3219 W. May, Wichita, KS 67213
Office: (316) 945-9408

DATE	January 3, 2021
WBS SECTION	040 - Site Civil
SPECIFICATION SECTION	33 11 00 - Pressure Pipe
SUBMITTAL NUMBER	01
REVISION	1
PROJECT OWNER	Wichita Water Partners / City of Wichita, KS
PROJECT TITLE	Wichita Northwest Water Treatment Facility
PROJECT NUMBER	Subcontract #20005-26
DESCRIPTION	Warehouse Entrance Waterline Piping & Fittings
MANUFACTURER	Various for Wichita Winwater
SUBMITTED BY	Taylor Robillard, Wildcat

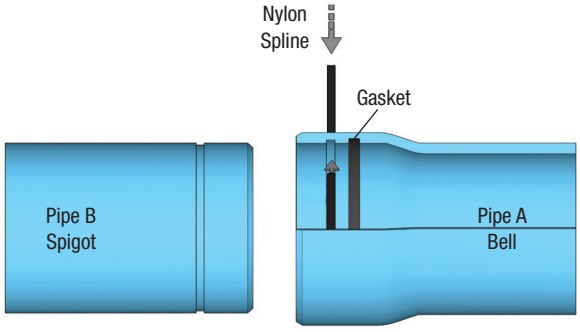
C900/RJIB Certa-Lok® with Fluid-Tite® Gasket PVC Pressure Pipe
Restrained Joint Integral Bell

NAPCO's C900/RJIB Certa-Lok PVC Pressure Pipe is manufactured to meet the demands of today's municipal needs for water and wastewater pressure applications. This unique integral bell restrained joint pipe system is designed for trenchless applications with robust tensile strength for pulling multiple segments underground. The smooth curve at the bell specifically reduces friction and allows for quick and easy assembly without interrupting the pulling process.

A segmented PVC pipe solution, this product reduces the jobsite footprint and minimizes community disruption with a reduced need for jobsite staging area and traffic control. The Fluid-Tite gasket offered in sizes 6" through 16" has a superior sealing surface for a leak-free joint and greater deflection capability.

INSTALLATION METHODS

- Horizontal directional drilling (HDD)
- Static pipe-bursting
- Open-cut
- Carrier pipe inside casings



Applications	Potable Water	Wastewater	Reclaimed Water
Pipe Color:	Blue	Green	Purple
Certifications:	NSF 14 NSF 61 FM 1612†* UL 1285*	None	None

Only products bearing the NSF Mark are Certified

Short Form Specification	
Pipe Standard:	C900
Diameter Std.:	Cast Iron Outside Diameter (CIOD)
Nominal Sizes:	6", 8", 10", 12", 16"
Dimension Ratios & Pressure Ratings:	DR 25 – 165 psi DR 18 – 235 psi (185 psi)† DR 14 – 305 psi (250 psi)†
Lay Length:	10', 20'
Pipe Compound:	ASTM D1784 Cell Class 12454
Pipe Joint Std.:	ASTM D3139
Max. Angular Joint Deflection:‡	0.5°
Gasket Standard:	ASTM F477, UL 157
Gasket Material Offering:	IR/SBR
Installation Std.:	AWWA C605

†FM 1612 calculates pressure ratings differently than AWWA with DR 18 as 185 psi and DR 14 as 250 psi.
‡See Installation Guide for more information.
**Excludes 16" nominal size.*

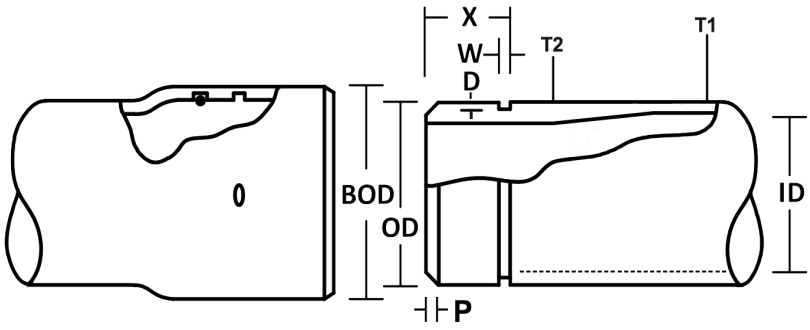
napcopipe.com | 1.855.624.7473

C900/RJIB Certa-Lok® with Fluid-Tite® Gasket PVC Pressure Pipe
Restrained Joint Integral Bell

C900/RJ CERTA-LOK PIPE & COUPLING DIMENSIONS											
			Pipe								
Nom. Size	Outside Diameter (OD)	DR	Min. Wall Thickness (T1)	Spigot End Wall Thickness (T2)	Internal Diameter (ID)	X	W	D	P	BOD	Weight (lb/ft)
6"	6.900	18	0.383	0.513	6.134	3.000	0.500	0.145	0.271	7.816	5.3
		14	0.493	0.661	5.914					8.030	6.6
8"	9.050	18	0.503	0.674	8.044	3.163	0.500	0.145	0.634	10.262	9.1
		14	0.646	0.866	7.758					10.542	11.5
10"	11.100	18	0.617	0.890	9.866	3.625	0.750	0.215	0.634	12.781	13.7
		14	0.793	1.105	9.514					13.177	17.3
12"	13.200	18	0.733	1.085	11.734	3.625	0.750	0.215	0.634	15.247	19.4
		14	0.943	1.325	11.314					15.681	24.5
16"	17.400	25	0.696	0.884	16.008	3.673	0.875	0.265	0.634	19.261	23.3
		18	0.967	1.205	15.466					19.881	31.9

Notes:
1. These dimensions are for estimating purposes only. All dimensions are in inches unless otherwise specified.
2. DR = Dimension Ratio
3. AWWA Pressure Class @ 73°F and includes 2:1 safety factor.
4. Maximum Pull Force based on actual testing and includes 2:1 safety factor.
5. Internal diameter calculated using nominal outside diameter and minimum wall thickness.
6. Additional wall thickness provides additional joint strength in machined areas. This has been calculated to have a negligible effect on flow performance.
7. Contact NAPCO Technical Services for assistance with mandrel sizing.
8. 16" nominal size is not listed to UL 1285 or FM 1612.

JOINT PERFORMANCE DATA				
Nom. Size	DR	Pressure Class (psi)	Min. Bend Radius (ft)	Max. Pull Force (lbf)
6"	18	235	144	20,100
	14	305		22,300
8"	18	235	188	27,500
	14	305		31,000
10"	18	235	232	49,500
	14	305		52,600
12"	18	235	275	60,000
	14	305		60,000
16"	25	165	363	68,500
	18	235		72,000



C900/RJIB Certa-Lok® with Fluid-Tite® Gasket PVC Pressure Pipe
Restrained Joint Integral Bell

C900/RJIB CERTA-LOK ACCESSORIES								
Application	Nom. Size	Splines				Gaskets		
		Material	Size	Length	Part Number	Material	Shape	Part Number
Standard	6"	Nylon	0.250x0.375	24	S0624TN0	IR/SBR	Profile	GSPR000600
	8"	Nylon	0.250x0.375	32	S0832TN0	IR/SBR	Profile	GSPR000800
	10"	Nylon	0.375x0.625	39	S1039TN0	IR/SBR	Profile	GSPR001000
	12"	Nylon	0.375x0.625	46	S1246TN0	IR/SBR	Profile	GSPR001200
	16"	Nylon	0.500x0.750	60	S1660TN0	IR/SBR	Profile	GSPR001600

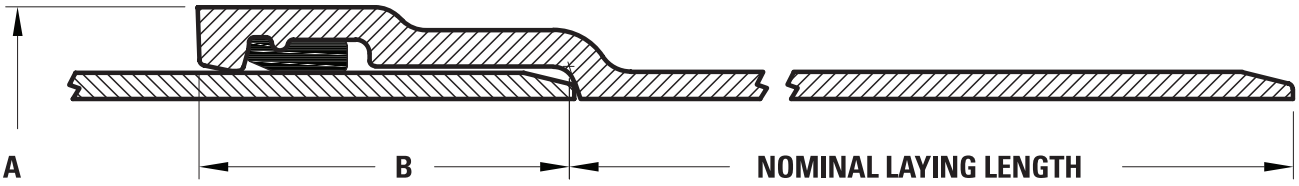
Some or all of these products are protected by patents. Visit www.napcopipe.com/patents for more information.

McWANE DUCTILE | IRON STRONG

DUCTILE IRON PIPE

TYTON® JOINT PIPE

3"–12"



PIPE SIZE IN.	PIPE THICKNESS IN.		NOMINAL OUTSIDE DIAMETER	*DIMENSIONS IN.	
	FROM	TO	IN.	A	B
3	.25	.40	3.96	5.80	3.00
4	.25	.41	4.80	7.10	3.15
6	.25	.43	6.90	8.63	3.38
8	.25	.45	9.05	10.94	3.69
10	.26	.47	11.10	13.32	3.75
12	.28	.49	13.20	15.06	3.75

* Nominal laying length is 18 feet.

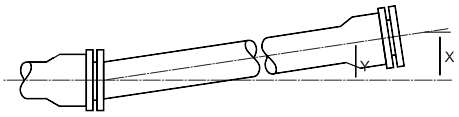
ASSEMBLY INSTRUCTIONS

STEP 1. Thoroughly clean out the bell with special attention to the gasket recess. Remove any foreign material or excess paint. Clean the spigot or beveled plain end and remove any sharp edges with a standard file.

STEP 2. After making sure that the correct gasket is being used, insert it into the recess in the bell with the small end of the gasket facing the bell face.

STEP 3. Apply lubricant to the inside surface of the gasket, making sure that the entire surface is coated. Apply a generous coating of lubricant to the beveled portion of the plain end.

STEP 4. Guide the plain end into the bell, and while maintaining straight alignment, push the plain end into the bell socket. Once the joint is assembled, necessary deflection can be accomplished.



PUSH-ON JOINT PIPE

MAXIMUM ALLOWABLE JOINT DEFLECTION

PIPE SIZE IN.	Y-MAXIMUM JOINT DEFLECTION IN DEGREES	X DEFLECTION IN INCHES 18 FT. LENGTH	APPROXIMATE RADIUS IN FT. OF CURVE PRODUCED BY SUCCESSION OF JOINTS 18 FT. LENGTH
3	5°	19	206
4	5°	19	206
5	5°	19	206
6	5°	19	206
8	5°	19	206
10	5°	19	206
12	5°	19	206

Note: If using Sure Stop 350® locking gaskets, please refer to the deflection limits for that product.

DIMENSIONS AND WEIGHTS FOR SPECIAL CLASSES OF PUSH-ON DUCTILE IRON PIPE

PIPE SIZE IN.	THICKNESS CLASS	NOMINAL THICKNESS IN.	OD* IN.	WT. OF BARREL PER FT. † LB.	TYTON® JOINT		
					WT. OF BELL LB.	WT. PER LGTH.† LB.	AVG. WT. PER FT.‡ LB.
3	52	0.28	3.96	9.9	7	185	10.3
3	54	0.34	3.96	11.8	7	220	12.2
3	56	0.40	3.96	13.7	7	255	14.1
4	51	0.26	4.80	11.3	9	210	11.8
4	52	0.29	4.80	12.6	9	235	13.1
4	53	0.32	4.80	13.8	9	255	14.3
4	54	0.35	4.80	15	9	280	15.5
4	56	0.41	4.80	17.3	9	320	17.8
6	50	0.25	6.90	16	11	300	16.6
6	51	0.28	6.90	17.8	11	330	18.4
6	52	0.31	6.90	19.6	11	365	20.2
6	53	0.34	6.90	21.4	11	395	22.0
6	54	0.37	6.90	23.2	11	430	23.8
6	55	0.40	6.90	25	11	460	25.6
6	56	0.43	6.90	26.7	11	490	27.3
8	50	0.27	9.05	22.8	17	425	23.7
8	51	0.30	9.05	25.2	17	470	26.1
8	52	0.33	9.05	27.7	17	515	28.6
8	53	0.36	9.05	30.1	17	560	31.0
8	54	0.39	9.05	32.5	17	600	33.4
8	55	0.42	9.05	34.8	17	645	35.7
8	56	0.45	9.05	37.2	17	685	38.1
10	50	0.29	11.10	30.1	24	565	31.4
10	51	0.32	11.10	33.2	24	620	34.5
10	52	0.35	11.10	36.2	24	675	37.5
10	53	0.38	11.10	39.2	24	730	40.5
10	54	0.41	11.10	42.1	24	780	43.4
10	55	0.44	11.10	45.1	24	835	46.4
10	56	0.47	11.10	48	24	890	49.3
12	50	0.31	13.20	38.4	29	720	40.0
12	51	0.34	13.20	42	29	785	43.6
12	52	0.37	13.20	45.6	29	850	47.2
12	53	0.40	13.20	49.2	29	915	50.8
12	54	0.43	13.20	52.8	29	980	54.4
12	55	0.46	13.20	56.3	29	1040	57.9
12	56	0.49	13.20	59.9	29	1105	61.5

STANDARD DIMENSIONS AND WEIGHTS OF 3" THROUGH 12" PUSH-ON JOINT DUCTILE IRON PIPE

PIPE SIZE IN.	PRESSURE CLASS PSI	NOMINAL THICKNESS IN.	OD* IN.	WT. OF BARREL PER FT. † LB.	TYTON® JOINT		
					WT. OF BELL LB.	WT. PER LGTH.† LB.	AVG. WT. PER FT.‡ LB.
3	350	0.25	3.96	8.90	7.00	185	9.20
4	350	0.25	4.80	10.90	9.00	225	11.30
6	350	0.25	6.90	16.00	11.00	300	16.60
8	350	0.25	9.05	21.10	17.00	395	22.00
10	350	0.26	11.10	27.10	24.00	510	28.40
12	350	0.28	13.20	34.80	29.00	655	36.40

† Including bell; calculated weight of pipe rounded off to the nearest 5 lb.

