

Olivehurst Public Utility District



Agenda Item Staff Report

Meeting Date: 6/18/26

Item description/summary:

On May 18, 2026, OPUD went out for a Request for Bid (RFB) for Olivehurst PUD Purchase of Water Service Materials in order to replace water service at the following location:

2nd AVE
BEAVER LN
WESTERN AVE
9TH AVE
11TH AVE

Olivehurst Public Utility District (OPUD) had requested Bids for MATERIALS for Replacement of existing water service lines based on locations where next year the County will begin to add sidewalk, curb, gutter, and storm through their Olivehurst Resiliency Project and some WATER MAIN for inhouse main replacement. OPUD Received Bids from the following:

Underground Republic Waterworks - \$94,140.42
Pace Supply - \$95,895.43
Ferguson Waterworks - \$99,563.24
Fortiline Waterworks - \$116,813.60

OPUD used the RFB to have materials purchased but do the work in house in order to save overall costs.

Fiscal Analysis:

The funding would be provided as part of the Steel Main Replacement Project via GRANT and due to the benefits of the project we have remaining funds that would cover the material purchase cost.

Employee Feedback

n/a

Sample Motion:

Move forward to approve bid via lowest responsible bidder with Underground Republic Waterworks

Prepared by: Swarnjit Boyal, Public Works Manager

EXHIBIT A – BID RESULTS AND SUBMITTED BIDS

OLIVEHURST PUBLIC UTILITY DISTRICT
Bid Opening

Date/Time: June 12, 2026, at 2:02 P.M.

Present: Public Works Manager and District Clerk

Location: OPUD Board Room, 1970 9th Ave, Olivehurst



Project: OPUD Water Main and Service Line Material Project

The following bids were received:

1) Ferguson Waterworks \$99,563.24
2) Furtiline Waterworks \$116,813.60
3) Underground Republic Waterworks \$94,140.42
4) PACE Supply \$95,895.43
5)
6)
7)
8)

Bid Opened



Submittal Package By Garrett Haflich

OPUD Water Main & Service Line Material

OLIVEHURST PUBLIC UTILITY DISTRICT
NOTICE OF REQUEST FOR SEALED BID'S

(DATE) MAY 21, 2026

OWNER: **Olivehurst Public Utility District**
PROJECT: **OPUD WATER MAIN & SERVICE LINE MATERIAL RFB**

TO: Contractor / Bidder
BID DUE DATE: June 12, 2026 2:00 P.M.
BID OPENING DATE/TIME: June 12, 2026 Shortly after Bid Due Date.

SUBMIT BID
TO: **Olivehurst Public Utility District**
1970 9th Avenue
Olivehurst, CA 95961
(530) 682-0736

Notice is hereby given to all prospective Contractors /Suppliers to **submit a sealed BID** on or before the above date. Contractor / Supplier agree to supply all equipment described in the available CONTRACT DOCUMENTS consisting of Plans, proposal document and Specifications. OPUD is looking for BIDS for the purchase of various water service material and pipe material. Copies of the CONTRACT DOCUMENTS may be obtained from Olivehurst Public Utility District, upon the non-refundable payment of \$ 50 per set, or you may request a free electronic copy from the District Public Works Manager via email at sboyal@opud.org.

Any question should be submitted to the Public Works manager via email at sboyal@opud.org or via phone at 530-682-0736. All **questions are due by Wednesday, June 3rd at 2 PM** for Clarification or addendum items.

Sincerely,

Swarnjit Boyal

Swarnjit Boyal, MS
Public Works Manager

OLIVEHURST PUBLIC UTILITY DISTRICT
1970 9TH Avenue
Olivehurst, CA 95961
Phone: (530) 682-0736

OLIVEHURST PUBLIC UTILITY DISTRICT

Our mission is to provide high quality services to enhance our community's quality of life.



BOARD OF DIRECTORS

Dennise Burbank Lacey Nelson John Floe Mary Jane Griego Marc Perrault

GENERAL MANAGER

John Tillotson

May 21st, 2026

To: Prospective Bidders

RE: Purchase of aforementioned Water Service Materials for Service Line Replacements throughout Historic Olivehurst

Bids shall include any and all taxes, freight, federal/state fees, hazardous waste disposal fee, weight certificate of completed unit, etc. and be an 'Out-The-Door' cost. Please make sure to include a specification page/build sheet of materials in order to verify compliance with the requested specifications above. Any questions shall be directed to the OPUD Public Works Department at 530-682-0736 or via email at sboyal@opud.org. Attached please find an example of what OPUD is looking for (or similar). Item # & MFG# was used as sample from local vendor as reference only. Olivehurst Public Utility District will be accepting as specified below:

Bid FORM for following water service materials:

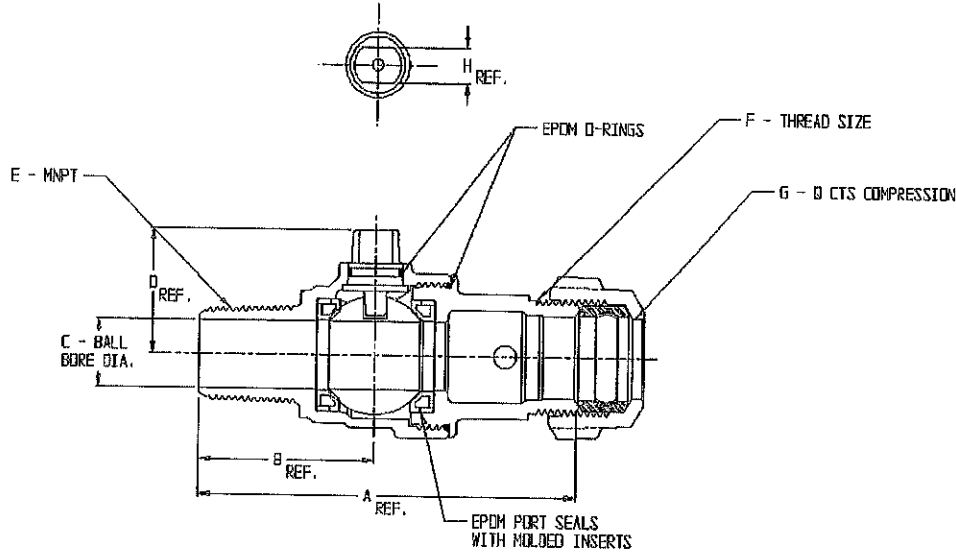
Underground Republic Waterworks
 Garrett Haflich - (916) 747-1655

RFB - BID SHEET FOR WATER SERVICES MATERIAL SUBMITAL - BID FORM										
Title	Brand	Item #	MFG #	Unit of Measure	Quantity	Price	TOTAL			
1	1B-25028N Ball Corporation Stop, 1 in, MNPT x 1/10 CTS, Brass	MUEB25028N1	025028330N	Each	160	\$78.00/ea	\$12,480.00			
2	Angle Meter Valve, 1 in, 1/10 CTS x Meter Nut, Brass	MUEB24258N1	024258330N	Each	160	\$139.00/ea	\$22,240.00			
3	Bushing, 5/8 x 3/4 to 1 in, MNPT x Meter Nut, Brass	MUEH10879N56341	1H-10879N 5/8X3/4X1	Per Pair	80	\$17.00/ea	\$1,360.00			
4	Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft L, CTS	WPP1100BLK	WPP1100BLK	Per Roll	35	\$54.00/ea	\$1,890.00			
5	Double Strap Pipe Saddle, 10 in, 1 in FNPT	MCD3826101	4148-065	Each	30	\$202.00/ea	\$6,060.00			
6	Hinged Pipe Saddle, 8 in, 1 in FNPT	FORS91804	S91-804	Each	10	\$82.00/ea	\$820.00			
7	Double Strap Pipe Saddle, 8 in, 1 in FNPT	MCD382681	4148-015	Each	95	\$163.00/ea	\$15,485.00			
8	2-Piece Pipe Saddle, 12 in, 1 in FNPT	FORS91204	S91-1204	Each	30	\$238.00/ea	\$7,140.00			
9	Tracer Wire, 10 AWG, 45 mil, Blue, (500 ft rolls or spool)	TRW10BLU45	TRW10BLU45	Each	8	\$185.00/ea	\$1,480.00			
10	Copper Split Bolt Connector (Needs to be compatible with 10 AWG Tracer wire mentioned above)	TRWCSBCS8	TRWCSBCS8	Each	160	\$4.00/ea	\$640.00			
11	DR 18 PVC Pipe, 6 in, Bell x plain, 20 ft L sticks, Blue	PVPDR186	PVPDR186	LF	20	\$9.00/ft	\$180.00			
12	DR 18 PVC Pipe, 8 in, Bell x plain, 20 ft L sticks, Blue	PVPDR188	PVPDR188	LF	300	\$15.50/ft	\$4,650.00			
13	DR 18 PVC Pipe, 12 in, Bell x plain, 20 ft L sticks, Blue	PVPDR1812	PVPDR1812	LF	20	\$32.65/ft	\$653.00			
14	Cross, 12 x 8 in, Flange, Cement Lined	DCFROSSFLG128	DCFROSSFLG128	Each	1	\$1,700.00/ea	\$1,700.00			
15	Reducer Coupling, 8 x 6 in, Flange, Cement Lined	DOFREDFLG86	DOFREDFLG86	Each	1	\$310.00/ea	\$310.00			
16	Reducer Coupling, 12 x 8 in, Flange, Cement Lined	DOFREDFLG128	DOFREDFLG128	Each	1	\$668.50/ea	\$668.50			
17	22.5 deg Elbow, 8 in, Mechanical Joint, Fusion Bond Epoxy Coated	DCF2212M18	DCF2212M18	Each	2	\$257.50/ea	\$515.00			
18	22.5 deg Elbow, 8 in, Mechanical Joint x Flange, Cement Lined	DCF2212MJFLG8	DCF2212MJFLG8	Each	1	\$183.25/ea	\$183.25			
19	Non-Rising Stem Gate Valve, 8 in, Flange, Ductile Iron	WGVFF8	WGVFF8	Each	2	\$1,374.00/ea	\$2,748.00			
20	Non-Rising Stem Gate Valve, 12 in, Mechanical Joint x Flange, Ductile Iron	WGVMF12	WGVMF12	Each	1	\$2,538.50/ea	\$2,538.50			
21	Non-Rising Stem Gate Valve, 6 in, Flange, Ductile Iron	WGVFF6	WGVFF6	Each	1	\$879.25/ea	\$879.25			
22	Gland, 6 in, Mechanical Joint, PVC, Steel Hardware, Domestic	STTDSRETPVCAIS6	PVCPKSA006G2DD	Each	2	\$67.00/ea	\$134.00			
23	Gland, 8 in, Mechanical Joint, PVC, Steel Hardware, Domestic	STTDSRETPVCAIS8	PVCPKSA008G2DD	Each	3	\$90.00/ea	\$270.00			
24	Gland, 12 in, Mechanical Joint, PVC, Steel Hardware, Domestic	STTDSRETPVCAIS12	PVCPKSA012G2DD	Each	1	\$164.00/ea	\$164.00			
25	Bolt Set, 10 to 12 in 150#, Zinc CR+3, Grade 2	WBLBS1012	WBLBS1012	Each	2	\$21.00/ea	\$42.00			
26	Bolt Set, 8 in 150#, Zinc CR+3, Grade 2	WBLBS8	WBLBS8	Each	8	\$8.50/ea	\$68.00			
27	Ring Gasket, 8 in, Star Tite	STTRG8	FAH08RG	Each	4	\$19.00/ea	\$76.00			
28	Ring Gasket, 6 in, Star Tite	STTRG6	FAH06RG	Each	4	\$13.00/ea	\$52.00			
29	Full Face Gasket, 12 in, Star Tite	STTFFG12	FAH12FFG	Each	2	\$31.00/ea	\$62.00			
30	Full Face Gasket, 8 in, Star Tite	STTFFG8	FAH08FFG	Each	2	\$20.00/ea	\$40.00			
31	860 Transition Coupling, 12 in, Various, Carbon Steel	HYM2CP1G12	860-540-0315-16	Each	1	\$664.50/ea	\$664.50			
32	874 Transition Coupling, 8 in, Flange x Various, Carbon Steel	HYMFA8	874-54-08021712	Each	1	\$574.50/ea	\$574.50			
33	22.5 deg Elbow, 6 in, Mechanical Joint x Flange, Cement Lined	DCF2212MJFLG6	DCF2212MJFLG6	Each	1	\$198.25/ea	\$198.25			
34						TAX (8.25%)	\$7,174.67			
						SUM	\$94,140.42			

SUBMITTAL DATA SHEET

NL Ball Style Corporation Stop – 74704BQ

MNPT x Q CTS Compression



MODEL	SIZE	A	B	C	D	E	F	G	H
74704BQ	3/4	4.22	1.96	.75	1.39	3/4	3/4 ANWA FLARE	3/4	.38
74704BQ	1	4.37	2.11	1.00	1.50	1	1 ANWA FLARE	1	.28
74704BB	1 X 1 1/4	4.63	2.15	1.00	1.47	1	1 1/4 ANWA FLARE	1 1/4	.28
74704BQ	1 1/4	5.90	3.02	1.25	1.88	1 1/4	1 1/4 ANWA FLARE	1 1/4	.42
74704BQ	1 1/2	6.42	3.05	1.50	2.15	1 1/2	2 1/8-16 SPECIAL	1 1/2	.42
74704BQ	1 1/2 X 2	6.97	3.05	1.50	2.15	1 1/2	2 5/8-16 SPECIAL	1 1/2	.38
74704BQ	2	6.86	3.21	2.00	2.46	2	2 5/8-16 SPECIAL	2	.42

SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components in contact with potable water conform to ASTM B584, UNS C89833 (latest revision) and identified with "NL"
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Brass components not in contact with potable water conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- PTFE coated brass ball rotates 360°
- Valve rated for 300 PSIG water pressure, end connections not to exceed rated pipe pressures.
- Blow out proof EPDM port seals
- End piece joint sealed with an EPDM o-ring and thread locker
- Insert stiffeners required on all flexible plastic connections



A.Y. McDonald Mfg. Co.
P.O. Box 508
Dubuque, IA 52004-508

Toll Free: 1-800-292-2737
Fax: 1-800-832-9296
Hours: 7:00 a.m. – 5:00 p.m., CST

sales@aymcdonald.com
www.aymcdonald.com

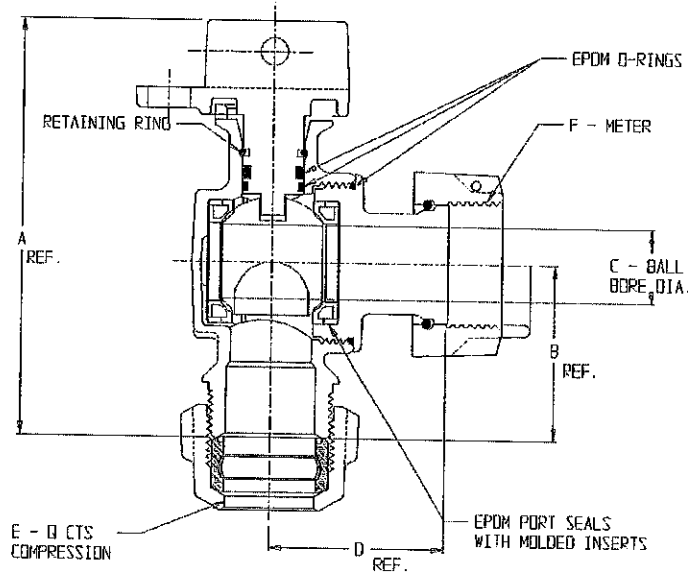
A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

SUBMITTAL DATA SHEET

NL Ball Style Meter Stop – 74602BSQ

Q CTS Compression x Meter Nut W/Saddle



MODEL	SIZE	A	B	C	D	E	F
74602BSQ	3/4 X 3/4 X 5/8	4.20	1.78	.75	1.94	3/4	5/8
74602BSQ	1 X 3/4 X 5/8	4.64	2.21	.75	1.94	1	5/8
74602BSQ	3/4	4.20	1.78	.75	1.78	3/4	5/8 X 3/4, 3/4
74602BSQ	1 X 3/4 X 3/4	4.64	2.21	.75	1.78	1	5/8 X 3/4, 3/4
74602BSQ	1	4.90	2.25	1.00	2.45	1	1
74602BSQ	1 1/4 X 1 X 1	5.15	2.50	1.00	2.45	1 1/4	1

SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components in contact with potable water conform to ASTM B584, UNS C89833 (latest revision) and identified with "NL"
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Brass components not in contact with potable water conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- PTFE coated brass ball
- Valve rated for 300 PSIG water pressure, end connections not to exceed rated pipe pressure.
- Blow out proof EPDM port seals
- End piece joint sealed with an EPDM o-ring and thread locker
- Insert stiffeners required on all flexible plastic connections



A.Y. McDonald Mfg. Co.
4800 Chavenelle Rd
Dubuque, IA 52002

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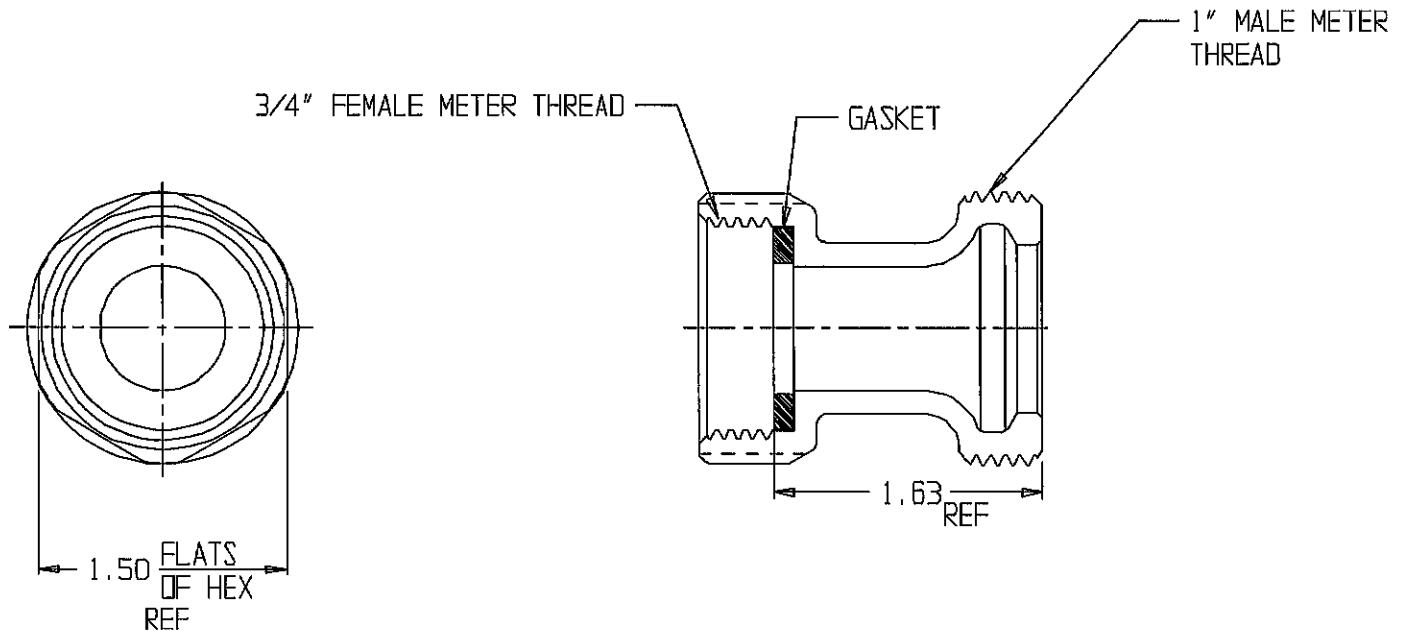
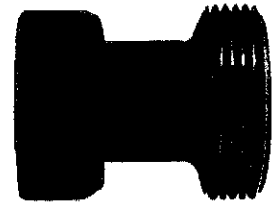
A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

SUBMITTAL DATA SHEET

NL Meter Coupling - 710J24

Female Meter Thread x Male Meter Thread



SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components in contact with potable water conform to ASTM B584, UNS C89833 (latest revision) and identified with "NL"
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Brass components not in contact with potable water conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Large wrench area provided for proper installation



A.Y. McDonald Mfg. Co.
4800 Chavenelle Rd
Dubuque, IA 52002

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sales@aymcdonald.com
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Submitted by:

09-14

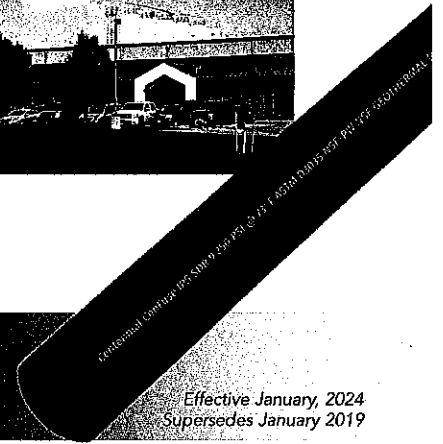


CenFuse

Flexible Polyethylene Pipe

HDPE 4710 – ASTM D3035 & ASTM F714

Certified and Listed NSF



Effective January, 2024
Supersedes January 2019

ASTM D3035			DR 7	DR9	DR 11	DR 13.5	DR 15.5	DR 17
Dimensions	OD	DR	335 PSI	250 PSI	200 PSI	160 PSI	138 PSI	125 PSI
3/4"	1.050	ID (in)	0.750	0.816	0.860	0.894	0.914	0.926
		Min Wall (in)	0.150	0.117	0.095	0.078	0.068	0.062
		Wt/Ft (lbs)	0.181	0.146	0.122	0.102	0.098	0.082
1"	1.315	ID (in)	0.939	1.023	1.075	1.121	1.145	1.161
		Min Wall (in)	0.188	0.146	0.120	0.097	0.085	0.077
		Wt/Ft (lbs)	0.285	0.229	0.191	0.159	0.151	0.128
1 1/4"	1.660	ID (in)	1.186	1.292	1.358	1.414	1.446	1.464
		Min Wall (in)	0.237	0.184	0.151	0.123	0.107	0.098
		Wt/Ft (lbs)	0.453	0.365	0.306	0.254	0.223	0.206
1 1/2"	1.900	ID (in)	1.358	1.478	1.554	1.618	1.654	1.676
		Min Wall (in)	0.271	0.211	0.173	0.141	0.123	0.112
		Wt/Ft (lbs)	0.593	0.479	0.402	0.333	0.294	0.269
2"	2.375	ID (in)	1.697	1.847	1.943	2.023	2.069	2.095
		Min Wall (in)	0.339	0.264	0.216	0.176	0.153	0.140
		Wt/Ft (lbs)	0.928	0.749	0.627	0.520	0.457	0.421
3"	3.500	ID (in)	2.500	2.722	2.864	2.982	3.048	3.088
		Min Wall (in)	0.500	0.389	0.318	0.259	0.226	0.206
		Wt/Ft (lbs)	2.016	1.626	1.360	1.128	0.994	0.912

CENTENNIAL CenFuse IPS SDR 9 250PSI @ 73°F ASTM D3035 NSF-pw NSF geothermal AWWA C901 NSF358 PE4710 CC3

ASTM F714			DR 7	DR9	DR 11	DR 13.5	DR 15.5	DR 17
Dimensions	OD	DR	335 PSI	250 PSI	200 PSI	160 PSI	138 PSI	125 PSI
4"	4.500	ID (in)	3.214	3.500	3.682	3.834	3.920	3.970
		Min Wall (in)	0.643	0.500	0.409	0.333	0.290	0.265
		Wt/Ft (lbs)	3.402	2.688	2.249	1.865	1.641	1.506
6"	6.625	ID (in)	—	5.153	5.421	5.643	5.771	5.845
		Min Wall (in)	—	0.736	0.602	0.491	0.427	0.390
		Wt/Ft (lbs)	—	5.961	4.873	4.048	3.557	3.268
8"	8.625	ID (in)	—	—	7.057	7.347	7.513	7.611
		Min Wall (in)	—	—	0.784	0.639	0.556	0.507
		Wt/Ft (lbs)	—	—	8.263	7.035	6.043	5.535

CENTENNIAL CenFuse IPS SDR 9 250PSI @ 73°F ASTM F714 NSF-pw NSF geothermal AWWA C906 NSF358 PE4710 CC3

Note: For stocking coil lengths, please see centennialplastics.com

DR 9 = Water Service Pipe AWWA C901 & C906 Black with Blue stripe CC3



Scan here to learn more about our Geothermal Pipe

ESSENTIAL LINKS (click link for website or to download file)

- » PE Handbook
- » Plastic Pipe Design Calculator
- » Temperature Effects on Centennial Poly (HDPE App)
- » CenFuse Stocking Coil Lengths
- » Chemical Resistance of Plastic Piping Materials
- » Weatherability of Thermoplastic Piping Systems

Dimension Ratio, DR	Min Cold Bend Radius
7, 9	20 x Pipe OD
11, 13.5	25 x Pipe OD
15.5, 17	27 x Pipe OD

CERTIFICATIONS & REFERENCES

- » **Centennial CenFuse Polyethylene Pipe** is compatible for connections with butt fusion, socket fusion, electrofusion, compression fittings, and victaulic grooved fittings. Check with fitting manufacturers for proper installation.
- » **CenFuse DR 9 and 7 meet AWWA C901** requirements in 3/4"- 3" and **AWWA C906** requirements in 4"- 6". CenFuse is certified and tested by NSF/ANSI standard 61 for potable water contact and NSF 14 for product performance compliance.
- » **NSF/ANSI/CAN 61** — Drinking Water System Components-Health Effects establishes the benchmark criteria for evaluating health effects of many drinking water system components, including plastic piping. Includes annual monitoring testing to verify continuous compliance, regular unannounced inspections of the manufacturing location, and ensures pipe is suitable for drinking water.
- » **NSF/ANSI 14** — Plastics Piping System Components and Related Materials establishes the physical, performance and health effects requirements for plastics piping system components and related materials. Includes annual monitoring testing to verify continuous compliance, regular unannounced inspections of the manufacturing location, and testing to product standards such as ASTM for dimensions, burst, sustained pressure, crush, extrusion quality, etc. Along with verification of the pipe material's long-term strength rating and material physical properties.
- » **ASTM D3035** — This specification covers polyethylene (PE) pipe made in thermoplastic pipe dimension ratios based on outside diameter IPS 3/4 to 3, for both non-pressure and pressure rated water. Included are requirements for polyethylene compounds and PE plastic pipe, a system of nomenclature for PE plastic pipe, and requirements and test methods for materials, workmanship, dimensions, sustained pressure, and burst pressure.
- » **ASTM F714** — This specification covers polyethylene (PE) pipe 4" and larger.
- » **PE4710** — CenFuse is manufactured from virgin high density polyethylene resin with the cell classification of 445576C per ASTM D3350-22. The material contains minimum 2% carbon black as a UV inhibitor to accommodate outside storage for at least 18 months
- » **ASTM D3350** — Material shall be high-density polyethylene conforming to the minimum requirements of cell classification 445576C. DR 9 or 250 psi related pipe will be listed CC3.
- » **ASTM F2620** — Heat fusion joining an PPI TR-33/R-41.
- » **AWWA C901** — This standard describes polyethylene (PE) pressure pipe and tubing made from material having standard PE code designation PE4710 and intended for use in potable water, reclaimed water, and wastewater service. Conforms to the OD dimensions of copper tube size (CTS) and iron pipe size (IPS). Pipe sizes 3" and smaller.
- » **AWWA C906** — This standard describes polyethylene (PE) pressure pipe and fittings made from materials conforming to standard PE materials designation codes PE 2606, PE 2706, PE 2708, PE 3608, PE 3708, PE 3710, PE 4608, PE 4708, and PE 4710. HDPE 4" and larger
- » **CenFuse** is certified to NSF/ANSI 372 and conforms with the "lead free" plumbing as defined by California, Vermont, Maryland, and Louisiana state laws and the U.S. Safe Drinking Water Act.
- » **Build America, Buy America (BABA Act)** — We proudly hold a BABA Act certification.
- » **Centennial Plastics follows Proposition 65** – www.P65Warnings.ca.gov
Our products in their finished form do not require a California Proposition 65 warning label.



centennialplastics.com



10/24

NEBRASKA
1830 Centennial Ave.
Hastings, NE 68901

IDAHO
5150 Treasure Valley Way
Nampa, ID 83687

info@centennialplastics.com
402-462-2227

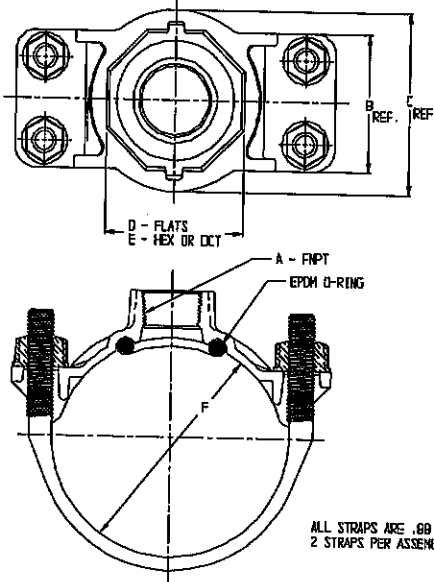
SUBMITTAL DATA SHEET

Silicon Bronze Strap Saddle - 3826

Ductile Iron/Cement-Asbestos/Cast Iron x FNPT



MODEL	SIZE	A	B	C	D	E	F
3826	4 X 3/4	3/4	3.19	3.19	1.69	HEX	4.74 - 5.40
3826	4 X 1	1	3.19	3.19	1.69	HEX	4.74 - 5.40
3826	4 X 1 1/2	1 1/2	3.19	4.19	3.10	DCT	4.74 - 5.40
3826	4 X 2	2	3.19	4.19	3.10	DCT	4.74 - 5.40
3826	6 X 3/4	3/4	3.19	3.19	1.69	HEX	6.84 - 7.50
3826	6 X 1	1	3.19	3.19	1.69	HEX	6.84 - 7.50
3826	6 X 1 1/4	1 1/4	3.19	4.19	3.10	DCT	6.84 - 7.50
3826	6 X 1 1/2	1 1/2	3.19	4.19	3.10	DCT	6.84 - 7.50
3826	6 X 2	2	3.19	4.19	3.10	DCT	6.84 - 7.50
3826	8 X 3/4	3/4	3.19	3.19	1.69	HEX	8.99 - 9.67
3826	8 X 1	1	3.19	3.19	1.69	HEX	8.99 - 9.67
3826	8 X 1 1/4	1 1/4	3.19	4.19	3.10	DCT	8.99 - 9.67
3826	8 X 1 1/2	1 1/2	3.19	4.19	3.10	DCT	8.99 - 9.67
3826	8 X 2	2	3.19	4.19	3.10	DCT	8.99 - 9.67
3826	10 X 3/4	3/4	3.19	3.19	1.69	HEX	11.04 - 12.12
3826	10 X 1	1	3.19	3.19	1.69	HEX	11.04 - 12.12
3826	10 X 1 1/2	1 1/2	3.19	4.19	3.10	DCT	11.04 - 12.12
3826	10 X 2	2	3.19	4.19	3.10	DCT	11.04 - 12.12
3826	12 X 3/4	3/4	3.19	3.19	1.69	HEX	13.20 - 14.38
3826	12 X 1	1	3.19	3.19	1.69	HEX	13.20 - 14.38
3826	12 X 1 1/2	1 1/2	3.19	4.19	3.10	DCT	13.20 - 14.38
3826	12 X 2	2	3.19	4.19	3.10	DCT	13.20 - 14.38
3826	18 X 3/4	3/4	4.93	5.00	3.48	DCT	19.50 - 20.50
3826	18 X 1	1	4.93	5.00	3.48	DCT	19.50 - 20.50
3826	18 X 1 1/2	1 1/2	4.93	5.00	3.48	DCT	19.50 - 20.50
3826	18 X 2	2	4.93	5.00	3.48	DCT	19.50 - 20.50
3826	30 X 3/4	3/4	4.93	5.00	3.48	DCT	31.74 - 32.74
3826	30 X 1	1	4.93	5.00	3.48	DCT	31.74 - 32.74
3826	30 X 1 1/2	1 1/2	4.93	5.00	3.48	DCT	31.74 - 32.74
3826	30 X 2	2	4.93	5.00	3.48	DCT	31.74 - 32.74



ALL STRAPS ARE .69 WIDE.
2 STRAPS PER ASSEMBLY

DRAWING MAY NOT RESEMBLE
ACTUAL SADDLE CONFIGURATION

SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Certified to NSF/ANSI 61
- Silicon Bronze strap(s) and cast brass nuts with enlarged washer bearing surface
- EPDM o-ring
- Pipe and tap size, and thread type identified on saddle
- Outlet boss with large wrench flats



A.Y. McDonald Mfg. CO.
P.O. Box 508
Dubuque, IA 52004-508

Toll Free: 1-800-292-2737
Fax: 1-800-832-9296
Hours: 7:00 a.m. - 5:00 p.m., CST

sales@aymcdonald.com
www.aymcdonald.com

A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

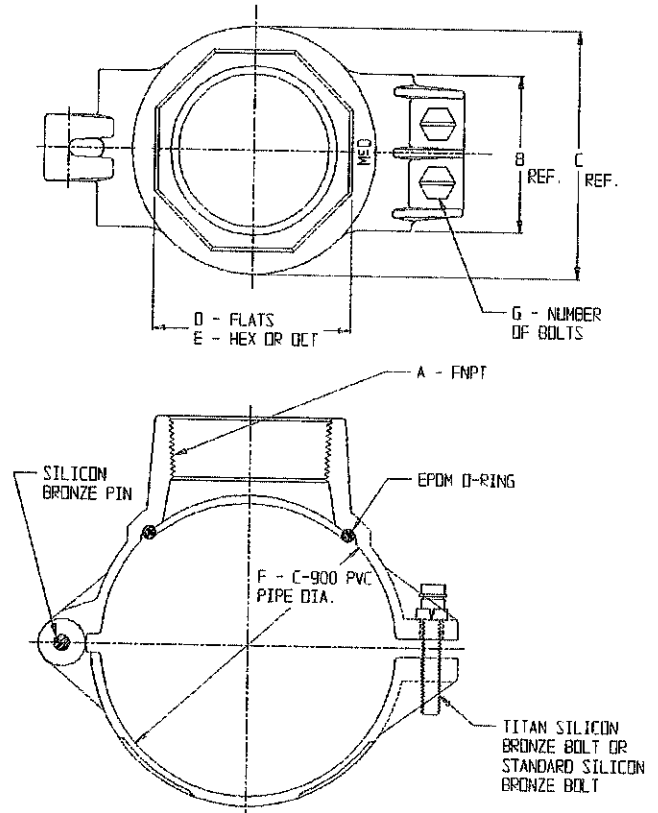
SUBMITTAL DATA SHEET

Hinged Saddle - 3896

C900 PVC x FNPT



MODEL	SIZE	A	B	C	D	E	F	G	TITAN BOLT
3896	4 X 3/4	3/4	2.00	2.56	1.69	HEX	4.800	1	YES
3896	4 X 1	1	2.00	2.56	1.69	HEX	4.800	1	YES
3896	4 X 1 1/2	1 1/2	2.50	3.96	3.10	OCT	4.800	2	NO
3896	4 X 2	2	2.50	3.96	3.10	OCT	4.800	2	NO
3896	6 X 3/4	3/4	2.00	2.56	1.69	HEX	6.900	1	YES
3896	6 X 1	1	2.00	2.56	1.69	HEX	6.900	1	YES
3896	6 X 1 1/2	1 1/2	2.50	3.96	3.10	OCT	6.900	2	NO
3896	6 X 2	2	2.50	3.96	3.10	OCT	6.900	2	NO
3896	8 X 3/4	3/4	2.00	2.56	1.69	HEX	9.050	1	YES
3896	8 X 1	1	2.00	2.56	1.69	HEX	9.050	1	YES
3896	8 X 1 1/2	1 1/2	2.50	3.96	3.10	OCT	9.050	2	NO
3896	8 X 2	2	2.50	3.96	3.10	OCT	9.050	2	NO



SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Certified to NSF/ANSI 61
- Silicon Bronze hinge pin and bolt(s)
- EPDM o-ring
- Pipe and tap size, and thread type identified on saddle
- Outlet boss with large wrench flats



A.Y. McDonald Mfg. CO.
4800 Chavenelle Rd
Dubuque, IA 52002

Toll Free: 1-800-292-2737
sales@aymcdonald.com
aymcdonald.com

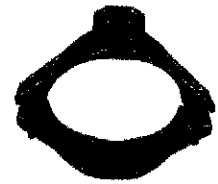
A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

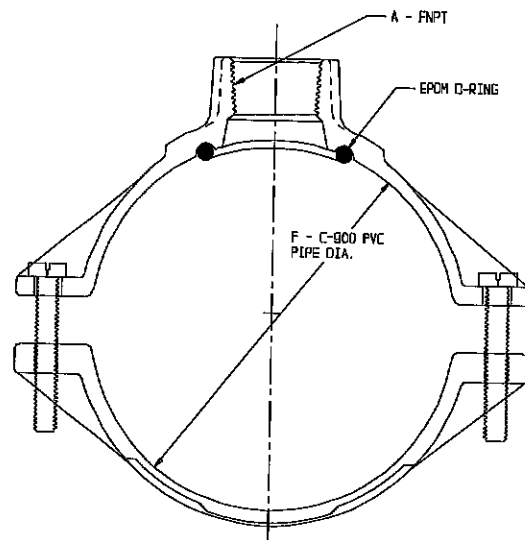
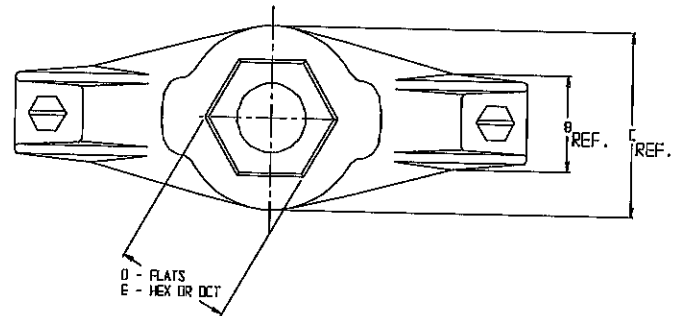
SUBMITTAL DATA SHEET

Two Piece Brass Saddle - 3806

C900 PVC x FNPT



MODEL	SIZE	A	B	C	D	E	F
3806	4 X 3/4	3/4	1.23	2.38	1.50	HEX	4.800
3806	4 X 1	1	1.32	2.55	1.72	HEX	4.800
3806	4 X 1 1/2	1 1/2	1.50	3.48	2.34	OCT	4.800
3806	4 X 2	2	1.50	3.72	2.82	OCT	4.800
3806	6 X 3/4	3/4	1.28	2.28	1.50	HEX	6.900
3806	6 X 1	1	1.24	2.58	1.72	HEX	6.900
3806	6 X 1 1/2	1 1/2	1.63	3.48	2.34	OCT	6.900
3806	6 X 2	2	1.63	3.72	2.82	OCT	6.900
3806	8 X 3/4	3/4	1.26	2.38	1.50	HEX	9.050
3806	8 X 1	1	1.26	2.58	1.72	HEX	9.050
3806	8 X 1 1/2	1 1/2	1.50	3.86	3.10	OCT	9.050
3806	8 X 2	2	1.50	3.86	3.10	OCT	9.050
3806	10 X 3/4	3/4	2.32	2.92	1.89	HEX	11.100
3806	10 X 1	1	2.32	2.92	1.89	HEX	11.100
3806	10 X 1 1/2	1 1/2	2.30	4.37	3.10	HEX	11.100
3806	10 X 2	2	2.30	4.37	3.10	HEX	11.100
3806	12 X 3/4	3/4	2.32	2.92	1.89	HEX	13.200
3806	12 X 1	1	2.32	2.92	1.89	HEX	13.200
3806	12 X 1 1/2	1 1/2	2.30	4.37	3.10	HEX	13.200
3806	12 X 2	2	2.30	4.37	3.10	HEX	13.200



SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Certified to NSF/ANSI 61
- Silicon Bronze bolts
- EPDM o-ring
- Pipe and tap size, and thread type identified on saddle
- Outlet boss with large wrench flats



A.Y. McDonald Mfg. CO.
4800 Chavenelle Rd
Dubuque, IA 52002

Toll Free: 1-800-292-2737
sales@aymcdonald.com
aymcdonald.com

A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:



AGAVE WIRE

Toll-Free (800) 690-3408

An ISO 9001 Management System

Fax: (469) 547-4242

PRODUCT GROUP DATA SHEET

PRODUCT OVERVIEW: **APUT Copper PE(45) Tracer UL**

CONSTRUCTION: One Copper HMW-PE Insulated Conductor

APPROVALS: UL - Tracer Wire

APPLICATION: Tracer Wire Suitable for Detecting Buried Facilities

CONSTRUCTION PARAMETERS:

CONDUCTOR: Annealed Bare Copper

NUMBER OF CONDUCTORS: 1

INSULATION MATERIAL: HMW-PE (High Molecular Weight Polyethylene)

INSULATION THICKNESS: 0.045" Nominal

ELECTRICAL & ENVIRONMENTAL PROPERTIES:

TEMPERATURE RATING: -20°c to 80°c

OPERATING VOLTAGE: 600v

INSULATION COLOR: Various Colors Available ← BLUE

PRINT LEGEND:

AGAVE WIRE - **AWG HMW-PE-(45) TRACER WIRE 600v (UL) E246360

**Print line will show gauge specific to product

Part Number	AWG	Conductor Stranding	Weight per 1000 ft (lbs.)	Copper O.D.	Finished O.D. (nom)	DC Resist. @ 20 °C (Ohms/1000')	Break Load
APUT-1801	18	Solid	9.86	0.040"	0.132"	6.3200	41
APUT-1819	18	19/.0092	10.35	0.047"	0.137"	6.1000	47
APUT-1601	16	Solid	13.32	0.051"	0.142"	4.0200	65
APUT-1619	16	19/.0117	13.82	0.057"	0.147"	1.4800	74
APUT-1401	14	Solid	18.76	0.064"	0.156"	2.5240	104
APUT-1419	14	19/.0141	19.52	0.074"	0.167"	2.8300	118
APUT-1201	12	Solid	26.97	0.081"	0.172"	1.5890	165
APUT-1219	12	19/.0185	27.86	0.088"	0.178"	1.6000	186
APUT-1001	10	Solid	39.95	0.102"	0.194"	0.9988	261
APUT-1019	10	19/.0234	41.03	0.112"	0.202"	1.1000	296
APUT-0801	8	Solid	59.95	0.128"	0.220"	0.0740	450
APUT-0819	8	19/.0285	62.06	0.148"	0.238"	0.7100	472
APUT-0601	6	Solid	91.43	0.162"	0.252"	0.3952	722
APUT-0619	6	19/.0372	94.72	0.179"	0.269"	0.4500	750

On special orders, the customer will accept all mil lengths and +/- 10% of total order requested. The information presented here is, to the best of our knowledge, is true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guarantee or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise.

