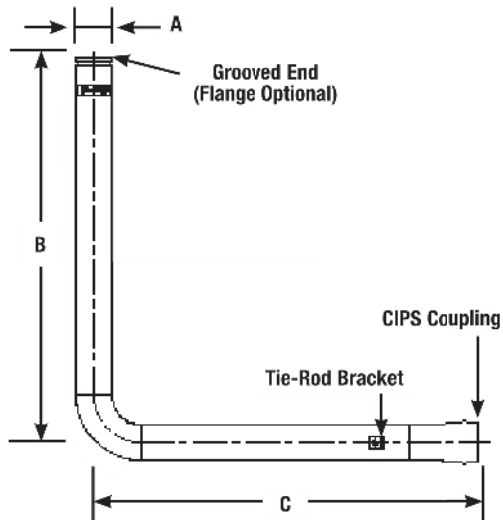
In-Building Riser shall be installed as indicated on the plans. Riser shall be composed of a single extended 90 degree fitting of fabricated 304 stainless steel tubing, maximum working pressure 200psi (14 bar). The fitting shall have a grooved-end connection on the outlet (building) side and a CIPS coupler on the inlet (underground) side. The grooved end shall include a coupler and cap to facilitate testing of the underground piping. The In-Building Riser shall be an Ames Fire & Waterworks Series IBR.

Approvals

Fittings FM class 1920
UL HKQA (4"-10")



Dimensions – Weights



		A (OD)		B		C			
in.	mm	in.	mm	ft.	cm	ft.	cm	lbs.	kg
4	100	4½	114	6	183	6	183	71	32
6	150	6⅝	168	6	183	6	183	98	44
8	200	8⅝	219	6	183	6	183	129	59
10	250	10¾	273	6	183	6	183	202	92

Consult factory for custom leg dimensions.

Standards

NFPA — Designed to allow the contractor to conform to NFPA 24-2007 Section 10.6.5:

Where a riser is close to building foundations, underground fittings of proper design and type shall be used to avoid pipe joints being located under the foundations.

NFPA 24-2007, 10.1.1, 10.6.7

End Connections

Horizontal End: Mates with Ductile Iron Pipe and AWWA C900 Pipe (PVC Pipe with Ductile Iron Pipe Equivalent OD's)

Utilizes Gasket conforming to UL 157 with “Lock in” gasket configuration

SIZE (DN)		MATING PIPE OD	
in.	mm	in.	mm
4	100	4.8	122
6	150	6.9	175
8	200	9.1	230
10	250	11.1	282

Vertical End:

Meets AWWA C-606 dimensions for roll grooved pipe
Meets AWWA C-207 class D for flanges

Ratings

Meets AWWA C-900 pressure class 200, DR 14 Pipe

Testing

Welds are 100% leak tested at the factory

SIZE		DESIGN PROOF PRESSURE	
in.	mm	psi	bar
4	100	1000	70
6	150	1000	70
8	200	800	56
10	250	800	56

**IN-BUILDING RISERS TO BE REVIEWED
BY THE MEP DESIGN TEAM.
- KH (5/2/22)**

**IMPORTANT: Inquire with governing authorities for
local installation requirements.**



A Watts Water Technologies Company

www.amesfirewater.com

USA: Backflow- 1427 N. Market Blvd • Suite #9 • Sacramento, CA 95834 • T: 916-928-0123 • F: 916-928-9333

Control Valves- 18550 Hansen Road • Houston, TX 77075 • T: 713-943-0688 • F: 713-944-9445

Canada: 5435 North Service Rd. • Burlington, ONT. L7L 5H7 • T: 905-332-4090 • F: 905-332-7068



NOM. PIPE SIZE (in.)	90° BEND	45° BEND	22.5° BEND	11.25° BEND	SIZE ON VALVE SIZE	VALVE/DEAD-END
4	26ft	11ft	5ft	3ft	18ft	6ft
6	36ft	15ft	7ft	4ft	43ft	86ft
8	46ft	19ft	9ft	5ft	68ft	112ft
10	55ft	23ft	11ft	6ft	91ft	135ft
12	64ft	27ft	13ft	7ft	114ft	159ft
14	73ft	30ft	15ft	7ft	137ft	182ft
16	81ft	34ft	16ft	8ft	159ft	205ft