‡ Including bell; average weight per foot, based on calculated weight of pipe before rounding.

* Tolerances of OD of spigot end: 3 –12 in. = +0.06 in. & -0.06 in.

** Fastite® Joint

STANDARDS APPLICABLE TO DUCTILE IRON PIPE AND FITTINGS

THICKNESS DESIGN OF DUCTILE IRON PIPE	ANSI/AWWA C150/A21.50
DUCTILE IRON PIPE FOR WATER AND OTHER LIQUIDS	ANSI/AWWA C151/A21.51, FEDERAL WWP421D, GRADE C
DUCTILE IRON PIPE FOR GRAVITY FLOW SERVICE	ANSI/ASTM A746
DUCTILE IRON FITTINGS FOR WATER AND OTHER LIQUIDS (3 in. through 36 in.)	ANSI/AWWA C110/A21.10
DUCTILE IRON COMPACT FITTINGS (3 in. through 24 in.)	ANSI/AWWA C153/A21.53
FLANGED FITTINGS	ANSI/AWWA C110/A21.10, ANSI B16.1
DUCTILE IRON PIPE WITH THREADED FLANGES	ANSI/AWWA C115/21.15
COATINGS AND LININGS	
Asphaltic	ANSI/AWWA C151/A21.51, ANSI/AWWA C110/A21.10, ANSI/AWWA C153/A21.53
Cement Lining	ANSI/AWWA C104/A21.4
Various Epoxy Linings and Coatings	MANUFACTURER'S STANDARD
Exterior Polyethylene Encasement	ANSI/AWWA C105/A21.5
JOINTS – PIPE AND FITTINGS	
Push-On and Mechanical Rubber-Gasket Joints	ANSI/AWWA C111/A21.11, FEDERAL WWP421D
Flanged	ANSI/AWWA C115/A21.15, ANSI B16.1
Grooved and Shouldered	ANSI/AWWA C606
PIPE THREADS	ANSI B2.1
INSTALLATION	ANSI/AWWA C600

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Rev. May 2021

McWANE DUCTILE | IRON STRONG

1401 East 2000 South
Provo, UT 84606
o 801-373-6910
f 801-377-0338
mcwaneductile.com

CUSTOMER: WICHITA WINWATER **DATE:** 1/3/2022
PROJECT: NWWTF - WICHITA
LOCATION: WICHITA, KS
CONTRACTOR: WILDCAT CONSTRUCTION
RE: "BUY AMERICA(N)" & AIS PRODUCT CERTIFICATION OF COMPLIANCE

This letter certifies:

THAT the Ductile Iron Pipe (DIP) supplied to the project above was manufactured by McWane Ductile in Provo, UT, Coshocton, OH, and Phillipsburg, NJ, using only raw materials that wholly originate within the U.S.A. and are in full compliance with the American Iron and Steel (AIS) requirements as mandated in the EPA's State Revolving Fund Program.

THAT the ANSI/AWWA DIP meets all applicable requirements and provisions of the "Buy America/Buy American Acts" as provided for by the U.S. Department of Transportation and the Federal standards noted for domestic iron and steel construction materials incorporated into your project. These standards/laws/acts and revisions date from 1933 through the current year 2019.

Buy American/AIS

- American Recovery and Reinvestment Act of 2009 (ARRA), section 1605
- Federal Aviation Administration (FAA), 49 C.S.C. ş 50101
- US EPA Clean Water State Revolving Fund (CWSRF) - CWA Section 608
- US EPA Drinking Water State Revolving Fund (DWSRF)
- Consolidated Appropriation Act 2018 "continuing requirements" for AIS products in DWSRF projects

Buy America

- Federal Highway Administration (FHWA), 23 U.S.C ş 501001 ş313- Buy America; 23 C.F.R. ş 635.410
- Federal Railroad Administration (FRA), 49 U.S.C. Chapters 244, 246: ş 24405- Buy America

THAT the material will be manufactured and inspected in accordance with the following ANSI/AWWA specifications and meets all the requirements thereof:

ITEMS: 6" Ductile Iron Pipe CL 350/50 Tyton Joint – CL SC / SC
8" Ductile Iron Pipe CL 350 Tyton Joint – CL SC / SC

SPECIFICATIONS:

Ductile Iron Pipe
__X__ ANSI/AWWA C151/A21.51-17
__X__ ANSI/AWWA C150/A21.50-14

Fittings
_____ ANSI/AWWA C110/A21.10-12
_____ ANSI/AWWA C153/A21.53-11
(CI CL 350 Short Body)

Polyethylene Encasement
_____ ANSI/AWWA C105/A21.5-10

Joints
__X__ TJ:MJ/TJ:RJ - ANSI/AWWA C111/A21.11-17
_____ MJ - ANSI/AWWA C111/A21.11-17
_____ FLANGE - ANSI C115/A21.15-11

Lining (per ANSI/AWWA C104/A21.4-16)
__X__ Asphaltic Coating Inside
__X__ Standard Cement Lining
_____ Double Cement Lining
_____ Zinc Coating

Other
__X__ UL:MH16433 (N)
__X__ FM:J12V0A8.AH
__X__ NSF: 61-1989

IF ANY of the above specifications and/or compliance statements listed above change while providing material to this project we will immediately notify the prime contractor and engineer.

MCWANE DUCTILE

LISA HILL
SALES DEPARTMENT

TYLER UNION®
Quality Waterworks Products

23U - ANSI/AWWA C153/A21.53
Mechanical Joint Compact
Ductile Iron Fittings
Revised 4/2018

☑ **DOMESTIC** ☐ **NON-DOMESTIC**

SUBMITTAL: C153 MECHANICAL JOINT PRODUCT

(Current revisions for the noted Standards apply)

SIZES: 2" - 64" (2" not included in ANSI/AWWA C153 standard)

STANDARDS: ANSI/AWWA C153/A21.53, NFPA13/24, 3"-16" UL and 3"-10" FM listed & approved (File - Tyler Union)

MATERIAL: Cast of ASTM A536 qualified ductile iron. Date code is cast on and required for traceability.

PRESSURE RATING: *Flanged fittings rated at 250 psi. Mechanical joints 2" – 24" rated at 350 psi and 30" – 48" at 250 psi.
*Note: With rubber annular ring flange gasket, 2" – 24" Flanged fittings can be rated at 350 psi.
Note: Wyes over 12" are not pressure rated. Contact Tyler Union for rating in your application.

DEFLECTION: Joint deflection 5° max for 2"– 12" and 3° max for 14"– 48". Reduces by 50% at nominal pipe & fitting diameters

NSF-61 & NSF372: Meets all requirements including Annex G, Tyler Union's Underwriters Laboratory listing MH16439.

ASPHALT COATING: Per ANSI/AWWA C104/A21.4 and ANSI/AWWA C153/A21.53.

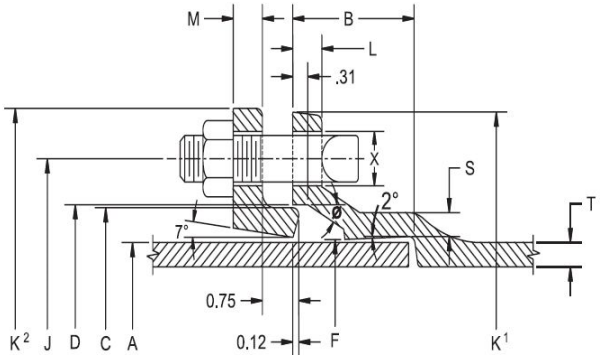
CEMENT LINING: Per ANSI/AWWA C104/A21.4, with double cement lining available upon request.

EPOXY COATING: Fusion bonded epoxy per ANSI/AWWA C116/A21.16. Additional coatings available upon request.

BARE FITTINGS: Available upon request.

FASTNERS: High strength low alloy weathering steel per ANSI/AWWA C111/A21.11 and ASTM A242

INSTALLATION: Install per AWWA C600/C651 using pipe conforming to ANSI/AWWA C151/A21.51 or AWWA C900/905.



	NOMINAL JOINT DIMENSIONS IN INCHES													BOLTS	
Size Inches	A Dia. DI Pipe	B Hub Depth	C Dia. GLAND	D Dia.	F Dia.	J Dia. GLAND	K¹ Dia.	K² Dia. GLAND	L	M GLAND	S	T	X	Size	Qty.
2	2.51	2.50	3.50	3.60	2.61	4.75	6.19	6.89	0.58	0.62	0.36	0.30	3/4	5/8x3	2
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	0.58	0.62	0.39	0.33	3/4	5/8x3	4
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	0.60	0.75	0.39	0.34	7/8	3/4x3-1/2	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	0.63	0.88	0.43	0.36	7/8	3/4x3-1/2	6
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	0.66	1.00	0.45	0.38	7/8	3/4x4	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	0.70	1.00	0.47	0.40	7/8	3/4x4	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	0.73	1.00	0.49	0.42	7/8	3/4x4	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.31	20.25	0.79	1.25	0.55	0.47	7/8	3/4x4-1/2	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.56	22.50	0.85	1.31	0.58	0.50	7/8	3/4x4-1/2	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	0.68	0.54	7/8	3/4x4-1/2	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	0.69	0.57	7/8	3/4x4-1/2	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	0.75	0.61	7/8	3/4x5	16
30	32.00	4.50	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	0.82	0.66	1-1/8	1x6	20
36	38.30	4.50	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	0.74	1-1/8	1x6	24
42	44.50	4.50	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	0.82	1-3/8	1-1/4x6-1/2	28
48	50.80	4.50	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	0.90	1-3/8	1-1/4x6-1/2	32
54	Available on Request														
60	Available on Request														
64	Available on Request														

Anniston: 1501 W 17th St. ● Anniston, AL 36201 ● (800) 226-7601
Corona: 1001 El Camino Ave. ● Corona, CA 92879 ● (866) 527-8471
Tyler: 11910 CR 492 ● Tyler, Texas 75706 ● (800) 527-8478
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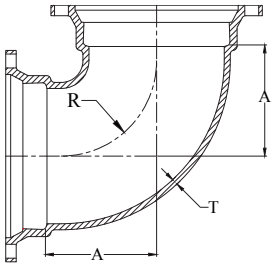
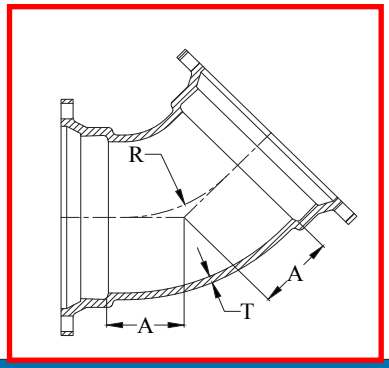
New Lenox: 2200 West Haven● New Lenox, IL 60451
Portland: 15670 N. Lombard St. ● Portland, OR 97203
Oxford: 1800 Greenbrier Dear Road ●Anniston, AL 36207

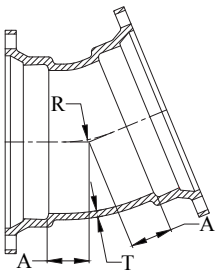
C153 DUCTILE IRON COMPACT FITTINGS

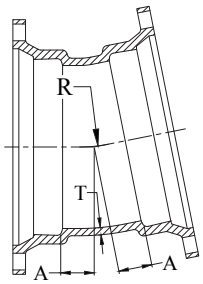


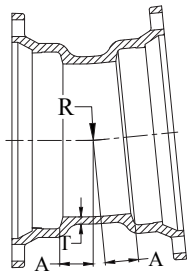


90° Bends (1/4)								45° Bends (1/8)				
Domestic					Import			Domestic			Import	
Size	T	A	R	Weight	T	A	Weight	A	R	Weight	A	Weight
3	0.34	3.50	2.50	26	0.33	3.50	19	2.00	2.41	17	1.50	16
4	0.35	4.00	3.00	26	0.34	4.00	24	2.50	3.56	22	2.00	22
6	0.37	6.00	5.00	45	0.36	5.00	39	3.50	7.25	38	3.00	32
8	0.39	7.00	6.00	62	0.38	6.50	57	4.00	8.44	51	3.50	46
10	0.41	7.50	6.50	89	0.40	7.50	89	5.00	10.88	75	4.50	70
12	0.43	9.00	8.00	114	0.42	9.00	108	5.98	13.25	108	5.50	101
14	0.51	12.00	11.50	210	0.47	11.50	210	5.50	12.06	156	5.00	160
16	0.52	13.00	12.50	268	0.50	12.50	264	5.50	10.42	191	5.50	202
18	0.59	14.00	13.00	375	0.54	14.00	335	6.00	11.18	252	6.00	250
20	0.60	17.00	15.50	443	0.57	15.00	400	7.00	13.59	303	7.00	305
24	0.62	17.00	15.50	663	0.61	16.75	565	7.50	14.89	398	7.50	405
30	0.66	21.50	19.00	1005	0.66	21.50	930	10.50	9.31	850	10.50	780
36	0.74	24.50	22.00	1540	0.74	24.50	1450	11.50	21.73	1135	11.50	1135
42	0.82	29.25	26.70	2380	0.82	29.25	2205	14.00	27.76	1675	14.00	1610
48	0.90	33.25	30.80	3084	0.90	33.25	2990	15.00	30.17	2196	15.00	2090