This specification is proprietary intellectual property of Agave Wire. Any information contained herein shall not be disclosed to any party without written consent of Agave Wire.

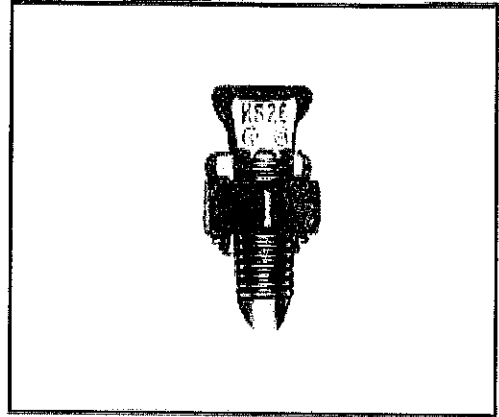
Proudly Manufactured in the U.S.A.

Split Bolt Connectors

For use on all combinations:

- Aluminum to aluminum
- Aluminum to copper
- Copper to copper

Compact, high strength, high copper alloy split-bolt has free-running threads and easy to grip wrench flats. Highly resistant to corrosion and season cracking, these split bolt connectors provide maximum pressure and assures a secure connection on all combinations of run and tap conductors. Type KS-3 accommodates 3 maximum size conductors.



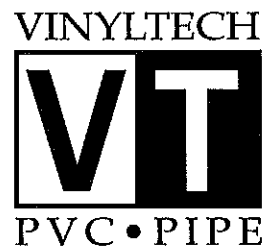
Catalog Number	Cross Flats	L	W	185 Conductor		Conductor				Recommended Tightening Torque In-lb
				Copper		Copperweld				
				Range for Equal Run and Tap	Min. Tap with Max. Run	Maximum Run and Tap				
				Sol.	Str.	Type A	Type D			
† KS90	.50	.85	.38	12 Str. - 10 Str.	16 Str.	#10	—	—	—	30
† KS15	.50	.85	.38	10 Str. - 8 Str.	14 Str.	#8	—	—	—	165
† KS17	.63	1.14	.45	8 Str. - 6 Sol.	14 Str.	#6	3 #12	BA	9-1/2D	165

† In addition to UL listed for wire connectors and CSA Certified, these items are also rated for direct burial.

▲ Listed torque values are for maximum conductor combinations accommodated.

VINYLTECH AWWA C900 BLUE

TECHNICAL DATA SUBMITTAL (4" - 12")



CONFORMANCE

These specifications designate the requirements for manufacturing and installing Vinyltech AWWA C900 PVC Pressure Pipe for potable water (4"-12").

ANSI/AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4" Through 60" (100mm Through 1,500mm)

AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals

ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

NSF/ANSI 61, Annex G - Drinking Water Systems Components-Health Effects

FM 1612 - Approval Standard for Polyvinyl Chloride (PVC) Pipe and Fittings for Underground Fire Protection

UL 1285 - Standard for Pipe and Couplings, Polyvinyl Chloride (PVC), and Oriented Polyvinyl Chloride (PVCO) for Underground Fire Service

PIPE COMPOUND

The pipe shall be extruded from compounds meeting (PVC 1120) the requirements of Cell Classification 12454, as defined in ASTM D1784, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds. The PVC shall also be listed by the National Sanitation Foundation (NSF) for use in potable water.

PIPE

Vinyltech pipe shall be manufactured in accordance with AWWA C900.

GASKET JOINT

The gasket shall be reinforced with a steel band and meet the requirements of ASTM F477. Vinyltech pipe shall have an integral bell end with a locked-in factory installed gasket and shall meet the joint requirements of ASTM D3139.

MARKING

The pipe shall be marked in accordance with AWWA C900.

QUALITY CONTROL

Each length of the pipe including the bell shall be hydrostatically tested in accordance with AWWA C900. The pipe shall meet all additional test requirements as described in AWWA C900. Our full-time quality assurance staff continually administers a rigid program of tests to maintain the production of the best pipe products available.

INSTALLATION

Recommended installation procedures of Vinyltech Corporation are outlined in AWWA C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water. The AWWA Manual M23, PVC Pipe Design and Installation, is also an invaluable resource guide for design and installation.

TAPPING

The consistent success of tapping PVC pressure pipe is contingent upon the use of proper procedures and equipment. Vinyltech recommends strict compliance with the requirements as specified in AWWA C605.

ASSEMBLING THE PIPE

Assembly of Vinyltech PVC water pipe is easily accomplished. A depth of entry mark is on each spigot end to serve as a visual check for rapid, accurate joint inspection. **Do not over insert.**

- 1) Remove any mud, sand, or other foreign matter from the belled and spigot ends of the pipe. Carefully clean the gasket area.
- 2) With a clean applicator (a brush or hand) lubricate the entire surface of the pipe from the spigot end to the depth of entry mark and the contact surface of the gasket with **Vinyltech Brand Lubricant**.
- 3) Brace the bell to avoid disturbing the already installed joints. Align the pipe, insert the spigot into the bell and push.
- 4) **Do not insert past the entry mark line.**



VINYLTECH • 201 S. 61st Avenue • Phoenix, AZ 85043 • 602 233-0071 • Fax: 602 272-4847 • www.vtpipe.com



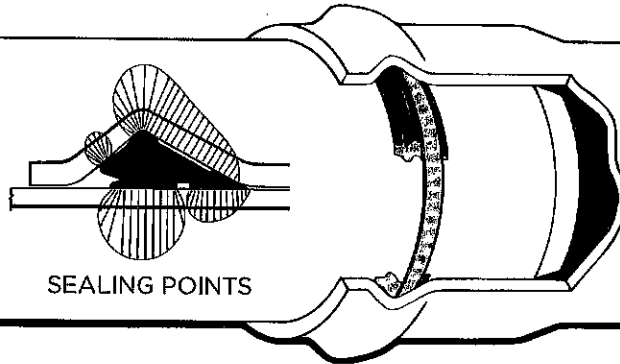
AN  OTTERTAIL COMPANY

C900 DR 18 Pressure Class 235

NOMINAL SIZE		OUTER DIAMETER (IN)	MINIMUM WALL (IN)	FEET PER LIFT	LIFTS PER TRUCK	APPROX WEIGHT (LB/100')
(IN)	(mm)					
4	100	4.800	0.267	1020	16	251.6
6	150	6.900	0.383	440	16	521.2
8	200	9.050	0.503	200	20	903.0
10	250	11.100	0.617	240	12	1364.4
12	300	13.200	0.733	60-80	28	1935.8

C900 DR 14 Pressure Class 305

NOMINAL SIZE		OUTER DIAMETER (IN)	MINIMUM WALL (IN)	FEET PER LIFT	LIFTS PER TRUCK	APPROX WEIGHT (LB/100')
(IN)	(mm)					
4	100	4.800	0.343	1020	16	317.5
6	150	6.900	0.493	440	16	658.7
8	200	9.050	0.646	200	20	1139.7
10	250	11.100	0.793	240	12	1722.3
12	300	13.200	0.943	60-80	28	2445.5



The Rieber Sealing System

The Rieber system provides a proven pipe joint with an excellent track record in the field. It is the fastest growing system in the world because of its many advantages.

- Factory installed, locked-in gasket
- The pipe bell forms over the gasket, making a perfect fit
- Avoids the possibility of installing the wrong gasket
- Reduces installation problems
- The locked-in gasket eliminates gasket roll-out during joining
- The gasket is molded vs. extruded and spliced
- Works equally well under pressure or vacuum
- Three sealing points achieved vs. two
- **LEAK-PROOF JOINTS**
- **"THE WORLDS BEST JOINT"**



Ductile Iron Flanged Fittings

ANSI/AWWA C110/A21.10

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 12S 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:** 2" - 12" Underwriters Laboratories and ULC Listed and Factory Mutual approved for 300 PSI rating. Please consult factory for detail listing and approvals. 2" and greater are UL/NSF-61.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise.
- INSTALLATION:** Per ANSI/AWWA C110 and C111



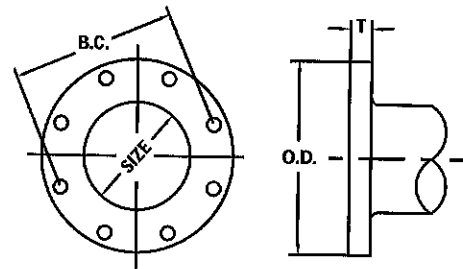
SUBMITTAL INFORMATION

PROJECT NAME: _____

ENGINEER: _____

CONTRACTOR: _____

SPEC. SECTION: _____



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 3/4 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

SIZE RANGE (Please specify):
 Size Range _____

- LINING OPTIONS (Please check one):**
- Standard: Cement-lined and asphalt seal coat per ANSI/AWWA C104/A21.4 and UL/NSF-61
 - Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.16 and UL/NSF-61 - ID & OD Only
 - Optional: P401 (Protecto 401) Ceramic Epoxy - sewer applications only. Not NSF-61
 - Optional: Other (specify) _____

- COATING OPTIONS (Please check one):**
- Standard: Red Prime Coat
 - Optional: Asphaltic seal coat per ANSI/AWWA C104/A21.4
 - Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.16 and UL/NSF-61 - ID & OD Only
 - Optional: Other (specify) _____





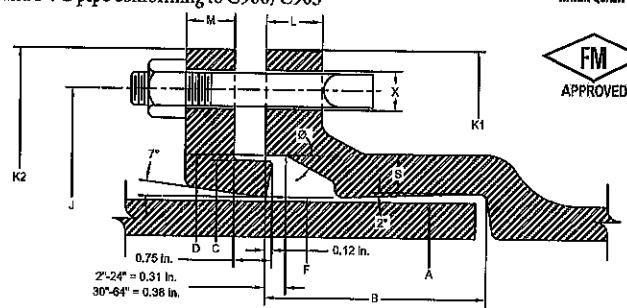
Ductile Iron MJ Compact Fittings
ANSI/AWWA C153/A21.53

GENERAL SPECIFICATIONS

- MATERIAL: Ductile Iron per ASTM A536
PRESSURE: 350 PSI rating for 2" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 64" sizes
TESTING: In accordance with ANSI/AWWA C153/A21.53, ANSI/AWWA C111/A21.11, UL and FM 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)
DEFLECTION: 2"-4"=8° | 6"=7° | 8"-12"=5° | 14"-16"=3 1/2° | 18"-24"=3° | 30"-64"=2°
WEIGHTS: Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
FLANGES: Flanged ends on fittings match ANSI/AWWA 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 and referenced in ANSI/AWWA C153/A21.53
GASKETS: SBR in accordance with ANSI/AWWA C111/A21.11
T-BOLTS/NUTS: Low alloy steel in accordance with ANSI/AWWA C111/A21.11
APPROVALS: 3" - 12" UL/ULC Listed | 2" and greater are UL/ANSI/NSF Standards 61 and 372 | 3" - 16" FM APPROVED. Please consult factory for detail listing and approvals.
DIMENSIONS: All dimensions are in inches unless noted otherwise.
INSTALLATION: Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900/C905



SUBMITTAL INFORMATION
PROJECT NAME:
ENGINEER:
CONTRACTOR:
SPEC. SECTION:



MECHANICAL JOINT DIMENSIONS

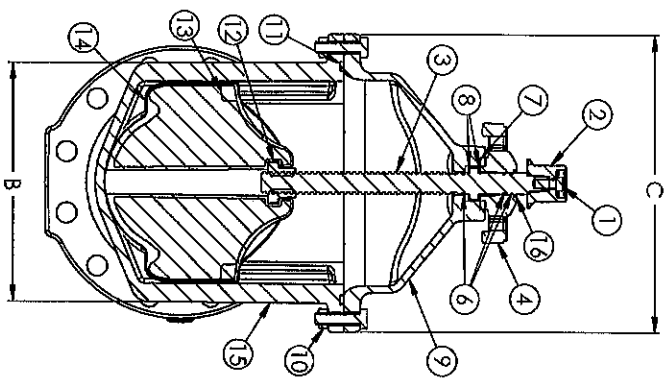
Table with 15 columns: NOM. SIZE, A DIA., B, C DIA., D DIA., F DIA., J DIA., K1 DIA., K2 DIA., L, M, S, Ø, X DIA., BOLTS SIZE, BOLTS NO. Rows include sizes from 2 to 64 inches.

SIZE RANGE (Please specify):
Size Range

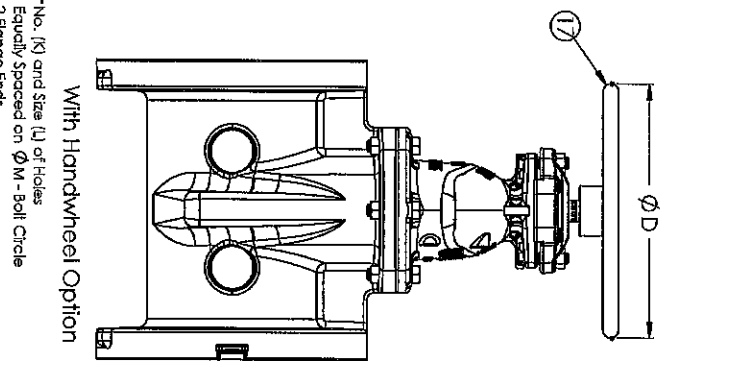
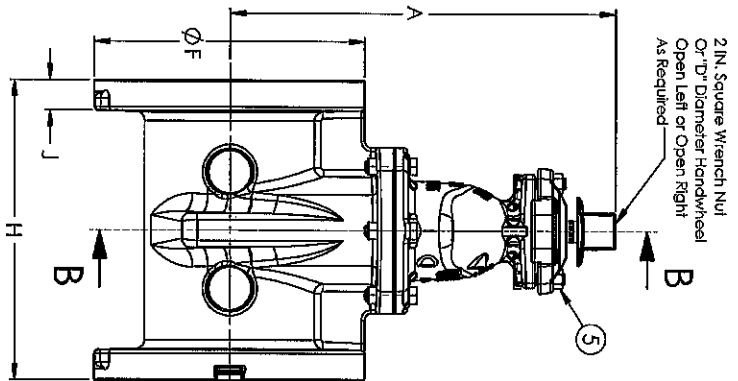
- LINING OPTIONS (Please check one):
[checked] Standard: Cement-lined and asphalt seal coat per ANSI/AWWA C104/A21.4 and UL/NSF-61
[] Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.16 and UL/NSF-61-ID & OD Only
[] Optional: P401 (Protecto 401) Ceramic Epoxy-sewer applications only. Not NSF-61
[] Optional: Other (specify)

- COATING OPTIONS (Please check one):
[checked] Standard: Asphaltic seal coat per ANSI/AWWA C104/A21.4
[] Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.16 and UL/NSF-61-ID & OD Only
[] Optional: Other (specify)





SECTION B-B
SCALE 3 : 20



No. (K) and Size (L) of Holes
Equally Spaced on ϕ M - Bolt Circle
2 Flange Ends

With Handwheel Option

ITEM NO.	DESCRIPTION	QTY	MATERIAL	ASTM	NOTES
1	Cap Screw	1	316 Stainless Steel	F593	Group 2-CW
2	Wrench Nut	1	Ductile Iron	A536	
3	Stem	1	Manganese Bronze	B138	Alloy C67600
4	Stuffing Box	1	Ductile Iron	A536	
5	Stuffing Box Bolts	2	316 Stainless Steel	F593 F564	Group 2-CW
6	O-Ring	3	Nitrile Rubber	D2000	
7	O-Ring	1	Nitrile Rubber	D2000	
8	Anti-Friction Washer	2	Acetal		
9	Bonnet	1	Ductile Iron	A536	
10	Bonnet Bolts	4	316 Stainless Steel	F593 F594	Group 2-CW
11	Bonnet O-Ring	1	Nitrile Rubber	D2000	
12	Disc Nut	1	Bronze	B594	
13	Encapsulated Disc	1	See Note 2		
14	Guide Cap	2	Acetal		
15	Body	1	Ductile Iron	A536	
16	Wiper Ring	1	Rubber		
17	Handwheel	1	Cast Iron (See Note 3)	A126	Class B

- Notes:
- Bronze Stem Options:
 - Manganese - ASTM B138 Alloy C67600
 - Everdur - ASTM B98 Alloy C66100
 - Rubber Encapsulated Ductile Iron Disc (ASTM A536)
 - SBR - ASTM D2000
 - EPDM - ASTM D2000
 - Manufacturer's Option to Upgrade Material to Ductile Iron ASTM A536 65-45-12 or 70-50-05

DIMENSIONS FOR RESILIENT WEDGE GATE VALVES - INCHES

Valve Size	A	B	C	D	E	F	G	H	J	K	L	M	Turns to Open
3	12.38	6.01	8.63	8.00	3.30	8.27	4	11.12	1.13	8	.88	6.614	11
4	14.19	8.25	10.79	11.00	4.30	10.00	4	12.00	1.25	8	.88	7.874	14
6	18.00	10.50	13.50	13.00	6.30	12.60	6	15.88	1.44	12	.88	10.630	20.5
8	21.50	13.21	16.36	14.00	8.30	14.96	6	16.50	1.63	12	1.13	12.972	26.5
10	25.50	16.48	19.99	16.00	10.30	17.52	8	18.00	1.87	16	1.25	15.236	33
12	28.62	19.83	21.00	16.00	12.30	20.47	8	19.75	2.00	16	1.25	17.756	38.5

APPROVED
By MATTHEW SLIGER at 8:26 am, Sep 18, 2018

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TITLE TO AND OWNERSHIP OF THE
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MUELLER CO. NO USE IS TO BE
MADE OF THIS DATA EXCEPT AS
SPECIFIED HEREIN. THIS IS A
PART OF THE RECEIPTS TO
THESE CONDITIONS IS PRESUMED.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONS ± .005
DECIMALS ± .001
HOLE DIA. ± .001
THREE PLACE DECIMAL ± .001



DRAWN	CSHT	DATE	DESCR.
CHECKED	AO	9/20/18	A2361 RWGV Class 250
ENG APPR	MPS		SIZE DWG. NO. 7457
WFG APPR			REVISION 0
Q.A.			

FINISH	DO NOT SCALE DRAWING
--------	----------------------

SCALE: 3:20	WEIGHT:	SHEET 1 OF 1
-------------	---------	--------------

CLOW
VALVE CO.

ClowValve.com

**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 BONDED
EPOXY COATED • 10 YEAR LIMITED WARRANTY



Clow Valve, A Division of McWane, Inc.

For Generations

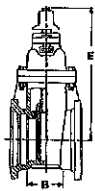
RESILIENT WEDGE VALVE

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

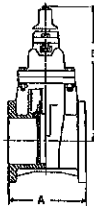
Clow responded by introducing the first R/W (Resilient Wedge) Gate Valve in America. This introduction revolutionized the valve market in the U.S.

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

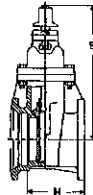
The Clow Resilient Wedge Valve, with its unique features and benefits, was the first to be manufactured with both AWWA and UL/FM approval for all water system requirements.



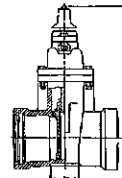
F-6100
MECHANICAL JOINT
4" - 20"



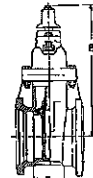
F-6102
FLANGED
4" - 20"



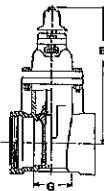
F-6106
FLANGED X MECHANICAL JOINT
4" - 20"



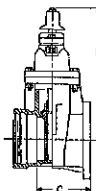
F-6110
PUSH ON FOR SDR PVC
4" - 12"



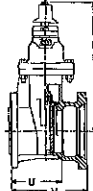
F-6111
MECHANICAL CUTTING IN JOINT
4" - 12"



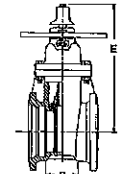
F-6112
TYTON ENDS FOR D.I. AND C900 PVC PIPE
4" - 16"



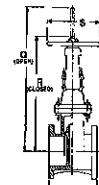
F-6113
FLANGED X TYTON
4" - 12"



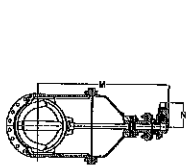
F-6114
MECHANICAL JOINT FOR TAPPING
4" - 20"



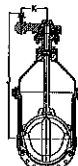
F-6120
MECHANICAL JOINT POST INDICATOR VALVE
4" - 16"



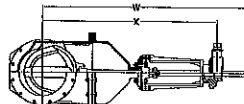
F-6136
FLANGED OS&Y
4" - 16"



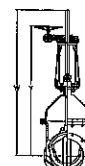
BEVEL GEARING
HORIZONTAL INSTALLATION
ALL END STYLES
14" - 20"



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"

VALVE SIZE	A	B	C	E	G	H	J	K	M	N	P	Q	R	S	U	V	NO GEAR*	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	28-1/2	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

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 are not recommended for buried service. * No. of turns to full open

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-bonded 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, country of origin, 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.

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.



CLOW
VALVE CO.

902 South 2nd Street
Oskaloosa, IA 52577
Ph 641-673-8611
Fx 641-673-8289



POCKET ENGINEER
Available for iOS + Android
or online at pe.mcwane.com.



*PATENT PENDING
REVISION B-2022



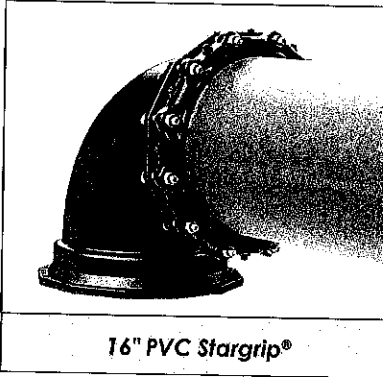
ClowValve.com



PVC Stargrip® series 4000

Mechanical Joint Wedge Action Restraint
for Plastic Pressure Pipe

Sizes 3" - 48"



16" PVC Stargrip®

SUBMITTAL INFORMATION

PROJECT NAME:

ENGINEER:

CONTRACTOR:

SPEC. SECTION:



FEATURES & ADVANTAGES

- Sizes 3" - 12" consists of G2 design.
- Can be used on 4"-48" AWWA C900 PVC, 4"-18" AWWA C909 PVCO and AWWA C906 HDPE pipes along with 3"-12" IPS OD* ASTM D2241 PVC pipe. (*A transition gasket is required on IPS Plastic Pipe). See Tables A and B for further details.
- Sizes 4"-12" are listed with Underwriters Laboratories, approved by Factory Mutual Research, and tested to and meets the requirements of ASTM F1674.
- Safety factor is twice (2:1) the standardized pressure rating listed in Tables A and B.
- Offers 5° of deflection on 3"-12" AWWA C900, 3° on 14"-24", 2° on 30"-36" and 1° on 42"-48".
- Standard gland color is Coral Red and is made from high strength Ductile Iron per ASTM A536 Grade 65-45-12 and is compatible with all Mechanical Joints that conform to ANSI/AWWA C111/A21.11.
- Eliminates the need for tie rods and thrust blocks.
- Fewer wedges and lower wedge-bolt torque results in quicker and easier installation (see specifications and tables C, D & E).
- Sizes 4"-12" uses a spacer that is easily removed when restraint is used on IPS Plastic pipe.
- Curved wedges reduce the amount of localized pipe deformation.
- The gland's larger inside diameter allows restraint to be installed on pipe with more ovality.
- Improved design of the wedge bolts prevents over torquing which can damage PVC pipe.
- For sizes 3"-12" and 42"-48" wedges are mechanically attached to wedge bolts, which eliminates the possibility of falling out during shipping and handling.
- US Patent# 9,822,910 applies to sizes 3"-12" and 42"-48".

MATERIAL SPECIFICATIONS:

- Wedges: Ductile Iron per ASTM A536, Grade 65-45-12. Wedge coating is a thermally cured fluoropolymer epoxy.

GLAND FINISH OPTIONS (Please check one):

- Standard: alkyd enamel coating
- Optional: Starbond™ TGIC polyester powder coating applied by an electrostatic spray process
- Optional: Other (specify) _____

COUNTRY OF ORIGIN OPTION (Please check one):

- Import
- Domestic - AIS Compliant

HARDWARE OPTIONS (Please check):

- Standard: T-bolts and nuts are high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11
- Optional: T-bolts alloy SS 304 per ASTM F593; Nuts alloy SS 304 per ASTM F594 CW
- Optional: T-bolts SS 316 per ASTM F593; Nuts SS 316 per ASTM A194 Grade 8M
- Optional: T-bolts and nuts Fluoropolymer Star-Blue coated high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11

STAR® PIPE PRODUCTS

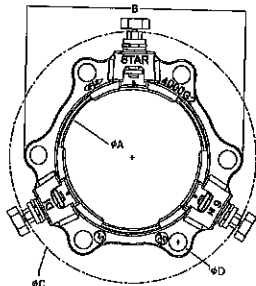




PVC Stargrip® series 4000

Mechanical Joint Wedge Action Restraint
for Plastic Pressure Pipe
Sizes 3" - 48"

TECHNICAL INFORMATION (SIZES 3"-12")

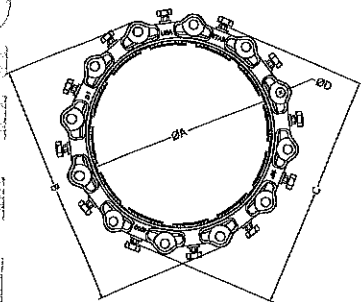


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PVC STARGRIP® 4000 SPECIFICATIONS* (SIZES 3"-12")									
NOM. SIZE	C900/C909 PIPE CI OD	IPS PIPE OD¹	ØA	B	ØC²	ØD	T-BOLT SIZE (QTY)	WEDGE (QTY)	APPROX WT. (LBS)
3	N/A	3.50	4.09	7.57	9.11	¾	¾ x 3 (4)	2	6
4	4.80	4.50	4.93	9.00	10.44	¾	¾ x 3 ½ (4)	2	7
6	6.90	6.63	7.03	11.00	12.54	¾	¾ x 3 ½ (6)	3	10
8	9.05	8.63	9.18	13.25	14.59	¾	¾ x 4 (6)	4	15
10	11.10	10.75	11.23	15.62	16.74	¾	¾ x 4 (8)	6	21
12	13.20	12.75	13.33	17.87	18.69	¾	¾ x 4 (8)	6	25

*All dimensions in inches except where indicated.
1 - transition gasket required
2 - dimension after assembly on pipe

TECHNICAL INFORMATION (SIZES 14"-36")

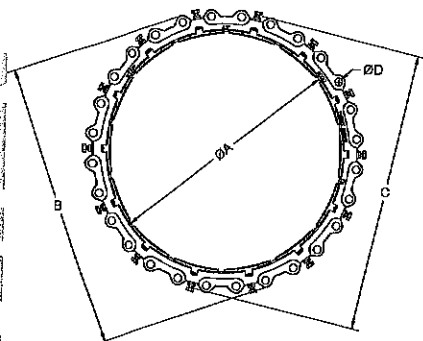


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PVC STARGRIP® 4000 SPECIFICATIONS* (SIZES 14"-36")								
NOM. SIZE	C900/C909 PIPE CI OD	ØA	B	ØC²	ØD	T-BOLT SIZE (QTY)	WEDGE (QTY)	APPROX WT. (LBS)
14	15.30	15.45	20.75	20.48	¾	¾ x 4 ½ (10)	10	50
16	17.40	17.55	23.00	22.58	¾	¾ x 4 ½ (12)	12	60
18	19.50	19.65	25.25	24.68	¾	¾ x 4 ½ (12)	12	65
20	21.60	21.75	27.50	26.78	¾	¾ x 4 ½ (14)	14	76
24	25.80	25.95	32.00	30.98	¾	¾ x 5 (16)	16	98
30	32.00	32.18	39.38	36.94	1-½	1 x 6 (20)	20	173
36	38.30	38.48	46.25	43.24	1-½	1 x 6 (24)	24	219

*All dimensions in inches except where indicated.
2 - dimension after assembly on pipe

TECHNICAL INFORMATION (SIZES 42"-48")



-
-

PVC STARGRIP® 4000 SPECIFICATIONS* (SIZES 42"-48")								
NOM. SIZE	C900/C909 PIPE CI OD	ØA	B	ØC²	ØD	T-BOLT SIZE (QTY)	WEDGE (QTY)	APPROX WT. (LBS)
42	44.50	44.75	53.12	52.58	1-¾	1 ¼ x 8 ½ (28)	14	436
48	50.80	51.05	60.00	58.88	1-¾	1 ¼ x 8 ½ (32)	16	530

*All dimensions in inches except where indicated.
2 - dimension after assembly on pipe

STAR PIPE PRODUCTS



Phone: (800) 976-BOLT
 Web: itpbolt.com
 Email: sales@itpbolt.com
 Email: purchasing@itpbolt.com

BREA
 FRESNO
 RANCHO CUCAMONGA
 UNION CITY

HEX BOLTS A307 GRADE A

SUBMITTAL SPECIFICATIONS
 ABSTRACT OF ASTM A307 GRADE A

GRADE: Low Carbon Steel 60,000 PSI

CHEMICAL REQUIREMENTS

Chemical analysis shall be performed in accordance with ASTM A751

CARBON MAX	MANGANESE MAX	PHOPHOROUS MAX	SULFER MAX
0.29	1.20	0.04	0.15

MECHANICAL REQUIREMENTS

HARDNESS BRINEL		HARDNESS ROCKWELL		TENSILE STRENGTH (KSI)		ELONGATION IN 2 IN (50MM)
MIN	MAX	MIN	MAX	MIN	MAX	MIN
121	241	69	100	60	-	18

Hex Nuts ASTM A563 (ASME B18.2.2) Heavy Hex Nuts ASTM A563 (ASME B18.2.2)

Washers ASTM F844-04 (ASME B18.22.1)

BOLTS AND NUTS MAY BE SUPPLIED

Plain Zinc Plated per ASTM B633 Hot Dip Galvanized Per ASTM A153 Cadmium Plated

LOCATION

Buried Submerged Above Grade Below Grade Other

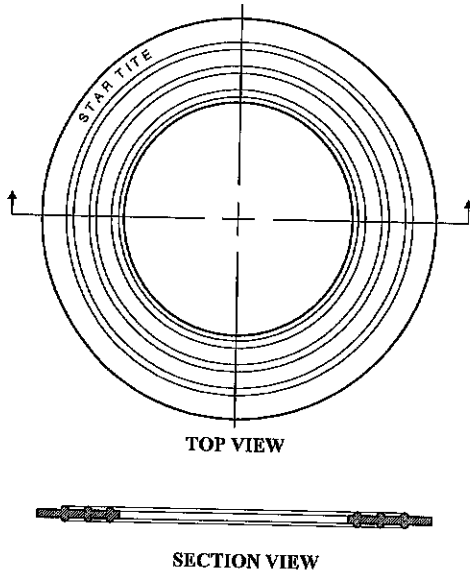
DIMENSIONAL DATA: Unless otherwise specified in the purchase order, parts shall be the coarse threaded series as specified in the latest issue of ANSI / ASME B1.1, page A-26. Having a 2A tolerance. Grade A Bolts shall have Hex Bolt Dimensions as given in the latest issue of ANSI / ASME B 18.2.1, Page C1. Unless otherwise specified Grade A Bolts should be used with Hex Nuts.

ADDITINOAL INFORMATION: Additional information can be found in ASTM A307A-07B, ASTM A563-04A



Star-Tite™ Flanged Gasket

3" to 36", Ring Style



INTRODUCTION

Historically, flat red rubber gaskets have been used for sealing flanged joints. These gaskets may not have NSF/ANSI 61 or NSF/ANSI 372 certification and do not qualify for higher ratings in standards such as ANSI/AWWA C110/A21.10. The Star-Tite™ flanged gasket is a specially designed gasket that qualifies for the higher rating. It also is listed by UL as satisfying both NSF/ANSI 61 and NSF/ANSI 372 requirements for potability.



LOWER TORQUE

The Star-Tite™ Ring Gasket has about one half the area to compress when compared to a full face gasket, which results in a reduction of the torque required to achieve a proper seal. In addition, the Star-Tite™ Ring Gasket incorporates three bulbs that are molded into the gasket, a geometry that improves the performance when compared to a typical flat full face red rubber gasket.

HIGHER PERFORMANCE

AWWA standard ANSI/AWWA C110/A21.10 describes specially designed gaskets as follows:

Also available for most sizes are specially designed gaskets, either ring or full-face, using one or more annular rings molded into the gasket to improve the gasket performance.

Appendix A, Section A.2, Gaskets

Footnotes below the pressure rating tables in ANSI/AWWA C110/A21.10 for flanged fittings allow the rating of flanged fittings that use these special gaskets to be 350 psi in sizes 24-inch and less. The Star-Tite™ gasket qualifies as one of these special gasket designs. When normal flat full face red rubber gaskets are used, the rating is 250 psi.

The bulb type rings on the Star-Tite™ ring gasket allow the gasket material to compress in three localized areas of the flange. The inner bulb is located inside the tapered pipe thread that is typical with fabricated pipe. This creates a pressure boundary that prevents leakage through the threaded connection, which is shown in Figure 1 on the next page. The outer two bulbs better accommodate minor misalignment that occasionally occurs when flat surfaces are mated together.

STAR® PIPE PRODUCTS



Star-Tite™ Flanged Gasket

3" to 36", Ring Style

TECHNICAL INFORMATION

Figure 1.