PIPE: PVC, AWWA C-900, DR-18, DR-14
SOIL: GM & SM SILTY GRAVELS AND SILTY SANDS, GRAVEL-SAND-SILT MIXTURES, SAND-SILT MIXTURES.
AVERAGE DEPTH OF BURY: 3ft
TRENCH TYPE: 3
TEST PRESSURE: 200psi
SAFETY FACTOR: 1.5:1 (BASED ON TEST PRESSURE)



- 1.) ALL FIRE MAINS SHALL HAVE A MINIMUM OF 30" COVER FROM GRADE, 36" COVER UNDER DRIVEWAYS, AND 48" COVER UNDER SIDEWALKS. PIPE SHALL BE PROTECTED BY CONCRETE. WORK IS COMPLETED.
- 2.) ALL FIRE MAINS SHALL CROSS WITH LESS THAN 18 INCHES VERTICAL CLEARANCE OR 10 FEET HORIZONTAL CLEARANCE. ALL P.V.C. PIPE SHALL HAVE A 20 FOOT SECTION OF DUCTILE IRON DUCTILE IRON PIPE (DIP) ON EITHER SIDE OF CROSSING.
- 3.) UNLESS NOTED, ALL FIRE MAINS TO BE DR18, C-900 PVC WITH SJC CONNECTIONS. BELL RESTRAINTS SHALL BE LOCATED AS NOTED ON THE PLANS. PIPE SHALL BE 10' LONG. ALL JOINTS SHALL BE CLASS 55/51. ALL PIPE CONNECTIONS TO BE PUSH-ON. NOT ALL FITTINGS TO BE DUCTILE IRON MECHANICAL JOINT TYPE.
- 4.) ALL FIRE MAINS SHALL BE INSTALLED TO A MINIMUM 48" MINIMUM ONLY. IT SHALL BE THE FOREMAN'S RESPONSIBILITY TO VERIFY THE DEPTHS OF ALL EXISTING AND NEW MAINS, AND VERTICAL LOCATIONS AND ELEVATIONS OF ALL EXISTING AND NEWER SHOWN ON THE PLANS.
- 5.) FORWARD TO CALL UN.C.L.C. AT 1-800-432-4770 OR C.A.N.D.Y. AT 1-800-282-8881 48 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) BEFORE ANY WORK BEGINS ON THE FIELD LOCATIONS OF ALL EXISTING UTILITIES.
- 6.) ALL PIPING TO BE INSTALLED AND ANCHORED UTILIZING BELL END FITTINGS IN ACCORDANCE WITH THE CHART FOR FIELD ABOVE AND NFPA 24.
- 7.) ALL PIPING TO BE PRESSURIZED TO 150 P.S.I. FOR EXCESS OF THE MAXIMUM STRESS PRESSURE WHEN THE MAXIMUM STRESS PRESSURE IS 150 P.S.I. OR LESS.
- 8.) THOROUGHLY FLUSH ALL UNDERGROUND MAINS AND LEAD-INS.
- 9.) RETURN ALL TEST PAPERS AND DIMENSIONED "AS BUILT" RECORDS TO ANY FIELD CHARGE FOR THE PROJECT FOR RECORD KEEPING.
- 10.) AFTER INSTALLATION, ALL JOINTS, NODS, NIPS, WASHERS AND FITTINGS TO BE CLEANED AND PROTECTED WITH AN ANTI-RUST BITUMINOUS OR OTHER ACCEPTABLE CORROSION-PROTECTANT.
- 11.) ALL ELECTRICAL WIRING TO BE DONE BY OTHERS