****NOTE:** Other sizes available, contact Tyler Union for information





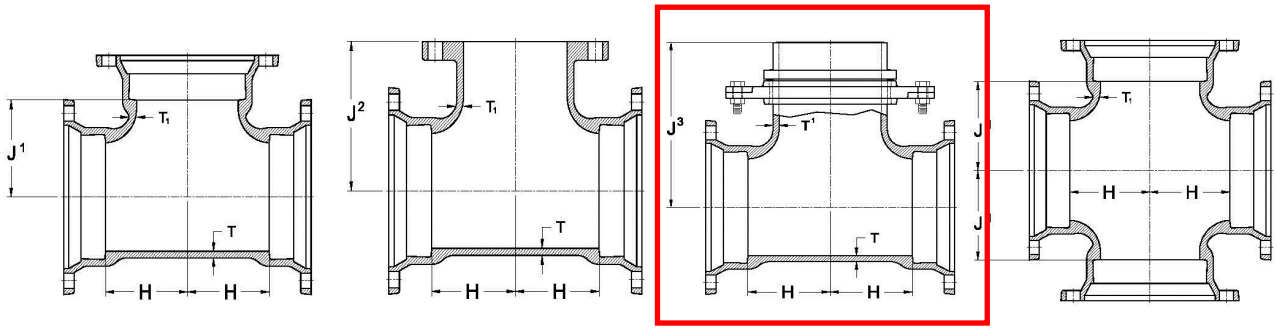


22½° Bends (1/16)						11¼° Bends (1/32)					5 - 5/8 Bends (1/64) MJ x MJ		
Domestic				Import		Domestic			Import		Import		
Size	A	R	Weight	A	Weight	A	R	Weight	A	Weight	A	R	Weight
3	1.50	2.51	16	1.00	15	1.25	2.53	15	1.00	14	1.25	5.08	16
4	1.75	3.81	21	1.50	18	1.50	5.12	21	1.30	16	1.50	7.61	18
6	2.25	6.35	31	2.00	31	1.50	5.12	30	1.50	30	1.50	10.15	29
8	2.85	11.80	44	2.50	46	2.06	15.80	43	1.80	42	1.75	12.69	45
10	3.35	14.35	67	3.00	64	2.32	18.36	58	2.00	58	2.00	15.23	59
12	3.86	16.90	81	3.50	80	2.56	20.90	68	2.30	67	2.30	17.77	82
14	3.93	17.25	139	3.75	136	2.59	21.25	123	2.50	93	2.50	20.31	136
16	3.98	17.50	172	3.75	172	2.62	21.50	145	2.50	148	2.50	20.31	157
18	4.50	15.11	275	4.50	255	3.00	16.52	205	3.00	205	3.00	25.38	283
20	4.50	15.07	341	4.50	310	3.00	15.23	245	3.00	245	3.00	25.38	374
24	4.50	15.51	333	4.50	366	3.00	16.10	304	3.00	315	3.00	25.38	487
30	6.75	21.36	670	6.75	665	4.75	22.84	551	4.80	600	3.75	32.97	600
36	7.75	26.39	978	7.75	960	5.00	25.38	870	5.00	820	4.00	34.55	820
42	9.00	32.68	1352	9.00	1350	6.00	35.54	1163	6.00	1180	5.00	42.71	1180
48	10.00	27.70	1757	10.00	1760	6.50	40.61	1474	6.50	1475	5.50	47.35	1475

NOTE: Contact Tyler Union for details on 54" through 64" **NOTE:** For projects where product weights, specifications or dimensions are critical, advise upon order placement.

TYLER UNION®
Quality Waterworks Products

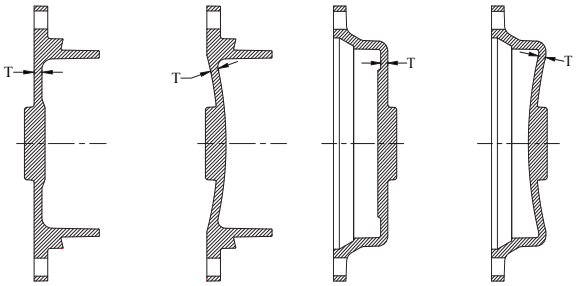
C153 DUCTILE IRON COMPACT FITTINGS

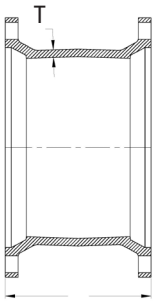


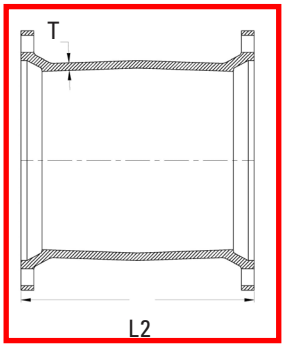
MJ Tee							MJxFE Tee		MJxSwivel Tee		Cross					
Domestic							Weight				Import				Weight	
Size	T	T1	H	J1	J2	J3	MJ	MJ x FE	†MJ x S	Cross	T	T1	H	J1	MJ	Cross
3	0.34	0.34	3.50	3.50	5.50	–	26	29	–	31	0.33	0.33	3.00	3.00	28	35
4x3	0.35	0.34	3.50	4.00	6.50	–	35	34	–	39	0.34	0.33	3.50	4.00	30	34
4	0.35	0.35	4.00	4.00	6.50	–	37	39	–	45	0.34	0.34	4.00	4.00	32	40
6x3	0.37	0.34	4.00	4.00	6.50	–	51	54	–	–	0.36	0.33	3.50	5.00	42	–
6x4	0.37	0.35	5.00	6.00	8.00	–	52	57	–	62	0.36	0.34	4.00	5.00	46	57
6	0.37	0.37	6.00	6.00	8.00	10.50	62	69	61	72	0.36	0.36	5.00	5.00	56	75
8x3	0.39	0.34	4.00	6.50	9.00	–	56	–	–	–	–	–	–	–	–	–
8x4	0.39	0.35	5.00	6.50	9.00	–	68	82	–	84	0.38	0.34	4.00	6.50	60	68
8x6	0.39	0.37	5.50	6.50	9.00	11.50	79	87	74	98	0.38	0.36	5.00	6.50	72	74
8	0.39	0.39	6.50	6.50	9.00	11.50	89	101	116	112	0.38	0.38	0.38	6.50	86	105
10x3	0.41	0.34	4.00	7.50	11.00	–	80	–	–	–	–	–	–	–	–	–
10x4	0.41	0.35	4.50	7.50	11.00	–	82	92	–	98	0.40	0.34	4.00	7.50	78	84
10x6	0.41	0.37	5.50	7.50	11.00	13.00	99	116	114	121	0.40	0.36	5.00	7.50	90	119
10x8	0.41	0.39	6.50	7.50	11.00	13.00	116	128	138	135	0.40	0.38	6.50	7.50	105	124
10	0.41	0.41	7.50	7.50	11.00	–	132	144	–	156	0.40	0.40	7.50	7.50	120	145
12x3	0.43	0.34	4.00	8.75	12.00	–	99	–	–	–	–	–	–	–	–	–
12x4	0.43	0.35	4.00	9.00	12.00	–	108	118	–	119	0.42	0.34	4.00	8.75	94	119
12x6	0.43	0.37	5.00	9.00	12.00	14.25	119	133	132	138	0.42	0.34	4.00	8.75	110	126
12x8	0.43	0.39	6.50	9.00	12.00	14.25	126	146	149	149	0.42	0.38	6.50	8.75	125	149
12x10	0.43	0.41	7.50	8.75	12.00	–	159	174	–	187	0.42	0.40	7.50	8.75	140	179
12	0.43	0.43	8.75	8.75	12.00	–	171	198	–	202	0.42	0.42	8.75	8.75	160	213
14x6	0.51	0.44	6.50	10.50	14.00	16.00	183	205	211	210	0.47	0.36	6.50	10.50	182	200
14x8	0.51	0.45	7.50	10.50	14.00	–	211	–	–	231	0.47	0.38	7.50	10.50	206	228
14x10	0.51	0.46	8.50	10.50	14.00	–	229	244	–	255	0.47	0.40	8.50	10.50	228	–
14x12	0.51	0.47	9.50	10.50	14.00	–	245	284	–	269	0.47	0.42	9.50	10.50	234	–
14	0.51	0.51	10.50	10.50	14.00	–	281	291	–	299	0.47	0.47	10.50	10.50	280	299
16x6	0.52	0.45	6.50	11.50	14.00	16.00	222	230	243	250	0.50	0.36	6.50	11.50	228	240
16x8	0.52	0.46	7.50	11.50	15.00	–	245	248	–	264	0.50	0.38	7.50	11.50	248	385
16x10	0.52	0.47	8.50	11.50	15.00	–	265	287	–	286	0.50	0.40	8.50	11.50	264	–
16x12	0.52	0.48	9.50	11.50	15.00	–	277	312	–	312	0.50	0.42	9.50	11.50	280	–
16x14	0.52	0.51	10.50	11.50	15.00	–	317	348	–	–	0.50	0.47	10.50	11.50	316	–
16	0.52	0.52	11.50	11.50	15.00	–	337	324	–	451	0.50	0.50	11.50	11.50	322	–
18x6	0.59	0.44	6.50	14.50	15.50	18.00	275	261	279	–	0.54	0.36	6.50	12.50	275	–
18x8	0.59	0.45	7.50	14.50	14.50	–	280	351	–	–	0.54	0.38	7.50	12.50	295	–
18x10	0.59	0.47	8.50	12.50	–	–	286	–	–	–	0.54	0.40	8.50	12.50	315	–
18x12	0.59	0.49	9.50	12.50	–	–	372	–	–	–	0.54	0.42	9.50	12.50	335	348
18x14	0.59	0.56	10.50	12.50	–	–	415	–	–	–	0.54	0.47	10.50	12.50	380	–
18x16	0.59	0.57	11.50	12.50	–	–	445	–	–	–	0.54	0.50	11.50	12.50	405	–
18	0.59	0.59	13.00	12.50	–	–	490	–	–	–	0.54	0.54	12.50	12.50	435	348
20x6	0.60	0.44	7.00	14.00	16.00	19.50	335	362	358	–	0.57	0.36	6.50	14.00	315	–
20x8	0.60	0.45	8.00	14.00	–	–	390	–	–	–	0.57	0.38	8.00	14.00	345	379
20x10	0.60	0.47	9.00	14.00	–	–	417	–	–	–	0.57	0.40	9.00	14.00	370	–
20x12	0.60	0.49	10.00	14.00	–	–	460	–	–	–	0.57	0.42	10.00	14.00	395	413
20x14	0.60	0.56	11.00	14.00	–	–	475	–	–	–	0.57	0.47	11.00	14.00	440	–
20x16	0.60	0.57	12.00	14.00	–	–	530	–	–	–	0.57	0.50	12.00	14.00	465	–
20x18	0.60	0.59	13.00	14.00	–	–	560	–	–	–	0.57	0.54	13.00	14.00	505	–
20	0.60	0.60	14.00	14.00	–	–	605	–	–	–	0.57	0.57	14.00	14.00	535	–

NOTE: Contact TU Inside Sales representative for MJ Crosses larger than 16 inch. †MJxSwl Weights include swivel gland
**NOTE: Other sizes available, contact Tyler Union for information.

C153 DUCTILE IRON COMPACT FITTINGS





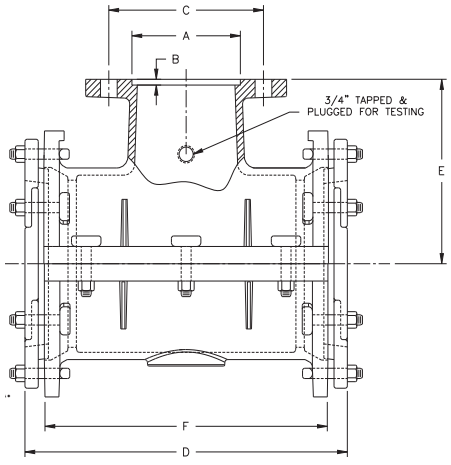


SOLID & TAPPED PLUGS & CAPS

Domestic					Import		
Size	T	Max. Tap	Weight		T	Weight	
			Plugs	Caps		Plugs	Caps
3	0.46	2	9	8	0.33	8	8
4	0.46	2	9	10	0.34	10	9
6	0.46	2	13	18	0.36	16	15
8	0.46	2	25	26	0.38	26	22
10	0.56	2	36	32	0.40	36	32
12	0.56	2	47	46	0.42	46	42
14	0.62	2	76	85	0.47	75	66
16	0.62	2	98	94	0.50	95	92
18	0.65	2	138	121	0.54	121	114
20	0.66	2	158	149	0.57	135	125
24	0.68	2	202	232	0.61	296	198
30	0.66	2	426	345	0.66	355	345
36	0.74	2	560	626	0.74	688	628
42	0.82	2	1091	723	0.82	–	–
48	0.90	2	1455	974	0.90	–	–