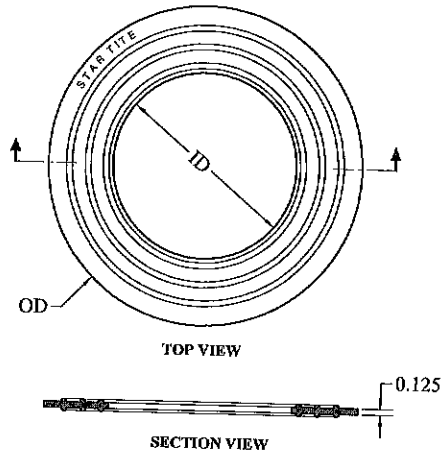
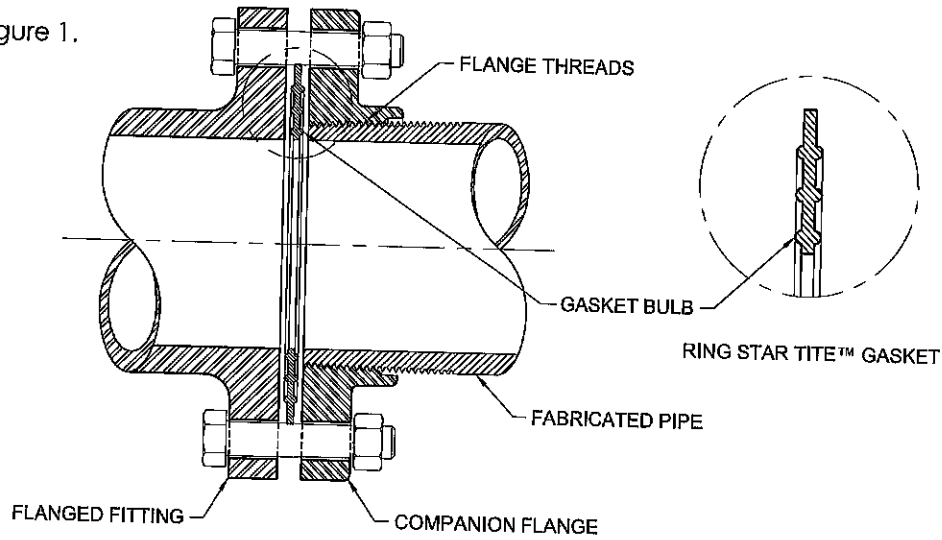


Table 1 - FLANGE ACCESSORY PACKS C111/A.21,11*

NOM. SIZE	ID	OD	BOLTS	BOLTS (QTY)	MAX PRESSURE RATING (PSI)	BOLT TORQUE (FT-LB)	APPROX. WT. (LBS)
3	3.000	5.375	3/8 x 2 1/2	4	350	110	2
4	4.000	6.875	3/8 x 3	8	350	110	4
6	6.000	8.750	3/4 x 3 1/2	8	350	110	5
8	8.000	11.000	3/4 x 3 1/2	8	350	110	5
10	10.000	13.375	7/8 x 4	12	350	130	12
12	12.000	16.125	7/8 x 4	12	350	130	13
14	14.000	17.750	1 x 4 1/2	12	350	150	19
16	16.000	20.250	1 x 4 1/2	16	350	160	25
18	18.000	21.625	1 1/8 x 5	16	350	180	36
20	20.000	23.875	1 1/8 x 5	20	350	200	45
24	24.000	28.250	1 1/4 x 5 1/2	20	350	220	61
30	30.000	34.750	1 1/4 x 6 1/2	28	250	140	94
36	36.000	41.250	1 1/2 x 7	32	250	160	172

*All dimensions in inches except where indicated.

GENERAL SPECIFICATIONS

- HEX BOLTS:** Per ANSI/ASME B18.2.1 - Material per ASTM A307 Grade B, Zinc Plated
- HEX NUTS:** Per ANSI/ASME B18.2.2 - Material per ASTM A563 Grade A or B, Zinc Plated
- GASKET MATERIAL:** Vulcanized Styrene Butadiene Rubber (SBR)
- DIMENSIONS:** Refer to Table 1 above or FAH03-36RG submittal drawing number A6531.
- CERTIFICATIONS:** UL listed to NSF/ANSI 61 and NSF/ANSI 372 for potability.
- PRESSURE RATING:** 350 psi for sizes 3" to 24"; 250 psi for sizes 30" to 36".

STAR PIPE PRODUCTS

HYMAX[®]

a **MUELLER** brand

HYMAX[®] 2 COUPLING (1.5" - 12") Product Specifications

FEATURES

- Advanced wide-range coupling with a patented flip gasket.
- Eliminates gasket removal mistakes and maximizes installer work efficiency.
- Only 2 - 4 top facing bolts, for faster and safer installation.
- Ready-to-use design to eliminate extensive under-pipe digging.
- Allows 4° dynamic deflection on each end, reducing future pipe damage.
- Patented hydraulically-assisted gasket with 2-stage sealing.
- Suitable for many types of pipe.
- One product can connect pipes of two different materials.
- Based on the game-changing HYMAX that has been field-proven in millions of installations in the US.
- Product performance, OD range and pressures are identical to those of the original HYMAX.
- Lifting T-handle only on 3"-12".

SPECIFICATIONS STANDARDS

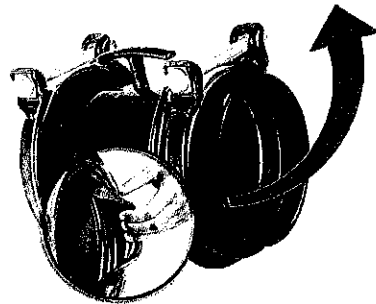
- HYMAX2 meets or exceeds standards AWWA C219, NSF 61, NSF 372.

SIZE

- Available in nominal diameter from 1.5" - 12" standard.

MATERIALS END RINGS

- ASTM A283/A283M Grade C steel.



CENTER RING

- ASTM A53 Grade A steel.

GASKETS

- EPDM compounded for water and sewage in accordance with ASTM D2000, meets international standards for contact with drinking water.

BRIDGE

- Available in AISI 304 or 316 Stainless Steel, ASTM A240.

SPHERICAL SPACERS

- Available in AISI 304 (ASTM A351 CF8) or SS316 (ASTM A351 CF8M) Stainless Steel.

COATING

- 100% fusion bonded epoxy for enhanced corrosion protection.
- Average thickness 14 mm.

BOLTS, NUTS & WASHERS

- Available in AISI 304 or SS316 stainless steel. Rolled thread and anti-galling coating. ASTM F593, ASTM F594 and ASTM A240 respectively.



JOIN



REPAIR



RESTRAIN



TAP

MUELLER

PRODUCT PERFORMANCE

WORKING TEMPERATURE

- -20°F up to +125°F

DYNAMIC DEFLECTION

- Up to 4° per side

MIN. PIPE INSERTION

- 2.25"

MAXIMUM OFFSET FOR MISALIGNED PIPES

- ND 1.5" - ND 3": 0.39"
- ND 4" - ND 12": 0.51"

MAXIMUM OUT OF ROUNDNESS

- ND 1.5": 0.08"
- ND 2" - ND 3": 0.20"
- ND 4" - ND 12": 0.31"

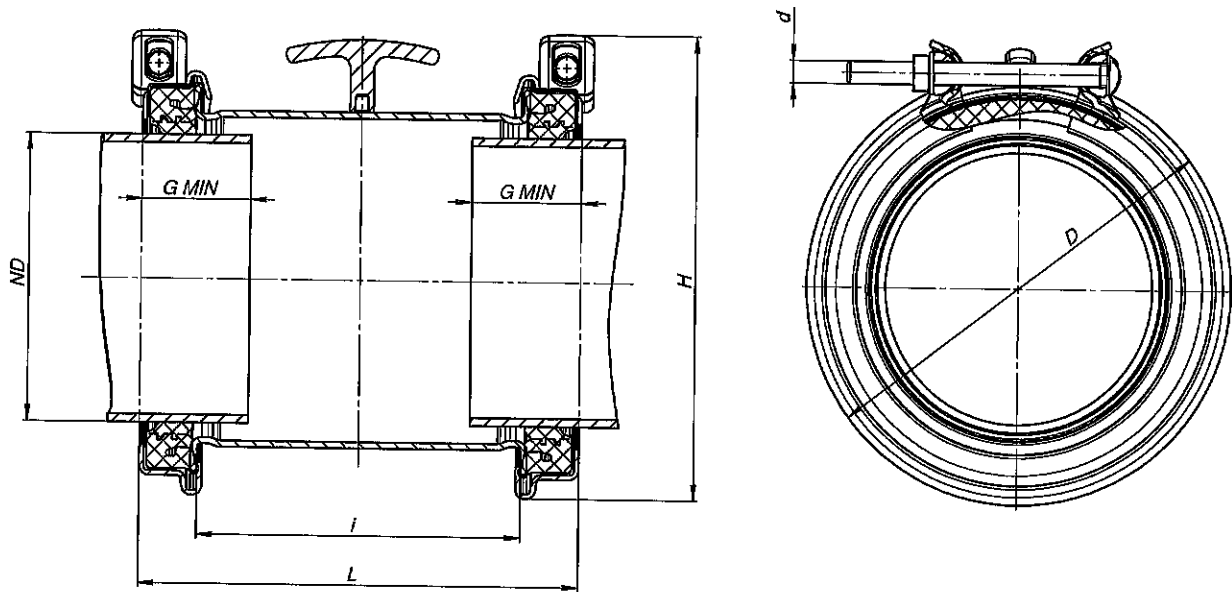
WORKING PRESSURE

- 260 psi

VACUUM TEST

- 12 psi

PRODUCT TABLES



HYMAX[®] 2 NOMINAL SIZES 1.5" - 12"

HYMAX Part Number	ND (inch)	Overall Range (inch)	Range in Closed Gasket Position (inch)	Range in Open Gasket Position (inch)	Bolts Qty.-Size (mm)	Torque (ft-lbs)	Approx. Weight (lbs)	Length (inch)
860-XX-0041-16	1.5	1.61 - 2.13	1.61 - 1.97	1.96 - 2.13	2 - M12	35	5	6.1
860-XX-0054-16	2	2.10 - 3.03	2.10 - 2.60	2.56 - 3.03	2 - M12	50	7.5	6.8
860-XX-0088-16	3	3.46 - 4.33	3.46 - 3.90	3.86 - 4.33	2 - M12	50	10.8	8.8
860-XX-0108-16	4	4.25 - 5.63	4.25 - 5.00	4.92 - 5.63	2 - M14	75	15	8.8
860-XX-0130-16	5	5.12 - 6.38	5.12 - 5.75	5.71 - 6.38	2 - M14	75	19	10.8
860-XX-0163-16	6	6.42 - 7.68	6.42 - 7.05	7.01 - 7.68	2 - M14	75	23	10.8
860-XX-0190-16	7	7.48 - 8.74	7.48 - 8.11	8.07 - 8.74	2 - M14	75	24	10.8
860-XX-0217-16	8	8.54 - 9.84	8.54 - 9.17	9.13 - 9.84	2 - M14	75	28	10.8
860-XX-0272-16	10	10.70 - 12.00	10.70 - 11.37	11.33 - 12.00	2 - M14	75	32	10.8
860-XX-0278-16	10	10.96 - 12.26	10.96 - 11.63	11.59 - 12.26	2 - M14	75	33	10.8
860-XX-0315-16	12	12.40 - 13.66	12.40 - 13.03	12.99 - 13.66	2 - M14	80	39	10.8
860-XX-0334-16	12	13.15 - 14.41	13.15 - 13.78	13.74 - 14.41	2 - M14	80	39	10.8

When XX = 54 - Fasteners are AISI 304SS

When XX = 94 - Fasteners are AISI 316SS

For specific sizes of products in stock, call Mueller for details.

To learn more, visit HymaxUSA.com.

Mueller refers to one or more of Mueller Water Products, Inc., a Delaware corporation ("MWP"), and its subsidiaries. MWP and each of its subsidiaries are legally separate and independent entities when providing products and services. MWP does not provide products or services to third parties. MWP and each of its subsidiaries are liable only for their own acts and omissions and not those of each other. MWP brands include Mueller[®], Echologics[®], Hydro Gate[®], Hydro-Guard[®], HYMAX[®], Krausz[®], Jones[®], Mi.Net[®], Milliken[®], Pratt[®], Pratt Industrial[®], Sentry[™], Singer[®], and U.S. Pipe Valve & Hydrant. Please see muellerwp.com/brands to learn more.

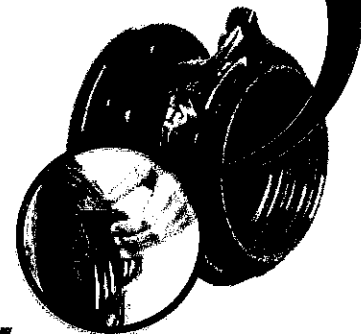
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F 14532 FS0047 05/2023



PRODUCT SPECIFICATIONS

HYMAX[®] 2



FLANGE ADAPTOR (1.5"-12")^{*} AND FLANGE ADAPTOR LONG BODY (1.5"-12")

FEATURES

- ADVANCED WIDE-RANGE COUPLING WITH A PATENTED FLIP GASKET
- ELIMINATES GASKET REMOVAL MISTAKES AND MAXIMIZES INSTALLER WORK EFFICIENCY
- USING THE GAME-CHANGING HYMAX TECHNOLOGY, PROVEN IN OVER 1M INSTALLATIONS IN THE US
- SUITABLE FOR ALL TYPES OF PIPES - DUCTILE IRON, CAST IRON, STEEL, COPPER, PE, PVC, AC, GRP
- PATENTED HYDRAULICALLY-ASSISTED GASKET WITH 2-STAGE SEALING
- LIGHTWEIGHT CONSTRUCTION ENABLES FAST AND EASY INSTALLATION
- ALLOWS 4° DYNAMIC DEFLECTION, REDUCING FUTURE PIPE DAMAGE

SPECIFICATIONS

STANDARDS

HYMAX FLANGE ADAPTOR AND LONG BODY MEETS OR EXCEEDS REQUIREMENTS OF STANDARDS: AWWA C-219, NSF-61, NSF 372.

SIZE

AVAILABLE IN NOMINAL DIAMETER
FLANGE ADAPTOR 1.5"-12"
FLANGE ADAPTOR LONG 1.5"-12"

MATERIAL

FLANGE BODY ASTM A53 GRADE A STEEL.

FLANGE F/A Meets ANSI B16.5, Class 150.
F/A Long 1.5"-2" OVAL FLANGE FOR FLOW METER
3" Meets ANSI B16.5
4"-12" Meets AWWA class D

END RING ASTM A283 / A283M GRADE C STEEL.

SPHERICAL SPACERS AVAILABLE IN AISI 304 OR SS316^{**} STAINLESS STEEL

BRIDGE AVAILABLE IN AISI 304 OR SS316^{**} STAINLESS STEEL

GASKET EPDM COMPOUNDED FOR WATER AND SEWAGE, MEETS INTERNATIONAL STANDARDS FOR CONTACT WITH DRINKING WATER.

COATING 100% FUSION BONDED EPOXY FOR ENHANCED CORROSION PROTECTION. AVERAGE THICKNESS 14 MIL.

NUTS & BOLTS AVAILABLE IN AISI 304 OR SS316^{**} STAINLESS STEEL. ROLLED THREAD AND ANTI-GALLING COATING.

* REGISTERED PATENT

** SS316 Coming Soon

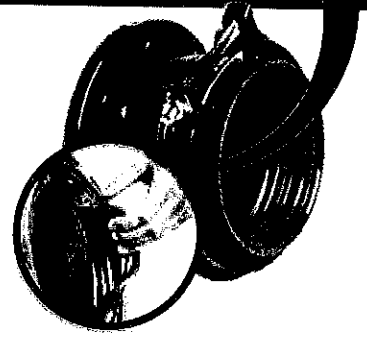
HYMAX[®]

Repair the past. Connect the future.

KRAUSZ is the creator of HYMAX

PRODUCT SPECIFICATIONS

HYMAX 2



Flange Adaptor / Flange Adaptor Long
 1.5"-12" 1.5"-12"

PRODUCT PERFORMANCE

WORKING TEMPERATURE	EPDM: -20°F UP TO +125°F
DYNAMIC DEFLECTION	UP TO 4°
MIN. PIPE INSERTION	2.25"
MAXIMUM OFFSET FOR MISALIGNED PIPES	F/A ND 1.5"-3" ND 4"-12" 0.20" 0.24"
	F/A LONG ND 2"-3" ND 4"-12" 0.20" 0.24"
MAXIMUM OUT OF ROUNDNESS	F/A ND 1.5 ND 2"-3" ND 4"-12" 0.08" 0.20" 0.31"
	F/A LONG ND 1.5 ND 2"-3" ND 4"-12" 0.08" 0.20" 0.31"
WORKING PRESSURE	175 PSI
RATED PRESSURE	262 PSI
VACUUM TEST	12 PSI



WATERWORKS

Olivehurst Public Utility District

1970 9th Ave
Olivehurst, CA. 95961

June 3, 2026

Project: OPUD WATER MAIN & SERVICE LINE MATERIAL RFB

Bid Due Date: June 12, 2026

Bid Opening: June 12, 2026, Shortly after bid due date

Attached:

OPUD Bid Form

Submittals for bid materials

PACE Supply quote on company letterhead

Regards,

Rick Merri

Waterworks Valley Manager
PACE Supply Corp.
8400 24th Ave
Sacramento, CA. 95826
916-826-7060

OLIVEHURST PUBLIC UTILITY DISTRICT
NOTICE OF REQUEST FOR SEALED BID'S

(DATE) MAY 21, 2026

OWNER: **Olivehurst Public Utility District**
PROJECT: **OPUD WATER MAIN & SERVICE LINE MATERIAL RFB**

TO: Contractor / Bidder

BID DUE DATE: June 12, 2026 2:00 P.M.

BID OPENING DATE/TIME: June 12, 2026 Shortly after Bid Due Date.

SUBMIT BID

TO: **Olivehurst Public Utility District**
1970 9th Avenue
Olivehurst, CA 95961
(530) 682-0736

Notice is hereby given to all prospective Contractors /Suppliers to **submit a sealed BID** on or before the above date. Contractor / Supplier agree to supply all equipment described in the available CONTRACT DOCUMENTS consisting of Plans, proposal document and Specifications. OPUD is looking for BIDS for the purchase of various water service material and pipe material. Copies of the CONTRACT DOCUMENTS may be obtained from Olivehurst Public Utility District, upon the non-refundable payment of \$ 50 per set, or you may request a free electronic copy from the District Public Works Manager via email at sboyal@opud.org.

Any question should be submitted to the Public Works manager via email at sboyal@opud.org or via phone at 530-682-0736. All **questions are due by Wednesday, June 3rd at 2 PM** for Clarification or addendum items.

Sincerely,

Swarnjit Boyal

Swarnjit Boyal, MS
Public Works Manager

OLIVEHURST PUBLIC UTILITY DISTRICT
1970 9TH Avenue
Olivehurst, CA 95961
Phone: (530) 682-0736

OLIVEHURST PUBLIC UTILITY DISTRICT

Our mission is to provide high quality services to enhance our community's quality of life.



BOARD OF DIRECTORS

Deannise Burbank Lacey Nelson John Floe Mary Jane Griego Marc Perrault

GENERAL MANAGER

John Tillotson

May 21st, 2026

To: Prospective Bidders

RE: Purchase of aforementioned Water Service Materials for Service Line Replacements throughout Historic Olivehurst

Bids shall include any and all taxes, freight, federal/state fees, hazardous waste disposal fee, weight certificate of completed unit, etc. and be an 'Out-The-Door' cost. Please make sure to include a specification page/build sheet of materials in order to verify compliance with the requested specifications above. Any questions shall be directed to the OPUD Public Works Department at 530-682-0736 or via email at sboval@opud.org. Attached please find an example of what OPUD is looking for (or similar). Item # & MFG# was used as sample from local vendor as reference only. Olivehurst Public Utility District will be accepting as specified below:

Bid FORM for following water service materials:

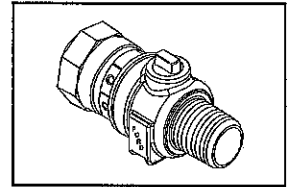
RFB - BID SHEET FOR WATER SERVICES MATERIAL SUBMITAL - BID FORM

Title	Brand	Item #	MFG #	Unit of Measure	Quantity	Price	TOTAL
1 B-250228N Ball Corporation Stop, 1in, MNPT x 1/10 CIS, Brass	Muelier Co or similar	MUEB250228N1	025028330N	Each	160	78.00	12,480.00
2 Angle Meter Valve, 1in, 110 CRXx Meter Nut, Brass	Muelier Co or similar	MUEB24258N1	024258330N	Each	160	140.00	22,400.00
3 Bushing, 5/8 x 3/4 to 1in, MNPT x Meter Nut, Brass	Muelier Co or similar	MUEH10879N88841	H-10879N 5/8X3/4X1	Per Pair	80	31.00	2,480.00
4 Potable Water Polyethylene Pipe, SDR 9, 4710, 1in, 100 ft L, CIS	VARIES	WPP1100BLK	WPP1100BLK	Per Roll	35	60.00	2,100.00
5 Double Strap Pipe Saddle, 10in, 1in FNPT	A.Y. McDonald or similar	MCD3826101	4148-035	Each	30	197.00	5,910.00
6 Hinged Pipe Saddle, 8in, 1in FNPT	FORD or similar	FORS91804	S91-804	Each	10	32.00	320.00
7 Double Strap Pipe Saddle, 8in, 1in FNPT	A.Y. McDonald or similar	MCD3826861	4148-015	Each	95	163.00	15,485.00
8 2-Piece Pipe Saddle, 12in, 1in FNPT	FORD or similar	FORS911204	S91-1204	Each	30	238.00	7,140.00
9 Tracer Wire, 10 AWG, 45 mil, Blue, (500 ft rolls or spool)	VARIES	TRW10BL145	TRW10BL145	Each	8	175.00	1,400.00
10 Copper Split Bolt Connector (Needs to be compatible with .10 AWG Tracer wire mentioned above)	VARIES	TRWCRC38	TRWCRC38	Each	160	5.00	800.00
11 DR 18 PVC Pipe, 6in, Bell x plain, 20ft L sticks, Blue	VARIES	PVPDR188	PVPDR188	LF	20	4.35	87.00
12 DR 18 PVC Pipe, 8in, Bell x plain, 20ft L sticks, Blue	VARIES	PVPDR188	PVPDR188	LF	300	16.00	4,800.00
13 DR 18 PVC Pipe, 12in, Bell x plain, 20ft L sticks, Blue	VARIES	PVPDR1812	PVPDR1812	LF	20	32.80	656.00
14 Cross, 12x 8in, Flange, Cement Lined	Various Vendors	DCFRCROSSFLG128	DCFRCROSSFLG128	Each	1	1664.00	1664.00
15 Reducer Coupling, 8x 6in, Flange, Cement Lined	Various Vendors	DCREDFLG86	DCREDFLG86	Each	1	294.00	294.00
16 Reducer Coupling, 12x 8in, Flange, Cement Lined	Various Vendors	DCREDFLG128	DCREDFLG128	Each	1	625.00	625.00
17 22.5 deg Elbow, 8in, Mechanical Joint, Fusion Bond Epoxy Coated	Various Vendors	DCF2212M18	DCF2212M18	Each	2	172.00	344.00
18 22.5 deg Elbow, 8in, Mechanical Joint x Flange, Cement Lined	Various Vendors	DCF2212M1FLG8	DCF2212M1FLG8	Each	1	242.00	242.00
19 Non-Rising Stem Gate Valve, 8in, Flange, Ductile Iron	Various Vendors	WGVFR8	WGVFR8	Each	2	1475.00	2950.00
20 Non-Rising Stem Gate Valve, 12in, Mechanical Joint x Flange, Ductile Iron	Various Vendors	WGVMF12	WGVMF12	Each	1	2550.00	2550.00
21 Non-Rising Stem Gate Valve, 6in, Flange, Ductile Iron	Various Vendors	WGVFR6	WGVFR6	Each	1	947.00	947.00
22 Gland, 6in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star Pipe Products	STDSRETPVCAIS6	PVCPKSA006G2DD	Each	2	66.00	132.00
23 Gland, 8in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star Pipe Products	STDSRETPVCAIS8	PVCPKSA008G2DD	Each	3	89.00	267.00
24 Gland, 12in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star Pipe Products	STDSRETPVCAIS12	PVCPKSA012G2DD	Each	1	162.00	162.00
25 Bolt Set, 10 to 12in 150#, Zinc CR+3, Grade 2	Various Vendors	WBLBS1012	WBLBS1012	Each	2	20.00	40.00
26 Bolt Set, 8in 150#, Zinc CR+3, Grade 2	Various Vendors	WBLBS8	WBLBS8	Each	8	8.00	64.00
27 Ring Gasket, 8in, Star Title	Star Pipe Products	STRG8	FAH08RG	Each	4	20.50	82.00
28 Ring Gasket, 6in, Star Title	Star Pipe Products	STRG6	FAH06RG	Each	4	14.50	58.00
29 Full Face Gasket, 12in, Star Title	Star Pipe Products	STTFG12	FAH12FFG	Each	2	35.50	71.00
30 Full Face Gasket, 8in, Star Title	Star Pipe Products	STTFG8	FAH08FFG	Each	2	20.50	41.00
31 860 Transition Coupling, 12in, Various, Carbon Steel	HVMAXE	HVM2CP1G12	860-540-0515-16	Each	1	613.00	613.00
32 874 Transition Coupling, 8in, Flange x Various, Carbon Steel	HVMAXE	HVM1FA8	874-54-08021712	Each	1	530.00	530.00
33 22.5 deg Elbow, 6in, Mechanical Joint x Flange, Cement Lined	Various Vendors	DCF2212M1FLG6	DCF2212M1FLG6	Each	1	203.00	203.00
34							
SUM						95,895.43	95,895.43

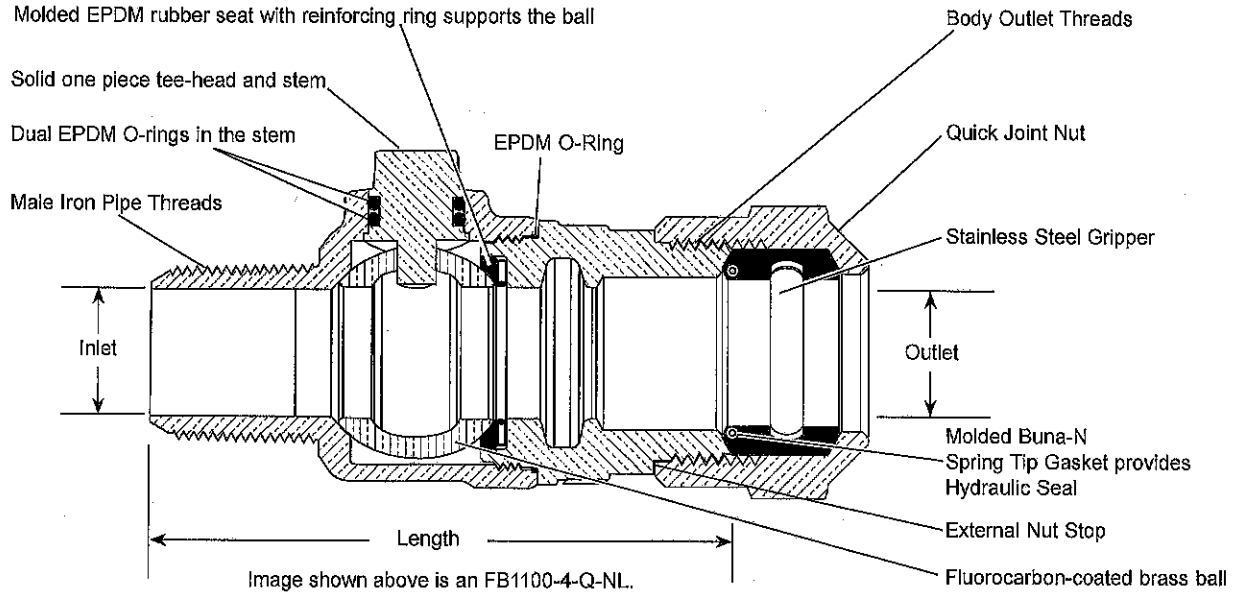
Bill Moore PMS SUPPLY

SUBMITTAL INFORMATION

Ballcorp Corporation Stops - (FB1100-xx-Q-NL style)



MALE IRON PIPE THREAD INLET BY QUICK JOINT FOR COPPER OR PLASTIC TUBING (CTS) OUTLET



VALVE SIZE	INLET SIZE	OUTLET SIZE	VALVE LENGTH	BODY OUTLET THREADS	APPROX. WT. LBS	PART NUMBER	✓ SUBMITTED ITEM(S)
3/4"	3/4"	3/4"	4-19/64"	3/4" Flare Copper	1.8	FB1100-3-Q-NL	
1-1/2"	1-1/2"	1-1/2"	5-11/16"	1-1/2" Special Thread	4.9	FB1100-6-Q-NL	
2"	2"	2"	7-1/32"	2" Special Thread	7.9	FB1100-7-Q-NL	

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

* 1-1/4" Quick Joint has EPDM spring tip gasket.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI Standard 61 and NSF/ANSI Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- 300 PSI working pressure

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



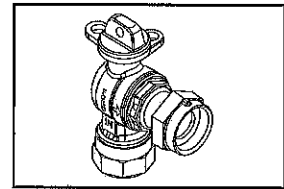
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
 Phone: 260-563-3171 / Fax: 800-826-3487
 Overseas Fax: 260-563-0167
 www.fordmeterbox.com

03/30/16

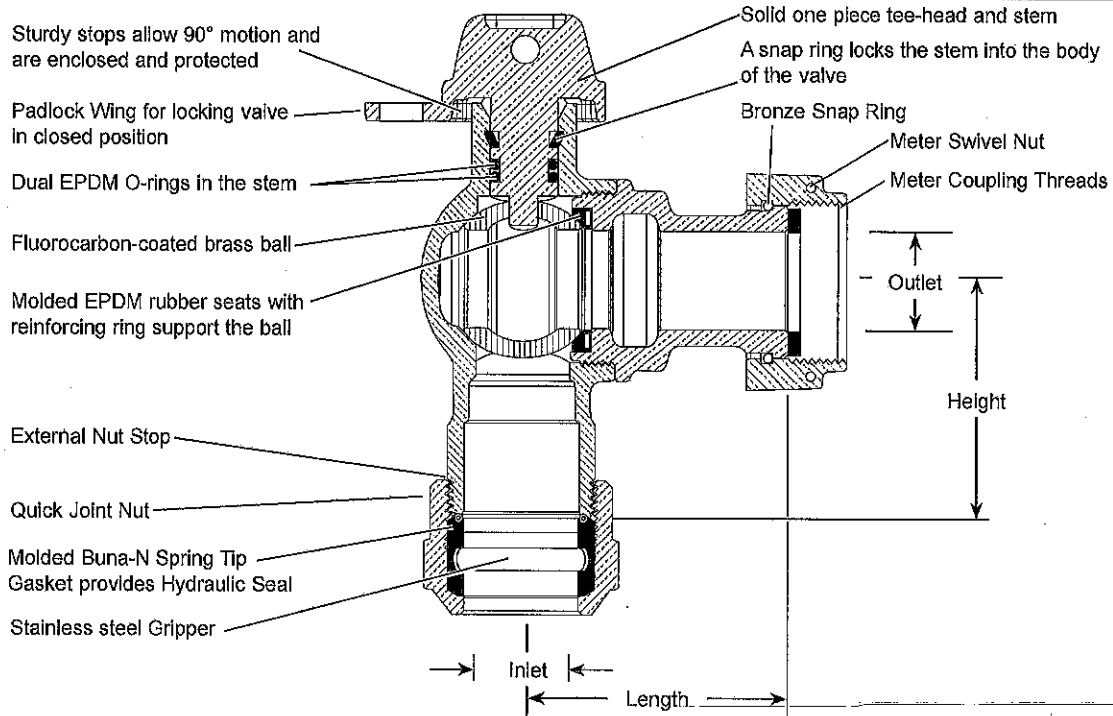
Submitted By:

SUBMITTAL INFORMATION

Angle Ball Meter Valves - (BA43-444W-Q-NL style)



QUICK JOINT FOR COPPER OR PLASTIC TUBING (CTS) INLET BY METER SWIVEL NUT OUTLET



VALVE SIZE	SERVICE LINE SIZE INLET	METER SIZE OUTLET	LENGTH	HEIGHT	APPROX. WT. LBS	PART NUMBER	✓ SUBMITTED ITEM(S)
1"	1"	1"	2-43/64"	2-29/64"	3.7	BA43-444W-Q-NL	

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI Standard 61 and NSF/ANSI Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- Hole for attaching handle is provided in tee-head
- 300 PSI working pressure
- Padlock Wing for locking valve in closed position
- Conforms to AWWA C700 for Meter threads
- Meter nut drilled for seal wire

Note: Recommended for inlet side shut-off.

Optional full 360° tee-head rotation. Add "R" to end of part number.

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



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

05/16/14

Submitted By:

OLIVEHURST PUBLIC UTILITY DISTRICT

Our mission is to provide high quality services to enhance our community's quality of life.



GENERAL MANAGER
John C. Tillotson

May 29, 2026

RFB – OPUD WATER MAIN & SERVICE LINE MATERIALS Addendum 1

To All Bidders,

The following Item for request on clarification, substitutes, and changes are being made to the OPUD WATER MAIN & SERVICE LINE MATERIAL Request for Bid:

Line item #1: QUESTION: for the requested item B-25028N Ball Corporation Stop Mueller, I wanted to bid the FORD FB1100-4Q-NL, Submittal attached, is this acceptable?

RESPONSE: This specification is acceptable

Line item #2: QUESTION: For the request item on the Angle Meter Valve 1" 110 CTS x Meter Nut Brass I wanted to bid the FORD BA43-444-W-Q-NL, Submittal attached, is this acceptable?

RESPONSE: This specification is acceptable

Line item #3: QUESTION: For the request item on the Bushing, 5/8 x 3/4 to 1" MNPT x Meter Nut Brass I wanted to bid for the FORD A-24-NL, Submittal attached, is this acceptable?

RESPONSE: This specification is acceptable

Line item # 14-16,18,33: QUESTION: For these line items, I'm wanting to confirm are fittings to be cement lined Bit coated. Line 17 is epoxy lined and coated.

RESPONSE: This specification can either be all epoxy line and coated or all cement lined and coated.

Line item# 21-24: QUESTION: This is for the Mechanical restraints. Do they have to be domestic or is Import acceptable, import submittal attached.

RESPONSE: This specification is NOT limited to domestic; import is acceptable.

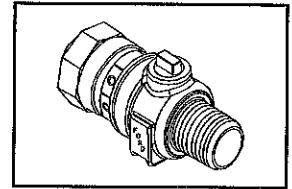
Regards,

Swarnjit Boyal

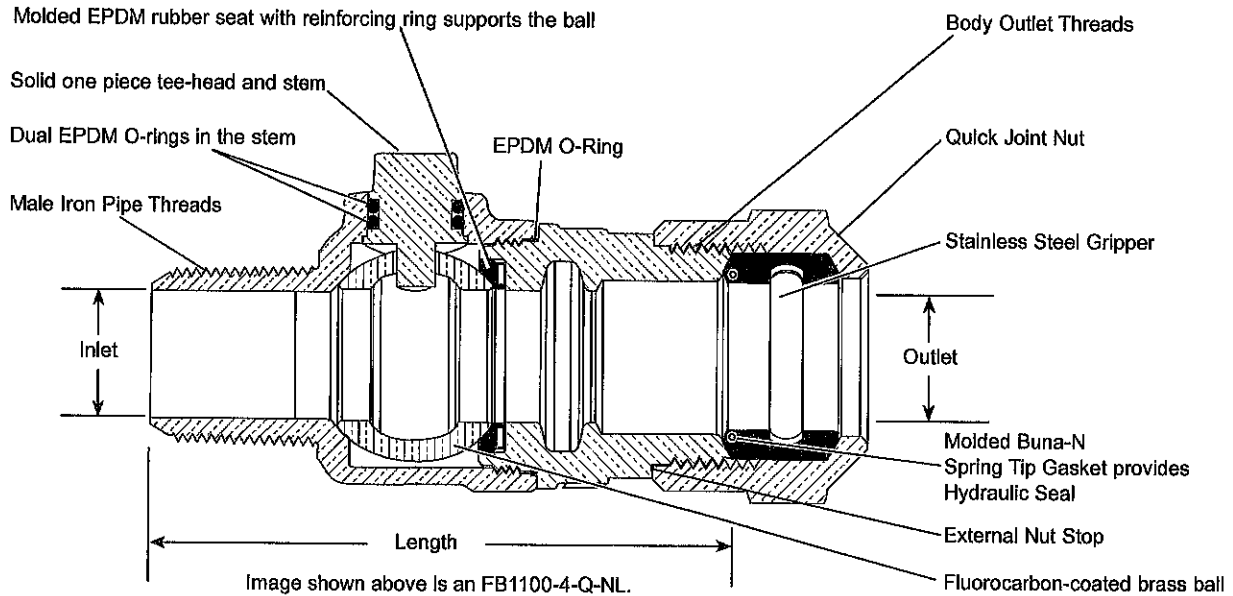
Swarnjit Boyal,
Public Works Manager

SUBMITTAL INFORMATION

Ballcorp Corporation Stops - (FB1100-xx-Q-NL style)



MALE IRON PIPE THREAD INLET BY QUICK JOINT FOR COPPER OR PLASTIC TUBING (CTS) OUTLET



VALVE SIZE	INLET SIZE	OUTLET SIZE	VALVE LENGTH	BODY OUTLET THREADS	APPROX. Wt. LBS	PART NUMBER	✓ SUBMITTED ITEM(S)
3/4"	3/4"	3/4"	4-19/64"	3/4" Flare Copper	1.8	FB1100-3-Q-NL	
1"	1"	1"	4-13/64"	1" Flare Copper	2.7	FB1100-4-Q-NL	
1-1/2"	1-1/2"	1-1/2"	5-11/16"	1-1/2" Special Thread	4.9	FB1100-6-Q-NL	
2"	2"	2"	7-1/32"	2" Special Thread	7.9	FB1100-7-Q-NL	

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

* 1-1/4" Quick Joint has EPDM spring tip gasket.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI Standard 61 and NSF/ANSI Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- 300 PSI working pressure

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



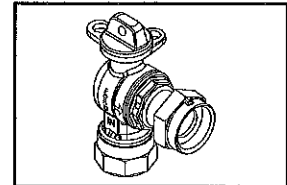
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
 Phone: 260-563-3171 / Fax: 800-826-3487
 Overseas Fax: 260-563-0167
 www.fordmeterbox.com

03/30/16

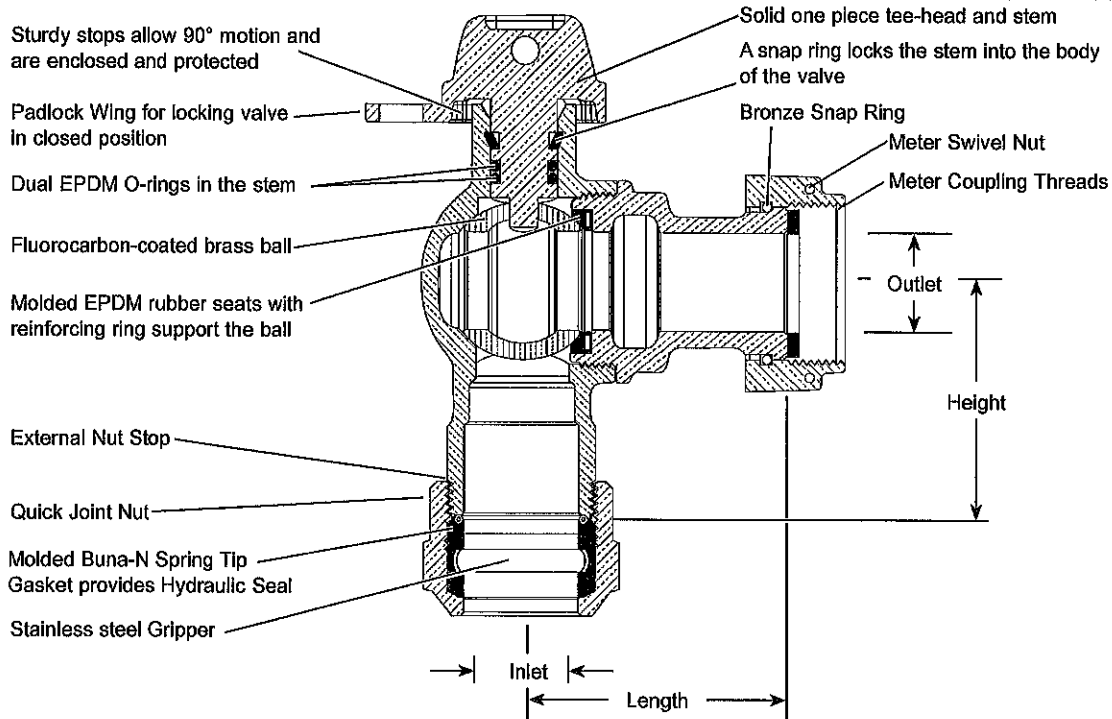
Submitted By:

SUBMITTAL INFORMATION

Angle Ball Meter Valves - (BA43-444W-Q-NL style)



QUICK JOINT FOR COPPER OR PLASTIC TUBING (CTS) INLET BY METER SWIVEL NUT OUTLET



VALVE SIZE	SERVICE LINE SIZE INLET	METER SIZE OUTLET	LENGTH	HEIGHT	APPROX. WT. LBS	PART NUMBER	✓ SUBMITTED ITEM(S)
1"	1"	1"	2-43/64"	2-29/64"	3.7	BA43-444W-Q-NL	

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI Standard 61 and NSF/ANSI Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- Hole for attaching handle is provided in tee-head
- 300 PSI working pressure
- Padlock Wing for locking valve in closed position
- Conforms to AWWA C700 for Meter threads
- Meter nut drilled for seal wire

Note: Recommended for inlet side shut-off.