SEE FIRE SPRINKLER PLANS FOR MORE DETAIL

- W1 CONNECT TO EXISTING 8" WATER MAIN WITH AN 8"x4" TAPPING VALVE AND SLEEVE.
- W2 4" ZURN/WILKINS 350DA DCDA BACKFLOW PREVENTER WITH 4"x2"x2" FIRE DEPARTMENT CONNECTION
- W3 WILKINS MODEL VBR 4" IN-BUILDING RISER (72"x72") FOREMAN TO COORDINATE LOCATION IN THE FIELD.
- W4 4" POST INDICATOR VALVE
- W5 4" GATE VALVE
- W6 4"x4"x2" REDUCING TEE FOR DOMESTIC

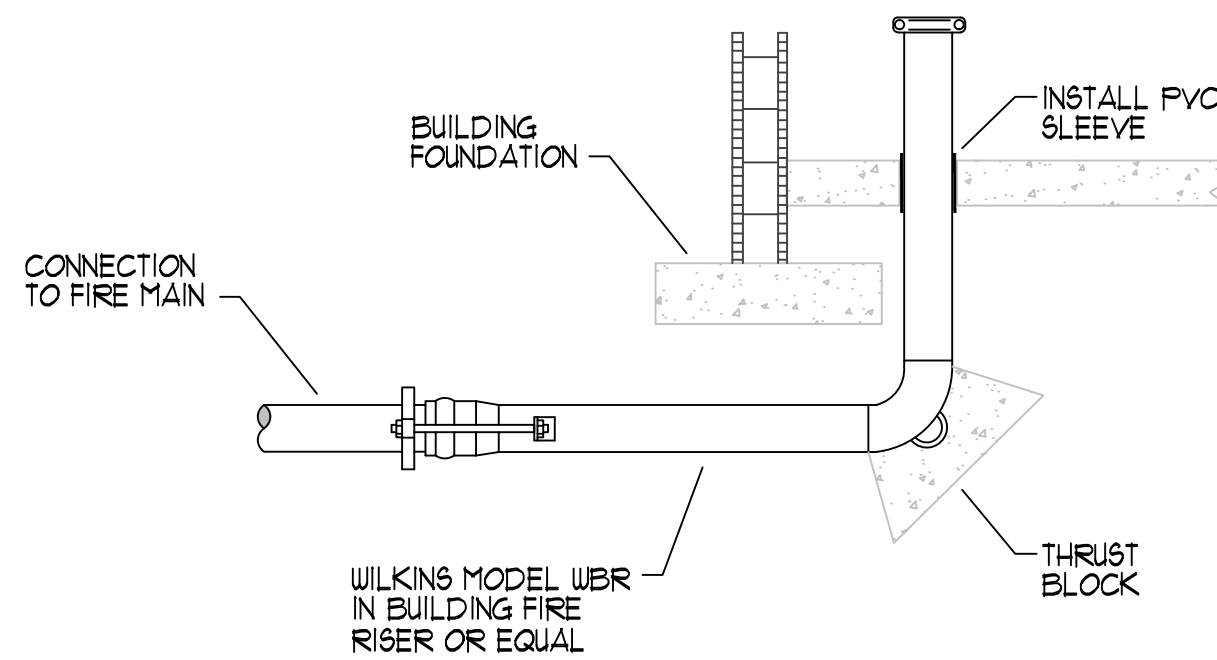
W8 4" 11.25" ELL

W9 2" DOMESTIC (BY OTHERS)