SOLID SLEEVES

Domestic						Import				
Size	T	L1	L2	Weight		T	L1	L2	Weight	
				Short	Long				Short	Long
3	0.34	7.50	12.00	13	22	0.33	7.50	12.00	12	17
4	0.35	7.50	12.00	19	25	0.34	7.50	12.00	15	20
6	0.37	7.50	12.00	28	37	0.36	7.50	12.00	23	29
8	0.39	7.50	12.00	38	49	0.38	7.50	12.00	31	45
10	0.41	7.50	12.00	48	68	0.40	7.50	12.00	45	61
12	0.43	7.50	12.00	58	81	0.42	7.50	12.00	56	76
14	0.56	9.50	15.00	107	153	0.47	9.50	15.00	94	128
16	0.57	9.50	15.00	116	174	0.50	9.50	15.00	118	159
18	0.68	9.50	15.00	154	207	0.54	9.00	15.00	145	200
20	0.69	9.50	15.00	200	249	0.57	9.00	15.00	173	236
24	0.75	9.50	15.00	232	323	0.61	9.00	15.00	226	306
30	0.74	15.00	24.00	549	640	0.66	15.00	24.00	472	634
36	0.74	15.00	24.00	725	868	0.74	15.00	24.00	673	889
42	0.82	–	24.00	–	1146	0.82	15.00	24.00	887	1150
48	0.90	–	24.00	–	1431	0.90	15.00	24.00	1136	1435



TAPPING SLEEVE FOR CAST IRON/DUCTILE IRON

Size	A	B	C	D	E	F	Min.	Max	Weight
6X4	5.016	0.250	7.50	15.75	8.00	12.75	6.85	7.15	104
6	7.016	0.312	9.50	15.75	8.00	12.75	6.85	7.15	108
8X4	5.016	0.250	7.50	16.50	9.00	13.50	9.00	9.35	134
8X6	7.016	0.312	9.50	16.50	9.00	13.50	9.00	9.35	140
8	9.016	0.312	11.75	16.50	9.00	13.50	9.00	9.35	148
10X4	5.016	0.250	7.50	24.00	11.00	20.75	11.04	11.45	236
10X6	7.016	0.312	9.50	24.00	11.00	20.75	11.04	11.45	240
10X8	9.016	0.312	11.75	24.00	11.00	20.75	11.04	11.45	246
10	11.016	0.312	14.25	24.00	11.00	20.75	11.04	11.45	257
12X4	5.016	0.250	7.50	26.50	12.00	23.25	13.14	13.56	273
12X6	7.016	0.312	9.50	26.50	12.00	23.25	13.14	13.56	286
12X8	9.016	0.312	11.75	26.50	12.00	23.25	13.14	13.56	292
12X10	11.016	0.312	14.25	26.50	12.00	23.25	13.14	13.56	303
12	13.016	0.312	17.00	26.50	12.00	23.25	13.14	13.56	320

Note: Visit www.tylerunion.com for assembly instructions.
Tapping sleeve is assembled with gland and gasket.

TYLER UNION®
Quality Waterworks Products

Address: 1501 W 17th Street – Anniston, Al 36201
Telephone No.: (800) 226-7601
Fax Number: (800) 226-0806
www.tylerunion.com

Date:	November 1, 2021
Re:	American Iron and Steel Certification
Project:	NWWTF
Location:	Wichita, KS
Contractor:	Wildcat Construction
TU Distributor:	Wichita Winwater Works

I, Jack Lewis, certify the Melting, Casting, Grinding, Cement Lining and Coating process for manufacturing the following products and shipped for the subject project are in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

ANSI/AWWA Ductile Iron Fittings:
C153 Mechanical Joint Fittings

Melting, Casting, Grinding, Cement Lining & Coating Process took place in Anniston, AL USA.

If any of the above compliance statements change while providing material to this project, we will immediately notify the prime contractor and the engineer.

Best Regards,

Jack Lewis
Sales Engineer
Tyler Union Waterworks
(800) 226-7601
jack.lewis@tylerunion.com
File: Sub Tyler Union Domestic Step Cert 2021

SST™
STAINLESS STEEL TAPPING SLEEVE

SUBMITTAL INFORMATION

INTENDED USE

The Romac Style SST is recommended for tapping Plastic, Cast Iron, Ductile Iron, Steel, Asbestos Cement and other pipe materials.

STANDARD

The Romac Style SST style tapping sleeves meet all requirements set forth in the MSS SP-124 and ANSI/AWWA Standard C223, Underground Service Line Valves and Fittings.

MATERIALS

FLANGE
Ductile (nodular) iron meets or exceeds ASTM A536, Grade 65-45-12. 304 Stainless Steel optional. ANSI class 125 and 150 drillings and recessed to accept tapping valves.

STAINLESS STEEL
Meets or exceeds ASTM A 240 type 304 UNS designated S30400.

OUTLET
304L Stainless Steel, heavy gauge. Fused to shell by GMAW weld on the outside and GTAW weld on the inside.

SHELL
Stainless Steel, heavy gauge. Top half is 304L. Back half is 304.

SIDEBARS & **LUGS**
304 Stainless Steel, heavy gauge. Sidebars GTAW welded to form permanent fusion with shell. Lugs GMAW welded to Sidebars.

TEST PORT & TEST PLUG
304 Stainless Steel. Test port is ¾ inch FNPT. Test Plug is ¾" MNPT Hex Head Plug. Plug threads are coated to prevent galling.

BOLTS
304 Stainless Steel. 4.60 to 6.60 inch sleeves use ½" UNC rolled thread, 6" – 12" sleeves use 5/8" UNCE rolled thread. Bolts are GMAW welded to Sidebars.

NUTS
304 Stainless Steel, heavy hex. 4 inch nominal size sleeves use ½" UNC threads, 6 inch nominal size and larger sleeves use 5/8" UNC threads. Nuts coated to prevent galling.

WASHERS
304 Stainless Steel and Plastic Flat Washers. 4 inch nominal size sleeves use 1/2", 6 inch nominal and larger use 5/8" washers. Plastic washer prevents galling between nut or stainless steel Washer and Lifter Bar on all sizes.

ARMORS
304 Stainless Steel, heavy gauge.

LIFTER BARS
304 Stainless Steel. Lip curved to hold position while tightening. Heavy gauge serves as bearing surface for nuts.

GASKETS
Virgin Styrene Butadiene Rubber (SBR) compounded for water and sewer service in accordance with ASTM D 2000. Specially designed grid pattern and tapered ends to assure seal around full circumference of pipe. Reinforced ring at outlet provides hydrodynamic seal. Other compounds available for petroleum, chemical or high temperature service. **Romac can provide a NSF certified gasket on request.**

WELDS

GMAW and GTAW weld processes. 308L Stainless Steel filler wire used as appropriate. Flange weld is GMAW type proprietary process. All welds fully passivated for enhanced corrosion resistance.

PRESSURE

When properly installed, the Romac Style SST Tapping Sleeve can work at the pressure ratings shown here.

PIPE SIZE	WORKING PRESSURE	TEST PRESSURE
4"- 8"	250 psi	312 psi
10" - 24"	200 psi	300 psi

SIZES & RANGES

SEE CATALOG.

This information is based on the best data available at the date printed above. Please check with Romac for any updates or changes.

Document # 15-8-0004 04/2018

ROMAC INDUSTRIES, INC.
www.romac.com
21919 20th Avenue SE • Suite 100 • Bothell, WA 98021
Phone (425) 951-6200 • 1-800-426-9341 • Fax (425) 951-6201

ROMAC
INDUSTRIES,
INC.

21919 20th Avenue SE • Suite 100
Bothell, WA 98021

11/8/2021

Subject: American Iron and Steel (AIS) Certification for Romac Industries
Project Name: Wichita NWWTF - 21st Street Entrance
Project Location: Wichita, KS
Contractor Name: Wildcat Construction

To Whom It May Concern,

I, Matthew Larkin, certify that the melting, bending, coating, assembling, and cutting processes, etc. for manufacturing the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Items, Products and/or Materials Manufactured Per Romac Quotation Number # YD211021-2:

- Romac Style SST Stainless Steel Tapping Sleeve - with special quoted domestic components s

Such processes took place at the following locations:
- Sultan, Washington
- Bothell, Washington

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

If there are further questions on this topic, please contact Romac Industries.

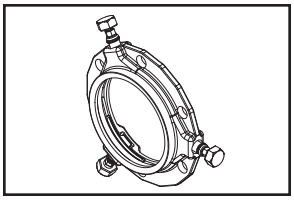
Sincerely,

Matthew P. Larkin

Matt Larkin
Business Development Manager
Romac Industries, Inc.

SUBMITTAL INFORMATION

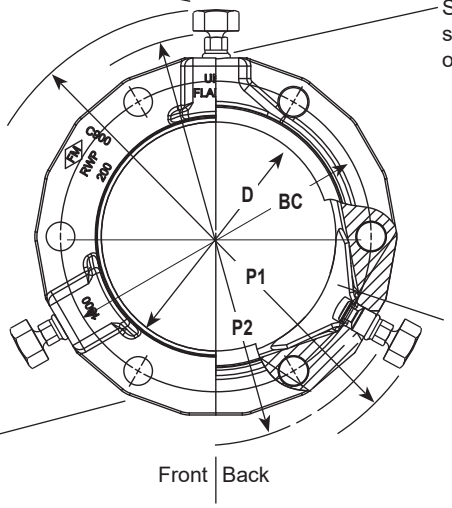
Uni-Flange® Mechanical Joint Restraint - *(UFR1500-x-I style)*



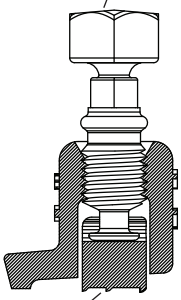
3" - 12" SERIES UFR1500 MECHANICAL JOINT RESTRAINT FOR C900, C909, IPS PVC OR HDPE

Ductile iron actuating screw, with the Auto-Tork break-away head design, ensures proper torque during installation

Safety stop ensures ring segments can never be over-tightened



Auto-Tork Bolt



Restraint Segment

Ring segments are ductile iron per ASTM A536 and heat treated to a hardness of 310 BHN minimum

Gland body is of high strength ductile iron per ASTM A536, grade 65-45-12. Compatible with all mechanical joints conforming to ANSI / AWWA C111 / A21.11

Nom. Pipe Size	Pipe O.D. (In.)	Catalog Number	No. of Restraint Segments	Approx. Weight (lbs.)	P1*	P2** Approx.		BC	D	Pressure Rating						✓ Submitted Item(s)
						C900 C909	IPS			C900			C909	ASTM D2241		
										DR-14	DR-18	DR-25	PC-235	SDR-21	SDR-26	
3"	3.50	UFR1500-3-I	2	7	11.50"	-	9.00"	6.19"	4.06"	305 PSI	235 PSI	165 PSI	-	200 PSI	160 PSI	
4"	4.22-4.80	UFR1500-4-I	2	9	13.00"	9.40"	9.25"	7.50"	4.90"	305 PSI	235 PSI	165 PSI	235 PSI	200 PSI	160 PSI	
6"	6.28-6.90	UFR1500-6-I	3	11	15.13"	11.60"	11.65"	9.50"	7.00"	305 PSI	235 PSI	165 PSI	235 PSI	200 PSI	160 PSI	
8"	8.40-9.05	UFR1500-8-I	4	15	17.25"	13.75"	13.60"	11.75"	9.15"	305 PSI	235 PSI	165 PSI	235 PSI	200 PSI	160 PSI	
10"	10.50-11.10	UFR1500-10-I	8	26	19.38"	16.00"	15.85"	14.00"	11.20"	305 PSI	235 PSI	165 PSI	235 PSI	200 PSI	160 PSI	
12"	12.50-13.20	UFR1500-12-I	8	29	21.50"	18.05"	17.85"	16.25"	13.30"	305 PSI	235 PSI	165 PSI	235 PSI	200 PSI	160 PSI	

*Maximum O.D. of gland on pipe before Auto-Tork heads are removed (as shipped)
**Maximum O.D. of gland on pipe after Auto-Tork heads are removed
Note: Ford recommends the use of a properly sized insert stiffener when using UFR1500 on HDPE

FEATURES

- Full circle contact and support of the pipe wall. The Series 1500 can be used on C900, C909, ASTM D2241 IPS PVC and HDPE without any point loading
- Auto-Tork actuating screws with heads specially designed to twist off at the correct installation torque, leaving a hex head for future system maintenance or removal
- Series 1500 eliminates the need to pour expensive and time consuming concrete thrust blocks
- Restraint segments are mechanically retained in pockets
- Gland, screws and segments are protected with black Armorguard e-coat
- Gland colored red for identification purposes

The Ford Meter Box Company, Inc.
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
www.fordmeterbox.com

06/25/21

Submitted By:

SIGMA®
Quality – Service – Commitment – Delivered.

PO Box 300
700 Goldman Drive
Cream Ridge, NJ 08514

609 758 0800
fax 609 758 1163
engg@sigmaco.com

December 15, 2021

Sigma Corporation
700 Goldman Drive
Cream Ridge, NJ 08514

Subject: American Iron and Steel Certification for NWWTF, Wichita, KS, Contractor: Wildcat Construction, Customer: Wichita Winwater

I, Satheesh Manicka Chandrasekaran, certify that the following products and/or materials that have been supplied to the subject project are in full compliance with the American Iron and Steel requirement as mandated in the EPA's State Revolving Fund Programs:

Item, Products and/or Materials:

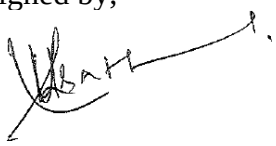
1. 8" Ford Meter Box Wedge Restraint for PVC

Parts are manufactured at the following locations:

Ford Meter Box Co- Pell City, AL

If any of the above compliance statements change while providing material to this project, we will immediately notify the prime contractor and the engineer.