Optional full 360° tee-head rotation. Add "R" to end of part number.

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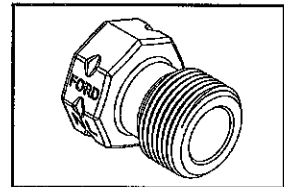
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
 Phone: 260-563-3171 / Fax: 800-826-3487
 Overseas Fax: 260-563-0167
 www.fordmeterbox.com

05/16/14

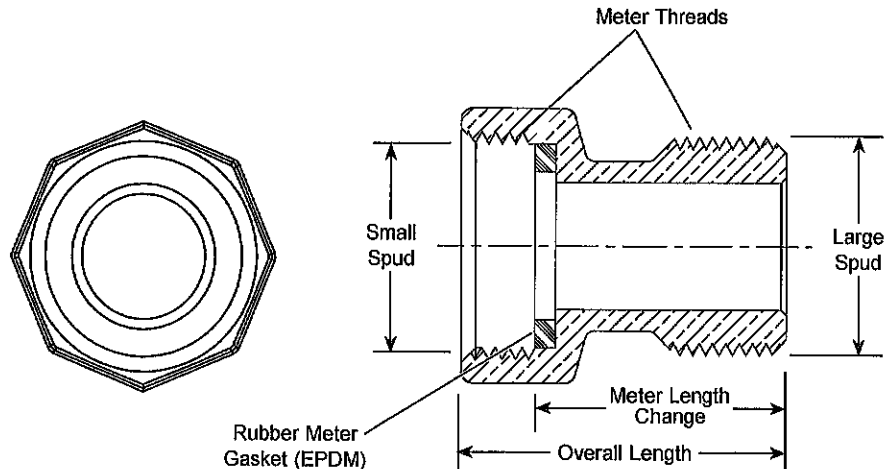
Submitted By:

SUBMITTAL INFORMATION

Meter Adapter - (Axx-NL Extended Body Style)



ADAPTERS TO CHANGE METER SPUD SIZE AND/OR LENGTH (5/8" THROUGH 1")



Due to design variations related to sizing, items may differ from images above.

DESCRIPTION		OVERALL LENGTH	METER LENGTH CHANGE	APPROX. WT. LBS.	PART NUMBER	✓ SUBMITTED ITEM(S)
SMALL SPUD SIZE	LARGE SPUD SIZE					
5/8"	3/4"	1-5/32"	3/4"	0.5	A13-NL	
5/8"	1"	2"	1-5/8"	0.7	A14-NL	
5/8"x3/4"	3/4"	1-15/16"	1-1/2"	0.6	*A23-NL	
5/8"x3/4"	1"	2-1/16"	1-5/8"	1.3	A24-NL	

* Adapter number A23-NL extends the meter length only and therefore only one per meter is required.
All other adapters listed are furnished in pairs.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI Standard 61 and NSF/ANSI Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Meter adapters listed are furnished in pairs with the exception of A23-NL
- Body design provides wrench flats to facilitate installation
- Conforms to AWWA C700 for meter threads

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current. Our standard warranty applies.



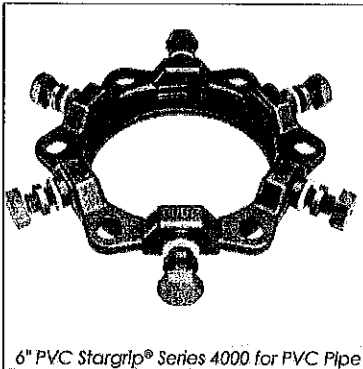
The Ford Meter Box Company, Inc.
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
www.fordmeterbox.com

12/15/22

Submitted By:



PVC Stargrip® series 4000
Mechanical Joint Wedge Action Restraint
for Plastic Pressure Pipe



6" PVC Stargrip® Series 4000 for PVC Pipe

SUBMITTAL INFORMATION

PROJECT NAME:
ENGINEER:
CONTRACTOR:
SPEC. SECTION:



FEATURES & ADVANTAGES

- The design has been proven in the market since 1992.
Can be used on AWWA C900, AWWA C905 PVC pipe, IPS PVC pipe, AWWA C909 PVC pipe, and HDPE pipe.
Gland is made from high strength Ductile Iron per ASTM A536 Grade 65-45-12 and is compatible with all Mechanical Joints conforming to ANSI/AWWA C111/A21.11.
Eliminates the need for tie rods and thrust blocks.
Listed with Underwriters Laboratories and approved by Factory Mutual research in sizes 4"-12".
Tested to and meets the requirements of ASTM F1674 through 14".
The safety factor is twice (2:1) the standardized pressure rating listed on next page.
Will fit any Mechanical Joint configuration, meaning compatibility with different types of installations.
PVC Stargrip® offers 5° deflection through 12", 3° on 14"-24" and 2° on 30"-36".
Larger ID allows easier installation on out-of-round pipe.
Torque limiting bolts are designed to prevent over torquing.
All sizes have curved wedges that do not flatten pipe.
Standard gland color is Coral Red (RAL 3016).

MATERIAL SPECIFICATIONS:

- Gland: Ductile Iron per ASTM A536, Grade 65-45-12
Wedges: Ductile Iron per ASTM A536, Grade 65-45-12
Wedge Finish: Thermally cured fluoropolymer epoxy coating

GLAND FINISH OPTIONS (Please check one):

- Standard: alkyd enamel coating
Optional: Starbond™ TGIC polyester powder coating applied by an electrostatic spray process
Optional: Other (specify)

COUNTRY OF ORIGIN OPTION (Please check one):

- Import
100% Domestic¹
Domestic gland with import components¹
(¹Please see Domestic Restraint Options Available on our website.)

HARDWARE OPTIONS (Please check):

- Standard: T-bolts and nuts are high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11
Optional: T-bolts alloy SS 304 per ASTM F593; Nuts alloy SS 304 per ASTM F594 CW
Optional: T-bolts SS 316 per ASTM F593; Nuts SS 316 per ASTM A194 Grade 8M
Optional: T-bolts and nuts Fluoropolymer Star-Blue coated high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11

REV.17.02

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HOUSTON CORPORATE | TOLL FREE 1-800-999-3009 | FAX 281-558-9000
www.starpipeproducts.com

STAR PIPE PRODUCTS



PVC Stargrip® series 4000

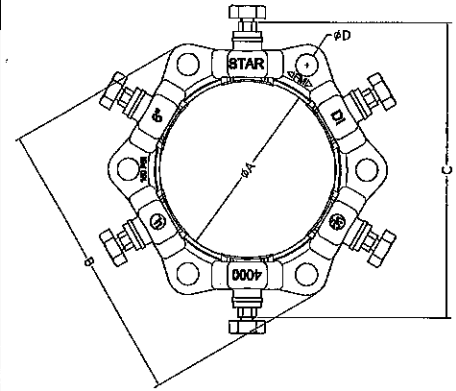
Mechanical Joint Wedge Action Restraint
for Plastic Pressure Pipe

TECHNICAL INFORMATION

PVC STARGRIP® 4000 SPECIFICATIONS*								
NOM. SIZE	ØA	B	C¹	ØD	T-BOLTS SIZE (QTY)	WEDGES (QTY)	APPROX. WT. (LBS)	
<input type="checkbox"/>	3	4.09	7.69	8.50	3/4	5/8 (4)	4	7
<input type="checkbox"/>	4	4.93	9.12	9.53	7/8	3/4 (4)	4	9
<input type="checkbox"/>	6	7.03	11.12	11.63	7/8	3/4 (6)	6	13
<input type="checkbox"/>	8	9.18	13.37	13.97	7/8	3/4 (6)	6	17
<input type="checkbox"/>	10	11.23	15.62	16.18	7/8	3/4 (8)	8	23
<input type="checkbox"/>	12	13.33	17.87	18.18	7/8	3/4 (8)	8	28
<input type="checkbox"/>	14	15.45	20.75	20.36	7/8	3/4 (10)	10	50
<input type="checkbox"/>	16	17.55	23.00	22.46	7/8	3/4 (12)	12	60
<input type="checkbox"/>	18	19.65	25.25	24.56	7/8	3/4 (12)	12	65
<input type="checkbox"/>	20	21.75	27.50	26.66	7/8	3/4 (14)	14	76
<input type="checkbox"/>	24	25.95	32.00	30.86	7/8	3/4 (16)	16	98
<input type="checkbox"/>	30	32.18	39.38	36.82	1-1/8	1 (20)	20	173
<input type="checkbox"/>	36	38.48	46.25	43.12	1-1/8	1 (24)	24	219

Please check sizes:

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6" PVC Stargrip® Series 4000

*All dimensions in inches except where indicated.
¹ - dimension after assembly on pipe

Table A. Maximum Working Pressure Rating with Occasional or Recurring Surges in PSI for Plastic Pipes Made to a CIOD Diameter Regimen

NOM. SIZE (IN)	Actual Plastic Pipe OD	AWWA C900 PVC			AWWA C905 PVC				AWWA C909 PVC			AWWA C906 HDPE*					
		DR14	DR18	DR25	DR18	DR21	DR25	DR32.5	IPEX PVC		PC165	DR 7.3	DR 9	DR 9.3	DR11	DR13.5	DR17
									PC235	PC235							
4	4.80	305	235	165					235			254	200	193	160	130	100
6	6.90	305	235	165					235	235		254	200	193	160	130	100
8	9.05	305	235	165					235	235		254	200	193	160	130	100
10	11.10	305	235	165					235	235		254	200	193	160	130	100
12	13.20	305	235	165					235	235		254	200	193	160	130	100
14	15.30				235	200	165	125	235				200	193	160		
16	17.40				235	200	165	125	235		165				160		
18	19.50				235	200	165	125	200						160		
20	21.60				235	200	165	125									
24	25.80				235	200	165	125									
30	32.00						165	125									
36	38.30						165	125									

* A stainless steel pipe stiffener (provided by others) is required for the Series 4000 to be installed on HDPE pressure pipe. The stiffener must be installed in the HDPE pipe before installing the Series 4000. The stainless steel pipe stiffener must be of sufficient length to support the full bearing length of the restrainer.

Table B. Maximum Working Pressure Rating with Occasional or Recurring Surges in PSI for Plastic Pipes Made to an IPS Diameter Regimen

NOM. SIZE (IN)	Actual Plastic Pipe OD	ASTM D2241 PVC			AWWA C901 and AWWA C906 HDPE**					
		SDR17	SDR21	SDR26	DR 7.3	DR 9	DR 9.3	DR11	DR13.5	DR17
3	3.50	250	200	160	254	200		160	130	100
4	4.50	250	200	160	254	200		160	130	100
6	6.63	250	200	160	254	200	193	160	130	100
8	8.63	250	200	160	254	200	193	160	130	100
10	10.75	250	200	160	254	200	193	160	130	100
12	12.75	250	200	160	254	200	193	160	130	100

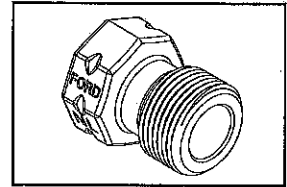
NOTE: A transition gasket is required for use with pipes made to an IPS diameter regimen.

** A stainless steel pipe stiffener (provided by others) is required for the Series 4000 to be installed on HDPE pressure pipe. The stiffener must be installed in the HDPE pipe before installing the Series 4000. The stainless steel pipe stiffener must be of sufficient length to support the full bearing length of the restrainer.

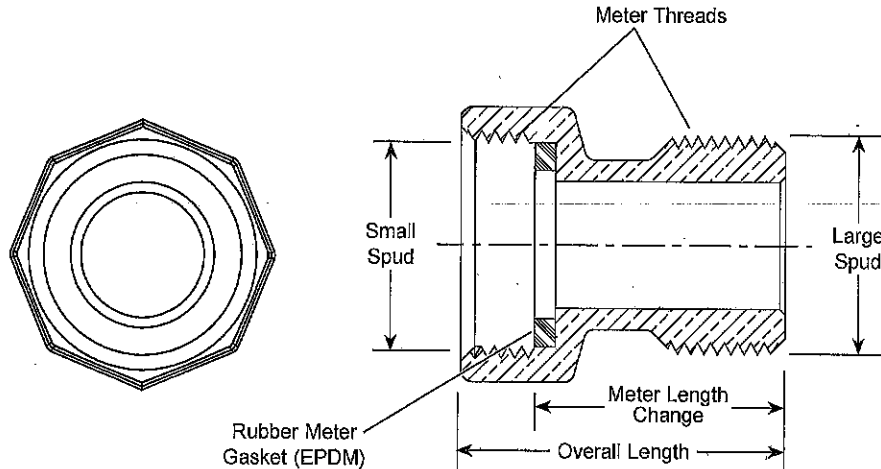


SUBMITTAL INFORMATION

Meter Adapter - (Axx-NL Extended Body Style)



ADAPTERS TO CHANGE METER SPUD SIZE AND/OR LENGTH (5/8" THROUGH 1")



Due to design variations related to sizing, items may differ from images above.

DESCRIPTION		OVERALL LENGTH	METER LENGTH CHANGE	APPROX. Wt. LBS.	PART NUMBER	✓ SUBMITTED ITEM(S)
SMALL SPUD SIZE	LARGE SPUD SIZE					
5/8"	3/4"	1-5/32"	3/4"	0.5	A13-NL	
5/8"	1"	2"	1-5/8"	0.7	A14-NL	
5/8"x3/4"	3/4"	1-15/16"	1-1/2"	0.6	*A23-NL	
(5/8"x3/4")	(1")	(2-1/16")	(1-5/8")	(1.3)	(A24-NL)	

* Adapter number A23-NL extends the meter length only and therefore only one per meter is required. All other adapters listed are furnished in pairs.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI Standard 61 and NSF/ANSI Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Meter adapters listed are furnished in pairs with the exception of A23-NL
- Body design provides wrench flats to facilitate installation
- Conforms to AWWA C700 for meter threads

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current. Our standard warranty applies.



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

12/15/22

Submitted By:



ADS POTABLE WATER SERVICE TUBING (CTS PE4710)

ADS Potable water service tubing (CTS) is a leader in today's potable water service market. Its flexibility and durability distinguish it from the competition and make it ideal for a variety of applications.

ADS CTS tubing is strong and resistant to many common causes of damage such as vibrations, surface loads and pressure surges.

APPLICATIONS:

Residential & Commercial Water Service
Well/Pump Water Systems
Municipal Service Lines
Farm & Ranch Water Systems

FEATURES:

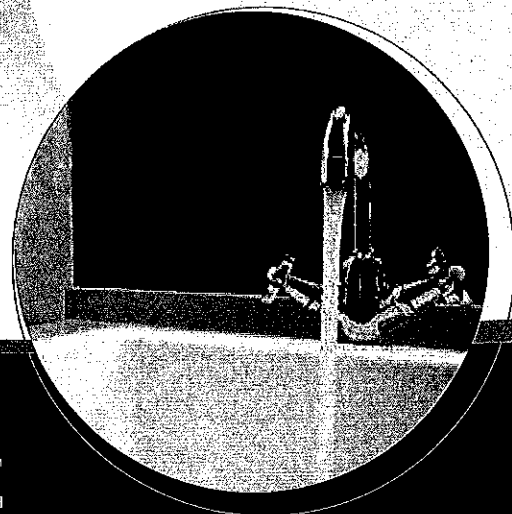
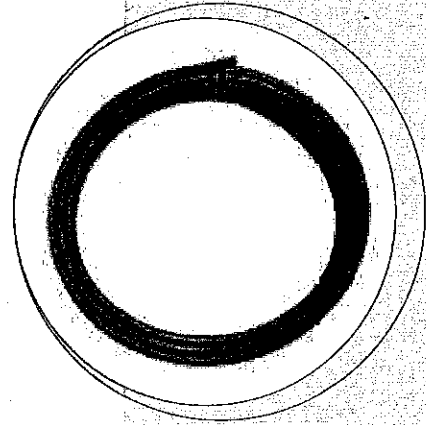
- Material conforms to ASTM D3350 requirements
- Certified to meet NSF 14/61 standard
- Durable plastic material stands the test of time
- Flexibility makes it ideal for a variety of projects
- Strength withstands weather and the human element
- Incremental footage markers printed every 2 feet throughout each coil length
- Light weight
- Chemically resistant
- Consistent outside diameter regardless of wall thickness or pressure rating

BENEFITS:

- Resistant to rot or corrosion
- Fast and easy to install
- Easy installation provides cost-efficiency
- Flexible lengths can be installed in uneven terrain
- Available in many lengths

ADS Service: ADS representatives are committed to providing you with the answers to all your questions, including specifications, and installation and more.

ADS PolyFlex™



THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™



ADS POTABLE WATER SERVICE TUBING (CTS) PIPE SPECIFICATIONS

SCOPE

This specification describes ADS Potable Water Service Tubing (CTS) pipe SDR 9 for use in potable water service applications.

PIPE REQUIREMENTS

ADS potable water service tubing shall meet the requirements of ASTM D2737, AWWA C901 and NSF Standards 14 and 61. Pipe dimensions shall meet Copper Tubing Size (CTS) standards.

MATERIAL PROPERTIES

Tubing material shall be high-density polyethylene conforming to the minimum requirements of cell classification 445574E as defined and described in ASTM D3350. The resin shall have a material designation code of PE4710 by the Plastic Pipe Institute.

DISINFECTION/MAINTENANCE

The active chlorine content of disinfecting solutions shall not exceed 12%. All disinfecting solution must be flushed from all lines within the system. Industry accepted procedures, like ANSI/AWWA C651 Disinfecting Water Mains, should be followed for both new and repaired potable water lines.

INSTALLATION

Installation is similar to other flexible tubing/pipe products. Methods including direct bury, plowing or pulling are applicable per local, state or federal guidelines for the application.

	SDR 9 4710 CTS				
	3/4"	1"	1 1/4"	1 1/2"	2"
Outside Diameter in (mm)	0.875 ±0.004 (22.2 ±0.10)	1.125 ±0.005 (28.6 ±0.13)	1.375 ±0.005 (34.9 ±0.13)	1.625 ±0.006 (41.3 ±0.15)	2.125 ±0.006 (54.0 ±0.51)
Wall Thickness in (mm)	0.097 +0.010 (2.5 +0.25)	0.125 +0.012 (3.2 +0.30)	0.153 +0.015 (3.9 +0.38)	0.181 +0.018 (4.6 +0.46)	0.236 +0.024 (6.0 +0.61)
Pressure Rating @ 73° F, psi (kPa)	250 (1724)	250 (1724)	250 (1724)	250 (1724)	250 (1724)
Weight gm/ft (gm/m)	46 ±2 (151 ±7)	78 ±3 (256 ±10)	125 ±4 (410 ±13)	162 ±4 (531 ±13)	275 ±5 (902 ±16)

For more information on ADS CTS pipe and other ADS products, please contact our Customer Service Representatives at 1-800-821-6710

ADS "Terms and Conditions of Sale" are available on the ADS website, www.ads-pipe.com
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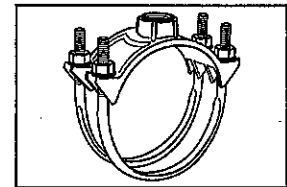
THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™

Advanced Drainage Systems, Inc.
 4640 Trueman Blvd., Hilliard, OH 43026
 1-800-821-6710 www.ads-pipe.com



SUBMITTAL INFORMATION

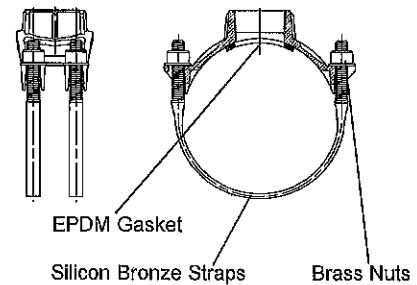
Brass Saddles - (202B-xxx-xxx style)



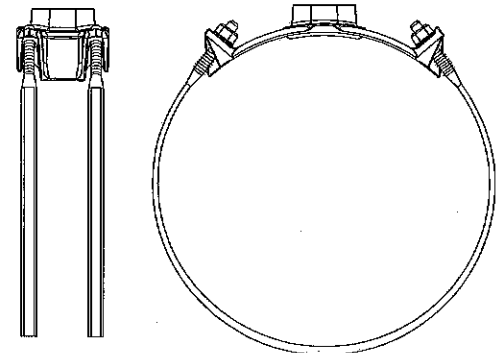
202B DOUBLE STRAP BRASS SADDLES FOR AC AND DUCTILE IRON PIPE

NOM. PIPE SIZE	O.D. RANGE	APPROX. WT. LBS.	CATALOG NUMBER	✓ SUBMITTED ITEM(S)
*4"	4.80 - 5.40	6.6	202B-540-Tap	
	4.80 - 5.10	7.3	202B-510-Tap	
	5.10 - 5.40	7.3	202B-540-Tap	
**6"	6.90 - 7.50	7.7	202B-750-Tap	
(8")	(9.05 - 9.62)	(8.8)	202B-982-Tap	
(10")	(11.10 - 12.12)	(10.7)	202B-1212-Tap	
12"	13.20 - 14.38	11.8	202B-1438-Tap	
**14"	15.30 - 16.25	18.0	202B-1625-Tap	
**16"	16.30 - 17.25	19.1	202B-1725-Tap	
	17.40 - 18.40	23.0	202B-1840-Tap	
	18.50 - 19.25	24.0	202B-1925-Tap	
**18"	19.50 - 20.50	25.0	202B-2050-Tap	
**20"	21.20 - 22.20	25.5	202B-2220-Tap	
	22.50 - 23.50	25.7	202B-2350-Tap	
**24"	23.80 - 24.80	26.0	202B-2480-Tap	
	25.60 - 26.50	26.5	202B-2650-Tap	
**30"	31.74 - 32.74	27.0	202B-3274-Tap	

4" - 12"



14" - 30"



OUTLET TAP CODE

CC (AWWA) THREAD		IP THREAD		✓ SUBMITTED ITEM(S)
THREAD	CODE NUMBER	THREAD	CODE NUMBER	
3/4" CC	CC3	3/4" IP	IP3	
1" CC	CC4	(1" IP)	(IP4)	
1-1/4" CC	Δ CC5	1-1/4" IP	Δ IP5	
1-1/2" CC	CC6	1-1/2" IP	IP6	
2" CC	CC7	2" IP	IP7	

Δ Contact factory for availability

* **Please Note:** 4" Saddles with 2" taps have a limited range. Specifically, 4.80 - 5.10 or 5.10 - 5.40. All other tap sizes have the standard 4.80 - 5.40 range.

** Only the 6" (6.90-7.50 range) saddle and 14" saddles and larger are available with a 1-1/4" tap.

To Order: Select the catalog number for the desired pipe range and complete the catalog number by adding the outlet thread tap code. Example: A double strap saddle for 6.90 D.I. pipe with a 3/4" CC thread would be 202B-750-CC3.

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Straps are 5/8" high quality silicon bronze flattened to provide a wider bearing surface against pipe
- Gasket is EPDM rubber ASTM D2000

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



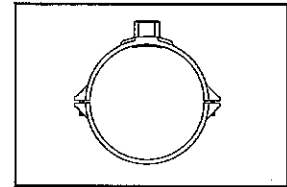
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
 Phone: 260-563-3171 / Fax: 800-826-3487
 Overseas Fax: 260-563-0167
 www.fordmeterbox.com

02/22/18

Submitted By:

SUBMITTAL INFORMATION

Brass Saddles For C900 PVC - (S912-xxx style)

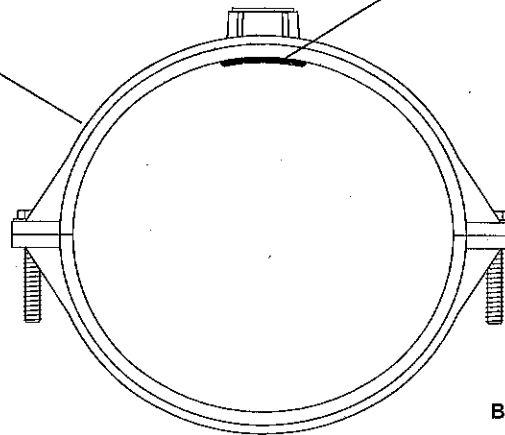


BRASS SADDLES WITH IP TAPS FOR C900 PVC PIPE

Brass alloy body and strap,
meeting ASTM B62, ASTM B584
and AWWA C800

EPDM Rubber O-Ring gasket

Silicon Bronze Bolts and Nuts



2-Piece
Bolted Design

PVC PIPE SIZE	ACTUAL O.D.	TAP SIZE	APPROX. WT. LBS.	CATALOG NUMBER	✓ SUBMITTED ITEM(S)
4"	4.80	3/4"	2.9	S912-403	
		1"	2.8	S912-404	
		1-1/2"	7.5	S912-406	
		2"	7.1	S912-407	
6"	6.90	3/4"	4.6	S912-603	
		1"	4.5	S912-604	
		1-1/2"	9.1	S912-606	
		2"	8.5	S912-607	
8"	9.05	3/4"	5.4	S912-803	
		1"	5.3	S912-804	
		1-1/2"	12.6	S912-806	
		2"	11.9	S912-807	
10"	11.10	1-1/2"	12.9	S912-1006	
		2"	12.6	S912-1007	
12"	13.20	1-1/2"	14.3	S912-1206	
		2"	14.3	S912-1207	

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS No C83600 - 85-5-5-5)
- These saddles conform to the design and sizing requirements held by the Uni-Bell Handbook and the AWWA manual M23 for use on PVC pipe.
- O-Ring gasket is EPDM rubber, ASTM D2000.

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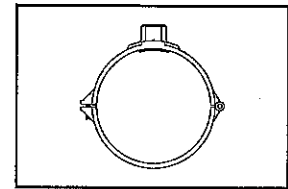
The Ford Meter Box Company, Inc.
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
www.fordmeterbox.com

05/07/15

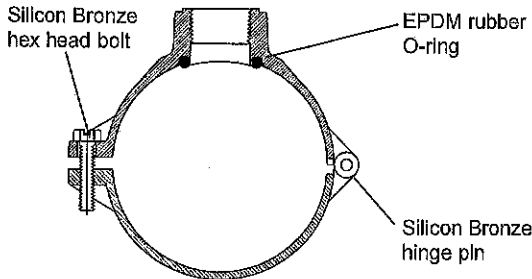
Submitted By:

SUBMITTAL INFORMATION

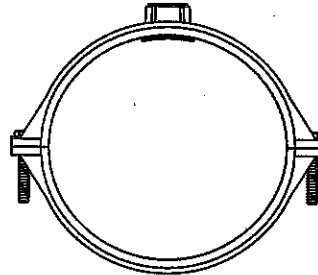
Brass Saddles For C900 PVC - (S91-xxx style)



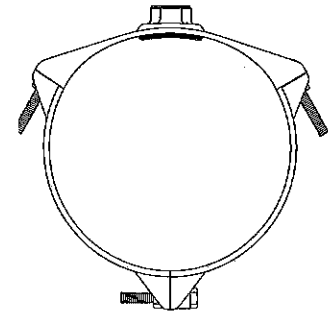
S91 BRASS SADDLES WITH IRON PIPE TAPS FOR C900 PVC PIPE



Style A (Hinged Design)



Style B 2-Piece (Bolted Design)



Style C 3-Piece (Bolted Design)

PVC PIPE SIZE	ACTUAL O.D.	TAP SIZE	APPROX. Wt. Lbs.	CATALOG NUMBER	STYLE	✓ SUBMITTED ITEM(S)
2"	2.50	1/2"	.9	S91-201	A	
		3/4"	1.1	S91-203	A	
		1/2"	1.8	S91-401	A	
4"	4.80	3/4"	1.8	S91-403	A	
		1"	2.0	S91-404	A	
		1-1/2"	6.5	S91-406	A	
		2"	6.4	S91-407	A	
		3/4"	2.6	S91-603	A	
6"	6.90	1"	2.6	S91-604	A	
		1-1/2"	8.9	S91-606	A	
		2"	7.3	S91-607	A	
		1/2"	2.8	S91-801	A	
8"	9.05	3/4"	2.8	S91-803	A	
		1"	3.2	S91-804	A	
		1-1/2"	8.0	S91-806	A	
		2"	8.5	S91-807	A	
		3/4"	9.3	S91-1003	B	
10"	11.10	1"	9.1	S91-1004	B	
		1-1/2"	10.5	*S71-S91-1006	C	
		2"	10.5	*S71-S91-1007	C	
		3/4"	11.1	S91-1203	B	
(12)	(13.20)	(1)	(11.0)	(S91-1204)	(B)	
		1-1/2"	11.5	*S71-S91-1206	C	
		2"	11.0	*S71-S91-1207	C	

* These saddles will cover Steel size PVC and C900 PVC O.D. range.

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS NO C83600 - 85-5-5-5)
- Style A Saddle body and strap permanently held together with silicon bronze pin for saddles sized 2" thru 8"
- Bolt is 5/16" slotted hex head silicon bronze for saddles sized 2" thru 8"
- A three-piece bolted design is used for S91 Saddles sized 10" and 12" with 1-1/2" and 2" taps, two-piece for 3/4" and 1" taps
- All 10" and 12" saddles are held together with 1/2" silicon bronze bolts (3/4" hex head)
- 150 psi working pressure rating

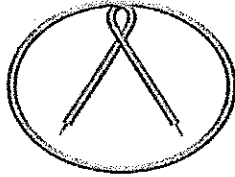
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 Phone: 260-563-3171 / Fax: 800-826-3487
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 www.fordmeterbox.com

01/12/16

Submitted By:



AGAVE WIRE, LTD

Toll-Free (800) 690-3408

An ISO 9001 Certified Quality Management System

Fax: (469) 547-4242

PRODUCT DATA SHEET

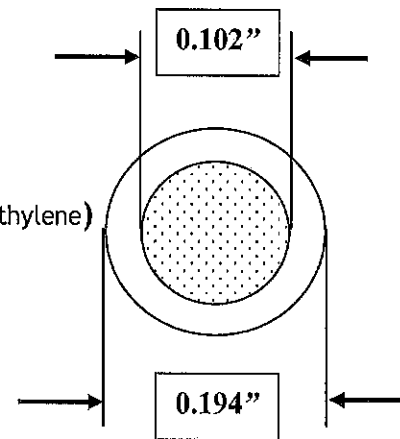
PRODUCT OVERVIEW:

APUT-1001

CONSTRUCTION: One 10 AWG Solid Copper HMW-PE Insulated Conductor
APPROVALS: UL - Tracer Wire
APPLICATION: Tracer Wire Suitable For Detecting Buried Facilities

CONSTRUCTION PARAMETERS:

CONDUCTOR: 10 AWG Annealed Bare Copper
STRANDING: Solid
NUMBER OF CONDUCTORS: 1
INSULATION MATERIAL: HMW-PE (High Molecular Weight Polyethylene)
INSULATION THICKNESS: 0.045" Nominal
COPPER O.D.: 0.102" Nominal
FINISHED O.D.: 0.194" Nominal
WEIGHT PER 1000ft: 39.95-lbs/1000'



ELECTRICAL & ENVIRONMENTAL PROPERTIES:

TEMPERATURE RATING: -20° c to 80° c
OPERATING VOLTAGE: 600v
DC RESISTANCE @ 20° c: 0.9988 Ohms/1000'
INSULATION COLOR: Various Colors Available **BLUE**

PRINT LEGEND:

"AGAVE WIRE - 10AWG HMW-PE-(45) TRACER WIRE 600v (UL) E246360"

On special orders, the customer will accept all mil lengths and +/- 10% of total order requested. The information presented here is, to the best of our knowledge, is true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guarantee or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise

This specification is proprietary intellectual property of Agave Wire. Any information contained herein shall not be disclosed to any party without written consent of Agave Wire.

NORTHTOWN

Product Data Sheet

Pipe Protection Products

Split Bolt Connectors
 For use on all combinations: Split Bolt
 Aluminum to aluminum
 Aluminum to copper
 Copper to copper



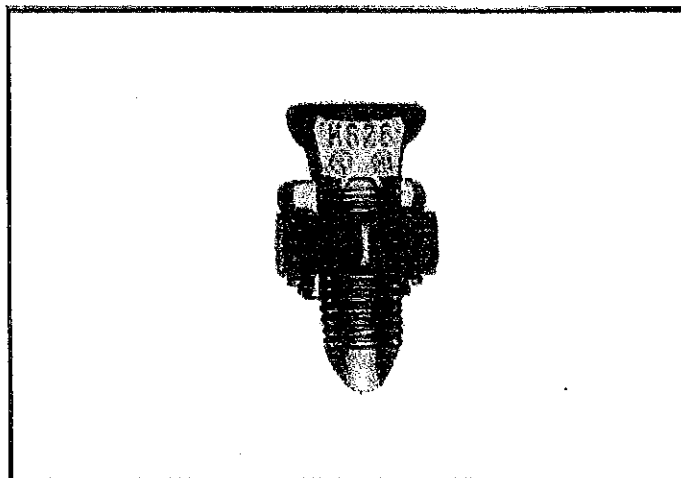
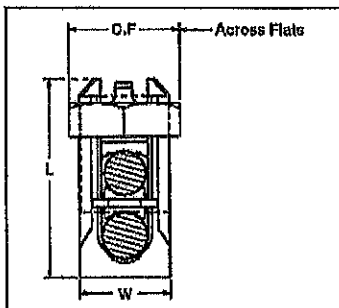
Compact, high strength, high copper alloy split-bolt has free-running threads and easy to grip wrench flats. Highly resistant to corrosion and season cracking, these split bolt connectors provide maximum pressure and assures a secure connection on all combinations of run and tap conductors. Type KS-3 accomodates 3 maximum size conductors.

Catalog Number	Gross Flats	L	W	165 Conductor		Conductor				Recommended Tightening Torque In-lb
				Copper		Copperweld				
				Range for Equal Run and Tap	Min. Tap with Max. Run	Maximum Run and Tap				
				Sol.	Str.	Type A	Type D			
† KS90	.60	.65	.38	12 Str. - 10 Str.	16 Str.	#10	---	---	---	80
† KS16	.60	.65	.38	10 Str. - 8 Str.	14 Str.	#8	---	---	---	
† KS17	.63	1.14	.45	8 Str. - 6 Sol.	14 Str.	#6	3 #12	8A	9-1/2D	165

† In addition to UL listed for wire connectors and CSA Certified, these itmes are also rated for direct burial.

▲ Listed torque values are for maximum conductor combinations accomodated.

Split Bolt Diagram



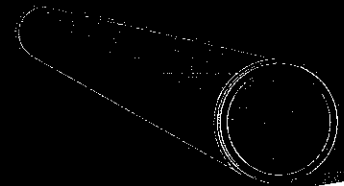
800 WRAP-A-PIPE

P.O. Box 2064 Huntington Beach CA 92647
 714 897-0700 Fax 714 897-0600



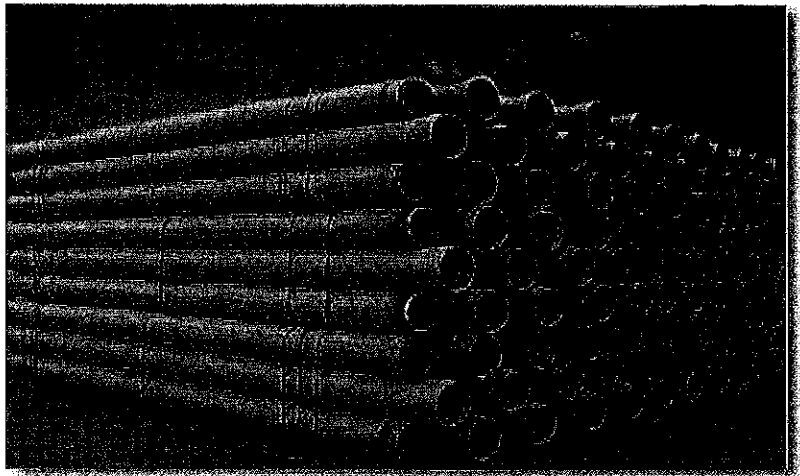
C900 : PVC Pressure Pipe

SPECIFICATION DATA



Diamond (C900) PVC Pipe (4" through 12") is made of 12454 compound per ASTM D1784, in accordance with the dimensional, chemical, and physical requirements of AWWA C900.