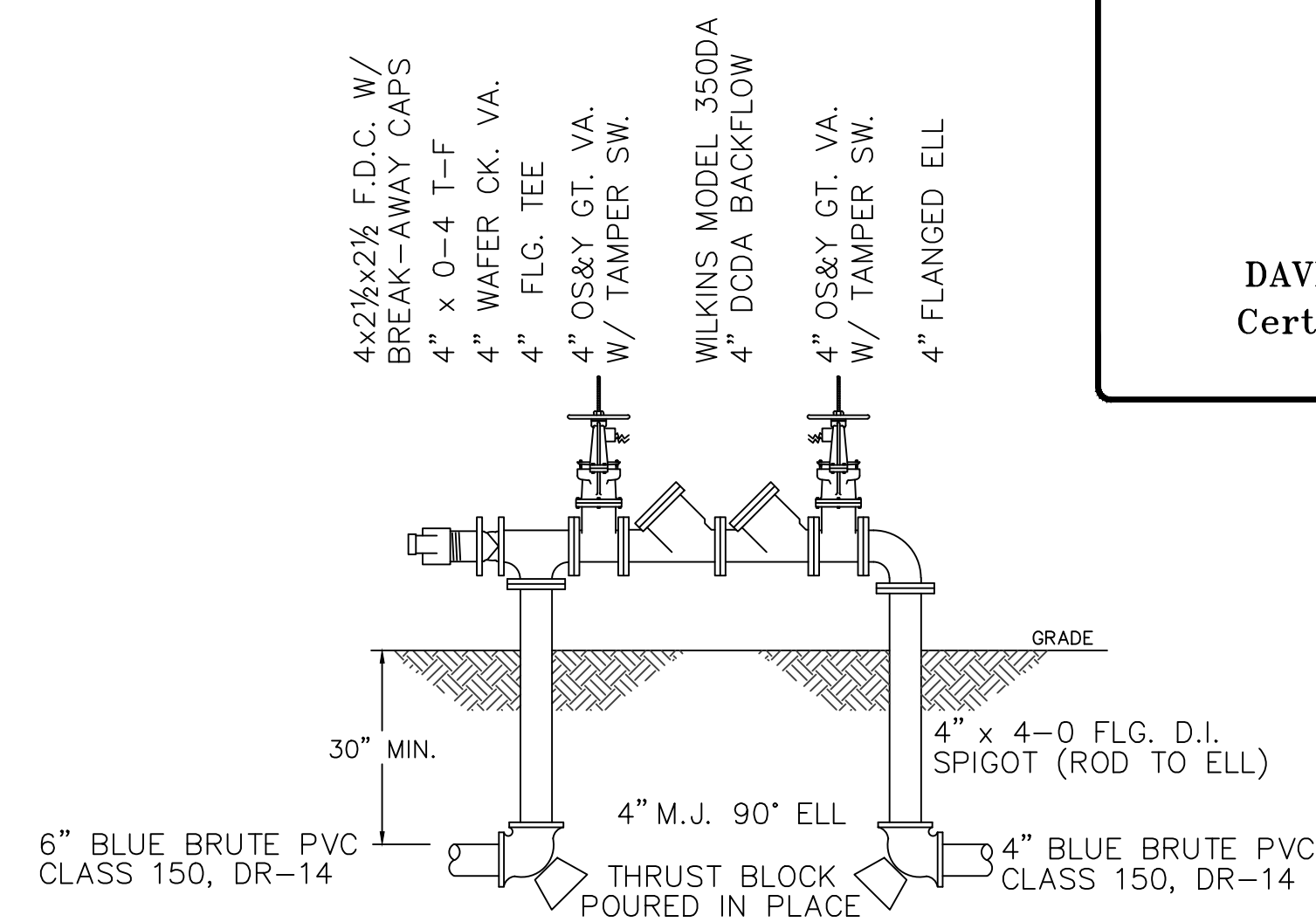
W10 CONNECT TO EXISTING 8" WATER
8"x6" TAPPING VALVE AND S

W11 NEW 6" FIRE HYDRANT ASSEM
(BY OTHERS)

W12 6" GATE VALVE (BY OTHERS)