Signed by,



Satheesh Manicka Chandrasekaran
Engineer, SIGMA Corporation

The original, and the definitive standard.

RESILIENT WEDGE GATE VALVES

4" THROUGH 20"
MODEL 2638

AWWA C515 250 PSI • UL/FM Approved 200 PSI • NSF 61 Certified •
Full Water Way • Fusion Bond Epoxy Coated • 10 Year Limited Warranty

CLOW VALVE CO.

Clow Valve is a division of McWane, Inc.

www.clowvalve.com

McWANE

For Generations

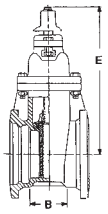
RESILIENT WEDGE VALVE

In 1975, Clow recognized the increased requirements and escalating maintenance cost of water systems in the United States.

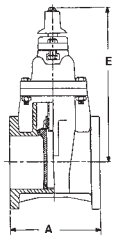
Clow responded by introducing the first R/W (Resilient Wedge) Valve in America. This introduction revolutionized the valve market in the U.S.

Clow is the first to introduce, and still leads in the design and technical development, of the bubble-tight resilient seating valve.

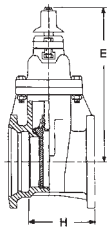
The Clow Resilient Wedge Valve, with its unique features and benefits, is the first to be manufactured with both AWWA and UL/FM approval for all water system requirements.



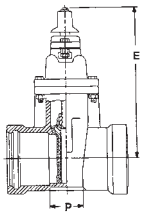
F-6100
MECHANICAL JOINT
4"– 20"



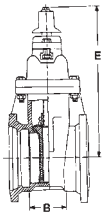
F-6102
FLANGED
4"– 20"



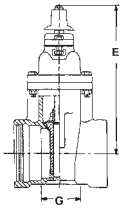
F-6106
FLANGED X
MECHANICAL JOINT
4"– 20"



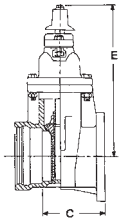
F-6110
PUSH ON FOR
SDR PVC
4"– 12"



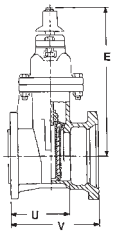
F-6111
MECHANICAL
CUTTING IN JOINT
4"– 12"



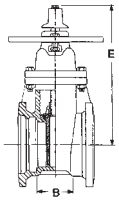
F-6112
TYTON ENDS FOR D.I.
AND C900 PVC PIPE
4"– 16"



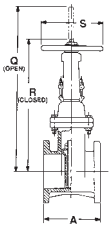
F-6113
FLANGED X TYTON
4"– 12"



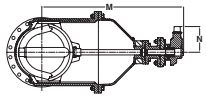
F-6114
MECHANICAL JOINT
FOR TAPPING
4"– 20"



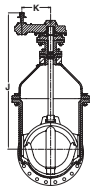
F-6120
MECHANICAL JOINT
POST INDICATOR VALVE
4"– 16"



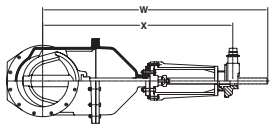
F-6136
FLANGED OS&Y
4"– 16"



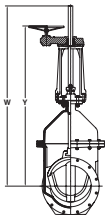
BEVEL GEARING
HORIZONTAL
INSTALLATION
ALL END STYLES
14"– 20"



SPUR GEARING
VERTICAL
INSTALLATION
ALL END STYLES
14"– 20"



OS&Y BEVEL GEARING
HORIZONTAL INSTALLATION
ALL END STYLES
14"– 20"



OS&Y SPUR
GEARING VERTICAL
INSTALLATION
ALL END STYLES
14"– 20"

NOTE:

It is recommended that valves be installed with stems vertical when used in raw sewage or sludge applications or in water with excessive sediment. Flanged end connections not recommended for buried service.

VALVE SIZE	A	B	C	E	G	H	J	K	M	N	P	Q	R	S	U	V	NO. OF TURNS TO FULL OPEN NO GEAR	NO. OF TURNS TO FULL OPEN GEARED	W	X	Y
4"	9	4-1/2	6-3/4	14-3/4	4-5/8	6-3/4	–	–	–	–	4-1/2	22-3/4	18-1/4	10	6-3/4	9-1/4	13-1/2	–	–	–	–
6"	10-1/2	5-1/2	7-7/8	19	5-1/4	8	–	–	–	–	5	30-1/8	23-3/4	12	8	10-1/2	19-1/2	–	–	–	–
8"	11-1/2	8-1/8	8-1/2	22-1/2	5-5/8	9-3/4	–	–	–	–	5-1/2	37-3/4	29-1/4	14	10-3/4	13-1/4	25-1/2	–	–	–	–
10"	13	10-1/2	10	26-1/2	7	11-3/4	–	–	–	–	7	45-3/4	35-3/8	18	11-3/4	14-7/8	31-1/2	–	–	–	–
12"	14	10-3/4	11-1/4	30	8-1/2	12-7/8	–	–	–	–	8-1/2	53-1/8	40-3/8	18	12-3/8	15	37-3/4	–	–	–	–
14"	15	10	–	37-3/4	10-1/2	13-1/2	52-1/8	8	48-5/8	9-1/8	–	74-3/4	59-3/4	22	13-1/4	16-3/4	52	100	76	59-7/8	64-1/2
16"	16	10	–	37-3/4	10-1/2	13	51-1/8	8	47-5/8	9-1/8	–	74-3/4	59-3/4	22	12-3/4	16-1/4	52	100	76	59-7/8	64-1/2
18"	17	11-3/4	–	–	–	14-7/8	58	12	55-3/4	10-1/8	–	–	–	–	14-5/8	18-1/8	–	189	90-7/8	70-1/8	74-5/8
20"	18	11	–	–	–	14-1/2	57	12	54-3/4	10-1/8	–	–	–	–	14-1/2	18	–	189	90-7/8	70-1/8	74-5/8

ENGINEERING FEATURES

THRUST BEARINGS
Delrin thrust bearings above and below the thrust collar reduce friction and minimize operating torques.

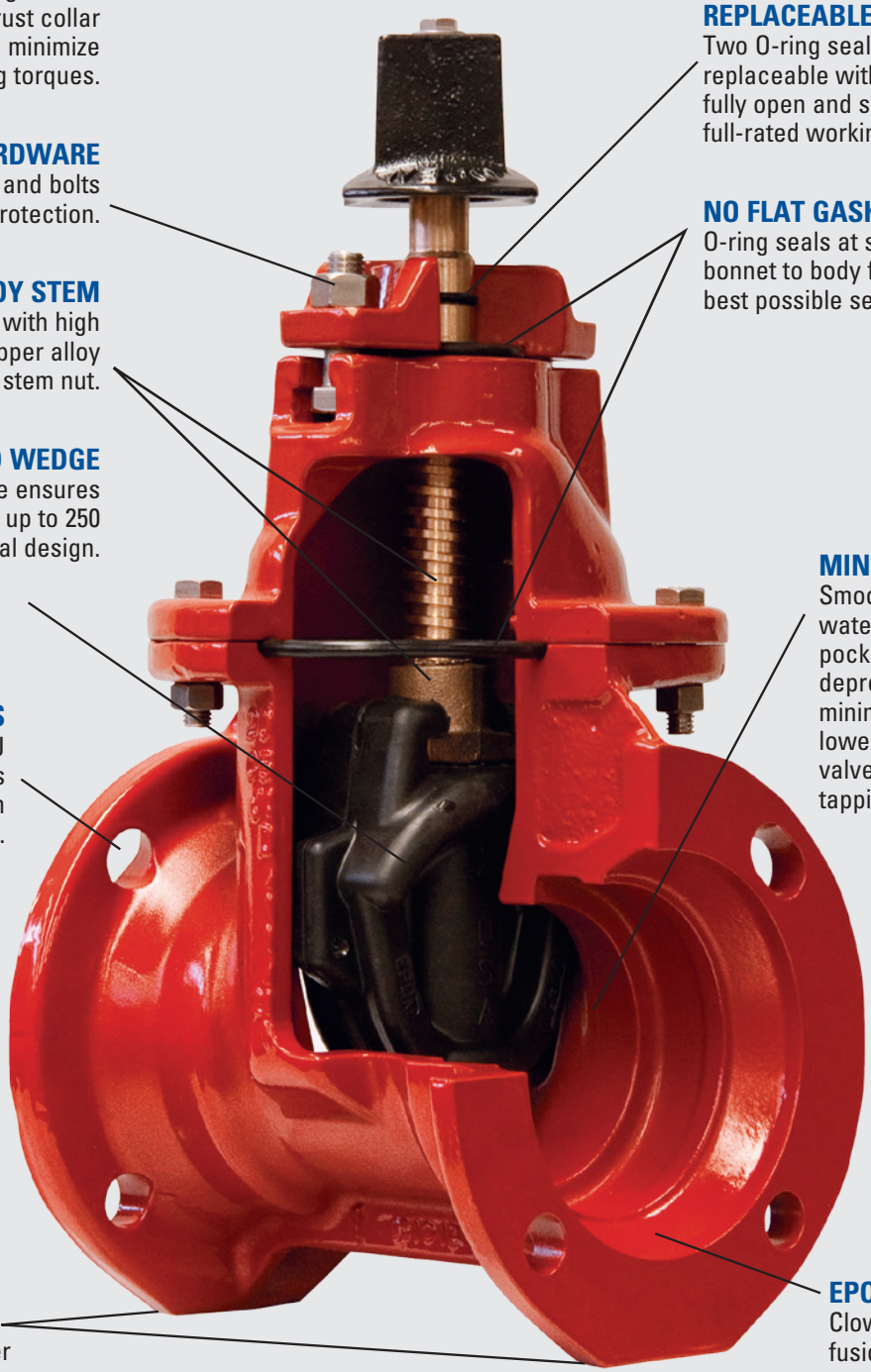
STAINLESS STEEL HARDWARE
304 stainless steel nuts and bolts provide long-life corrosion protection.

COPPER ALLOY STEM
Long, trouble free life with high strength, non-corrosive copper alloy stem and stem nut.

100% COATED WEDGE
100% coated wedge ensures bubble-tight seal every time up to 250 PSI. With twin seal design.

ELLIPTICAL BOLT HOLES
Hole design on MJ connection eliminates the need for anti-rotation bolts (4"– 12").

EASY STORAGE
Pads on the bottom of all valves keep valve in upright position for easier storage and protection from the elements.



REPLACEABLE O-RINGS
Two O-ring seals are replaceable with the valve fully open and subjected to full-rated working pressure.

NO FLAT GASKETS
O-ring seals at stuffing box and bonnet to body flanges to ensure the best possible seal.

MINIMAL FLOW LOSS
Smooth, unobstructed waterway is free of pockets, cavities, and depressions allowing for minimal flow loss and lower pumping costs. All valves accept full size tapping cutter.

EPOXY COATING
Clow corrosion resistant fusion-bonded epoxy coating, conforming to AWWA C550 and NSF 61 Certified, protects both inside and outside of valve.

VALVE RATING: All valves are rated at 250 PSI for AWWA service and hydrostatically tested to 500 PSI. Valves through 16" are rated at 200 PSI for UL/FM service.

COMMITTED TO ENVIRONMENTAL RESPONSIBILITY

CLOW VALVE COMPANY IS COMMITTED TO PROTECTING OUR NATURAL RESOURCES THROUGH ENVIRONMENTALLY RESPONSIBLE MANUFACTURING PRACTICES, INCLUDING THE USE OF 80+% RECYCLED CONTENT IN OUR HYDRANTS AND VALVES.

To learn more about our commitment to the environment, call 800-829-2569.

RECOMMENDED SPECIFICATIONS

1. Valves shall conform to the latest revision of AWWA Standard C515 covering resilient seated gate valves for water supply service.
2. The valves shall have a ductile iron body, bonnet, and O-ring plate. The wedge shall be totally encapsulated with rubber.
3. The sealing rubber shall be permanently bonded to the wedge per ASTM D429.
4. Valves shall be supplied with O-ring seals at all pressure retaining joints. No flat gaskets shall be allowed.
5. The valves shall be either non-rising stem or rising stem, opening by turning left or right, and provided with 2" square operating nut or a handwheel with the word "Open" and an arrow to indicate the direction to open.
6. Stems shall be cast copper alloy with integral collars in full compliance with AWWA. All stems shall operate with copper alloy stem nuts independent of wedge and of stem (in NRS valves).
7. Stems shall have two O-rings located above thrust collar and one O-ring below. Stem O-rings shall be replaceable with valve fully opened and subjected to full pressure. The stems on 4" – 20" shall also have two low torque thrust bearings located above and below the stem collar to reduce friction during operation.
8. Waterway shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area. Valves 4" and larger shall accept a full size tapping cutter.
9. The body, bonnet and O-ring plate shall be fusion-bond epoxy coated, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C550 and be NSF 61 Certified.
10. Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C515 (and UL/FM where applicable).
11. Valves shall have all component parts cast and assembled in the USA and shall be manufactured by the Clow Valve Company.

ISO 9001

www.clowvalve.com

CLOW VALVE CO.

902 South 2nd Street • Oskaloosa, Iowa 52577
PHONE 641-673-8611 FAX 641-673-8269

McWANE
For Generations

Clow Valve is a division of McWane, Inc.

CLOW VALVE CO.

clowvalve.com

MEDALLION HYDRANT

AWWA C502 • UL LISTED • FM APPROVED
NSF 61/372 CERTIFIED • 250 PSI WORKING PRESSURE
10-YEAR LIMITED WARRANTY

Clow Valve, A Division of McWane, Inc.