Diamond (C900) PVC Pipe bears the mark of NSF, International (NSF), the listing of Underwriters Laboratory, Inc. (UL), and (DR14 & DR18) bears the listing of Factory Mutual(FM). Some factory locations produce C900 bearing the mark of the Canadian Standards Association (CSA).



Diamond (C900) PVC Pipe utilizes a gasket, per ASTM F477, to seal the integral bell socket to the spigot of the next joint (which conforms to the requirements of ASTM D3139.) Each male end is beveled to facilitate joint assembly, and the spigot is referenced marked to ensure proper insertion depth. Diamond furnished lubricant is to be used in the joining process. Specialty gaskets may be available upon request.

Diamond C900 is supplied in 20 foot laying lengths.

Physical Properties of PVC 12454:

Property	ASTM Test	Minimum
Specific Gravity	D792	1.40
Tensile Strength, psi	D638	7,000
Tensile Modulus, psi	D638	400,000
IZOD Impact Strength	D256	.65ft., lb./in.



Underwriters Laboratories Inc.®



SHORT FORM Specification for Diamond C900 PVC Water Pipe

Diamond C900 PVC Water Pipe shall be made of compounds conforming to ASTM D1784 with a cell classification of 12454. Diamond C900 shall meet all the dimensional, chemical, and physical requirements as outlined in AWWA C900 and will be supplied in 20 foot laying lengths. Joints shall meet the requirements of ASTM D3139 and shall be formed using Rieber Technology. Gaskets shall meet the requirements of ASTM F477. Potable water pipe shall be manufactured from National Sanitation Foundation (NSF) approved compounds.

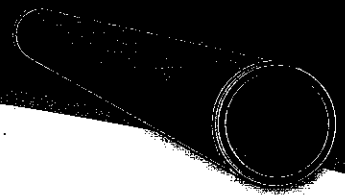
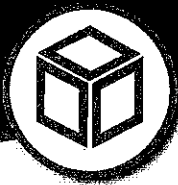


DIAMOND PLASTICS®
CORPORATION

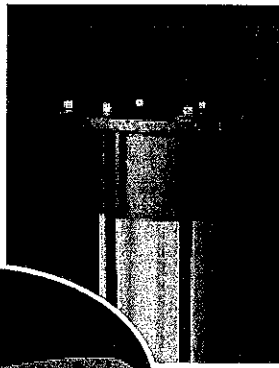
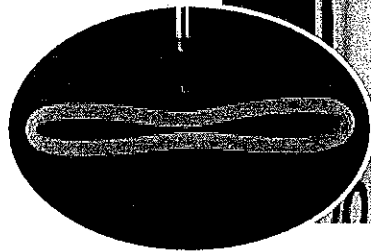
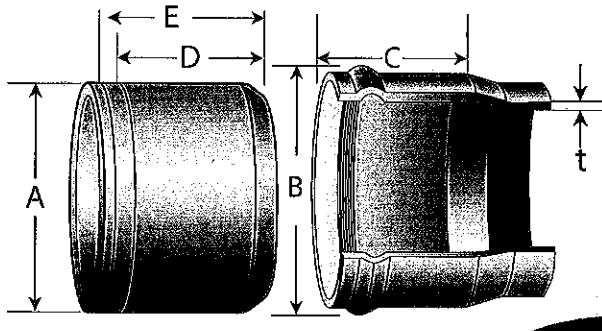


Corporate Headquarters • 1212 Johnstown Road • P.O. Box 1608 • Grand Island, NE 68802-1608

DISTRIBUTION PIPE FOR THE 21st CENTURY



Rieber 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")

AWWA C900

C900™

AWWA C900 SPECIFICATION DATA

Nominal Pipe Size in. (mm)	Outside Dia. A Inches	Bell Dia. B Inches	Approximate Bell Depth C Inches	Assembly Mark 1 (D) Inches #	Assembly Mark 2 (E) Inches #	C900 DR-14 305 psi Min Wall (t) Inches	C900 DR-18 235 psi Min Wall (t) Inches	C900 DR-25 165 psi Min Wall (t) Inches
4" (100)	4.800	6-1/2"	6	4-1/4"	5-1/4"	0.343	0.267	0.192
6" (150)	6.900	9-1/4"	6.5	4-5/8"	5-5/8"	0.493	0.383	0.276
8" (200)	9.050	11-3/4"	7	5-1/8"	6-1/8"	0.646	0.503	0.362
10" (250)	11.100	14-1/4"	7.5	5-3/4"	6-3/4"	0.793	0.617	0.444
12" (300)	13.200	16-3/4"	8	6-1/8"	7-1/8"	0.943	0.733	0.528

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

#Tolerance of +/- 1/4" allowed

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CORPORATION

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DISTRIBUTION PIPE FOR THE 21st CENTURY

VINYLTECH AWWA C900-07

TECHNICAL DATA SUBMITTAL



CONFORMANCE

These specifications designate the requirements for manufacturing and installing Vinyltech AWWA C900-07 water pipe.

AWWA C900-07 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100mm Through 300mm), for Water Transmission and Distribution

AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals

ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

ASTM D2412 - Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading

PIPE COMPOUND

The pipe shall be extruded from compounds meeting (PVC1120) the requirements of Cell Classification 12454, as defined in ASTM D1784, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds. The PVC shall also be listed by the National Sanitation Foundation (NSF) for use in potable water.

PIPE

Vinyltech pipe shall be manufactured in accordance with AWWA C900-07.

GASKET JOINT

The gasket shall be reinforced with a steel band and meet the requirements of ASTM F477. Vinyltech pipe shall have an integral bell end with a locked-in factory installed gasket and shall meet the joint requirements of ASTM D3139.

MARKING

The pipe shall be marked in accordance with AWWA C900 as in the following example.

- Manufacturer's name and production codes
- Nominal size, dimension ratio number, and O.D. base (for example, 8" DR 18 CIS)
- Materials cell classification (PVC1120)
- AWWA pressure class (235 psi or 305 psi) and hydrostatic test pressure (T600, or T800)
- AWWA designation number (AWWA C900-07)
- National Sanitation Foundation (NSF-61)
- Underwriters Laboratories (UL) logo, third party certification.
- Production date and time code (VABB15B 48.34)
- FM Approvals (FM) logo, required FM pressure rating (150 or 200 psi), third party certification

QUALITY CONTROL

Each length of the pipe including the bell shall be hydrostatically tested. The pipe shall meet all additional test requirements as described in AWWA C900-07. Our full time quality assurance staff continually administers a rigid program of tests to maintain the production of the best pipe products available.

INSTALLATION

Recommended installation procedures of Vinyltech Corporation are outlined in AWWA C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water. The AWWA Manual M23, PVC Pipe-Design and Installation, is also an invaluable resource guide for design and installation.

TAPPING

The consistent success of tapping PVC pressure pipe is contingent upon the use of proper procedures and equipment. Vinyltech recommends strict compliance with the requirements as specified in AWWA C605.

ASSEMBLING THE PIPE

Assembly of Vinyltech PVC water pipe is easily accomplished. A depth of entry mark is on each spigot end to serve as a visual check for rapid, accurate joint inspection. **Do not over insert.**

- 1) Remove any mud, sand, or other foreign matter from the belled and spigot ends of the pipe. Carefully clean the gasket area.
- 2) With a clean applicator (a brush or hand) lubricate the entire surface of the pipe from the spigot end to the depth of entry mark and the contact surface of the gasket with **Vinyltech Brand Lubricant**.
- 3) Brace the bell to avoid disturbing the already installed joints. Align the pipe, insert the spigot into the bell and push.
- 4) **Do not insert past the entry mark line.**



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 602 233-0071 • 602 272-4847 Fax • www.vtpipe.com



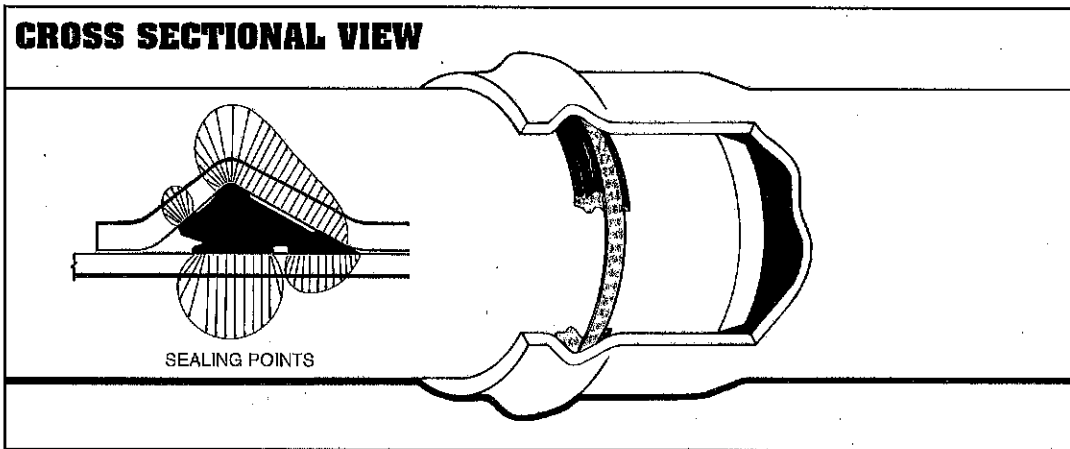
AWWA C900-07

VINYLTECH AWWA C900-07 TECHNICAL DATA SUBMITTAL

AWWA C900-07

C900 DR 18 PRESSURE CLASS 235						
NOMINAL SIZE (IN)	(mm)	OUTER DIAMETER (IN)	MINIMUM WALL (IN)	LIFTS PER TRUCK	FEET PER LIFT	APPROXIMATE WEIGHT (LB/100')
4	(100)	4.800	0.267	16	1020	251.6
6	(150)	6.900	0.388	16	440	521.2
8	(200)	9.050	0.503	20	200	903.0
10	(250)	11.100	0.617	12	240	1364.4
12	(300)	13.200	0.733	28	60-80	1935.8

C900 DR 14 PRESSURE CLASS 305						
NOMINAL SIZE (IN)	(mm)	OUTER DIAMETER (IN)	MINIMUM WALL (IN)	LIFTS PER TRUCK	FEET PER LIFT	APPROXIMATE WEIGHT (LB/100')
4	(100)	4.800	0.343	16	1020	317.5
6	(150)	6.900	0.493	16	440	658.7
8	(200)	9.050	0.646	20	200	1139.7
10	(250)	11.100	0.793	12	240	1722.3
12	(300)	13.200	0.943	28	60-80	2445.5



THE RIEBER SEALING SYSTEM

The Rieber system provides a proven pipe joint with an excellent track record in the field. It is the fastest growing system in the world because of its many advantages.

- Factory installed, locked-in gasket
- The pipe bell forms over the gasket, making a perfect fit
- Avoids the possibility of installing the wrong gasket
- Reduces installation problems
- The locked-in gasket eliminates gasket roll-out during joining
- The gasket is molded vs. extruded and spliced
- Works equally well under pressure or vacuum
- Three sealing points achieved vs. two
- **LEAK-PROOF JOINTS**
- **"THE WORLDS BEST JOINT"**

PRODUCT SPECIFICATION

AQUASPRING™ C900 IB PVC PIPE

Gasketed Integral Bell

Our AquaSpring™ C900 Gasketed Integral Bell PVC Pipe product line is manufactured to meet the needs of modern municipal water, wastewater, and reclaimed water systems. With top quality raw materials and modern processing technology, AquaSpring C900 pipe meets all industry standards in addition to our own rigorous quality control requirements.

AquaSpring C900 pipe utilizes Rieber style gaskets throughout the entire product offering to create a leak-free joint.

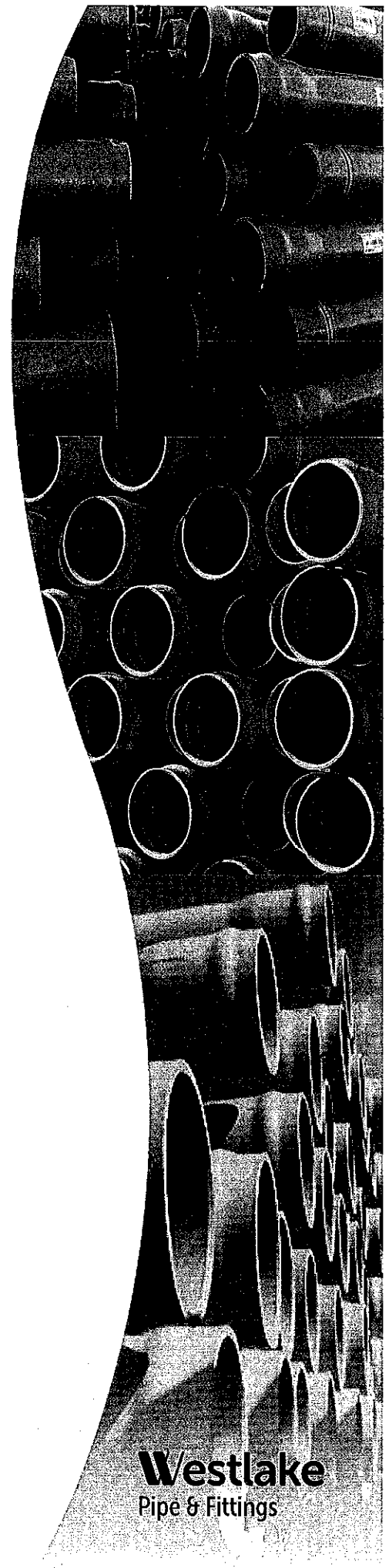
Short Form Specification											
Pipe Standard:	AWWA C900-16										
Diameter Std.:	Cast Iron Outside Diameter (CIOD)										
Nominal Sizes:	4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36"										
Dimension Ratios & Pressure Ratings	<table border="0"> <tr> <td>DR 51 – 80 psi</td> <td>DR 18 – 235 psi (185 psi)**</td> </tr> <tr> <td>DR 41 – 100 psi</td> <td>DR 14 – 305 psi (250 psi)**</td> </tr> <tr> <td>DR 32.5 – 125 psi</td> <td></td> </tr> <tr> <td>DR 25 – 165 psi</td> <td></td> </tr> <tr> <td>DR 21 – 200 psi</td> <td></td> </tr> </table>	DR 51 – 80 psi	DR 18 – 235 psi (185 psi)**	DR 41 – 100 psi	DR 14 – 305 psi (250 psi)**	DR 32.5 – 125 psi		DR 25 – 165 psi		DR 21 – 200 psi	
DR 51 – 80 psi	DR 18 – 235 psi (185 psi)**										
DR 41 – 100 psi	DR 14 – 305 psi (250 psi)**										
DR 32.5 – 125 psi											
DR 25 – 165 psi											
DR 21 – 200 psi											
Lay Length:	20' [6.1m]										
Pipe Compound:	ASTM D1784 Cell Class 12454										
Pipe Joint Std.:	ASTM D3139										
Max. Angular Joint Deflection:†	1°										
Gasket Standard:	ASTM F477, UL 157										
Gasket Material Offerings:	Standard – SBR Optional – NBR or EPDM										
Installation Std.:	AWWA C605										

Applications	Potable Water	Wastewater	Reclaimed Water
Color:	Blue	Green	Purple
Certifications:*	NSF 14, NSF 61 CSA B137.3* UL 1285 FM 1612** BNQ 3624-250 (24in)*, BNQ 3660-950 (24in)	CSA B137.3*	CSA B137.3*

*See Certification Letter for full explanation and list of exceptions.

**FM 1612 calculates pressure ratings differently than AWWA for 4"-12" only with DR 18 as 185 psi and DR 14 as 250 psi.

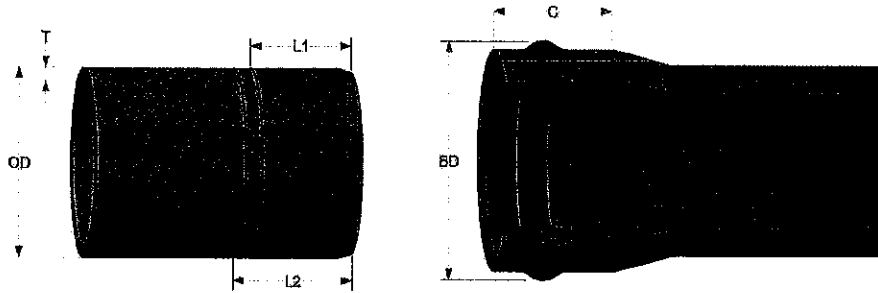
†See Installation Guide for more information.



PRODUCT SPECIFICATION

AQUASPRING™ C900 IB PVC PIPE

Gasketed Integral Bell



AQUASPRING™ C900 IB PIPE DIMENSIONS & PERFORMANCE

Nom. Size	Outside Diameter (OD)	DR	Pressure Class psi [kPa]	Min. Wall Thickness (T)	Internal Diameter (ID)	Approx. Bell Diameter (BD)	Bell Depth (C)	1 st Insertion Mark (L1)	2 nd Insertion Mark (L2)
4" [100mm]	4.800 [121.9]	25	165 [1150]	0.192 [4.88]	4.416 [112.1]	6.250 [158.8]	5.000 [127]	3.375 [85.7]	4.375 [111.1]
		18	235 [1620]	0.267 [6.78]	4.266 [108.3]				
		14	305 [2130]	0.343 [8.70]	4.114 [104.5]				
6" (150mm)	6.900 (175.3)	25	165 [1150]	0.276 [7.00]	6.348 [161.3]	8.625 [219.1]	5.750 [146.1]	4.625 [117.5]	5.625 [135.3]
		18	235 [1620]	0.383 [9.72]	6.134 [155.9]				
		14	305 [2130]	0.493 [12.50]	5.914 [150.3]				
8" [200mm]	9.050 (229.9)	25	165 [1150]	0.362 [9.20]	8.326 [211.5]	11.500 [292.1]	7.000 [177.8]	5.625 [135.3]	6.625 [168.3]
		18	235 [1620]	0.503 [12.80]	8.044 [204.3]				
		14	305 [2130]	0.646 [16.40]	7.758 [197.1]				
10" [250mm]	11.100 [281.9]	25	165 [1150]	0.444 [11.30]	10.212 [259.3]	14.000 [355.6]	7.250 [184.2]	6.125 [155.6]	7.125 [181.0]
		18	235 [1620]	0.617 [15.70]	9.866 [250.3]				
		14	305 [2130]	0.793 [20.10]	9.514 [241.7]				
12" (300mm)	13.200 [335.3]	25	165 [1150]	0.528 [13.40]	12.144 [308.5]	16.563 [420.7]	8.000 [203.2]	6.875 [174.6]	7.875 [200]
		18	235 [1620]	0.733 [18.60]	11.734 [298.1]				
		14	305 [2130]	0.943 [23.90]	11.314 [287.5]				
14" [350mm]	15.300 [388.6]	32.5	125 [860]	0.471 [12.0]	14.358 [364.7]	19.063 [484.2]	9.000 [228.6]	7.500 [190.5]	8.500 [215.9]
		25	165 [1150]	0.612 [15.6]	14.076 [357.5]				
		21	200	0.729	13.842				
		18	235 [1620]	0.850 [21.6]	13.600 [345.4]				
		14	305	1.093	13.114				
16" [400mm]	17.400 [442.0]	41	100	0.424	16.552	21.750 [552.5]	10.000 [254.0]	8.500 [215.9]	9.500 [241.3]
		32.5	125 [860]	0.535 [13.6]	16.330 [414.8]				
		25	165 [1150]	0.696 [17.7]	16.008 [406.6]				
		21	200	0.829	15.742				
		18	235 [1620]	0.967 [24.6]	15.466 [392.8]				
		14	305	1.243	14.914				

PRODUCT SPECIFICATION

AQUASPRING™ C900 IB PVC PIPE

Gasketed Integral Bell

AQUASPRING™ C900 IB PIPE DIMENSIONS & PERFORMANCE

Nom. Size	Outside Diameter (OD)	DR	Pressure Class psi [kPa]	Min. Wall Thickness (T)	Internal Diameter (ID)	Approx. Bell Diameter (BD)	Bell Depth (C)	1 st Insertion Mark (L1)	2 nd Insertion Mark (L2)
18" [450mm]	19.500 [459.3]	41	100	0.476	18.548	23.563 [598.5]	10.375 [263.5]	8.875 [225.4]	9.875 [250.8]
		32.5	125 [860]	0.600 [15.2]	18.300 [464.8]				
		25	165 [1150]	0.780 [19.8]	17.940 [455.7]				
		21	200	0.929	17.642				
		18	235 [1620]	1.083 [27.5]	17.334 [440.3]				
20" [500mm]	21.600 [548.6]	32.5	125 [860]	0.665 [16.9]	20.270 [514.9]	26.063 [662.0]	11.000 [279.4]	9.500 [241.3]	10.500 [266.7]
		25	165 [1150]	0.864 [22.0]	19.872 [504.7]				
		21	200	1.029	19.542				
		18	235 [1620]	1.200 [30.5]	19.200 [487.7]				
24" [600mm]	25.800 [655.3]	41	100	0.629	24.542	31.063 [789.0]	13.000 [330.2]	11.500 [292.1]	12.500 [317.5]
		32.5	125 [860]	0.794 [20.2]	24.212 [615.0]				
		25	165 [1150]	1.032 [26.2]	23.736 [602.9]				
		21	200	1.229	23.342				
		18	235 [1620]	1.433 [36.4]	22.934 [582.5]				
30" [750mm]	32.000 [812.8]	51	80 [550]	0.627 [15.90]	30.746 [781]	37.500 [952.5]	15.125 [384.2]	13.625 [346.1]	14.625 [371.5]
		41	100 [650]	0.780 [19.80]	30.440 [773.2]				
		32.5	125 [860]	0.985 [25.00]	30.030 [762.8]				
		25	165 [1150]	1.280 [32.50]	29.440 [747.8]				
		21	200	1.524	28.952				
		18	235 [1620]	1.778 [45.20]	28.444 [722.4]				
36" [900mm]	38.300 [972.8]	51	80 [550]	0.751 [19.10]	36.798 [934.6]	44.500 [1130.3]	19.125 [485.8]	17.625 [447.7]	18.625 [473.1]
		41	100 [650]	0.934 [23.70]	36.432 [925.4]				
		32.5	125 [860]	1.178 [29.90]	35.944 [913.0]				
		25	165 [1150]	1.532 [38.90]	35.236 [895.0]				
		21	200	1.824	34.652				

Notes:

1. These dimensions are for estimating purposes only. All dimensions not in brackets are in inches unless otherwise specified.
2. Products certified to CSA B137.3 have dimensions in brackets in millimeters unless otherwise specified.
3. DR = Dimension Ratio
4. AWWA and CSA Pressure Class @ 73°F [23°C] which includes a 2:1 safety factor.
5. Internal diameter calculated using nominal outside diameter and minimum wall thickness.
6. Dimension given for Approx. Bell Diameter (BD) is for highest pressure class.



Ductile Iron Flanged Fittings

ANSI/AWWA C110/A21.10

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
APPROVALS: 2" - 12" Underwriters Laboratories and ULC Listed and Factory Mutual approved for 300 PSI rating. Please consult factory for detail listing and approvals. 2" and greater are UL/NSF-61.
DIMENSIONS: All dimensions are in inches unless noted otherwise.



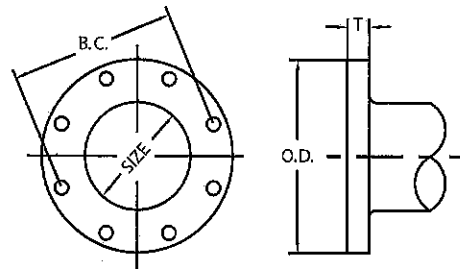
SUBMITTAL INFORMATION

PROJECT NAME: _____

ENGINEER: _____

CONTRACTOR: _____

SPEC. SECTION: _____



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

SIZE RANGE (Please specify):

Size Range _____

LINING OPTIONS (Please check one):

- Standard: Cement-lined and asphalt seal coat per ANSI/AWWA C104/A21.4 and UL/NSF-61
- Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61
- Optional: P40i (Protecto 401) Ceramic Epoxy - sewer applications only. Not NSF-61
- Optional: Other (specify) _____

COATING OPTIONS (Please check one):

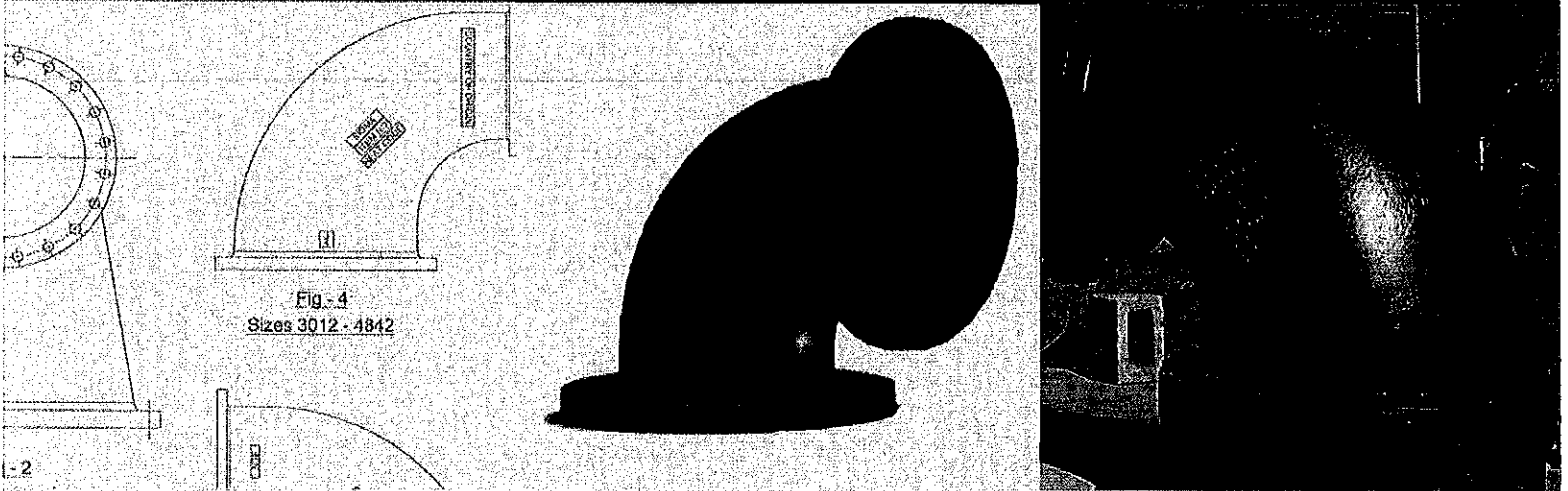
- Standard: Red Prime Coat
- Optional: Asphaltic seal coat per ANSI/AWWA C104/A21.4
- Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61
- Optional: Other (specify) _____





Quality – Service – Commitment – Delivered.

C110 Flanged Fittings



2-64in C110 CAST IRON/DUCTILE IRON FLANGED FITTINGS BASIC SPECIFICATIONS

- MATERIAL:** Ductile Iron ASTM A536 Grade 60-42-10, 65-45-12 or 70-50-05.
- PRESSURE:** 250 PSI Water Working Pressure for Cast Iron sizes 2" - 12"
250 PSI Water Working Pressure for Ductile Iron sizes 2" - 48"
150 PSI Water Working Pressure for Ductile Iron sizes 54" - 64"
150 PSI Water Working Pressure for Cast Iron sizes 14" - 54"
- 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
- 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:** In accordance with ANSI / AWWA C104 / A21.4
- COATING:** Tar coated (bituminous) inside in accordance with ANSI / AWWA C104 / A21.04
Red Primer Outside.
For special conditions, other types of coatings and linings are available.
Please specify when ordering.
- APPROVALS:** 2"-16" Underwriters Laboratories listed and Factory Mutual Approved.
- STANDARDS:** 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

Note: call for Cast Iron Fittings



SIGMA Corporation

700 Goldman Drive
Cream Ridge, NJ 08514

800 999 2550 p
609 758 1163 f
cim-sales@sigmaco.com

www.sigmaco.com



28U - ANSI/AWWA C110/A21.10
 Class 125 Flange Joint Full Body
 Ductile Iron Fittings
 Revised 4/2018

DOMESTIC

NON-DOMESTIC

SUBMITTAL: C110 FLANGE JOINT CLASS 125 PRODUCT

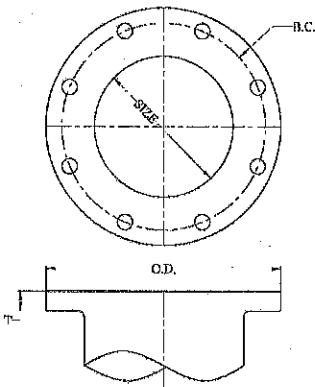
(Current revisions for the noted Standards apply)

- SIZES:** 2" - 64" (Contact Tyler Union for 54" - 64" flange fitting information)
- STANDARDS:** ANSI/AWWA C110/A21.10, NFPA 13/24, ASME B16.1, 3" - 12" UL listed and FM approved
- MATERIAL:** Cast of ASTM A536 qualified ductile iron. Date code is cast on and required for traceability.
- PRESSURE RATING:** *Flanged fittings *2" - 48" rated at 250 psi. 54" - 64" rated at 150psi.
 *Note: With rubber annular ring flange gasket, 2" - 24" flanged fittings can be rated at 350 psi.
- DEFLECTION:** Deflection is "not" recommended for flange joint due to the rigidity of the joint.
- NSF-61 & NSF372:** Meets all requirements including Annex G, Tyler Union's Underwriters Laboratory listing MH16439.
- COATING:** ~~Asphaltic or Primer per ANSI/AWWA C104/A21.4, Standard primer is Tnemec Potapox N140-1211.~~
 Contact Tyler Union for additional coating options.
- 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.
- FLANGES:** ANSI Class 125 per ASME B16.1 and ANSI/AWWA C111/A21.11. Bolt holes shall straddle the center line
NOTE: Class 125 ASME B16.1 are not compatible with Class 250 Flanges
NOTE: Class 250 ASME B16.1 fittings are 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.

FLANGE DETAILS IN INCHES

BOLTS

Size Inches	Diameter DI Pipe	Flange O.D.	B.C. Diameter	Flange Thickness T	Bolt Hole Diameter	Size	Qty
2	2.51	6.00	4.75	0.62	0.750	5/8 x 2-1/4	4
3	3.96	7.50	6.00	0.75	0.750	5/8 x 2-1/4	4
4	4.80	9.00	7.50	0.94	0.750	5/8 x 3	8
6	6.90	11.00	9.50	1.00	0.875	3/4 x 3-1/2	8
8	9.05	13.50	11.75	1.12	0.875	3/4 x 3-1/2	8
10	11.10	16.00	14.25	1.19	1.000	7/8 x 4	12
12	13.20	19.00	17.00	1.25	1.000	7/8 x 4	12
14	15.30	21.00	18.75	1.38	1.125	1 x 4-1/2	12
16	17.40	23.50	21.25	1.44	1.125	1 x 4-1/2	16
18	19.50	25.00	22.75	1.56	1.250	1-1/8 x 5	16
20	21.60	27.50	25.00	1.69	1.250	1-1/8 x 5	20
24	25.80	32.00	29.50	1.88	1.375	1-1/4 x 5-1/2	20
30	32.00	38.75	36.00	2.12	1.375	1-1/4 x 5-1/2	28
36	38.30	46.00	42.75	2.38	1.625	1-1/2 x 7	32
42	44.50	53.00	49.50	2.62	1.625	1-1/2 x 7-1/2	36
48	50.80	59.50	56.00	2.75	1.625	1-1/2 x 8	44
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
Dallas: 1201 Ave. S. Suite100 • Grande Prairie, TX 75050

Elmer: 701 Kenyon Ave. • Elmer, New Jersey 03318
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



Ductile Iron MJ Compact Fittings

ANSI/AWWA C153/A21.53

GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536, Grade 65-45-12
- PRESSURE:** 350 PSI rating for 2" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 64" 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)
- DEFLECTION:** 2"-4"=8° | 6"-7"=7° | 8"-12"=5° | 14"-16"=3 1/2° | 18"-24"=3° | 30"-48"=2°
- WEIGHTS:** Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
- FLANGES:** Flanged ends on fittings match ANSI/AWWA 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 and referenced in ANSI/AWWA C153/A21.53
- GASKETS:** SBR in accordance with ANSI/AWWA C111/A21.11
- T-BOLTS/NUTS:** Low alloy steel in accordance with ANSI/AWWA C111/A21.11
- APPROVALS:** 3" - 12" UL/ULC Listed | 3" and greater are UL/NSF-61 | 3" - 16" FM APPROVED. Please consult factory for detail listing and approvals.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise.



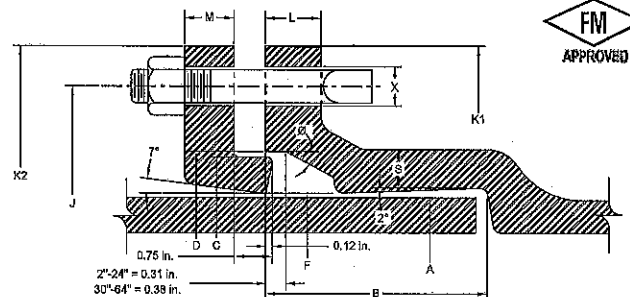
SUBMITTAL INFORMATION

PROJECT NAME: _____

ENGINEER: _____

CONTRACTOR: _____

SPEC. SECTION: _____



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	3/4 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	3/4 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 3 1/2	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 3 1/2	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	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	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	0.68	28°	7/8	3/4 x 4	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	0.69	28°	7/8	3/4 x 4	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	0.75	28°	7/8	3/4 x 4 1/2	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 1/2	1 x 5 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	20°	1 1/2	1 x 5 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	20°	1 3/4	1 1/4 x 6	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 3/4	1 1/4 x 6	32

SIZE RANGE (Please specify): _____

LINING OPTIONS (Please check one):

- Standard: Cement-lined and asphalt seal coat per ANSI/AWWA C104/A21.4 and UL/NSF-61
- Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61
- Optional: P401 (Protecto 401) Ceramic Epoxy - sewer applications only. Not NSF-61
- Optional: Other (specify) _____

COATING OPTIONS (Please check one):

- Standard: Asphaltic seal coat per ANSI/AWWA C104/A21.4
- Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61
- Optional: Other (specify) _____



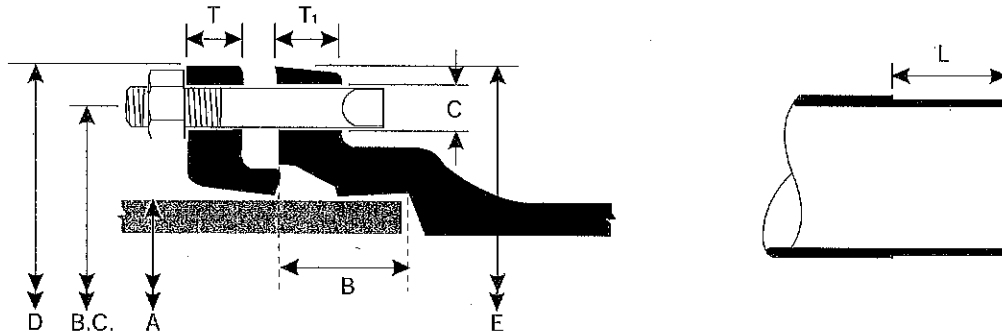


MECHANICAL JOINT COMPACT FITTINGS
 DUCTILE IRON CLASS 350 as per ANSI / AWWA C153 / A21.53

3"-48" DUCTILE IRON MECHANICAL JOINT FITTINGS CLASS 350

BASIC SPECIFICATIONS

- MATERIAL:** Ductile Iron ASTM A536
- PRESSURE:** 350 PSI Water Working Pressure (CLASS 350) 3"-24": 250 PSI 30"-48"
- TESTING:** In accordance with ANSI / AWWA C153 / A21.53 & UL - FM requirements
- 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 (3"-48")
- CEMENT LINING:** In accordance with ANSI / AWWA C104 / A21.4
- COATING:** Tar coated (bituminous) inside and out in accordance with ANSI / AWWA C104 / A21.4
- GASKETS:** SBR In accordance with ANSI / AWWA C111 / A21.11
- 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 NSF 61 Standard
 ANSI / AWWA C153 / A21.53 for Compact Ductile Iron Fittings 3"-24" for water and other liquids.