N.T.S



N.T.S



FORTITUDE
— FIRE PROTECTION —®

2430 University Blvd W
Jacksonville, FL 32217

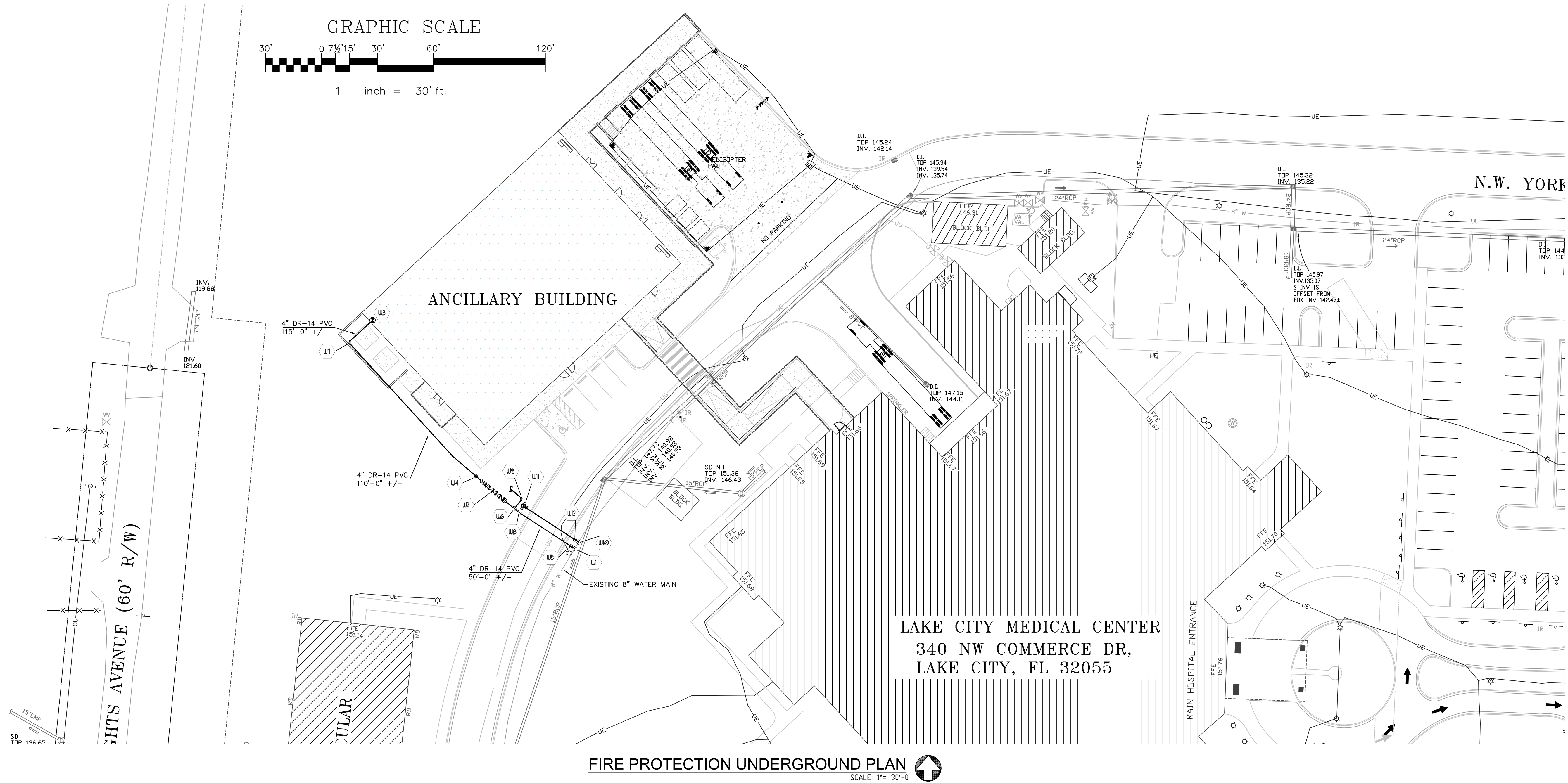
Office: (904) 733-9008
www.fortitudefire.com

HYDRAULIC CALCULATIONS	
DESIGN AREA #	
LOCATION	
DENSITY	
DESIGN AREA	
PSI REQ. @ TEST	
GPM REQ. @ TEST	
OVERHEAD C-FACTOR	
UNGS C FACTOR	
# HEADS CALCULATED	