For Generations

MEDALLION HYDRANT

FIRE PROTECTION

The Clow Medallion hydrant was designed and built to provide unsurpassed fire protection. Utilizing computer-developed data, Clow engineers painstakingly sculpted interior surfaces to provide the smoothest possible waterway, resulting in the lowest possible loss of head through the hydrant.
The result? More water to the nozzles faster. With the Clow Medallion, it's performance that counts.

MAINTENANCE

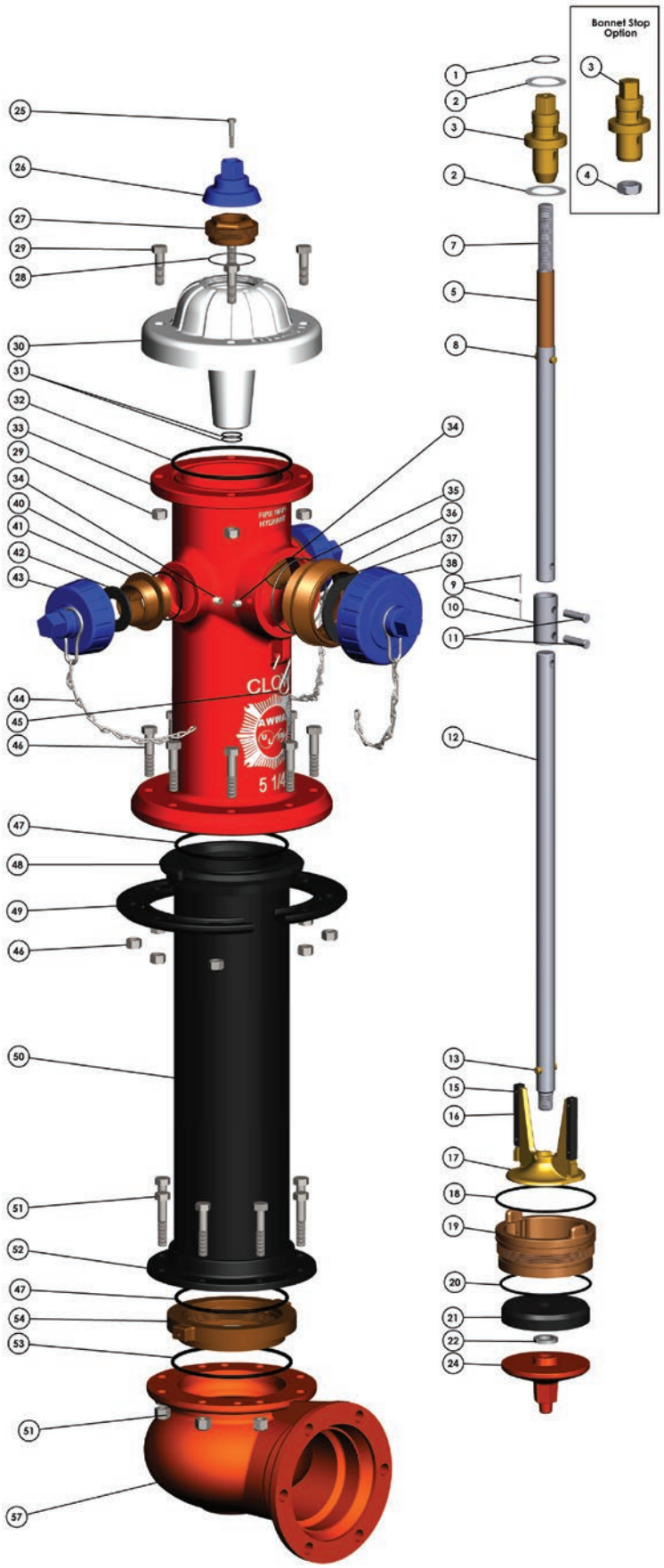
Extraordinary steps are taken in both the design and manufacturing process to ensure that the Clow Medallion can be routinely serviced and repaired easily. All working parts are readily accessible from the top of the hydrant and are built from the highest-quality materials.

10-YEAR LIMITED WARRANTY

The Clow Medallion carries a 10-year limited warranty on materials and workmanship. The hydrant also equals or exceeds all applicable American Water Works Association (AWWA) requirements. It has been listed by Underwriters Laboratories (UL) and is approved by Factory Mutual Approvals (FM).

MEDALLION HYDRANT PARTS ASSEMBLY

ITEM NO.	DESCRIPTION	MATERIAL	QTY.
1	Operating Nut O-Ring	Rubber	1
2	Thrust Bearing	Plastic	2
3	Operating Nut	Copper Alloy	1
4	Bonnet Stop	Zinc Plated Steel	1
5	Upper Stem Sleeve	Copper Alloy	1
7	Upper Stem	Steel	1
8	Pin	Stainless Steel	1
9	Cotter Pin	Stainless Steel	2
10	Safety Stem Coupling	Stainless Steel	1
11	Safety Coupling Pin	Stainless Steel	2
12	Lower Stem	Steel	1
13	Pin	Stainless Steel	1
15	Pin	Stainless Steel	4
16	Drain Valve Facing	Plastic	2
17	Upper Valve Plate	Copper Alloy	1
18	Seat Ring Upper O-Ring	Rubber	1
19	Seat Ring	Copper Alloy	1
20	Seat Ring Lower O-Ring	Rubber	1
21	Main Valve Seat	Rubber	1
22	Lock Washer	Stainless Steel	1
24	Lower Valve Plate	Cast Iron	1
25	Hex Head Bolt	Zinc Plated Steel	1
26	Weather Cap	Gray Iron	1
27	Thrust Nut	Copper Alloy	1
28	Thrust Nut O-Ring	Rubber	1
29	Hex Head Bolt & Nut	Zinc Plated Steel	4
30	Bonnet	Gray Iron	1
31	Stem O-Ring	Rubber	2
32	Bonnet O-Ring	Rubber	1
33	Nozzle Section	Gray Iron	1
34	Socket Set Screw	Stainless Steel	3
35	Pumper O-Ring	Rubber	1
36	Pumper Nozzle	Copper Alloy	1
37	Pumper Nozzle Gasket	Rubber	1
38	Pumper Cap	Gray Iron	1
40	Hose O-Ring	Rubber	2
41	Hose Nozzle	Copper Alloy	1
42	Hose Nozzle Gasket	Rubber	2
43	Hose Nozzle Cap	Gray Iron	2
44	Nozzle Cap Chain	Zinc Plated Steel	3
45	Chain "S" Hook	Zinc Plated Steel	1
46	Hex Head Bolt & Nut	Zinc Plated Steel	8
47	Barrel O-Ring	Rubber	1
48	Barrel Upper Flange	Ductile Iron	1
49	Safety Flange	Gray Iron	2
50	Barrel	Ductile Iron	1
51	Hex Head Bolt & Lock Nut	Stainless Steel	8
52	Barrel Lower Flange	Ductile Iron	1
53	Drain Ring O-Ring	Rubber	1
54	Drain Ring	Copper Alloy	1
57	Shoe	Ductile Iron	1



ENGINEERING FEATURES

MOISTURE PROTECTION
Durable cast iron weather cap combines with one piece copper alloy operating nut and O-rings to provide reliable, corrosion-resistant operation under all weather conditions.

LUBRICATION RESERVOIR
O-ring sealed reservoir may be filled easily without disassembly.

TGIC
Coating provides a longer-lasting, more durable finish.

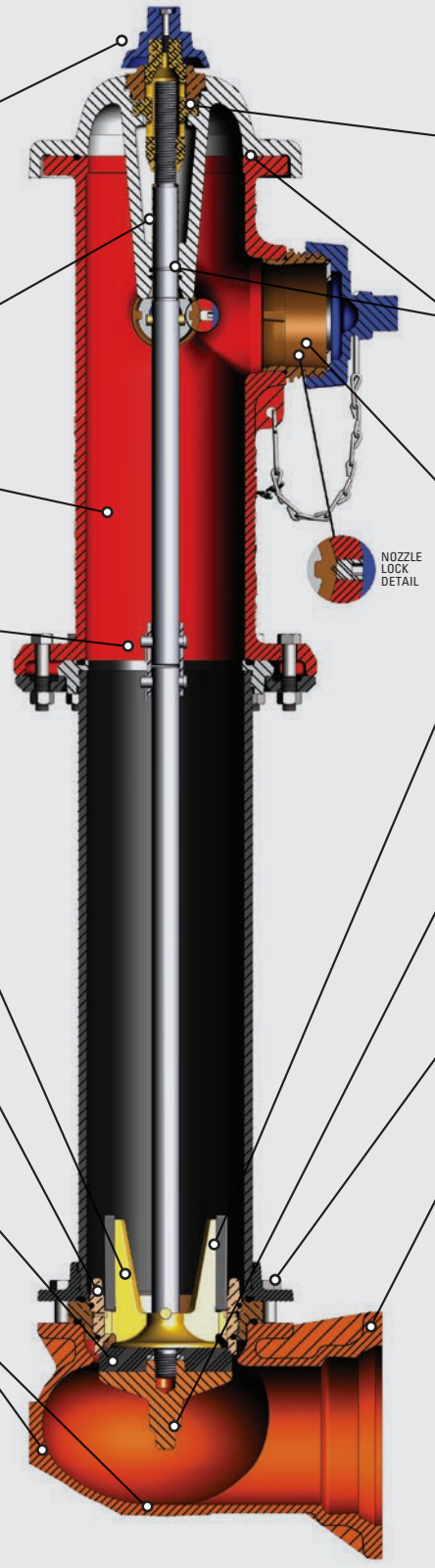
STAINLESS STEEL SAFETY STEM COUPLING SYSTEM
Breakaway parts shear cleanly below the top of the barrel, reducing nozzle section damage or opening of the main valve.

COPPER ALLOY UPPER VALVE PLATE
Solid design for added strength and durability.

COPPER ALLOY TO COPPER ALLOY
Copper alloy seat ring threads into copper alloy drain ring for corrosion-resistant protection.

COMPRESSION SEATING
High-durometer rubber valve closes with the water pressure for a positive seal.

PADS
Pads on hydrant shoe give large surface areas for standing and blocking hydrant.



ANTI-FRICTION
Thrust bearings above and below the copper alloy thrust collar provide low-torque operation even at 250 PSI working pressure.

BONNET SEALS
Standard O-rings secure mating flanges and sealing throughout the Medallion. All O-rings are dependable and easy to replace.

COPPER ALLOY NOZZLES
Mechanically locked, corrosion-resistant, field-replaceable copper alloy nozzles have O-ring seals for water-tight connections.

DRAIN VALVE
Plastic valve facing provides tight, life-long seal. Copper alloy seat ring has 360 degree drain channel. Double ports flush with each use.

LOWER VALVE PLATE
Bottoms out in the ductile iron shoe. Prevents seat from falling below the seat ring.

NUTS & BOLTS
All fasteners below grade are stainless steel.

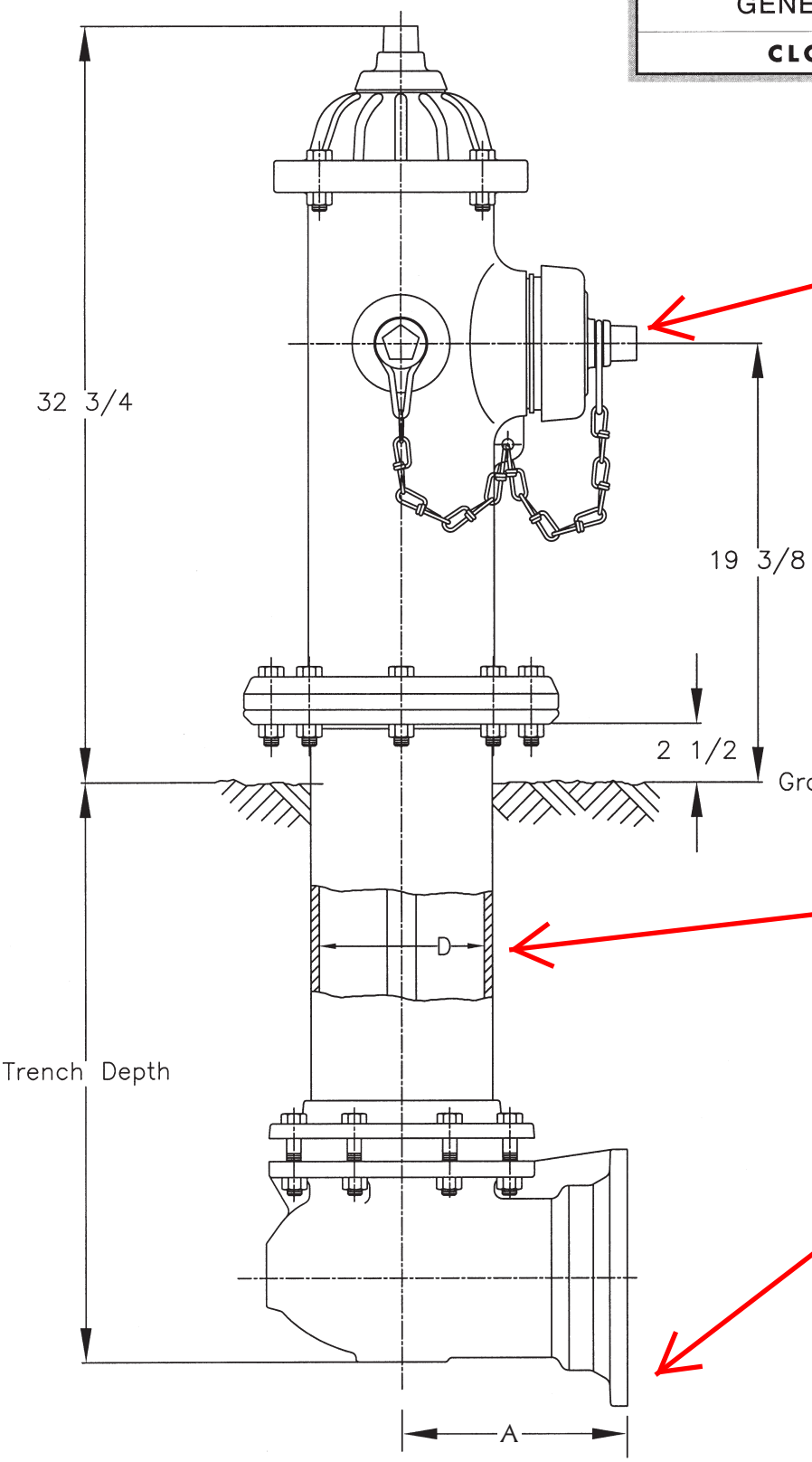
DUCTILE IRON HYDRANT SHOE
Shaped for low turbulence and maximum flow, the shoe is offered in a variety of end connections. Comes standard with epoxy coating inside and out.