MECHANICAL JOINT DETAILS

PLAIN END DETAILS

Size	A	B	B.C.	C	D	E	T	T ₁	Bolts			Size	O.D.	L
									No.	Size	L			
3	3.96	2.50	6.19	3/4	7.69	7.62	.62	.58	4	5/8	3	3	3.96	5.5
4	4.80	2.50	7.50	7/8	9.12	9.06	.75	.60	4	3/4	3.5	4	4.80	5.5
6	6.90	2.50	9.50	7/8	11.12	11.06	.88	.63	6	3/4	3.5	6	6.90	5.5
8	9.05	2.50	11.75	7/8	13.37	13.31	1.00	.66	6	3/4	4	8	9.05	5.5
10	11.10	2.50	14.00	7/8	15.62	15.62	1.00	.70	8	3/4	4	10	11.10	5.5
12	13.20	2.50	16.25	7/8	17.88	17.88	1.00	.73	8	3/4	4	12	13.20	5.5
14	15.30	3.50	18.75	7/8	20.25	20.25	1.25	.79	10	3/4	4	14	15.30	8.0
16	17.40	3.50	21.00	7/8	22.50	22.50	1.31	.85	12	3/4	4	16	17.40	8.0
18	19.50	3.50	23.25	7/8	24.83	24.75	1.38	1.00	12	3/4	4	18	19.50	8.0
20	21.60	3.50	25.50	7/8	27.00	27.00	1.44	1.02	14	3/4	4	20	21.60	8.0
24	25.80	3.50	30.00	7/8	31.50	31.50	1.56	1.02	16	3/4	4.5	24	25.80	8.0
30	32.00	4.00	36.88	1 1/8	39.12	39.12	2.00	1.54	20	1	6	30	32.00	8.0
36	38.30	4.00	43.75	1 1/8	46.00	46.00	2.00	1.70	24	1	6	36	38.30	8.0
42	44.50	4.00	50.62	1 3/8	53.12	53.12	2.00	1.45	28	1 1/4	6	42	44.50	8.0
48	50.80	4.00	57.50	1 3/8	60.00	60.00	2.00	1.45	32	1 1/4	6	48	50.80	8.0

Weights in pounds
 Dimensions in inches
 All Weights shown without accessories



23U - ANSI/AWWA C153/A21.53

Mechanical Joint Compact

Ductile Iron Fittings

Revised 4/2018

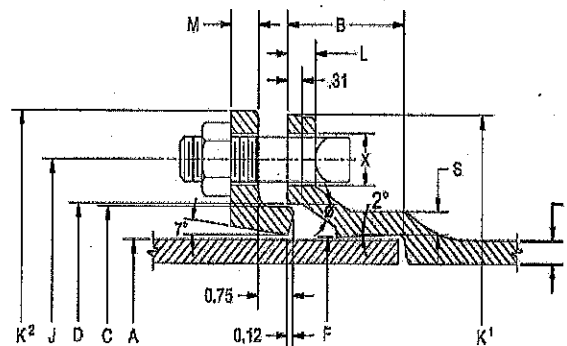
DOMESTIC

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.	K' Dia.	K ² 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
Dallas: 1201 Ave. S. Suite100 • Grande Prairie, TX 75050

Elmer: 701 Kenyon Ave. • Elmer, New Jersey 03318
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

**RESILIENT
WEDGE VALVES**

CLOW VALVE COMPANY

**CLOW AWWA Resilient Wedge Gate Valves
Meet or Exceed the Requirements of
AWWA Standard C509**

Size Range	Water Working Pressure psi	Bubble Tight Test psi	Hydrostatic Shell Test psi
AWWA 2"-12"	250	250	500
ULFM 2 1/2"-12"	200	200	400

Available in either non-rising stem, outside screw & yoke.

Available End Connections & Size Range		Figure No.
FLG End (NRS)	2"-12"	F-6102
M.J.	2"-12" (except 2 1/2")	F-6100
FLG & M.J.	3"-12"	F-6106
Push-on for PVC (SDR)	2"-12"	F-6110
FLG End (OS & Y)	2"-12"	F-6136
M.J. for Tapping	3"-12"	F-6114
Tyton for D.I. & C900 PVC	4"-12"	F-6112
M.J. Cutting-in	4"-12"	F-6111
Tyton for D.I. X FLG	4"-12"	F-6113
Threaded	2"-3"	F-6103

Accessories (Illustrated in the Gate Valve Section)

Indicator Posts	2" Sq. Operating Nuts
"T" Handles	Handwheels
Stem Guides	Extension Stems
Electric Motor Actuators	Floor Boxes
	Chain Wheels
	Floorstands (non-rising stem)

MODEL 2639	AWWA C509	FULL BODY DUCTILE IRON
MODEL 2640	AWWA C509	FULL BODY GRAY IRON

2640-100
A 6/23/14

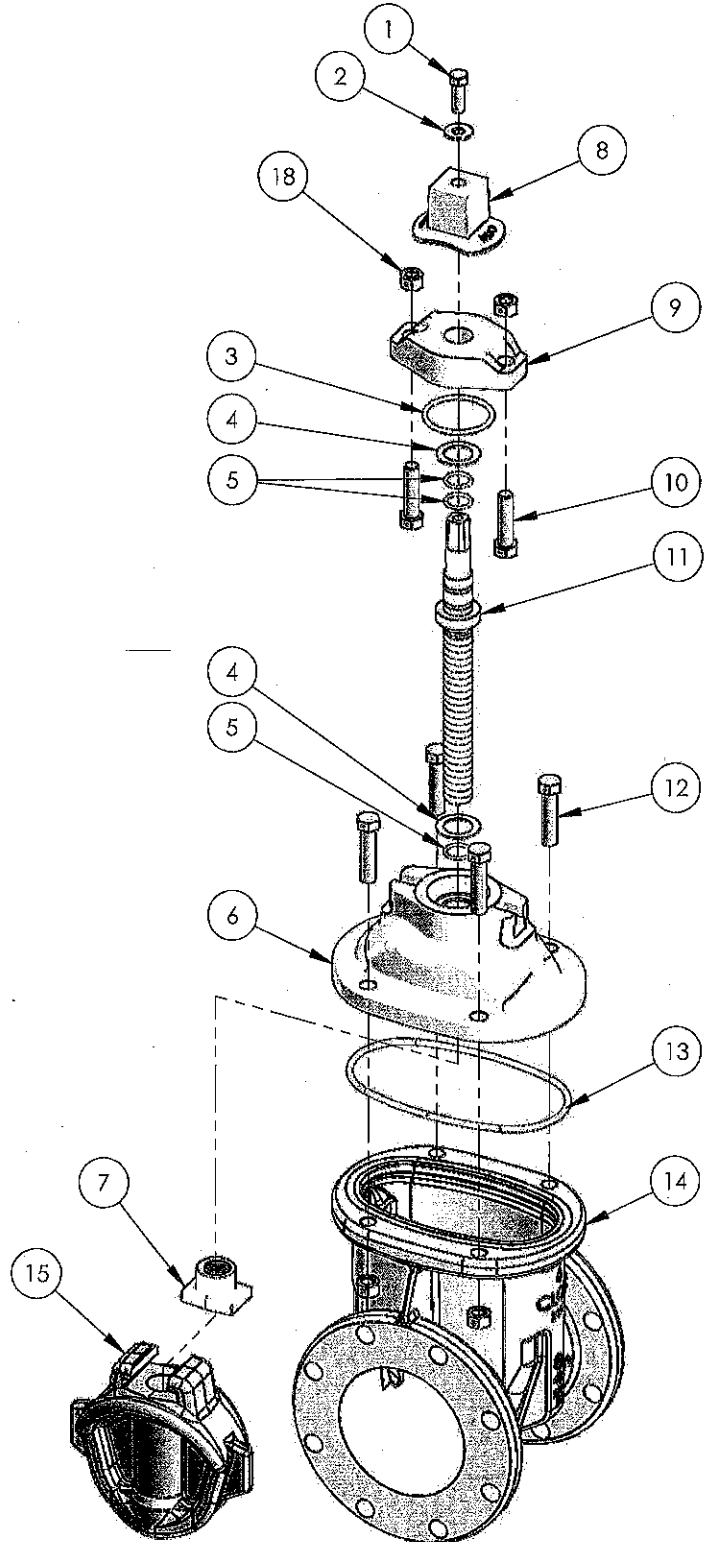
Complies with applicable requirements of AWWA C509

2"-12" R/S VALVE NRS
EXPLODED VIEW MATERIAL LIST

CLOW VALVE COMPANY

MODELS 2639 & 2640

ITEM NO.	DESCRIPTION	Material - 2639	Material - 2640	QTY.
1	Hex Head Bolt	Stainless Steel	Stainless Steel	1
2	Flat Washer	Stainless Steel	Stainless Steel	1
3	O-Ring	Rubber	Rubber	1
4	Thrust Washer	Delrin	Delrin	2
5	O-Ring	Rubber	Rubber	3
6	Cover	Ductile Iron	Gray Iron	1
7	Stem Nut	Copper Alloy	Copper Alloy	1
8	Operating Nut	Gray Iron	Gray Iron	1
9	Follower Plate	Ductile Iron	Ductile Iron	1
10	Hex Head Bolt	Stainless Steel	Stainless Steel	2
11	Stem	Copper Alloy	Copper Alloy	1
12	Cover Bolt	Stainless Steel	Stainless Steel	--
13	Cover O-Ring	Rubber	Rubber	1
14	Body	Ductile Iron	Gray Iron	1
15	Wedge	Ductile Iron / Rubber	Ductile Iron / Rubber	1
18	Hex Nut	Stainless Steel	Stainless Steel	6



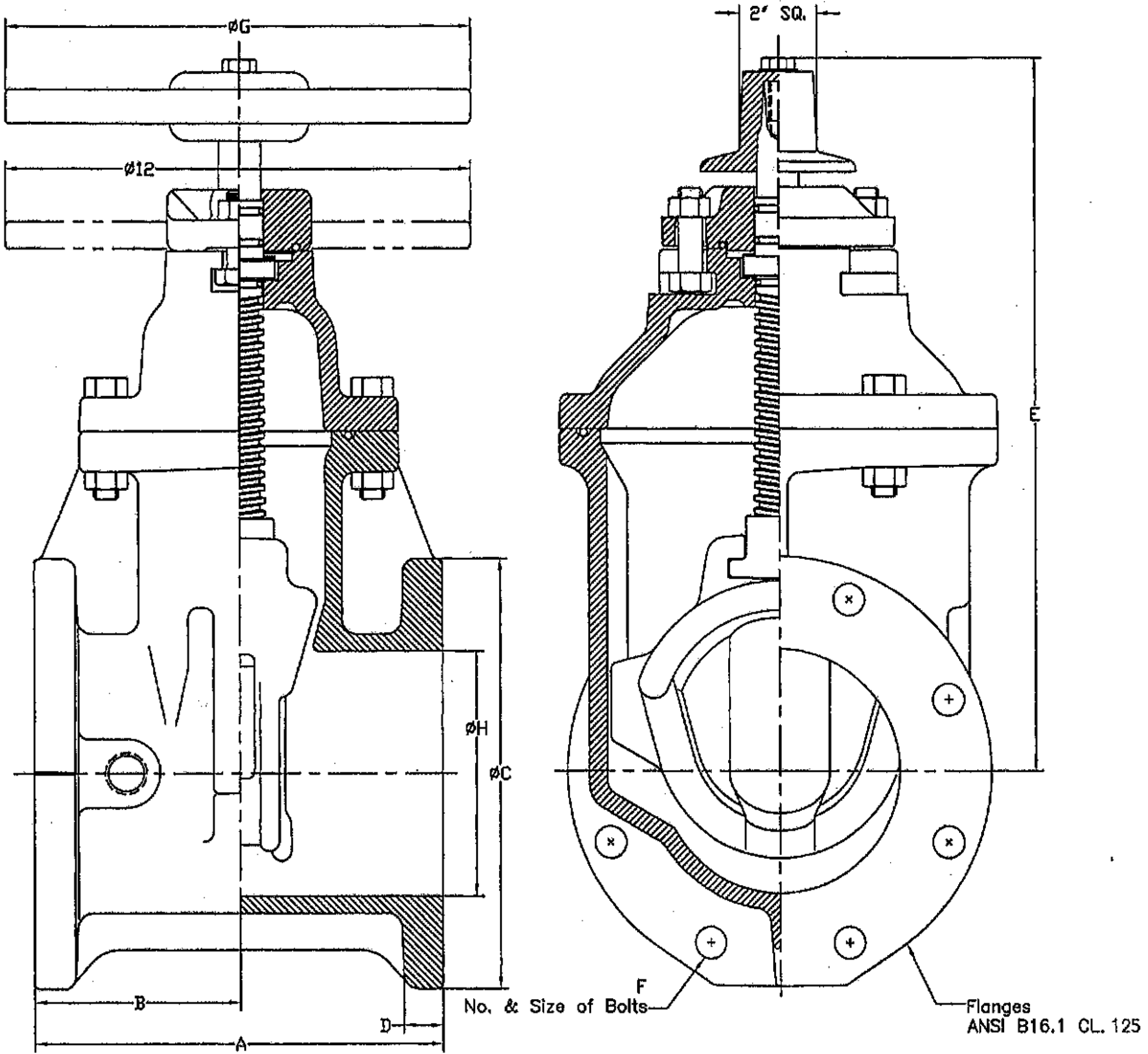
Complies with applicable requirements of AWWA C509

2"-12" R/W VALVE FLANGED ENDS
GENERAL DIMENSION

CLOW VALVE COMPANY

MODEL 2639 & 2640

F-6102



VALVE SIZE	A	B	C	D	E	F	G	H
2	7	3½	6	¾	10%	4-¾	7¼	2
2½	7½	3¾	7	1¼	11%	4-¾	7¼	2½
3	8	4	7½	¾	12%	4-¾	10	3
4	9	4½	9	1¼	14%	8-¾	10	4¼
6	10½	5¼	11	1	19	8-¾	12	6¼
8	11½	5¾	13½	1¼	22½	8-¾	14	8¼
10	13	6½	16	1¾	26½	12-¾	18	10¼
12	14	7	19	1¼	30	12-¾	18	12¼

R/W VALVE
Material Specifications
CLOW VALVE COMPANY

CAST IRON Specification ASTM A126 Class B

Physical Properties

Minimum tensile strength	31,000 psi
Minimum transverse strength	3,300 lbs
Minimum deflection (12" Centers)	.12 in

Chemical Analysis (percent)

Phosphorus (maximum)	.75
Sulfur (maximum)	.15

Ductile Iron ASTM A536

Minimum tensile strength	65,000 psi
Minimum Yield strength	45,000 psi
(EPDM)	10-12 %

Seat Rubber (EPDM)

Hardness	80+/-2
100% Modulus (PSI)	600
Tensile (PSI)	1,450
Elongation (%)	150
Compression Set, ASTM D395 Method B	18% max

R/W VALVE
Material Specifications

CLOW VALVE COMPANY

STANDARD

Copper Alloy - ASTM B584 CDA836 (Stem Nut)

Physical Properties

Minimum tensile strength	30,000 PSI
Minimum yield strength	14,000 PSI
Minimum elongation (in 2 inches)	20%

Chemical Analysis

Copper	84.0 - 86.0
Lead	4.0 - 6.0
Tin	4.0 - 6.0
Nickel (maximum)	1.0
Zinc	4.0 - 6.0

Copper Alloy - ASTM B584 CDA867 (Stem)

Physical Properties

Minimum tensile strength	80,000 PSI
Minimum yield strength	32,000 PSI
Minimum elongation (in 2 inches)	15%

Chemical Analysis

Copper	57.0 * - 60.0
Lead (maximum)	.50 - 1.5
Aluminum	1.0 - 3.0
Iron	1.0 - 3.0
Nickel (maximum)	1.0
Zinc	30.0 - 38.0
Manganese	1.0 - 3.5
Tin (maximum)	.2

ALTERNATE

CAST BRONZE - NDZ-S CA. NO. 995 (Stem)

Physical Properties

Minimum tensile strength	70,000 PSI
Minimum yield strength	40,000 PSI
Minimum elongation (in 2 inches)	12%

Chemical Analysis

Copper	82.8
Lead (maximum)	.25
Aluminum (maximum)	2.0
Iron (maximum)	5.5
Nickel (maximum)	5.5
Zinc (maximum)	2.0
Silicon (maximum)	2.0

RW Gate Valve
EPDM Wedge Compatibility Chart

CLOW VALVE COMPANY

Chemical	Rating
Acetic (10%)	1
Alcohols	2
Aliphatic Hydrocarbons	4
Aluminum Sulfate	1
Ammonium Chloride	1
Ammonium Hydroxide	1
Aniline	2
Aromatic Hydrocarbons	4
Barium Sulfide	1
Benzene	4
Benzene Sulfonic (10%)	4
Benzoic	4
Boric	1
Calcium Chloride	1
Calcium Hydroxide	1
Carbon Tetrachloride	4
Chloracetic (10%)	2
Chlorobenzene	4
Chromic (5%)	2
Citric (10%)	1
Copper Chloride	1
Esters	3
Ethers	3
Fatty Acids	3
Formaldehyde (37%)	2
Formic (90%)	1
Gasoline	4
Hydrobromic (20%)	1
Hydrochloric (20%)	3
Hydrocyanic	1

Chemical	Rating
Hydrofluoric (20%)	X
Hypochlorous (5%)	2
Iron Chloride	1
Ketones	1
Lactic (5%)	1
Magnesium Chloride	1
Maleic (25%)	2
Mineral Oils	3
Nickel Chloride	1
Nitric (30%)	3
Nitric (5%)	2
Oleic	4
Oxalic	1
Phenol (5%)	4
Phosphoric	1
Picric	1
Potassium Chloride	1
Potassium Hydroxide	1
Sodium Bicarbonate	1
Sodium Carbonate	1
Sodium Chloride	1
Sodium Hydroxide	1
Sodium Sulfide	1
Stearic	2
Sulfuric (50%)	4
Tannic	1
Trisodium Phosphate	1
Vegatable Oils	3
Zinc Chloride	1

- 1 = Satisfactory
- 2 = Fair (usually acceptable for static seal)
- 3 = Doubtful (sometimes acceptable for static seal)
- 4 = Unsatisfactory
- X = Insufficient Data

Ratings are based on solutions at room temperature. Specific conditions of each application, such as flow and temperature, can significantly affect results. Always test under actual service conditions.

4"-12" R/W VALVE UL/FM
Performance Information

CLOW VALVE COMPANY

MODEL 2639 & 2640

1. Valve complies with AWWA specs where applicable.
2. Valve complies with Underwriters Laboratory standard UL 262.
3. Valve is rated at 200 psi working pressure.
4. Valve is bubble-tight at all pressures up to full rated pressure (200 psi).
5. Valve is capable of bubble-tight seal at twice the rated pressure (400 psi) for short periods of time.
6. 2" thru 6" valve sizes have been hydrostatically shell tested at five (5) times the rated pressure (1000 psi).
7. 8", 10" and 12" valve sizes have been hydrostatically shell tested at four (4) times the rated pressure (800 psi).
8. Valve has been subjected to torques 150 percent of the designated minimum required torques.
9. Valve has been cycle tested 5,000 times without loss of bubble-tight seal.
10. Rubber to iron bond on wedge is inspected for strength as per ASTM D 429 specification.

For complete data on the tests
Underwriters Laboratories performed
reference UL File EX2697
Project 87NK7353

2"-12" R/W VALVE AWWA SERVICE
Performance Information

CLOW VALVE COMPANY

MODEL 2639 & 2640

1. Valve complies with AWWA C509 specs where applicable.
2. Valve is rated at 250 psi working pressure.
3. Valve is bubble-tight at all pressures up to full rated pressure (250 psi).
4. Valve is capable of bubble-tight seal at twice the rated pressure (500 psi) for short periods of time.
5. 2" thru 12" valve sizes have been hydrostatically shell tested at 2.5 times the rated pressure (625 psi).
6. Valve has been subjected to torques 150 percent of the designated minimum required torques.
7. Valve has been cycle tested 5,000 times without loss of bubble-tight seal.
8. Rubber to iron bond on wedge is inspected for strength as per ASTM D 429 specification.

R/W RESILIENT WEDGE GATE VALVE
Product Analysis

CLOW VALVE COMPANY

MODEL 2639 & 2640

Features	Benefits
Bubble Tight Closure at 250 psi (2"-12") (AWWA SERVICE)	<ul style="list-style-type: none"> • No leakage—no loss of water
Smooth, Unobstructed Waterway	<ul style="list-style-type: none"> • High flow characteristics • 100% smooth passage without turbulent flow • No sediment build-up • Will not impede travel of line cleaning tools
Only Three Internal Parts	<ul style="list-style-type: none"> • Virtually maintenance free
No Seat Rings	<ul style="list-style-type: none"> • Nothing to be damaged by scoring
Delrin* Anti-Friction Thrust Bearing	<ul style="list-style-type: none"> • Operating torque to close and open held to absolute minimum
Solid, Copper Alloy Stem Nut and High Strength Copper Alloy Stem	<ul style="list-style-type: none"> • No corrosion • Trouble-free service
Stem Nut is Self Centering	<ul style="list-style-type: none"> • Eliminates possible stress on stem and wedge
Two "O" Ring Seals Above Stem Thrust Collar	<ul style="list-style-type: none"> • Can be replaced with valve in service
High Strength Iron Wedge Fully Encapsulated with Rubber Permanently Bonded to Metal. Wedge Design Incorporates Two Sealing Surfaces.	<ul style="list-style-type: none"> • Trouble-free service with minimum maintenance • No leaks—no wear

*DuPont Trademark

**CR (CORROSION RESISTANCE)
COATING (INTERIOR & EXTERIOR)**

CLOW VALVE COMPANY

Clow CR Coating is a high performance, one-part, heat-curable, thermoset coating which provides superior corrosion resistance protection for metal parts.

Clow CR Coating material is a stable, non-toxic resin consisting of 100% solids. It is impervious to and imparts no taste to potable water. Clow CR Coating is formulated from materials deemed acceptable in the Food and Drug Administrations Document Title 21 of the Federal Regulations on food additives, Section 175.300 entitled "Resinous and Polymeric Coatings".

Clow CR Coating is applied by a heat application, fusion—bonding process which secures the coating material to the metal valve components. This process provides a continuous coating 9 mils thick with excellent adhesion qualities.

The durable Clow CR Coating has a hard finish and exhibits excellent corrosion resistance in most aqueous solutions and good abrasion resistance. It will not sag or cold flow or become soft during long-term storage. In addition to excellent corrosion resistance to aqueous solutions, the coating has excellent stability and resistance to acidic soil conditions.

Clow CR Coating meets the requirements of the American Water Works Association Standard C-550 entitled "Protective Interior Coatings for Valves and Hydrants". This high performance coating has a ten year history of satisfactory service as a corrosion protection coating used in corrosive potable water applications and soil conditions.

CR (CORROSION RESISTANCE) COATING

CLOW VALVE COMPANY

CHEMICAL	EPOXY RATING		CHEMICAL	EPOXY RATING	
	70°F	180°F		70°F	180°F
ACIDS:			ALKALIES:		
Acetic, 10%	F	N	Ammonium Hydroxide	E	G
Benzene Sulfonic, 10%	E	E	Calcium Hydroxide	E	E
Benzoic	E	E	Potassium Hydroxide	E	E
Boric	E	E	Sodium Hydroxide	E	E
Chloracetic, 10%	E	E	ACID SALTS:		
Chromic, 5%	F	N	Aluminum Sulfate	E	E
Citric, 10%	E	N	Ammonium Chloride*	E	E
Fatty Acids	E	E	Copper Chloride*	E	E
Formic, 90%	E	F	Iron Chloride*	E	E
Hydrobromic, 20%	G	G	Nickel Chloride*	E	E
Hydrochloric, 20%	E	G	Zinc Chloride*	E	E
Hydrocyanic	E	E	ALKALINE SALTS:		
Hydrofluoric, 20%	G	G	Barium Sulfide	E	E
Hypochlorous, 5%	F	N	Sodium Bicarbonate	E	E
Lactic, 5%	F	N	Sodium Carbonate	E	E
Maleic, 25%	E	E	Sodium Sulfide	E	E
Nitric, 5%	E	G	Trisodium Phosphate	E	E
Nitric, 30%	G	P	NEUTRAL SALTS:		
Oleic	E	E	Calcium Chloride*	E	E
Oxalic	E	E	Magnesium Chloride*	E	E
Phosphoric	G	F	Potassium Chloride*	E	E
Picric	G	F	Sodium Chloride*	E	E
Steric	E	E	SOLVENTS:		
Sulfuric, 50%	G	F	Alcohols	E	E
Tannic	E	E	Aliphatic Hydrocarbons	E	E
			Aromatic Hydrocarbons	E	E
Ketones	F	F	Benzene	E	E
Ethers	F	F	Formaldehyde, 37%	E	G
Esters	F	F	Phenol, 5%	G	F
Gasoline	E	E	Mineral Oils	E	E
Carbon Tetrachloride	E	E	Vegetable Oils	E	E
Organics:			Chlorobenzene		
Aniline	G	P			

KEY: E - no attack
 G - appreciably no attack
 F - some attack, but useable in some instances
 P - attacked, not recommended for use
 N - rapidly attacked
 * - and nitrate and sulfate

2" THRU 12" R/W VALVE
Flow Coefficients

CLOW VALVE COMPANY

MODEL 2639 & 2640

VALVE SIZE	C_v (FULL OPEN)	K (FULL OPEN)
2	300	0.15
2½	500	0.130
3	800	0.115
4	1500	0.105
6	3600	0.090
8	6700	0.080
10	10,500	0.080
12	15,000	0.080

$$C_v = \sqrt{\frac{Q}{\Delta P}} \quad K = f \frac{L}{D}$$

Values given are calculated, based on
hydraulic lab tests on 6" R/W valve.

RESILIENT WEDGE GATE VALVES
Recommended Specifications

CLOW VALVE COMPANY

MODEL 2639 & 2640

Valves shall conform to the latest revision of AWWA Standard C-509 covering resilient wedge gate valves.

The valves shall be either, **non-rising stem or rising stem**, opening by turning stem **left or right** and provided with **2" square operating nut or handwheel** with the word **Open** and an **Arrow** cast in the metal to indicate direction to open.

The wedge shall be of cast iron completely encapsulated with rubber.

The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429

Stems for NRS assemblies shall be cast copper alloy with integral collars in full compliance with AWWA. OS & Y stems shall be copper alloy. The NRS stem stuffing box shall be the o-ring seal type with two o-rings located above thrust collar and one o-ring below. The two o-rings above the thrust collar shall be replaceable with valve fully open and subjected to full rated working pressure.

There shall be two low torque thrust bearings located above and below the stem collar. The stem nut shall be independent of wedge and shall be made of solid copper alloy. There shall be a smooth unobstructed waterway free of all pockets, cavities and depressions in the seat area.

The body and bonnet shall be coated with fusion bonded epoxy both interior and exterior, complying with AWWA C550 and be NSF 61 certified. Each valve shall have maker's name, pressure rating and year in which manufactured cast on the body. Prior to shipment from factory, each valve shall be tested by hydrostatic pressure equal to requirement for both AWWA (twice the specified working pressure) and 400 PSI ULFM requirements.

**RESILIENT
WEDGE VALVES**

CLOW VALVE COMPANY

**CLOW AWWA Resilient Wedge Gate Valves
Meet or Exceed the Requirements of
AWWA Standard C509**

Size Range	Water Working Pressure psi	Bubble Tight Test psi	Hydrostatic Shell Test psi
AWWA 2"-12"	250	250	500
ULFM 2 1/2"-12"	200	200	400

Available in either non-rising stem, outside screw & yoke.

Available End Connections & Size Range

Figure No.

FLG End (NRS)	2"-12"	F-6102
M.J.	2"-12" (except 2 1/2")	F-6100
FLG & M.J.	3"-12"	F-6106
Push-on for PVC (SDR)	2"-12"	F-6110
FLG End (OS & Y)	2"-12"	F-6136
M.J. for Tapping	3"-12"	F-6114
Tyton for D.I. & C900 PVC	4"-12"	F-6112
M.J. Cutting-in	4"-12"	F-6111
Tyton for D.I. X FLG	4"-12"	F-6113
Threaded	2"-3"	F-6103

Accessories (Illustrated in the Gate Valve Section)

Indicator Posts	2" Sq. Operating Nuts
"T" Handles	Handwheels
Stem Guides	Extension Stems
Electric Motor Actuators	Floor Boxes
	Chain Wheels
	Floorstands (non-rising stem)

MODEL	2639	AWWA	C509	FULL BODY DUCTILE IRON
MODEL	2640	AWWA	C509	FULL BODY GRAY IRON

2640-100
A 6/23/14

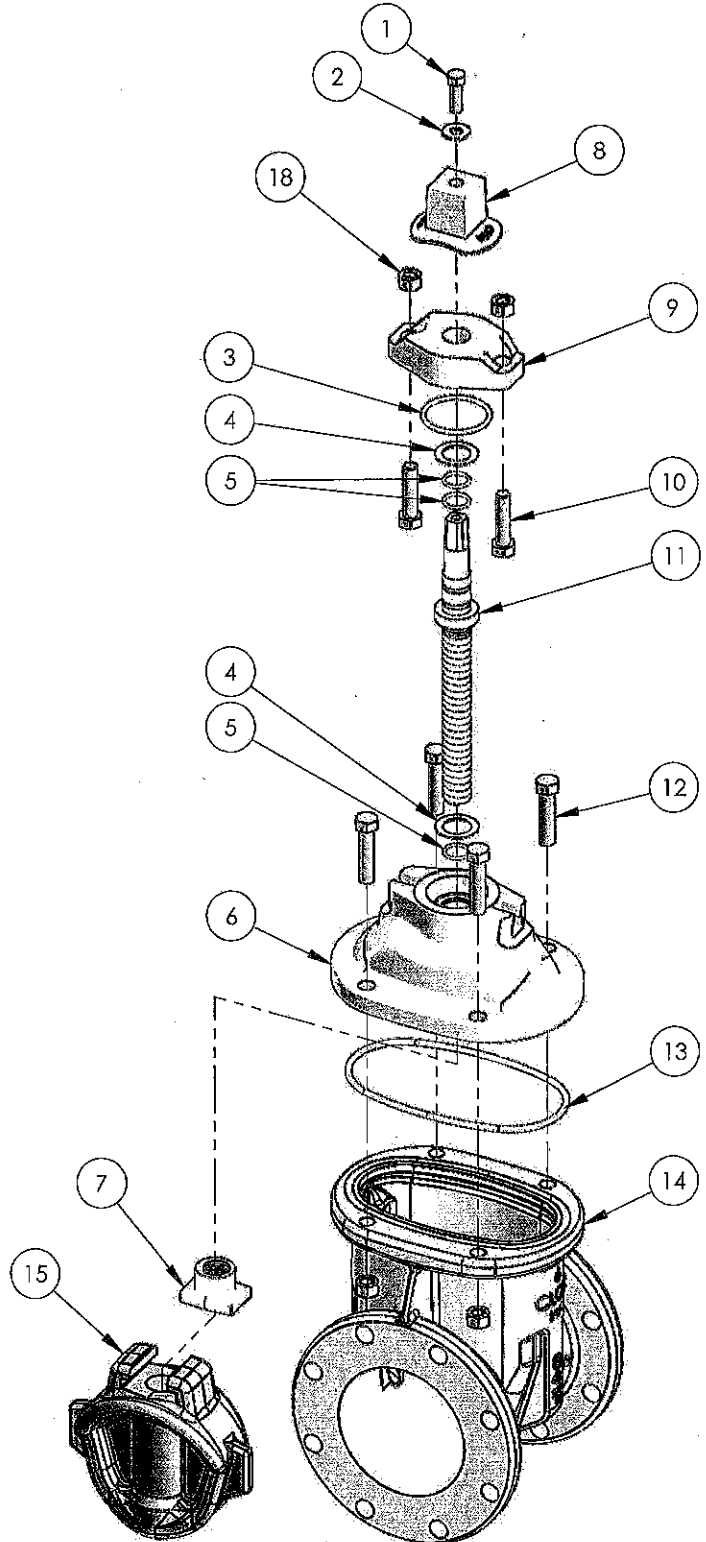
Complies with applicable requirements of AWWA C509

2"-12" R/S VALVE NRS
EXPLODED VIEW MATERIAL LIST

CLOW VALVE COMPANY

MODELS 2639 & 2640

ITEM NO.	DESCRIPTION	Material - 2639	Material - 2640	QTY.
1	Hex Head Bolt	Stainless Steel	Stainless Steel	1
2	Flat Washer	Stainless Steel	Stainless Steel	1
3	O-Ring	Rubber	Rubber	1
4	Thrust Washer	Delrin	Delrin	2
5	O-Ring	Rubber	Rubber	3
6	Cover	Ductile Iron	Gray Iron	1
7	Stem Nut	Copper Alloy	Copper Alloy	1
8	Operating Nut	Gray Iron	Gray Iron	1
9	Follower Plate	Ductile Iron	Ductile Iron	1
10	Hex Head Bolt	Stainless Steel	Stainless Steel	2
11	Stem	Copper Alloy	Copper Alloy	1
12	Cover Bolt	Stainless Steel	Stainless Steel	--
13	Cover O-Ring	Rubber	Rubber	1
14	Body	Ductile Iron	Gray Iron	1
15	Wedge	Ductile Iron / Rubber	Ductile Iron / Rubber	1
18	Hex Nut	Stainless Steel	Stainless Steel	6



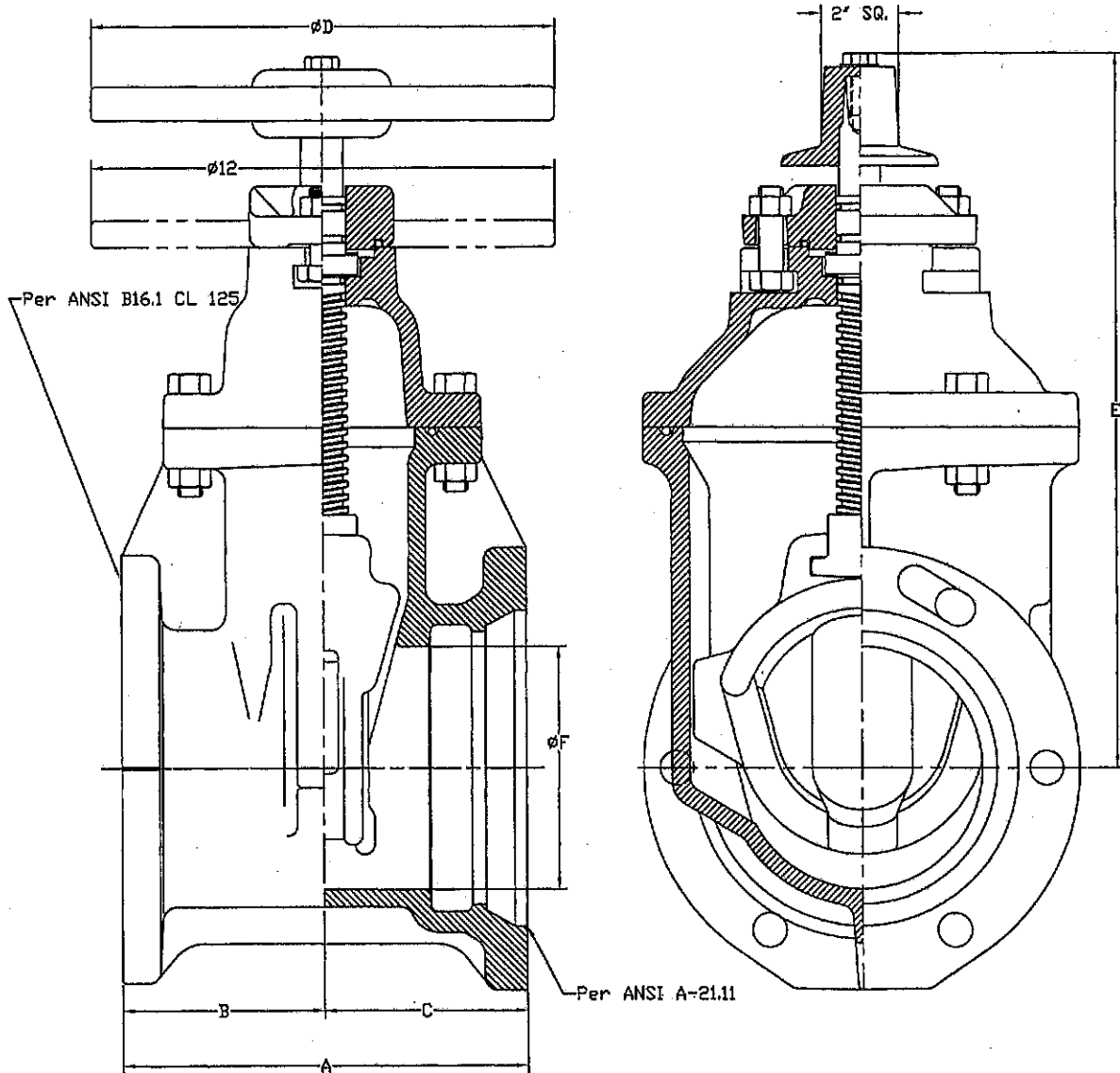
Complies with applicable requirements of AWWA C509

3"-12" R/W VALVE NRS FLANGED x MECHANICAL JOINT ENDS GENERAL DIMENSIONS

CLOW VALVE COMPANY

MODEL 2639 & 2640

F-6106



VALVE SIZE	A	B	C	D	E	F
3	8 1/4	4	4 1/4	10	12 3/8	3
4	9 1/4	4 1/2	4 3/4	10	14 3/4	4 1/4
6	10 1/2	5 1/4	5 1/4	12	19	6 1/4
8	12 5/16	5 3/4	6 9/16	14	22 1/2	8 1/4
10	14 1/4	6 1/2	7 3/4	18	26 1/2	10 1/4
12	15	7	8	18	30	12 1/4

R/W VALVE
Material Specifications
CLOW VALVE COMPANY

CAST IRON Specification ASTM A126 Class B

Physical Properties

Minimum tensile strength	31,000 psi
Minimum transverse strength	3,300 lbs
Minimum deflection (12" Centers)	.12 in
Chemical Analysis (percent)	
Phosphorus (maximum)	.75
Sulfur (maximum)	.15

Ductile Iron ASTM A536

Minimum tensile strength	65,000 psi
Minimum Yield strength (EPDM)	45,000 psi 10-12 %

Seat Rubber (EPDM)

Hardness	80+/-2
100% Modulus (PSI)	600
Tensile (PSI)	1,450
Elongation (%)	150
Compression Set, ASTM D395 Method B	18% max

R/W VALVE
Material Specifications

CLOW VALVE COMPANY

STANDARD

Copper Alloy - ASTM B584 CDA836 (Stem Nut)

Physical Properties

Minimum tensile strength	30,000 PSI
Minimum yield strength	14,000 PSI
Minimum elongation (in 2 inches)	20%

Chemical Analysis

Copper	84.0 - 86.0
Lead	4.0 - 6.0
Tin	4.0 - 6.0
Nickel (maximum)	1.0
Zinc	4.0 - 6.0

Copper Alloy - ASTM B584 CDA867 (Stem)

Physical Properties

Minimum tensile strength	80,000 PSI
Minimum yield strength	32,000 PSI
Minimum elongation (in 2 inches)	15%

Chemical Analysis

Copper	57.0 * - 60.0
Lead (maximum)	.50 - 1.5
Aluminum	1.0 - 3.0
Iron	1.0 - 3.0
Nickel (maximum)	1.0
Zinc	30.0 - 38.0
Manganese	1.0 - 3.5
Tin (maximum)	.2

ALTERNATE

CAST BRONZE - NDZ-S CA. NO. 995 (Stem)

Physical Properties

Minimum tensile strength	70,000 PSI
Minimum yield strength	40,000 PSI
Minimum elongation (in 2 inches)	12%

Chemical Analysis

Copper	82.8
Lead (maximum)	.25
Aluminum (maximum)	2.0
Iron (maximum)	5.5
Nickel (maximum)	5.5
Zinc (maximum)	2.0
Silicon (maximum)	2.0

RW Gate Valve
EPDM Wedge Compatibility Chart

CLOW VALVE COMPANY

Chemical	Rating
Acetic (10%)	1
Alcohols	2
Aliphatic Hydrocarbons	4
Aluminum Sulfate	1
Ammonium Chloride	1
Ammonium Hydroxide	1
Aniline	2
Aromatic Hydrocarbons	4
Barium Sulfide	1
Benzene	4
Benzene Sulfonic (10%)	4
Benzoic	4
Boric	1
Calcium Chloride	1
Calcium Hydroxide	1
Carbon Tetrachloride	4
Chloroacetic (10%)	2
Chlorobenzene	4
Chromic (5%)	2
Citric (10%)	1
Copper Chloride	1
Esters	3
Ethers	3
Fatty Acids	3
Formaldehyde (37%)	2
Formic (90%)	1
Gasoline	4
Hydrobromic (20%)	1
Hydrochloric (20%)	3
Hydrocyanic	1

Chemical	Rating
Hydrofluoric (20%)	X
Hypochlorous (5%)	2
Iron Chloride	1
Ketones	1
Lactic (5%)	1
Magnesium Chloride	1
Maleic (25%)	2
Mineral Oils	3
Nickel Chloride	1
Nitric (30%)	3
Nitric (5%)	2
Oleic	4
Oxalic	1
Phenol (5%)	4
Phosphoric	1
Picric	1
Potassium Chloride	1
Potassium Hydroxide	1
Sodium Bicarbonate	1
Sodium Carbonate	1
Sodium Chloride	1
Sodium Hydroxide	1
Sodium Sulfide	1
Stearic	2
Sulfuric (50%)	4
Tannic	1
Trisodium Phosphate	1
Vegatable Oils	3
Zinc Chloride	1

- 1 = Satisfactory
- 2 = Fair (usually acceptable for static seal)
- 3 = Doubtful (sometimes acceptable for static seal)
- 4 = Unsatisfactory
- X = Insufficient Data

Ratings are based on solutions at room temperature. Specific conditions of each application, such as flow and temperature, can significantly affect results. Always test under actual service conditions.