DESIGN CRITERIA	
DESIGN AREA	
SYSTEM	
TYPE OF SYSTEM	
DENSITY / G.P.M.	
DESIGN AREA S.F.	
AREA PER SPRINKLER	
SPRINKLER K FACTOR	
INSIDE HOSE	
OUTSIDE HOSE	

[illegible][illegible]

ANCILLARY BUILDING LAKE CITY MEDICAL CENTER 340 NW COMMERCE DR. LAKE CITY, FLORIDA 32055	CONTRACT #7875	
	ISSUED BY: DAVID L. BLAKE, CET	DATE: JUNE 9, 2022
	TOTAL SPENDABLE ON JOB: 0	SCALE: AS NOTED
	CONTRACT NO.	PARSO COUNTY
SHEET NUMBER:		



THIS SPACE FOR CLERK'S RECORDING

Inst: 202112022749 Date: 11/09/2021 Time: 11:11AM
Page 1 of 1 B: 1452 P: 70, James M Swisher Jr, Clerk of Court
Columbia, County, By: VC
Deputy Clerk

Permit No. 2021-00000678
Tax Folio / Parcel ID: _____

NOTICE OF COMMENCEMENT

THE UNDERSIGNED hereby gives notice that improvement will be made to certain real property, and in accordance with Chapter 713, Florida Statutes, the following information is provided in this Notice of Commencement:

1. Description of property: (legal description of property, and street address if available) _____
Notami Hospitals of Florida, Inc. dba Lake City Medical Center 340 NW Commerce Drive, Lake City, FL 32055
2. General description of improvement: 10 Bed Med Surg Buildout
3. Owner information:
 - a. Name and address: Notami Hospitals of Florida, Inc. dba Lake City Medical Center
 - b. Phone number: _____
 - c. Name and address of fee simple titleholder (if other than owner): _____
4. Contractor:
 - a. Name and address: The Robins & Morton Group 5500 Maryland Way, Ste. 100, Brentwood, TN 37027
 - b. Phone number: 615-377-3666
5. Surety:
 - a. Name and address: N/A
 - b. Amount of bond \$ _____
 - c. Phone number: _____
6. Lender:
 - a. Name and address: N/A
 - b. Phone number: _____
7. Persons with the State of Florida designated by Owner upon whom notices or other documents may be served as provided by Section 713.13(1)(a)7, Florida Statutes:
 - a. Name and address: _____
 - b. Phone number: _____
8. In addition to himself, Owner designates the following person(s) to receive a copy of the Lienor's Notice as provided in Section 713.13(1)(b), Florida Statutes:
 - a. Name and address: Jeff Hitchcock 5500 Maryland Way, Ste. 100, Brentwood, TN 37027
 - b. Phone number: 615-377-3666
9. The expiration date of the notice of commencement is one (1) year from the date of recording unless a different date is specified:

WARNING TO OWNER: ANY PAYMENTS MADE BY THE OWNER AFTER THE EXPIRATION OF THE NOTICE OF COMMENCEMENT ARE CONSIDERED IMPROPER PAYMENTS UNDER CHAPTER 713, PART I, SECTION 713.13, FLORIDA STATUTES, AND CAN RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE COMMENCING WORK OR RECORDING YOUR NOTICE OF COMMENCEMENT.

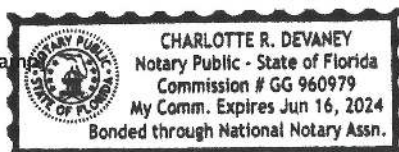
Signature of Owner/Owner's Authorized Officer/Director/Partner/Manager

Signatory's Title/Office

STATE OF FLORIDA
COUNTY OF Columbia

The foregoing instrument was acknowledged before me this 12 day of October, 2021 by Steven Nelson (name of person) as officer (type of authority: e.g., officer, trustee, attorney-in-fact) for Lake City Medical (name of party on behalf of whom instrument was executed), who is personally known to me or who has produced _____ as identification.

[Notary Seal]



Charlotte R. Devaney
Signature of Notary Public