The Medallion hydrant meets the definition of low lead based on the Safe Drinking Water Act.

MEDALLION HYDRANT
GENERAL DIMENSION LAYOUT

CLOW VALVE COMPANY

F–2545



See Following Storz Submittal

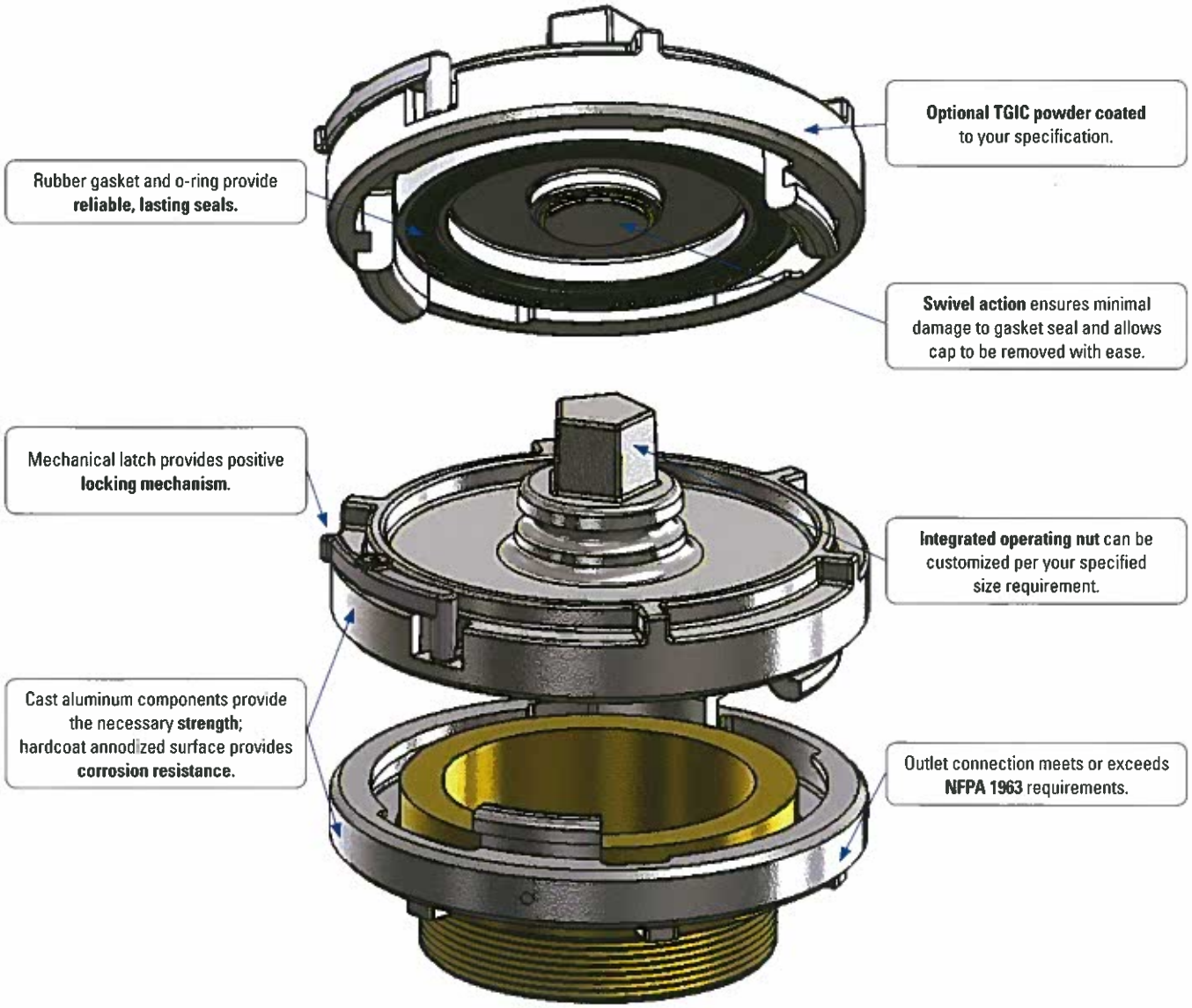
Color - City of Wichita
- Aluminum Body
- Red Bonnet & Caps

HYDRANT VALVE SIZE	D
4½"	6.16 ± .14
5¼"	7.04 ± .14

END TYPE	A
Flange	8 1/8"
SMJ	9"
Tyton	9 5/8"

THE CLOW STORZ CONNECTION

- Clow Storz Connection is UL/FM Rated at 250 PSI.
- Storz cap comes with a hardcoat anodized surface as a standard but can be painted per specification requirement upon request.
- Outlet connection meets or exceeds NFPA 1963 requirements and has an added locking mechanism feature.
- The integrated op nut feature provides easy removal of the cap without having to have a special tool. Op nuts can be provided per specification size requirement.



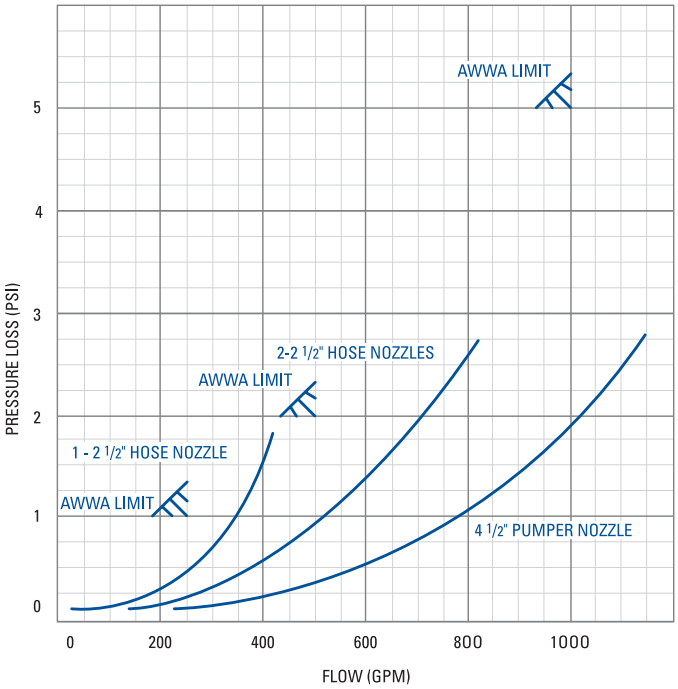
CLOW VALVE CO.
902 South 2nd Street
Oskaloosa, IA 52577
Ph 641-673-8611
Fx 641-673-8269
ClowValve.com

*PATENT PENDING

MADE IN U.S.A. CLOW VALVE CO.

PRODUCT DATA

PRESSURE LOSS VS. FLOW



ACCESSORIES

SEAT REMOVAL WRENCH — A light-weight universal combination tool is used to remove the main valve components. The copper alloy seat ring unthreads from the drain ring by engaging the wrench with the upper stem pin.

THRUST NUT WRENCH — The wrench fits the thrust nut for easy removal.

LUBRICATION — The lubrication reservoir is filled with grease during manufacture. To add lubrication, remove the weather cap and put the lubricant into the reservoir through the opening on the top of the operating nut, or remove operating nut and fill lubrication reservoir with food grade grease or oil.

EXTENSION KIT — Contains everything required to extend the stem and barrel. Available in 6" increments.

SAFETY FLANGE REPAIR KIT — Includes safety flange, stem coupling and pins, flange O-rings, all bolts, nuts, and hardware to repair a hydrant damaged due to a traffic accident.

MAIN VALVE SEAT REPAIR KIT — Contains two drain valve facings and pins, seat ring O-rings, lower valve plate lock washer, main valve seat, container of lubrication.

BONNET REPAIR KIT — Complete with O-rings for the bonnet, stem, and thrust nut. Operating nut thrust washers and lubrication.

RECOMMENDED SPECIFICATIONS

1. Fire hydrant shall be manufactured in accordance with AWWA Standard C502, be listed by Underwriters Laboratories, Inc., and be FM Approved.
2. Fire hydrant shall be designed for 250 PSI working pressure and tested to 500 PSI hydrostatic pressure.
3. Fire hydrant shall be backed by manufacturer's 10-year limited warranty.
4. Fire hydrant shall be dry-top, center stem, 4-bolt bonnet construction having an O-ring sealed lubrication reservoir.
5. Fire hydrant shall be manufactured with operating nut and thrust nut made of copper alloy, with bearings located both above and below the thrust collar, and with operating nut protected by a cast-iron weather shield.
6. Fire hydrant shall be manufactured with nozzles mechanically locked into the nozzle section and having O-ring seals.
7. Fire hydrant shall be a "Traffic Model," complete with safety flanges and stainless steel stem coupling. Nozzle section must rotate 360 degrees.
8. Fire hydrant shall be manufactured with a main valve seat ring of copper alloy threaded into a copper alloy drain ring. A 360-degree drain channel shall have a minimum of two tapped drain outlets.
9. Fire hydrant shall have a solid copper alloy upper valve plate with two rubber facings that activate the drain ports.
10. Fire hydrant shall be manufactured with a lower valve plate that bottoms out in the shoe for a maximum opening. Both lower valve plate and shoe shall have fusion bonded epoxy coating.
11. Fire hydrant shall be manufactured with a main valve opening of 41/2" or 51/4".
12. Nozzle section shall be coated inside and out with TGIC coating.
13. Fire hydrant shall be the Clow Medallion as manufactured by the Clow Valve Company or approved equal.

CLOW

Clow Valve Co.

902 South 2nd Street
Oskaloosa, IA 52577

Telephone: 641 673-8611
Fax: 641 673-8269

November 8th, 2021

Clow Valve Company
902 South 2nd St
Oskaloosa, IA 52577

Subject: American Iron and Steel Certification

Distributor: Wichita Winwater
Contractor: Wildcat Construction

PO#: 248-068863, 248-068433, & 248-068863

Job Name: Wichita NWWTF- 21st Street Entrance
Job Location: Wichita, KS

Clow Valve Company certifies that the (melting, bending, coating, etc) process for manufacturing or fabricating of our Resilient Wedge Gate Valves, Eddy and Medallion fire hydrants, and Extensions provided for above mentioned project is in full compliance with the American Iron and Steel requirement as mandated in the EPA's State Revolving Fund Programs. These processes are done here in Oskaloosa, Iowa.

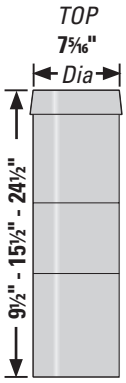
Items:
C515P2 RW 8" FLG-MJ OL NRS ON SSBN EPDM (867)
C515P2 RW 6" MJ OL NRS ON SSBN EPDM (867)
MEDN SS 5"X6"MJ SSBN OL 2H/STR 5'0" 75228-A-5" STORZ RED(TGIC)NL

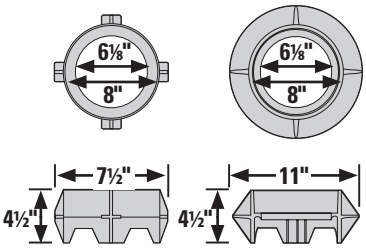
Item, Products and/or Material
Such process took place at the following location: Clow Valve Company, 902 South 2nd Street Oskaloosa, Iowa 52577

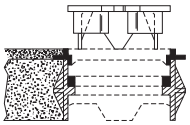
Mikayla Adkins
Inside Sales

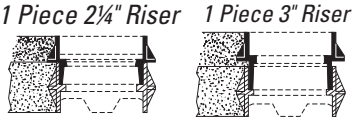
HIGHLINE PRODUCTS

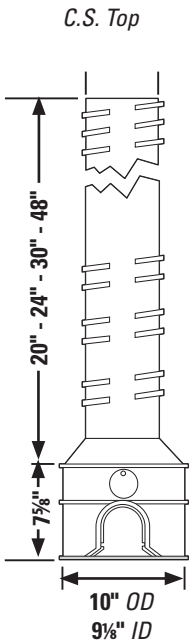
WATER ROADWAY VALVE BOXES

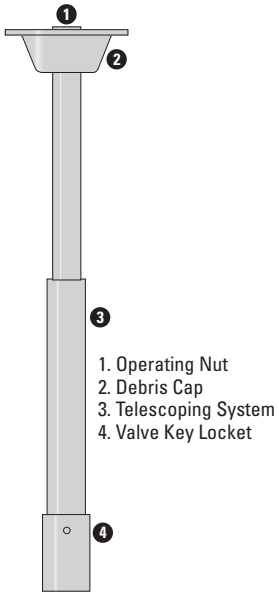












- Plastic body with cast iron ring and covers
- Polyiron® top section
  - One-third the weight of CI boxes; reduces the risk of injury
  - Interchangeable with CI bottoms
  - Magnetically locatable
- White molded bottom reflects light in box for greater visibility
- Screw type valve box
- Pipe knock-outs molded in
- "No flip" cast iron cover
- Can be cut with hand saw
- Curb rods available
- Yellow covers standard
- Riser rings available to raise for paving
- Integral valve key available
- Optional vandal resistant pentagon bolt

"You're Covered!"