4"-12" R/W VALVE UL/FM
Performance Information

CLOW VALVE COMPANY

MODEL 2639 & 2640

1. Valve complies with AWWA specs where applicable.
2. Valve complies with Underwriters Laboratory standard UL 262.
3. Valve is rated at 200 psi working pressure.
4. Valve is bubble-tight at all pressures up to full rated pressure (200 psi).
5. Valve is capable of bubble-tight seal at twice the rated pressure (400 psi) for short periods of time.
6. 2" thru 6" valve sizes have been hydrostatically shell tested at five (5) times the rated pressure (1000 psi).
7. 8", 10" and 12" valve sizes have been hydrostatically shell tested at four (4) times the rated pressure (800 psi).
8. Valve has been subjected to torques 150 percent of the designated minimum required torques.
9. Valve has been cycle tested 5,000 times without loss of bubble-tight seal.
10. Rubber to iron bond on wedge is inspected for strength as per ASTM D 429 specification.

For complete data on the tests
Underwriters Laboratories performed
reference UL File EX2697
Project 87NK7353

2"-12" R/W VALVE AWWA SERVICE
Performance Information

CLOW VALVE COMPANY

MODEL 2639 & 2640

1. Valve complies with AWWA C509 specs where applicable.
2. Valve is rated at 250 psi working pressure.
3. Valve is bubble-tight at all pressures up to full rated pressure (250 psi).
4. Valve is capable of bubble-tight seal at twice the rate pressure (500 psi) for short periods of time.
5. 2" thru 12" valve sizes have been hydrostatically shell tested at 2.5 times the rated pressure (625 psi).
6. Valve has been subjected to torques 150 percent of the designated minimum required torques.
7. Valve has been cycle tested 5,000 times without loss of bubble-tight seal.
8. Rubber to iron bond on wedge is inspected for strength as per ASTM D 429 specification.

R/W RESILIENT WEDGE GATE VALVE
Product Analysis

CLOW VALVE COMPANY

MODEL 2639 & 2640

Features	Benefits
Bubble Tight Closure at 250 psi (2"-12") (AWWA SERVICE)	<ul style="list-style-type: none"> • No leakage—no loss of water
Smooth, Unobstructed Waterway	<ul style="list-style-type: none"> • High flow characteristics • 100% smooth passage without turbulent flow • No sediment build-up • Will not impede travel of line cleaning tools
Only Three Internal Parts	<ul style="list-style-type: none"> • Virtually maintenance free
No Seat Rings	<ul style="list-style-type: none"> • Nothing to be damaged by scoring
Delrin* Anti-Friction Thrust Bearing	<ul style="list-style-type: none"> • Operating torque to close and open held to absolute minimum
Solid, Copper Alloy Stem Nut and High Strength Copper Alloy Stem	<ul style="list-style-type: none"> • No corrosion • Trouble-free service
Stem Nut is Self Centering	<ul style="list-style-type: none"> • Eliminates possible stress on stem and wedge
Two "O" Ring Seals Above Stem Thrust Collar	<ul style="list-style-type: none"> • Can be replaced with valve in service
High Strength Iron Wedge Fully Encapsulated with Rubber Permanently Bonded to Metal. Wedge Design Incorporates Two Seating Surfaces.	<ul style="list-style-type: none"> • Trouble-free service with minimum maintenance • No leaks—no wear

*DuPont Trademark

**CR (CORROSION RESISTANCE)
COATING (INTERIOR & EXTERIOR)**

CLOW VALVE COMPANY

Clow CR Coating is a high performance, one-part, heat-curable, thermoset coating which provides superior corrosion resistance protection for metal parts.

Clow CR Coating material is a stable, non-toxic resin consisting of 100% solids. It is impervious to and imparts no taste to potable water. Clow CR Coating is formulated from materials deemed acceptable in the Food and Drug Administrations Document Title 21 of the Federal Regulations on food additives, Section 175.300 entitled "Resinous and Polymeric Coatings".

Clow CR Coating is applied by a heat application, fusion—bonding process which secures the coating material to the metal valve components. This process provides a continuous coating 9 mils thick with excellent adhesion qualities.

The durable Clow CR Coating has a hard finish and exhibits excellent corrosion resistance in most aqueous solutions and good abrasion resistance. It will not sag or cold flow or become soft during long-term storage. In addition to excellent corrosion resistance to aqueous solutions, the coating has excellent stability and resistance to acidic soil conditions.

Clow CR Coating meets the requirements of the American Water Works Association Standard C-550 entitled "Protective Interior Coatings for Valves and Hydrants". This high performance coating has a ten year history of satisfactory service as a corrosion protection coating used in corrosive potable water applications and soil conditions.

CR (CORROSION RESISTANCE) COATING

CLOW VALVE COMPANY

CHEMICAL	EPOXY RATING		CHEMICAL	EPOXY RATING	
	70°F	180°F		70°F	180°F
ACIDS:			ALKALIES:		
Acetic, 10%	F	N	Ammonium Hydroxide	E	G
Benzene Sulfonic, 10%	E	E	Calcium Hydroxide	E	E
Benzoic	E	E	Potassium Hydroxide	E	E
Boric	E	E	Sodium Hydroxide	E	E
Chloracetic, 10%	E	E	ACID SALTS:		
Chromic, 5%	F	N	Aluminum Sulfate	E	E
Citric, 10%	E	N	Ammonium Chloride*	E	E
Fatty Acids	E	E	Copper Chloride*	E	E
Formic, 90%	E	F	Iron Chloride*	E	E
Hydrobromic, 20%	G	G	Nickel Chloride*	E	E
Hydrochloric, 20%	E	G	Zinc Chloride*	E	E
Hydrocyanic	E	E	ALKALINE SALTS:		
Hydrofluoric, 205	G	G	Barium Sulfide	E	E
Hypochlorous, 5%	F	N	Sodium Bicarbonate	E	E
Lactic, 5%	F	N	Sodium Carbonate	E	E
Maleic, 25%	E	E	Sodium Sulfide	E	E
Nitric, 5%	E	G	Trisodium Phosphate	E	E
Nitric, 30%	G	P	NEUTRAL SALTS:		
Oleic	E	E	Calcium Chloride*	E	E
Oxalic	E	E	Magnesium Chloride*	E	E
Phosphoric	G	F	Potassium Chloride*	E	E
Picric	G	F	Sodium Chloride*	E	E
Steric	E	E	SOLVENTS:		
Sulfuric, 50%	G	F	Alcohols	E	E
Tannic	E	E	Aliphatic Hydrocarbons	E	E
			Aromatic Hydrocarbons	E	E
Ketones	F	F	Benzene	E	E
Ethers	F	F	Formaldehyde, 37%	E	G
Esters	F	F	Phenol, 5%	G	F
Gasoline	E	E	Mineral Oils	E	E
Carbon Tetrachloride	E	E	Vegetable Oils	E	E
Organics:			Chlorobenzene		
Aniline	G	P			

KEY: E - no attack
 G - appreciably no attack
 F - some attack, but useable in some instances
 P - attacked, not recommended for use
 N - rapidly attacked
 * - and nitrate and sulfate

2" THRU 12" R/W VALVE
Flow Coefficients

CLOW VALVE COMPANY

MODEL 2639 & 2640

VALVE SIZE	Cv (FULL OPEN)	K (FULL OPEN)
2	300	0.15
2½	500	0.130
3	800	0.115
4	1500	0.105
6	3600	0.090
8	6700	0.080
10	10,500	0.080
12	15,000	0.080

$$Cv = \sqrt{\frac{Q}{\Delta P}} \quad K = f \frac{L}{D}$$

Values given are calculated, based on hydraulic lab tests on 6" R/W valve.

RESILIENT WEDGE GATE VALVES
Recommended Specifications

CLOW VALVE COMPANY

MODEL 2639 & 2640

Valves shall conform to the latest revision of AWWA Standard C-509 covering resilient wedge gate valves.

The valves shall be either, **non-rising stem or rising stem**, opening by turning stem **left or right** and provided with **2" square operating nut or handwheel** with the word **Open** and an **Arrow** cast in the metal to indicate direction to open.

The wedge shall be of cast iron completely encapsulated with rubber.

The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429

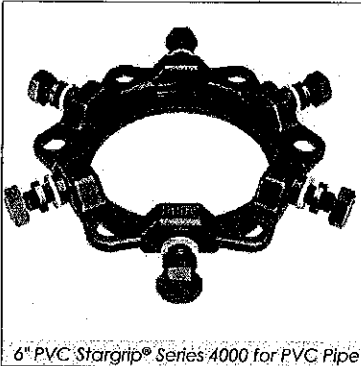
Stems for NRS assemblies shall be cast copper alloy with integral collars in full compliance with AWWA. OS & Y stems shall be copper alloy. The NRS stem stuffing box shall be the o-ring seal type with two o-rings located above thrust collar and one o-ring below. The two o-rings above the thrust collar shall be replaceable with valve fully open and subjected to full rated working pressure.

There shall be two low torque thrust bearings located above and below the stem collar. The stem nut shall be independent of wedge and shall be made of solid copper alloy. There shall be a smooth unobstructed waterway free of all pockets, cavities and depressions in the seat area.

The body and bonnet shall be coated with fusion bonded epoxy both interior and exterior, complying with AWWA C550 and be NSF 61 certified. Each valve shall have maker's name, pressure rating and year in which manufactured cast on the body. Prior to shipment from factory, each valve shall be tested by hydrostatic pressure equal to requirement for both AWWA (twice the specified working pressure) and 400 PSI ULFM requirements.



PVC Stargrip® series 4000
Mechanical Joint Wedge Action Restraint
for Plastic Pressure Pipe



6" PVC Stargrip® Series 4000 for PVC Pipe

SUBMITTAL INFORMATION

PROJECT NAME: _____

ENGINEER: _____

CONTRACTOR: _____

SPEC. SECTION: _____



FEATURES & ADVANTAGES

- The design has been proven in the market since 1992.
- Can be used on AWWA C900, AWWA C905 PVC pipe, IPS PVC pipe, AWWA C909 PVCO pipe, and HDPE pipe. See pressure rating table for approved DRs and sizes. Plastic pressure pipes manufactured to an IPS diameter regimen will require a transition gasket. HDPE pipe requires use of stainless steel pipe stiffener.
- Gland is made from high strength Ductile Iron per ASTM A536 Grade 65-45-12 and is compatible with all Mechanical Joints conforming to ANSI/AWWA C111/A21.11.
- Eliminates the need for tie rods and thrust blocks.
- Listed with Underwriters Laboratories and approved by Factory Mutual research in sizes 4"-12".
- Tested to and meets the requirements of ASTM F1674 through 14".
- The safety factor is twice (2:1) the standardized pressure rating listed on next page.
- Will fit any Mechanical Joint configuration, meaning compatibility with different types of installations.
- PVC Stargrip® offers 5° deflection through 12", 3° on 14"-24" and 2° on 30"-36".
- Larger ID allows easier installation on out-of-round pipe.
- Torque limiting bolts are designed to prevent over torquing.
- All sizes have curved wedges that do not flatten pipe.
- Standard gland color is Coral Red (RAL 3016).

MATERIAL SPECIFICATIONS:

- Gland: Ductile Iron per ASTM A536, Grade 65-45-12
- Wedges: Ductile Iron per ASTM A536, Grade 65-45-12
 - ♦ Wedge Finish: Thermally cured fluoropolymer epoxy coating

GLAND FINISH OPTIONS (Please check one):

- Standard: alkyd enamel coating
- Optional: Starbond™ TGIC polyester powder coating applied by an electrostatic spray process
- Optional: Other (specify) _____

COUNTRY OF ORIGIN OPTION (Please check one):

- Import
 - 100% Domestic¹
 - Domestic gland with Import components¹
- ¹Please see Domestic Restraint Options Available on our website.)

HARDWARE OPTIONS (Please check):

- Standard: T-bolts and nuts are high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11
- Optional: T-bolts alloy SS 304 per ASTM F593; Nuts alloy SS 304 per ASTM F594 CW
- Optional: T-bolts SS 316 per ASTM F593; Nuts SS 316 per ASTM A194 Grade 8M
- Optional: T-bolts and nuts Fluoropolymer Star-Blue coated high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11

STAR® PIPE PRODUCTS



HEX BOLTS A307 GRADE A

SUBMITTAL SPECIFICATIONS ABSTRACT OF ASTM A307 GRADE A

GRADE: Low Carbon Steel 60,000 PSI

CHEMICAL REQUIREMENTS

Chemical analysis shall be performed in accordance with ASTM A751

CARBON MAX	MANGANESE MAX	PHOSPHOROUS MAX	SULFUR MAX
0.29	1.20	0.04	0.15

MECHANICAL REQUIREMENTS

HARDNESS BRINEL		HARDNESS ROCKWELL		TENSILE STRENGTH (KSI)		ELONGATION IN 2 IN. (50MM)
MIN	MAX	MIN	MAX	MIN	MAX	MIN
121	241	69	100	60	-	18

Hex Nuts ASTM A563 (ASME B18.2.2) Heavy Hex Nuts ASTM A563 (ASME B18.2.2)

Washers ASTM F844-04 (ASME B18.22.1)



BOLTS AND NUTS MAY BE SUPPLIED

Plain Zinc Plated per ASTM B633 Hot Dip Galvanized Per ASTM A153 Cadmium Plated

LOCATION

Buried Submerged Above Grade Below Grade Other

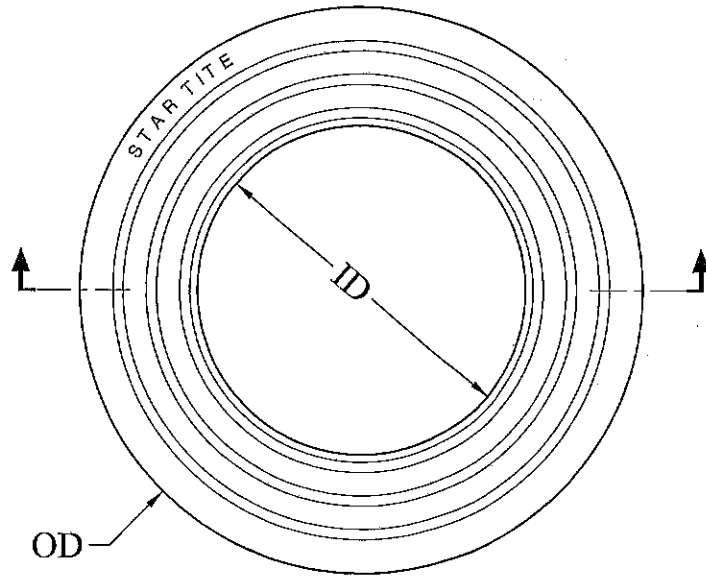
DIMENSIONAL DATA: Unless otherwise specified in the purchase order, parts shall be the coarse threaded series as specified in the latest issue of ANSI / ASME B1.1, page A-26. Having a 2A tolerance. Grade A Bolts shall have Hex Bolt Dimensions as given in the latest issue of ANSI / ASME B 18.2.1, Page C1. Unless otherwise specified Grade A Bolts should be used with Hex Nuts.

ADDITIONAL INFORMATION: Additional information can be found in ASTM A307A-07B, ASTM A563-04A

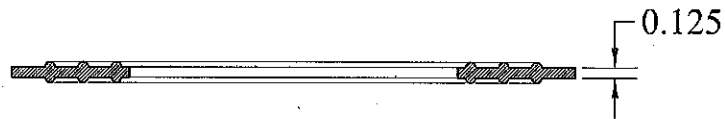


FAH03-36RG

3"-36" RING STAR-TITE GASKET



TOP VIEW



SECTION VIEW

SIZE	Part Number	ID	OD	Estimated Weight (lbs)	Maximum Pressure Rating (psi)	Bolt Torque (ft-lb)
3"	FAH03RG	3.000	5.375	0.105	350	110
4"	FAH04RG	4.000	6.875	0.159	350	110
6"	FAH06RG	6.000	8.750	0.209	350	110
8"	FAH08RG	8.000	11.000	0.289	350	110
10"	FAH10RG	10.000	13.375	0.466	350	130
12"	FAH12RG	12.000	16.125	0.651	350	130
14"	FAH14RG	14.000	17.750	0.685	350	150
16"	FAH16RG	16.000	20.250	0.858	350	160
18"	FAH18RG	18.000	21.625	0.836	350	180
20"	FAH20RG	20.000	23.875	0.972	350	200
24"	FAH24RG	24.000	28.250	1.242	350	220
30"	FAH30RG	30.000	34.750	1.677	250	140
36"	FAH36RG	36.000	41.250	2.165	250	160

SPECIFICATIONS:

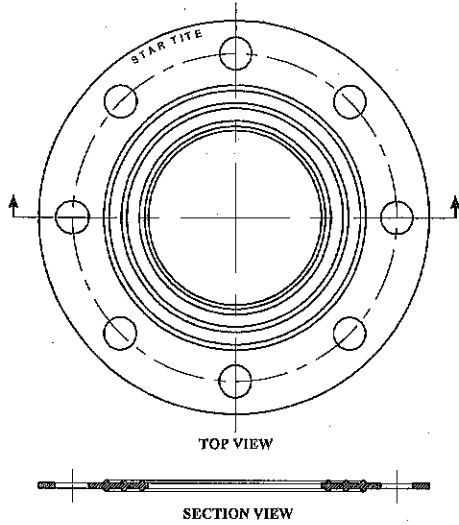
1. MATERIAL: VULCANIZED STYRENE BUTADIENE RUBBER (SBR)
2. COLOR: BLACK
3. COMPATIBILITY: STAR-TITE GASKETS ARE FOR USE WITH FLANGE DRILLING PER ANSI/AWWA C110/A21.10, ANSI/AWWA C111/A21.11, ANSI/AWWA C115/A21.15, ASME B16.1 CLASS 125 AND ASME B16.42 CLASS 150.
4. STANDARD SBR GASKET SIZES 3" AND GREATER ARE UL/NSF STANDARD 61 APPROVED.
5. DIMENSIONS ARE IN INCHES.

- ECN - 0930		11-11-16	JK	MAB	SF
- RELEASE SPP - 1514		11-16-15	JK	MAB	SF
SYM	REVISIONS	DATE	BY	APPR	REL
STAR PIPE PRODUCTS 4018 WESTHOLLOW PARKWAY, HOUSTON, TX, 77082 PH. (281)558-3000 - FAX (281)558-9000		PART No.	FAH03-36RG	DATED 11-16-15	DRAWN JK
			SUBMITTAL	DWG. NO. A-6531	



Full Face Star-Tite™ Flanged Gasket

3" to 36", Full Face



INTRODUCTION

Historically, flat red rubber gaskets have been used for sealing flanged joints. These gaskets may not have NSF/ANSI 61 or NSF/ANSI 372 certification and do not qualify for higher ratings in standards such as ANSI/AWWA C110/A21.10. The Full Face Star-Tite™ gasket is specially designed to qualify for higher ratings and is also listed by UL as satisfying both NSF/ANSI 61 and NSF/ANSI 372 requirements for potability.



LOWER TORQUE

The Full Face Star-Tite™ Gasket incorporates three bulbs that are molded on both faces of the gasket. This geometry greatly improves performance when compared to typical flat full face red rubber gaskets. Incorporating the three bulbs on the gasket faces results in a reduction of the bolt torque required to achieve a proper seal.

HIGHER PERFORMANCE

AWWA standard ANSI/AWWA C110/A21.10 describes specially designed gaskets as follows:

Also available for most sizes are specially designed gaskets, either ring or full-face, using one or more annular rings molded into the gasket to improve the gasket performance.

Appendix A, Section A.2, Gaskets

Footnotes below the pressure rating tables in ANSI/AWWA C110/A21.10 for flanged fittings allow the rating of flanged fittings that use these special gaskets to be 350 psi in sizes 24-inch and less. The Star-Tite™ gasket qualifies as one of these special gasket designs. When normal flat full face red rubber gaskets are used, the rating is 250 psi.

The bulb type rings on the Full Face Star-Tite™ gasket allow the gasket material to compress in three localized areas of the flange. The inner bulb is located inside the tapered pipe thread that is typical with fabricated pipe. This creates a pressure boundary that prevents leakage through the threaded connection, which is shown in Figure 1 on the next page. The outer two bulbs better accommodate minor misalignment that occasionally occurs when flat surfaces are mated together.

STAR® PIPE PRODUCTS





Full Face Star-Tite™ Flanged Gasket

3" to 36", Full Face

TECHNICAL INFORMATION

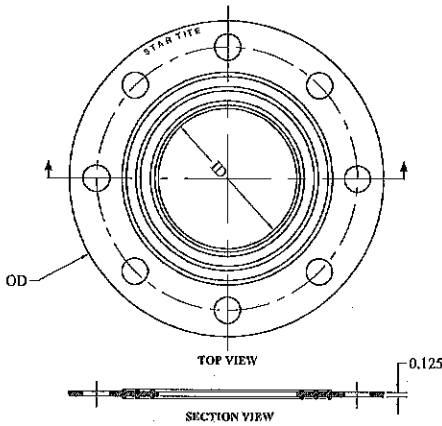
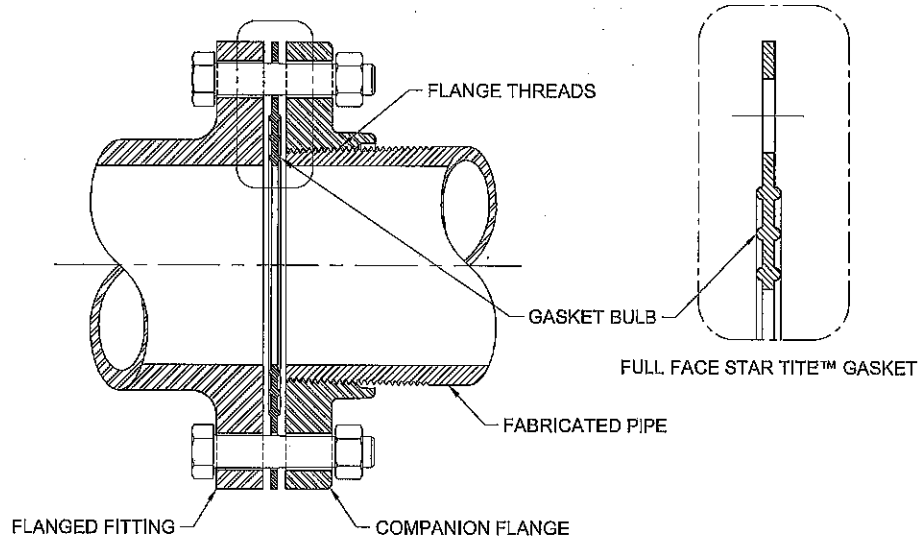


Table 1 - FLANGE ACCESSORY PACKS C111/A.21.11*

NOM. SIZE	ID	OD	BOLTS	BOLTS (QTY)	MAX. PRESSURE RATING (PSI)	BOLT TORQUE (FT-LB)	APPROX. WT. (LBS)
3	3.000	7.500	5/8 x 2 1/2	4	350	110	1.59
4	4.000	9.000	5/8 x 3	8	350	110	3.66
6	6.000	11.000	3/4 x 3 1/2	8	350	110	5.43
8	8.000	13.500	7/8 x 3 1/2	8	350	110	6.70
10	10.000	16.000	7/8 x 4	12	350	130	12.80
12	12.000	19.000	7/8 x 4	12	350	130	16.13
14	14.000	21.000	1 x 4 1/2	12	350	150	18.71
16	16.000	23.500	1 x 4 1/2	16	350	160	24.66
18	18.000	25.000	1 1/8 x 5	16	350	180	34.57
20	20.000	27.500	1 1/8 x 5	20	350	200	44.37
24	24.000	32.000	1 3/4 x 5 1/2	20	350	220	60.08
30	30.000	38.750	1 3/4 x 6 1/4	28	250	140	93.77
36	36.000	46.000	1 1/2 x 7	32	250	160	175.57

*All dimensions in inches except where indicated.

GENERAL SPECIFICATIONS

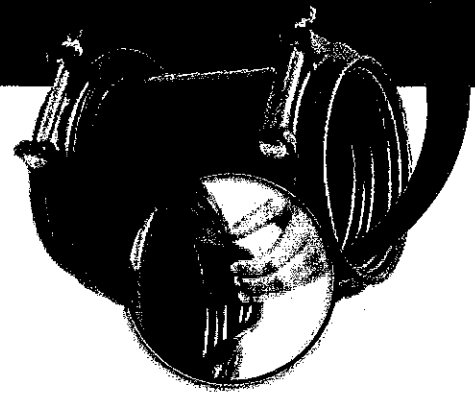
- HEX BOLTS:** Per ANSI/ASME B18.2.1 - Material per ASTM A307 Grade B, Zinc Plated
- HEX NUTS:** Per ANSI/ASME B18.2.2 - Material per ASTM A563 Grade A or B, Zinc Plated
- GASKET MATERIAL:** Vulcanized Styrene Butadiene Rubber (SBR)
- DIMENSIONS:** Refer to Table 1 above or FAH03-36FFG submittal drawing number A7040.
- CERTIFICATIONS:** UL listed to NSF/ANSI 61 and NSF/ANSI 372 for potability.
- PRESSURE RATING:** 350 psi for sizes 3" to 24"; 250 psi for sizes 30" to 36".

STAR® PIPE PRODUCTS

PRODUCT SPECIFICATIONS

HYMAX 2

HYMAX[®] 2 COUPLING (4" - 12")



FEATURES

- ADVANCED WIDE-RANGE COUPLING WITH A PATENTED FLIP GASKET
- ELIMINATES GASKET REMOVAL MISTAKES AND MAXIMIZES INSTALLER WORK EFFICIENCY
- ONLY 2-4 TOP FACING BOLTS, FOR FASTER AND SAFER INSTALLATION
- READY-TO-USE DESIGN TO ELIMINATE EXTENSIVE PREPARATORY UNDER-PIPE DIGGING
- ALLOWS 4° DYNAMIC DEFLECTION ON EACH END, REDUCING FUTURE PIPE DAMAGE
- PATENTED HYDRAULICALLY-ASSISTED GASKET WITH 2-STAGE SEALING
- SUITABLE FOR ALL TYPES OF PIPES - DUCTILE IRON, CAST IRON, STEEL, COPPER, PE, PVC, AC, GRP
- ONE PRODUCT CAN CONNECT PIPES OF TWO DIFFERENT MATERIALS
- BASED ON THE GAME-CHANGING HYMAX THAT HAS BEEN FIELD-PROVEN IN MILLIONS OF INSTALLATIONS IN THE US
- PRODUCT PERFORMANCE, OD RANGE AND PRESSURES ARE IDENTICAL TO THOSE OF THE ORIGINAL HYMAX

SPECIFICATIONS

STANDARDS

HYMAX2 MEETS OR EXCEEDS STANDARDS AWWA C-219, NSF 61, NSF 372.

SIZE

AVAILABLE IN NOMINAL DIAMETER FROM 4" - 12" STANDARD. CALL KRAUSZ FOR DETAILS.

MATERIALS

END RINGS 4" - 12" ASTM A283 / A283M GRADE C STEEL.

CENTER RING 4" - 12" ASTM A53 GRADE A STEEL.

GASKETS EPDM COMPOUNDED FOR WATER AND SEWAGE, MEETS INTERNATIONAL STANDARDS FOR CONTACT WITH DRINKING WATER.

BRIDGE AISI 304 STAINLESS STEEL.

SPHERICAL SPACERS AISI 304L STAINLESS STEEL.

COATING 100% FUSION BONDED EPOXY FOR ENHANCED CORROSION PROTECTION. NOMINAL THICKNESS 14 MIL.

NUTS & BOLTS AISI 304 STAINLESS STEEL. ROLLED THREAD AND ANTI-GALLING COATING.

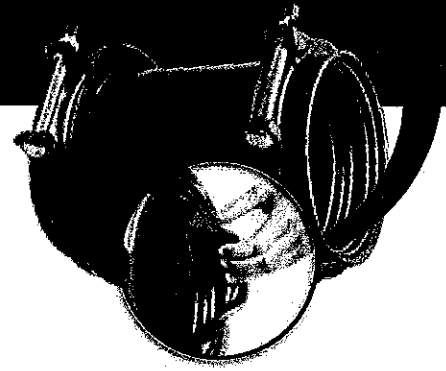
HYMAX[®]

Repair the past. Connect the future.

KRAUSZ is the creator of HYMAX

PRODUCT SPECIFICATIONS

HYMAX 2



PRODUCT PERFORMANCE (*)

WORKING TEMPERATURE	-20°F UP TO +125°F
DYNAMIC DEFLECTION	UP TO 4° PER SIDE
MIN. PIPE INSERTION	2.25"
MAXIMUM OFFSET FOR MISALIGNED PIPES	0.51"
MAXIMUM OUT OF ROUNDES	0.31"
WORKING PRESSURE	260
RATED PRESSURE	390
VACUUM TEST	12 PSI

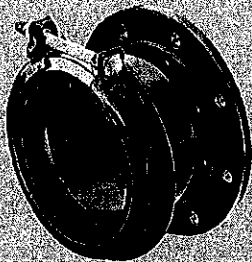
* See Submittal Drawings For Details.

PRODUCT TABLES

HYMAX® 2 NOMINAL SIZES (4" - 12")

Krausz Part Number	Nominal Diameter (inch)	Overall Range (inch)	Range in closed gasket position (inch)	Range in open gasket position (inch)	Bolt Qty. and Size (mm)	Torque (Ft-Lbs)	Approx. Weight (Lbs)
860-54-0108-16	4	4.25-5.63	4.25-5.00	4.92-5.63	2 -M14	75	15
860-54-0130-16	5	5.12-6.38	5.12-5.75	5.71-6.38	2 -M14	75	19
860-54-0163-16	6	6.42-7.68	6.42-7.05	7.01-7.68	2 -M14	75	23
860-54-0190-16	7	7.48-8.74	7.48-8.11	8.07-8.74	2 -M14	75	24
860-54-0217-16	8	8.54-9.84	8.54-9.17	9.13-9.84	2 -M14	75	28
860-54-0272-16	10	10.70-12.00	10.70-11.37	11.33-12.00	2 -M14	75	32
860-54-0278-16	10	10.96-12.26	10.96-11.63	11.59-12.26	2 -M14	75	33
860-54-0315-16	12	12.40-13.66	12.40-13.03	12.99-13.66	2 -M14	80	39
860-54-0334-16	12	13.15-14.41	13.15-13.78	13.74-14.41	2 -M14	80	39

For specific sizes of products in stock, call Krausz for details.



HYMAX[®]

FLANGE ADAPTOR AND HYMAX
LONG BODY FLANGE ADAPTOR
(1.5" - 60")



PRODUCT SPECIFICATIONS

FEATURES

- USING THE GAME-CHANGING HYMAX TECHNOLOGY, PROVEN IN OVER 1M INSTALLATIONS IN THE US
- SUITABLE FOR ALL TYPES OF PIPES - DUCTILE IRON, CAST IRON, STEEL, COPPER, PE, PVC, AC, GRP
- PATENTED HYDRAULICALLY-ASSISTED GASKET WITH 2-STAGE SEALING
- LIGHTWEIGHT CONSTRUCTION ENABLES FAST AND EASY INSTALLATION
- ALLOWS 4° DYNAMIC DEFLECTION, REDUCING FUTURE PIPE DAMAGE

SPECIFICATIONS

STANDARDS

HYMAX[®] FLANGE ADAPTOR AND LONG BODY FLANGE ADAPTOR MEET OR EXCEED REQUIREMENTS OF STANDARDS: AWWA C219, NSF-61 AND NSF-372.

SIZE/LENGTH

AVAILABLE IN NOMINAL DIAMETER FROM 1.5" - 24" STANDARD.
26"-60" MTO (MADE TO ORDER). CONTACT KRAUSZ FOR DETAILS.

MATERIALS

FLANGED BODY

1.5"-12" ASTM A53 GRADE A STEEL.
14"-60" ASTM A283 / A283M GRADE C STEEL.

FLANGE

1.5"-2" OVAL FLANGE FOR FLOW METER.
3" MEETS ANSI B16.5.
4"-24" MEETS AWWA CLASS D.
26"-60" CONTACT KRAUSZ FOR DETAILS.

END RINGS

1.5" - 12" ASTM A283 / A283M GRADE C STEEL.
14" - 16" ASTM A283 / A283M GRADE C STEEL.
(OR DUCTILE IRON CASTING ASTM A536 GRADE 60-40-18).
18"-60" ASTM A283 / A283M GRADE C STEEL.

SPHERICAL SPACERS

AISI 304L STAINLESS STEEL.

GASKET

EPDM COMPOUNDED FOR WATER AND SEWERAGE,
MEETS INTERNATIONAL STANDARDS FOR CONTACT WITH DRINKING WATER.

BRIDGE

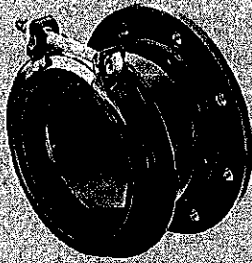
AISI 304 STAINLESS STEEL.

COATING

100% FUSION BONDED EPOXY FOR ENHANCED CORROSION PROTECTION.
NOMINAL THICKNESS 14 MIL.

NUTS AND BOLTS

AISI 304 STAINLESS STEEL. ROLLED THREAD AND ANTI-GALLING COATING.



HYMAX[®]

**FLANGE ADAPTOR AND HYMAX
LONG BODY FLANGE ADAPTOR
(1.5" - 60")**



PRODUCT SPECIFICATIONS

PRODUCT PERFORMANCE (*)

WORKING TEMPERATURE	-20°F UP TO +125°F			
DYNAMIC DEFLECTION	UP TO 4°			
MIN. PIPE INSERTION	1.5" - 12" 2.25"	14" - 60" 4"		
MAXIMUM OFFSET FOR MISALIGNED PIPE	1.5" - 3" 0.2"	4" - 60" 0.24"		
MAXIMUM OUT OF ROUNDNESS	1.5" 0.08"	2" - 3" 0.20"	4" - 12" 0.31"	14" - 60" 0.51"
WORKING PRESSURE	1.5" - 24": 175 PSI (26" - 60": CONTACT KRAUSZ FOR DETAILS)			
RATED PRESSURE	1.5" - 24": 262 PSI (26" - 60": CONTACT KRAUSZ FOR DETAILS)			
VACUUM TEST	12 PSI			

* SEE SUBMITTAL DRAWINGS FOR DETAILS.