WATER ROADWAY VALVE BOXES

5¼" ROADWAY VALVE BOX

Total Plastic Box Including Cast Iron Ring & Water Cover

PART #	DESCR #	EQUIVALENT CAST IRON #	ADJ INCHES	TOTAL WEIGHT
111129-xx	5-95-20	462	22 - 29	26⅛ lbs
111130-xx	5-155-20	561	26 - 36	27¾ lbs
111133-xx	5-155-24	562	27 - 39	28⅛ lbs
111136-xx	5-155-36	564	39 - 51	29⅞ lbs
111137-xx	5-245-36	664	39 - 60	32½ lbs
111140-xx	5-245-48	666	51 - 72	34¼ lbs

NOTE: Above part numbers use a two digit (xx) suffix to distinguish cover type. (WATER cover will be shipped if no suffix number is specified.)

Plastic Cover	-01
Full Flanged "Water"	-02
"Water"	-03
"Sewer"	-06

Cast Iron Risers

111070	2 piece 1" riser	4.4
111058	1 piece 2¼" riser	11.1
111059	1 piece 3" riser	13.5

PART #	LENGTH	TOTAL WEIGHT
Cast Iron Rings & Covers		
111026	"Water" Cover	7¾ lbs
111066	"Sewer" Cover	7¾ lbs
111028	Ring	11½
111074	Locking "Water" Cover	9
111063	Valve Box Full Flanged CI Ring	14
111089	Valve Box CI Cover "Test Box"	7¾
Top Sections Only		
111036	9½" Polyiron® Valve Box Top	3 lbs
111037	15½" Polyiron® Valve Box Top	4⅓ lbs
111038	24½" Polyiron® Valve Box Top	7 lbs
Bottom Sections Only		
111048	20" Valve Box Bottom	4 lbs
111049	24" Valve Box Bottom	4¾ lbs
111050	36" Valve Box Bottom	6½
111051	48" Valve Box Bottom	8 lbs
Plastic Drop & Lids		
111030	5¼" Black Cover "Control Valve"	1⅞ lbs
111031	5¼" Green Cover "Control Valve"	1⅞ lbs
Integral Valve Keys		
185003	26" - 44" Key w/Debris Cap	17.2 lbs
185004	44" - 80" Key w/Debris Cap	20.9 lbs

TYPICAL SPECIFICATIONS

5¼" ROADWAY VALVE BOX: Valve Box shall be injection molded and commercially manufactured utilizing a proprietary HIGHLINE compound known as SUPERFLEXON per ASTM D-2853-70, Class 1212. Material shall be a rigid combination of polyolefin with fibrous inorganic component reinforcing and U.V. stabilizer additives to assure resistance to material degradation from ultraviolet light. The entire upper section of the box shall be made of a POLYIRON® magnetically locatable material. The use of magnets will not be permitted. Box shall have a cast iron ring and a cast iron 4-pronged traffic lid. Cast iron shall have a minimum weight of 18 lbs. and must conform to ASTM-A-48, Class 20 specifications. Box to be Buffalo type (screw) and have a shaft diameter of 5¼". The bottom part of the box shall have a bell measuring 7⅝" high by 10⅛" wide and have a knock out as standard equipment. A No. 6 round base and a 20" extension section must be available as extra cost options.

Standard:

1. Bell - 9" diameter by 7½" height inside.
2. Designed for 2" through 10" valves.
3. POLYIRON® top section - Patent No. 3746034.
4. SUPERFLEXON bottom section.
5. Screw style.

Options:

1. Covers available for GAS, SEWER or WATER. Will be shipped as WATER unless otherwise specified.
2. Green plastic drop lid available for non-traffic area - no cast iron ring needed.
3. No. 6 base for extra large valves
4. Three sized of risers for use with street resurfacing.
5. Full flanged cast iron ring for unfinished roads
6. Pentagon bolt locking cover also available marked WATER, GAS or SEWER.

SUPERFLEXON BOXES AND COVERS

SUPERFLEXON is a plastic material made of a rigid combination of polyolefin and fibrous inorganic components. It is chemically inert and normally unaffected by moisture, corrosion and the effects of temperature changes. SUPERFLEXON also has a high tensile strength with light weight because it is a solid (not foamed) structural material.

SUPERFLEXON covers are NOT traffic covers and should not be used in roadways, etc.

Physical Properties	ASTM Test Method	Minimum Test Value
Tensile Strength (2.0"/min.)	D-638-82a	3,400 psi
Flexural Modulus	D-790-81	191,000 psi
Compressive Strength (0.05"/min.)	D-695-80	3,350 psi
Impact Strength, Izod	D-256-81	0.6 ft. lb/in.
Durometer Hardness, Type D	D-2240-81	60
Deflection Temp. @ 66 psi Stress	D-648-82	230°F
Specific Gravity	D-792-66 (1979)	1.15

MADE IN USA

American Water Works Association MEMBER

HIGHLINE PRODUCTS

131 Hartwell Avenue, Lexington, MA 02421, USA
Phone: 888.773.2776 • Fax: 781.861.0675
E-mail: info@highlineproducts.com
www.highlineaccessboxes.com • www.highlineproducts.com

Vestal Manufacturing Enterprises, Inc.
P.O. BOX 420
SWEETWATER, TENNESSEE 37874

Phone (423) 337-6125
Fax (423) 337-2003
www.vestalmfg.com

January 7, 2022

Oldcastle Infrastructure
Highline Products
2300 Highway 11 North
Sweetwater, TN 37874

Subject: American Iron and Steel Certification
Project: NWWTF – Wichita, KS
Contractor: Wildcat Construction

To Whom It May Concern:

Vestal Manufacturing Enterprises, Inc. certifies that all cast iron poured from our foundry conforms to ASTM A48 Class 30A gray iron (30,000 PSI Tensile Strength) or better. This would include all castings poured for Oldcastle Infrastructure/Highline Products and specifically the following castings:

Part No.	Description
111026	5 1/4 Cover - Water
111066	5 1/4 Cover - Sewer
111028	5 1/4 Ring
111074	5 1/4 Locking Cover - Water
111063	5 ¼ Full Flanged Ring
111089	5 1/4 Cover – Test Box
111070	1" Valve Box Riser & Adapter Ring
111058	2 1/4" Riser
111059	3" Riser

These castings are domestically manufactured in Sweetwater, Tennessee and are in full compliance with the American Iron & Steel requirement as mandated in the EPA's State Revolving Fund Programs. Approximately 100% of the iron used to make our cast iron is from recycled scrap metal. Thanks for your time and attention towards Vestal. If you have any questions or concerns, please contact the Vestal sales office at 1-800-456-9562.

Sincerely,

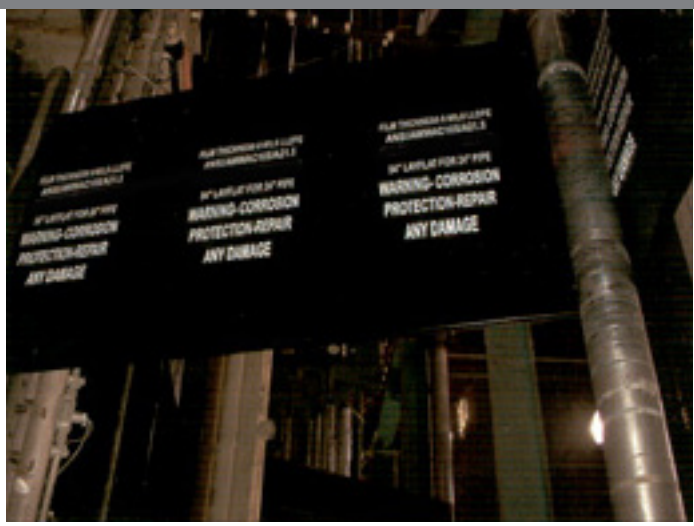
Jason Hall
National Sales Manager
Municipal Castings Division

8 Mil Linear Low Density Polyethyelene

Polycase LLDPE encasement film is a carefully engineered linear low density virgin polyethylene resin film designed to meet the requirements of the ANSI/AWWA C105/A21.5 standard.

Carefully controlled molten resin is forced under high pressure through a die-head producing a bubble of polyethylene in a vertical column. The resulting tube is cooled and gathered onto spooling equipment at the top of the column.

Film strength characteristics are referred to as strength in the machine direction (direction of travel through the die-head), and the transverse direction (perpendicular to the machine direction). Minimum acceptable test values should consider both MD and TD.



Specifications

Physical Attribute	Test Direction	ANSI/AWWA C105/A21.5 MINIMUM REQUIREMENT	SIGMA LLDP TYPICAL TEST VALUES
TENSILE STRENGTH ASTM D882	MACHINE DIRECTION	3600psi	4635psi
	TRANSVERSE DIRECTION	3600psi	4216psi
ELONGATION ASTM D882	MACHINE DIRECTION	800%	948%
	TRANSVERSE DIRECTION	800%	1012%
DIELECTRIC STRENGTH ASTM D149 (VOLTS / MIL)	n/a	800 volts / mil	1786 volts / mil
IMPACT RESISTANCE ASTM D1709 (grams)	n/a	600 grams	928 grams
PROPAGATION TEAR RESISTANCE ASTM D1922 (gf)	MACHINE DIRECTION	2550 grams/force	4082 grams/force
	TRANSVERSE DIRECTION	2550 grams/force	6159 grams/force

Years of effort have gone into the establishment of the ANSI/AWWA C105/A21.5 American National Standard for polyethylene encasement for ductile-iron pipe systems. This quality polyethylene encasement film product that meets this minimum standard does not “just happen”. The required design parameters must be defined. Product engineers must determine what raw materials and processes are necessary to meet the design characteristics. We know, from our own experience and testing, that only quality, virgin, materials that meet the criteria of the standard; coupled with proper manufacturing processes, will yield the required finished film physical properties. We are proud to offer certification per Section 5.1 of the standard.

SIGMA Corporation
700 Goldman Drive
Cream Ridge, NJ 08514
800 999 2550 p
609 758 1163 f
crm-sales@sigmaco.com
www.sigmaco.com

8 Mil Linear Low Density Polyethyelene

Quality Management

Polycase LLDPE encasement film is continuously monitored for thickness and tube size. Each roll contains control identification traceable to actual mill test reports, virgin resin tests, and applicable ASTM test data.

High speed printing plates provide printing as required by Sect. 4.3.1 of ANSI/AWWA C105.

8 mil Stock Tube Sizes

(BASED ON ANSI/AWWA C105/A21.5 Table 1)

Item No.	DI PIPE SIZE	LAYFLAT TUBE SIZE
47-PPR16	4” - 6”	16” X 500 FT.
47-PPR20	8”	20” X 500 FT.
47-PPR24	10”	24” X 500 FT.
47-PPR27	12”	27” X 500 FT.
47-PPR30	14”	30” X 500 FT.
47-PPR34	16”	34” X 500 FT.
47-PPR37	18”	37” X 500 FT.
47-PPR41	20”	41” X 500 FT.
47-PPR54	24”	54” X 500 FT.
47-PPR67	30”	67” X 440 FT.
47-PPR81	36” & 42”	81” X 360 FT.
47-PPR95	48”	95” X 220 FT.
47-PPR108	54” & 60”	108” X 220 FT.
47-PPR121	64”	121” X 110 FT.

Custom LLDP Products

For product not shown in our standard ANSI/AWWA C105/A21.5 Stock tube sizes we can provide film designed to meet your most demanding requirements .

Specialty Polyethylene Products Specifiaction/ Ordering Guidelines	
THICKNESS	10-12-15-20-24-30 Mils.
TUBE SIZE	Based on Manageable Weight
Colors	Options are available
Minimum Order Qty.	Based on Requirements
Lead Time	Approximately 6 Weeks

Contact SIGMA For More Information or to Place an Order

North Region

Cream Ridge, New Jersey (HQ)
Phone (800) 999-2550
Fax (609) 758-1158
crm-sales@sigmaco.com

Sauk Village, Illinois
Phone (888) 999-0420
Fax (708) 758-6790
chi-sales@sigmaco.com

South Region

Alexander City, Alabama
Phone (800) 824-4513
Fax (256) 234-4956
rps-sales@sigmaco.com

Houston, Texas
Phone (800) 999-0109
Fax (281) 987-0200
htn-sales@sigmaco.com

West Region & Canada

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Phone (800) 688-6230
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ont-sales@sigmaco.com

Innisfil, Ontario, Canada
Phone (877) 436-3800
Fax (705) 436-6338
crm-sales@sigmaco.com

Victoriaville, Quebec, Canada
Phone (888) 744-6262
Fax (819) 758-1153
crm-sales@sigmaco.com