PRODUCT TABLES

HYMAX FLANGE ADAPTOR NOMINAL SIZE 1.5"-2"

Krausz Part Number	Nominal Diameter (inch)	Flange	Overall Range (inch)	Before removal of the inner layer (inch)	After removal of the inner layer (inch)	Bolts Qty. and Size (mm)	Torque (Ft-Lbs)	Working Pressure (PSI)	Rated Pressure (PSI)	Approx. Weight (Lbs)
874-56-01004112	1.5"	1.5"	1.61-2.13	1.61-1.97	1.96-2.13	1-M12	35	175	262	7
874-56-02005412	2"	2"	2.10-3.03	2.10-2.60	2.56-3.03	1-M12	50	175	262	8

HYMAX FLANGE ADAPTOR NOMINAL SIZE 3"-12"

Krausz Part Number	Nominal Diameter (inch)	Flange	Overall Range (inch)	Before removal of the inner layer (inch)	After removal of the inner layer (inch)	Bolts Qty. and Size (mm)	Torque (Ft-Lbs)	Working Pressure (PSI)	Rated Pressure (PSI)	Approx. Weight (Lbs)
874-56-03008812	3"	3"	3.46-4.33	3.46-3.90	3.86-4.33	1-M12	50	175	262	12
874-56-04010812	4"	4"	4.25-5.63	4.25-5.00	4.92-5.63	1-M14	65	175	262	14
874-56-05013012	5"	5"	5.12-6.38	5.12-5.75	5.71-6.38	1-M14	65	175	262	21
874-56-06013012	5"	6"	5.12-6.38	5.12-5.75	5.71-6.38	1-M14	65	175	262	22
874-56-06016312	6"	6"	6.42-7.68	6.42-7.05	7.01-7.68	1-M14	65	175	262	23
874-56-08019012	7"	8"	7.48-8.74	7.48-8.11	8.07-8.74	1-M14	65	175	262	31
874-56-08021712	8"	8"	8.54-9.84	8.54-9.17	9.13-9.84	1-M14	65	175	262	32
874-56-10027212	10"	10"	10.70-12.00	10.70-11.37	11.33-12.00	1-M14	65	175	262	38
874-56-10027812	10"	10"	10.96-12.26	10.96-11.63	11.59-12.26	1-M14	65	175	262	41
874-56-12031512	12"	12"	12.40-13.66	12.40-13.03	12.99-13.66	1-M14	65	175	262	52
874-56-12033412	12"	12"	13.15-14.41	13.15-13.78	13.74-14.41	1-M14	65	175	262	57

HYMAX FLANGE ADAPTOR NOMINAL SIZE 14"-24"

Krausz Part Number	Nominal Diameter (inch)	Flange	Overall Range (inch)	Before removal of the inner layer (inch)	After removal of the inner layer (inch)	Bolts Qty. and Size (mm)	Torque (Ft-Lbs)	Working Pressure (PSI)	Rated Pressure (PSI)	Approx. Weight (Lbs)
874-56-14037812	14"	14"	15.00-17.10	15.00-16.10	16.02-17.10	2-M16	150	175	262	115
874-56-16043412	16"	16"	17.10-19.20	17.10-18.19	18.11-19.20	2-M16	150	175	262	125
874-56-18048812	18"	18"	19.20-21.30	19.20-20.29	20.21-21.30	2-M16	150	175	262	135
874-56-20054012	20"	20"	21.25-23.35	21.25-22.35	22.27-23.35	2-M16	150	175	262	155
874-56-24060612	24"	24"	23.85-25.95	23.85-24.96	24.88-25.95	2-M16	150	175	262	184
874-56-24062412	24"	24"	24.60-26.70	24.60-25.67	25.59-26.70	2-M16	150	175	262	187

HYMAX FLANGE ADAPTOR NOMINAL SIZE 26"-60"

26"-60" - MTO (MADE TO ORDER) IS AVAILABLE

PRODUCT TABLES

HYMAX FLANGE ADAPTOR LONG BODY NOMINAL SIZE 1.5"-12"

Krausz Part Number	Nominal Diameter (inch)	Flange	Overall Range (inch)	Before removal of the inner layer (inch)	After removal of the inner layer (inch)	Bolts Num. and Size (mm)	Torque (Ft-Lbs)	Working Pressure (PSI)	Rated Pressure (PSI)	Approx. Weight (Lbs)
974-56-0100412	1.5"	1.5"	1.61-2.13	1.61-1.97	1.96-2.13	1 -M12	35	175	262	9
974-56-02005412	2"	2"	2.10-3.03	2.10-2.60	2.56-3.03	1 -M12	50	175	262	10
974-56-03008812	3"	3"	3.46-4.33	3.46-3.90	3.86-4.33	1 -M12	50	175	262	16
974-56-04010812	4"	4"	4.25-5.63	4.25-5.00	4.92-5.63	1 -M14	65	175	262	23
974-56-05013012	5"	5"	5.12-6.38	5.12-5.75	5.71-6.38	1 -M14	65	175	262	30
974-56-06013012	5"	6"	5.12-6.38	5.12-5.75	5.71-6.38	1 -M14	65	175	262	33
974-56-06016312	6"	6"	6.42-7.68	6.42-7.05	7.01-7.68	1 -M14	65	175	262	36
974-56-08019012	7"	8"	7.48-8.74	7.48-8.11	8.07-8.74	1 -M14	65	175	262	42
974-56-08021712	8"	8"	8.54-9.84	8.54-9.17	9.13-9.84	1 -M14	65	175	262	49
974-56-10027212	10"	10"	10.70-12.00	10.70-11.37	11.33-12.00	1 -M14	65	175	262	56
974-56-10027812	10"	10"	10.96-12.26	10.96-11.63	11.59-12.26	1 -M14	65	175	262	60
974-56-12031512	12"	12"	12.40-13.66	12.40-13.03	12.99-13.66	1 -M14	65	175	262	61
974-56-12033412	12"	12"	13.15-14.41	13.15-13.78	13.74-14.41	1 -M14	65	175	262	63

HYMAX FLANGE ADAPTOR LONG BODY NOMINAL SIZE 14"-24"

Krausz Part Number	Nominal Diameter (inch)	Flange	Overall Range (inch)	Before removal of the inner layer (inch)	After removal of the inner layer (inch)	Bolts Num. and Size (mm)	Torque (Ft-Lbs)	Working Pressure (PSI)	Rated Pressure (PSI)	Approx. Weight (Lbs)
974-56-14037812	14"	14"	15.00-17.10	15.00-16.10	16.02-17.10	2 -M16	150	175	262	117
974-56-16043412	16"	16"	17.10-19.20	17.10-18.19	18.11-19.20	2 -M16	150	175	262	133
974-56-18048812	18"	18"	19.20-21.30	19.20-20.29	20.21-21.30	2 -M16	150	175	262	142
974-56-20054012	20"	20"	21.25-23.35	21.25-22.35	22.27-23.35	2 -M16	150	175	262	151
974-56-24060612	24"	24"	23.85-25.95	23.85-24.96	24.88-25.95	2 -M16	150	175	262	168
974-56-24062412	24"	24"	24.60-26.70	24.60-25.67	25.59-26.70	2 -M16	150	175	262	173

HYMAX FLANGE ADAPTOR LONG BODY NOMINAL SIZE 26"-60"

26"-60" - MTO (MADE TO ORDER) IS AVAILABLE

PS0007 REV A



PACE SUPPLY CORP
 8400 24TH AVE.
 SACRAMENTO CA 95826
 916-386-8347

Quote#	Q224898
Quote Date	06/03/26
Page#	1

QUOTATION

OLIVEHURST PUBLIC UTIL DIST P O BOX 670 OLIVEHURST, CA 95961	23449-00	Expiration Date	06/30/26	Requested By	
		FOB	OT	Prepared By	RICK MERRI rmerri@pacesupply.com
Ship To: OLIVEHURST PUBLIC UTIL DIST 3908 MARY AVE OLIVEHURST, CA 95961				Salesperson	Steven Wright
		Job Name			

WE ARE PLEASED TO QUOTE YOU ON THE FOLLOWING MATERIAL

Ln#	Part Number	Description	Price	Qty	Unit	Extended Price
1	forfb11004qnl	1 MIP X COMP CTS Q LF BRS CORP BALL STOP FORD	78.00	160	EA	12480.00
2	forba43444wqnl	1 CTS Q X MN LF BRS ANGLE BALL METER VLV W/ LW FORD	140.00	160	EA	22400.00
3	FORA24NL	5/8 X 3/4 TO 1 LF ADPT METER (1=2PCS) FORD	31.00	80	PR	2480.00
4	WPP1100BLK	1X100 CTS 250PSI SDR9 BLACK PE4710	60.00	35	RL	2100.00
5	FOR202B1212IP4	10 X 1 IP BRS 11.10-12.12 DBL STRAP SADDLE FORD	197.00	30	EA	5910.00
6	FORS912804	8 PVC X 1 IP BRS 2-PC BOLTED SADDLE F/ C900 FORD	82.00	10	EA	820.00
7	FOR202B962IP4	8 X 1 IP BRS 9.05-9.62 DBL STRAP SADDLE FORD	163.00	95	EA	15485.00
8	FORS911204	12 PVC X 1 IP BRS 2-PC BOLTED SADDLE F/ C900 FORD	238.00	30	EA	7140.00
9	TRW10BLU45	10 GA 45 MIL BLUE COATED TRACER WIRE 500FT MIN	35.00	4000	CF	1400.00
10	TRWCSBCS8	COPPER SPLIT BOLT CONN 16 - 8GA S8	5.00	160	EA	800.00
11	PVPDR186	6 X 20 PVC C900 DR18 BLUE PIPE	935.00	20	CF	187.00
12	PVPDR188	8 X 20 PVC C900 DR18 BLUE PIPE	1600.00	300	CF	4800.00
13	PVPDR1812	12 X 20 PVC C900 DR18 BLUE PIPE	3280.00	20	CF	656.00
14	DCFCROSSFLG128	12*8 FLG CROSS AC CL	1664.00	1	EA	1664.00
15	DCFREDFLG86	8*6 FLG REDUCER AC CL	294.00	1	EA	294.00
16	DCFREDFLG128	12*8 FLG REDUCER AC CL	625.00	1	EA	625.00
17	DCF2212MJ8	8 MJ 22 1/2 ELL AC CL	172.00	2	EA	344.00
18	DCF2212MJFLG8	8 MJ*FLG 22 1/2 ELL AC CL	292.00	1	EA	292.00
19	WGVFF8	8 FLG*FLG C509 DI GATE VALVE	1475.00	2	EA	2950.00
20	WGVMF12	12 MJ*FLG C509 DI GATE VALVE	2550.00	1	EA	2550.00
21	WGVFF6	6 FLG*FLG C509 DI GATE VALVE	947.00	1	EA	947.00
22	DCFACCRETPVC6	6 RET WEDGE ACTION ACC PVC	66.00	2	EA	132.00
23	DCFACCRETPVC8	8 RET WEDGE ACTION ACC PVC	89.00	3	EA	267.00
24	DCFACCRETPVC12	12 RET WEDGE ACTION ACC PVC	162.00	1	EA	162.00
25	WBLBS1012	10 - 12 BOLT SET PLTD 307A (12) 7/8 X 4	20.00	2	EA	40.00
26	WBLBS8	8 BOLT SET PLTD 307A (8) 3/4 X 3 1/2	8.00	8	EA	64.00
27	STTRG8	8 STAR TITE FLG RING GASKET STAR PIPE	20.50	4	EA	82.00
28	STTRG6	6 STAR TITE FLG RING GASKET STAR PIPE	14.50	4	EA	58.00
29	STIFFG12	12 STAR TITE FULL FACE GASKET STAR PIPE	35.50	2	EA	71.00
30	STIFFG8	8 STAR TITE FULL FACE GASKET STAR PIPE	20.50	2	EA	41.00
31	HYM2CPLG12	12 CPLG 12.40-13.66 OD 860-54-0315-16 HYMAX2	613.00	1	EA	613.00
32	HYMFA8	8 FLG ADPT 8.54-9.84 OD 874-54-08021712 HYMAX	530.00	1	EA	530.00
33	DCF2212MJFLG6	6 MJ*FLG 22 1/2 ELL AC CL	203.00	1	EA	203.00

Subtotal	88587.00
Estimated Sales Tax	7308.43
Estimated Freight	0.00
Total	95895.43



Rich Surratt
 Outside Sales - One Utility
 Utility Infrastructure

Ferguson Waterworks
 7601 14TH Ave
 Sacramento, CA 95820
 (279) 204-8621 Mobile
 (916) 381-6100 Office
 rich.surratt@ferguson.com
 fergusonwaterworks.com



VT PUBLIC UTILITY DISTRICT

REQUEST FOR SEALED BID'S

(DATE) MAY 21, 2026

Utility District

WATER MAIN & SERVICE LINE MATERIAL RFB

TO: Contractor / Bidder

BID DUE DATE: June 12, 2026 2:00 P.M.

BID OPENING DATE/TIME: June 12, 2026 Shortly after Bid Due Date.

SUBMIT BID

TO: **Olivehurst Public Utility District**
 1970 9th Avenue
 Olivehurst, CA 95961
 (530) 682-0736

Notice is hereby given to all prospective Contractors /Suppliers to **submit a sealed BID** on or before the above date. Contractor / Supplier agree to supply all equipment described in the available CONTRACT DOCUMENTS consisting of Plans, proposal document and Specifications. OPUD is looking for BIDS for the purchase of various water service material and pipe material. Copies of the CONTRACT DOCUMENTS may be obtained from Olivehurst Public Utility District, upon the non-refundable payment of \$ 50 per set, or you may request a free electronic copy from the District Public Works Manager via email at sboyal@opud.org.

Any question should be submitted to the Public Works manager via email at sboyal@opud.org or via phone at 530-682-0736. All questions are due by **Wednesday, June 3rd at 2 PM** for Clarification or addendum items.

Sincerely,

Swarnjit Boyal

Swarnjit Boyal, MS
 Public Works Manager

OLIVEHURST PUBLIC UTILITY DISTRICT
 1970 9TH Avenue
 Olivehurst, CA 95961
 Phone: (530) 682-0736

OLIVEHURST PUBLIC UTILITY DISTRICT
NOTICE OF REQUEST FOR SEALED BID'S

(DATE) MAY 21, 2026

OWNER: **Olivehurst Public Utility District**
PROJECT: **OPUD WATER MAIN & SERVICE LINE MATERIAL RFB**

TO: Contractor / Bidder

BID DUE DATE: June 12, 2026 2:00 P.M.

BID OPENING DATE/TIME: June 12, 2026 Shortly after Bid Due Date.

SUBMIT BID

TO: **Olivehurst Public Utility District**
1970 9th Avenue
Olivehurst, CA 95961
(530) 682-0736

Notice is hereby given to all prospective Contractors /Suppliers to **submit a sealed BID** on or before the above date. Contractor / Supplier agree to supply all equipment described in the available CONTRACT DOCUMENTS consisting of Plans, proposal document and Specifications. OPUD is looking for BIDS for the purchase of various water service material and pipe material. Copies of the CONTRACT DOCUMENTS may be obtained from Olivehurst Public Utility District, upon the non-refundable payment of \$ 50 per set, or you may request a free electronic copy from the District Public Works Manager via email at sboyal@opud.org.

Any question should be submitted to the Public Works manager via email at sboyal@opud.org or via phone at 530-682-0736. All questions are due by **Wednesday, June 3rd at 2 PM** for Clarification or addendum items.

Sincerely,

Swarnjit Boyal

Swarnjit Boyal, MS
Public Works Manager

OLIVEHURST PUBLIC UTILITY DISTRICT
1970 9TH Avenue
Olivehurst, CA 95961
Phone: (530) 682-0736

OLIVEHURST PUBLIC UTILITY DISTRICT

Our mission is to provide high quality services to enhance our community's quality of life.



GENERAL MANAGER
John C. Tillotson

May 29, 2026

RFB – OPUD WATER MAIN & SERVICE LINE MATERIALS Addendum 1

To All Bidders,

The following Item for request on clarification, substitutes, and changes are being made to the OPUD WATER MAIN & SERVICE LINE MATERIAL Request for Bid:

Line item #1: QUESTION: for the requested item B-25028N Ball Corporation Stop Mueller, I wanted to bid the FORD FB1100-4Q-NL, Submittal attached, is this acceptable?

RESPONSE: This specification is acceptable

Line item #2: QUESTION: For the request item on the Angle Meter Valve 1" 110 CTS x Meter Nut Brass I wanted to bid the FORD BA43-444-W-Q-NL, Submittal attached, is this acceptable?

RESPONSE: This specification is acceptable

Line item #3: QUESTION: For the request item on the Bushing, 5/8 x 3/4 to 1" MNPT x Meter Nut Brass I wanted to bid for the FORD A-24-NL, Submittal attached, is this acceptable?

RESPONSE: This specification is acceptable

Line item # 14-16,18,33: QUESTION: For these line items, I'm wanting to confirm are fittings to be cement lined Bit coated. Line 17 is epoxy lined and coated.

RESPONSE: This specification can either be all epoxy line and coated or all cement lined and coated.

Line item# 21-24: QUESTION: This is for the Mechanical restraints. Do they have to be domestic or is Import acceptable, import submittal attached.

RESPONSE: This specification is NOT limited to domestic; import is acceptable.

Regards,

Swarnjit Boyal

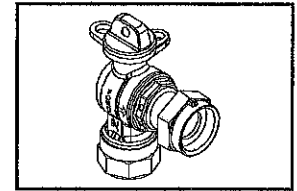
Swarnjit Boyal,
Public Works Manager

FERGUSON WATER WORKS

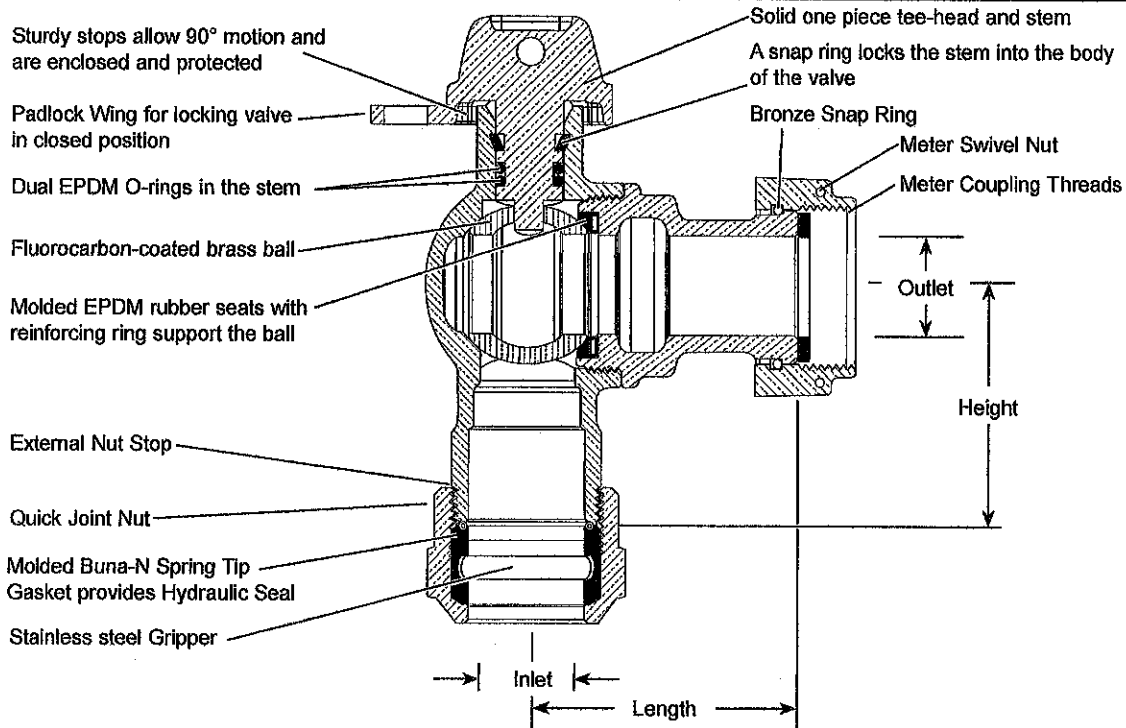
RFB - BID SHEET FOR WATER SERVICES MATERIAL SUBMITAL - BID FORM										
Title	Brend	Item #	MFG #	Unit of Measure	Quantity	Price	TOTAL			
1 B-25028N Bail Corporation Stop, 1 in, MNPT x 110 CTS, Brass	Mueller Co or similar	MUEB25028N1	025028330N	Each	160	81.00	12,960.00			
2 Angle Meter Valve, 1 in, 110 CTS x Meter Nut, Brass	Mueller Co or similar	MUEB24258N1	024258330N	Each	160	144.25	23,080.00			
3 Bushing, 5/8 x 3/4 to 1 in, MNPT x Meter Nut, Brass	Mueller Co or similar	MUEH10879N58341	H-10879N 5/8X3/4X1	Per Pair	80	37.60	3,008.00			
4 Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft, L, CTS	VARIES	WPP1100BLK	WPP1100BLK	Per Roll	35	57.00	1,995.00			
5 Double Strap Pipe Saddle, 10 in, 1 in FNPT	A.Y. McDonald or similar	MCD3826101	4148-035	Each	30	201.80	7,037.80			
6 Hinged Pipe Saddle, 8 in, 1 in FNPT	FORD or similar	FORS91804	S91-804	Each	10	83.32	833.20			
7 Double Strap Pipe Saddle, 8 in, 1 in FNPT	A.Y. McDonald or similar	MCD382681	4148-015	Each	95	162.30	15,418.50			
8 2-Piece Pipe Saddle, 12 in, 1 in FNPT	FORD or similar	FORS911204	S91-1204	Each	30	242.50	7,275.00			
9 Tracer Wire, 10 AWG, 45 mil, Blue, (500 ft rolls or spool)	VARIES	TRW10BLLU45	TRW10BLLU45	Each	8	420.80	1,683.20			
10 Copper Split Bolt Connector (Needs to be compatible with 10 AWG Tracer wire mentioned above)	VARIES	TRWCSBCS8	TRWCSBCS8	Each	160	5.26	841.60			
11 DR 18 PVC Pipe, 6 in, Belt x plain, 20ft L sticks, Blue	VARIES	PVPDR186	PVPDR186	LF	20	9.30	186.00			
12 DR 18 PVC Pipe, 8 in, Belt x plain, 20ft L sticks, Blue	VARIES	PVPDR188	PVPDR188	LF	300	16.45	4,935.00			
13 DR 18 PVC Pipe, 12 in, Belt x plain, 20ft L sticks, Blue	VARIES	PVPDR1812	PVPDR1812	LF	20	33.70	674.00			
14 Cross, 12 x 8 in, Flange, Cement Lined	Various Vendors	DCFROSSFLG128	DCFROSSFLG128	Each	1	1646.50	1,646.50			
15 Reducer Coupling, 8 x 6 in, Flange, Cement Lined	Various Vendors	DCFREDFLG86	DCFREDFLG86	Each	1	280.00	280.00			
16 Reducer Coupling, 12 x 8 in, Flange, Cement Lined	Various Vendors	DCFREDFLG128	DCFREDFLG128	Each	1	548.40	548.40			
17 22.5 deg Elbow, 8 in, Mechanical Joint, Fusion Bond Epoxy Coated	Various Vendors	DCF2212MJ8	DCF2212MJ8	Each	2	183.80	367.60			
18 22.5 deg Elbow, 8 in, Mechanical Joint x Flange, Cement Lined	Various Vendors	DCF2212MJFLG8	DCF2212MJFLG8	Each	1	269.46	269.46			
19 Non-Rising Stem Gate Valve, 8 in, Flange, Ductile Iron	Various Vendors	WGVFF8	WGVFF8	Each	2	1407.50	2,815.00			
20 Non-Rising Stem Gate Valve, 12 in, Mechanical Joint x Flange, Ductile Iron	Various Vendors	WGVMF12	WGVMF12	Each	1	3008.00	3,008.00			
21 Non-Rising Stem Gate Valve, 6 in, Flange, Ductile Iron	Various Vendors	WGVFF6	WGVFF6	Each	1	1,069.70	1,069.70			
22 Gland, 6 in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star® Pipe Products	STDSRETPVCAIS8	PVCPKS4006G2DD	Each	2	71.70	143.40			
23 Gland, 8 in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star® Pipe Products	STDSRETPVCAIS8	PVCPKS4006G2DD	Each	3	96.00	288.00			
24 Gland, 12 in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star® Pipe Products	STDSRETPVCAIS12	PVCPKS4012G2DD	Each	1	171.70	171.70			
25 Bolt Set, 10 to 12 in 150#, Zinc CR+3, Grade 2	Various Vendors	WBLBS1012	WBLBS1012	Each	2	25.90	51.80			
26 Bolt Set, 8 in 150#, Zinc CR+3, Grade 2	Various Vendors	WBLBS8	WBLBS8	Each	8	11.90	95.20			
27 Ring Gasket, 6 in, Star Title	Star® Pipe Products	STRG6	FAH08RG	Each	4	19.60	78.40			
28 Ring Gasket, 6 in, Star Title	Star® Pipe Products	STRG6	FAH08RG	Each	4	13.90	55.60			
29 Full Face Gasket, 12 in, Star Title	Star® Pipe Products	STFFG12	FAH12FFG	Each	2	31.40	62.80			
30 Full Face Gasket, 8 in, Star Title	Star® Pipe Products	STFFG8	FAH08FFG	Each	2	19.40	38.80			
31 860 Transition Coupling, 12 in, Various, Carbon Steel	HYMAX®	HYM2CPLG12	860-540-0315-16	Each	1	445.60	445.60			
32 874 Transition Coupling, 8 in, Flange x Various, Carbon Steel	HYMAX®	HYMFA8	874-54-08021712	Each	1	412.00	412.00			
33 22.5 deg Elbow, 6 in, Mechanical Joint x Flange, Cement Lined	Various Vendors	DCF2212MJFLG6	DCF2212MJFLG6	Each	1	200.00	200.00			
34						TAX (8.25%)	7,587.98			
						SUM	99,563.24			

SUBMITTAL INFORMATION

Angle Ball Meter Valves - (BA43-444W-Q-NL style)



QUICK JOINT FOR COPPER OR PLASTIC TUBING (CTS) INLET BY METER SWIVEL NUT OUTLET



VALVE SIZE	SERVICE LINE SIZE INLET	METER SIZE OUTLET	LENGTH	HEIGHT	APPROX. WT. LBS	PART NUMBER	✓ SUBMITTED ITEM(S)
1"	1"	1"	2-43/64"	2-29/64"	3.7	BA43-444W-Q-NL	

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI Standard 61 and NSF/ANSI Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- Hole for attaching handle is provided in tee-head
- 300 PSI working pressure
- Padlock Wing for locking valve in closed position
- Conforms to AWWA C700 for Meter threads
- Meter nut drilled for seal wire

Note: Recommended for inlet side shut-off.

Optional full 360° tee-head rotation. Add "R" to end of part number.

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



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

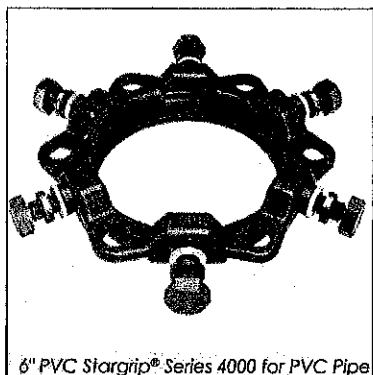
05/16/14

Submitted By:



PVC Stargrip® series 4000

Mechanical Joint Wedge Action Restraint for Plastic Pressure Pipe



6" PVC Stargrip® Series 4000 for PVC Pipe

SUBMITTAL INFORMATION:

PROJECT NAME:

[Empty text box for Project Name]

ENGINEER:

[Empty text box for Engineer]

CONTRACTOR:

[Empty text box for Contractor]

SPEC. SECTION:

[Empty text box for Spec. Section]



FEATURES & ADVANTAGES:

- The design has been proven in the market since 1992.
- Can be used on AWWA C900, AWWA C905 PVC pipe, IPS PVC pipe, AWWA C909 PVCO pipe, and HDPE pipe. See pressure rating table for approved DRs and sizes. Plastic pressure pipes manufactured to an IPS diameter regimen will require a transition gasket. HDPE pipe requires use of stainless steel pipe stiffener.
- Gland is made from high strength Ductile Iron per ASTM A536 Grade 65-45-12 and is compatible with all Mechanical Joints conforming to ANSI/AWWA C111/A21.11.
- Eliminates the need for tie rods and thrust blocks.
- Listed with Underwriters Laboratories and approved by Factory Mutual research in sizes 4"-12".
- Tested to and meets the requirements of ASTM F1674 through 14".
- The safety factor is twice (2:1) the standardized pressure rating listed on next page.
- Will fit any Mechanical Joint configuration, meaning compatibility with different types of installations.
- PVC Stargrip® offers 5° deflection through 12", 3° on 14"-24" and 2° on 30"-36".
- Larger ID allows easier installation on out-of-round pipe.
- Torque limiting bolts are designed to prevent over torquing.
- All sizes have curved wedges that do not flatten pipe.
- Standard gland color is Coral-Red (RAL 3016).

MATERIAL SPECIFICATIONS:

- Gland: Ductile Iron per ASTM A536, Grade 65-45-12
- Wedges: Ductile Iron per ASTM A536, Grade 65-45-12
 - Wedge Finish: Thermally cured fluoropolymer epoxy coating

GLAND FINISH OPTIONS (Please check one):

- Standard: alkyd enamel coating
- Optional: Starbond™ TGIC polyester powder coating applied by an electrostatic spray process
- Optional: Other (specify) _____

COUNTRY OF ORIGIN OPTION (Please check one):

- Import
 - 100% Domestic¹
 - Domestic gland with Import components¹
- ¹(Please see Domestic Restraint Options Available on our website.)

HARDWARE OPTIONS (Please check):

- Standard: T-bolts and nuts are high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11
- Optional: T-bolts alloy SS 304 per ASTM F593; Nuts alloy SS 304 per ASTM F594 CW
- Optional: T-bolts SS 316 per ASTM F593; Nuts SS 316 per ASTM A194 Grade 8M
- Optional: T-bolts and nuts Fluoropolymer Star-Blue coated high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11

STAR® PIPE PRODUCTS

REV.17.02

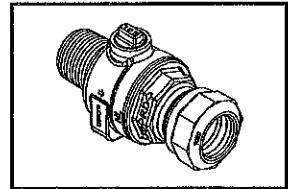


© REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

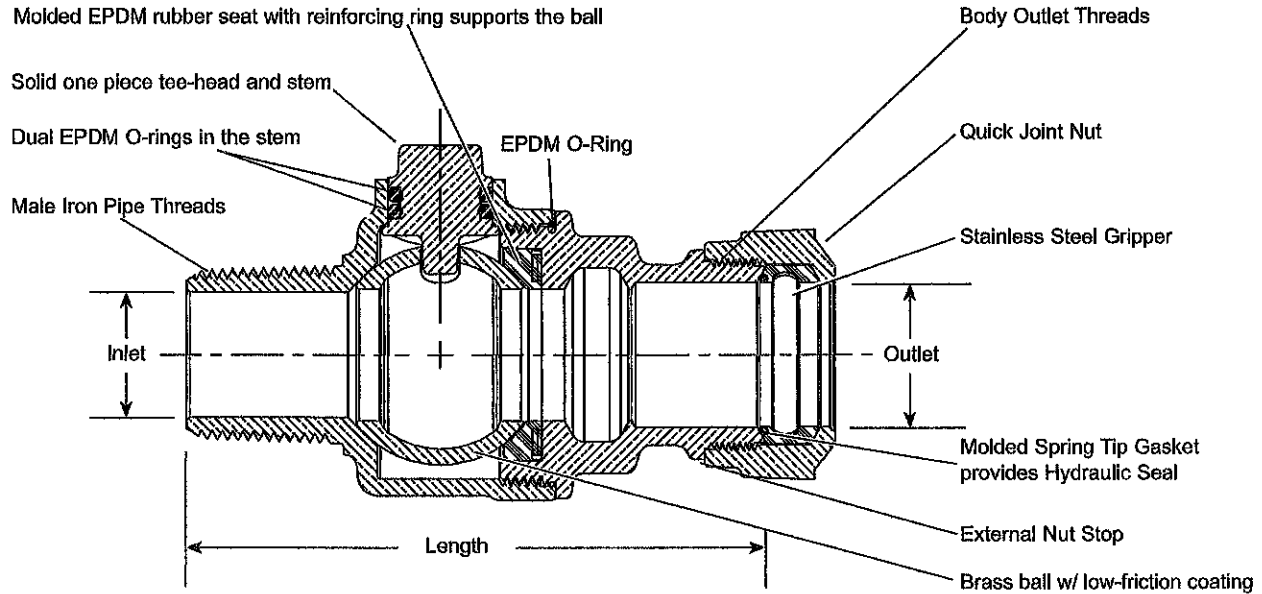
STAR® PIPE PRODUCTS HOUSTON CORPORATE | TOLL FREE 1-800-999-3009 | FAX 281-558-9000 www.starpipeproducts.com

SUBMITTAL INFORMATION

Ballcorp Corporation Stops - (FB1100-x-Q-NL style)



MALE IRON PIPE THREAD INLET BY QUICK JOINT FOR COPPER OR PLASTIC TUBING (CTS) OUTLET



Due to design variations related to sizing, items may differ from images above.

VALVE SIZE	INLET SIZE	OUTLET SIZE	VALVE LENGTH (IN.)	BODY OUTLET THREADS	APPROX. WT. LBS	PART NUMBER	✓ SUBMITTED ITEM(S)
3/4"	3/4"	3/4"	4-5/16	3/4" Flare Copper	1.8	FB1100-3-Q-NL	
1"	1"	1"	4-1/2	1" Flare Copper	2.7	FB1100-4-Q-NL	
1-1/4"	1-1/4"	1-1/4"	5-21/32	1-1/4" Special Thread	4.1	FB1100-5-Q-NL	
1-1/2"	1-1/2"	1-1/2"	5-11/16	1-1/2" Special Thread	4.9	FB1100-6-Q-NL	
2"	2"	2"	7-1/32	2" Special Thread	7.9	FB1100-7-Q-NL	

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

* 1-1/4" Quick Joint has EPDM spring tip gasket.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI/CAN Standard 61 and NSF/ANSI/CAN Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- 300 PSI working pressure

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current. Our standard warranty applies.



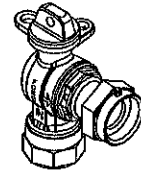
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
 Phone: 260-563-3171 / Fax: 800-826-3487
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www.fordmeterbox.com

12/12/25

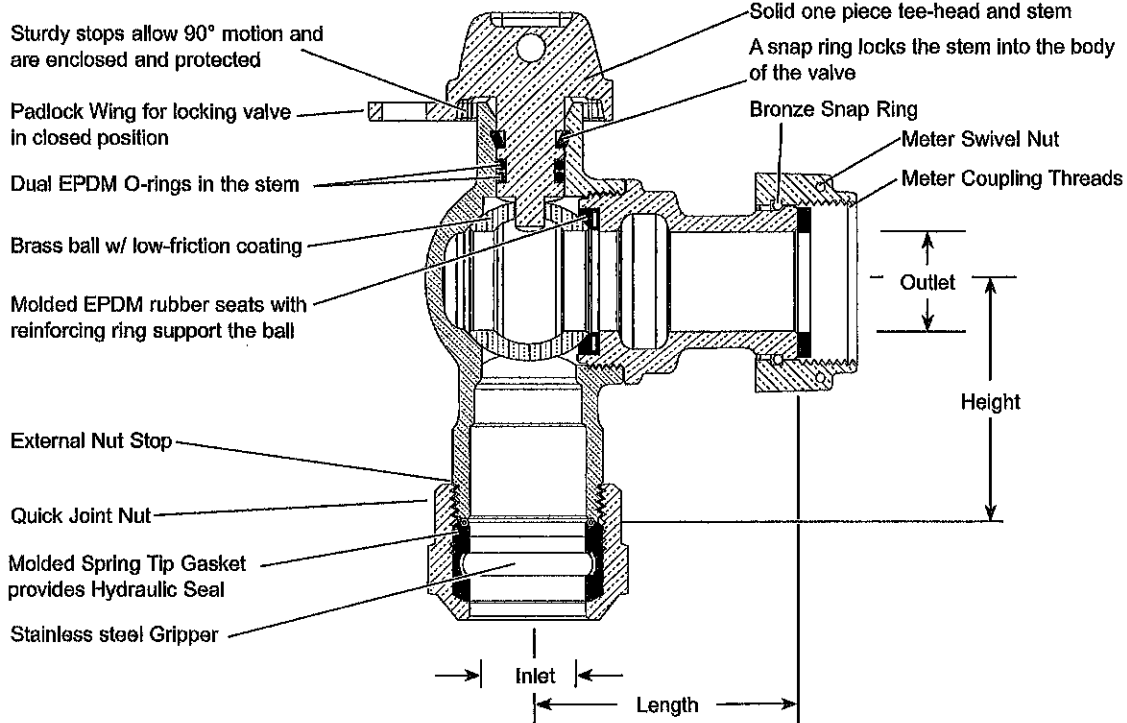
Submitted By:

SUBMITTAL INFORMATION

Angle Ball Meter Valves - (BA43-444W-Q-NL style)



QUICK JOINT FOR COPPER OR PLASTIC TUBING (CTS) INLET BY METER SWIVEL NUT OUTLET



VALVE SIZE	SERVICE LINE SIZE INLET	METER SIZE OUTLET	LENGTH (IN.)	HEIGHT (IN.)	APPROX. WT. LBS	PART NUMBER	✓ SUBMITTED ITEM(S)
1"	1"	1"	2-43/64	2-29/64	3.7	BA43-444W-Q-NL	

Note: Ford recommends using insert stiffeners with plastic pipe or tubing.

FEATURES

- All brass that comes in contact with potable water conforms to AWWA Standard C800 (ASTM B584, UNS C89833)
- The product has the letters "NL" cast into the main body for lead-free identification
- Certified to NSF/ANSI/CAN Standard 61 and NSF/ANSI/CAN Standard 372 where applicable
- Brass components that do not come in contact with potable water conform to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Ends are integral or secured with adhesive to prevent unintentional disassembly
- Hole for attaching handle is provided in tee-head
- 300 PSI working pressure
- Padlock wing for locking valve in closed position
- Conforms to AWWA C700 for meter threads
- Meter nut drilled for seal wire

Note: Recommended for inlet side shut-off.

Optional full 360° tee-head rotation. Add "R" to end of part number.

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current. Our standard warranty applies.



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

12/18/25

Submitted By:

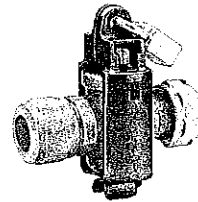
Rev. 4-20 Shaded area indicates changes



H-10887

Brass meter idler
Has same end-to-end and thread dimensions as meter. Used to continue service during meter repairs

Catalog size	5/8"	5/8" x 3/4"	3/4"	1"
Cover size	5/8"	5/8" x 3/4"	3/4"	1"
Length	7-1/2"	7-1/2"	9"	10-3/4"
Meter thread size	3/4"	1"	1"	1-1/4"



H-14338

Brass locking device (padlock and valve not included)
For use on Mueller® MARK II ORISEAL® Meter Valves - cannot be used on valves having angle lever handles.

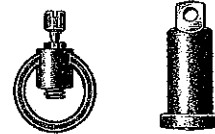
Catalog size	3/4"	1"
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Water meter increaser
Used on threaded ends of 5/8" meter to increase threads to 5/8 x 3/4 or 3/4 meter size (1" thread)
H-10888: for plain nuts
H-10888-99002: for saddle nuts

H-10888N H-10888N-02

Catalog size	5/8" x 3/4"	5/8" x 3/4"
Meter size	5/8"	5/8"
Length	11/16"	1"

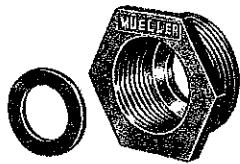


H-11091 H-11092

Lock wing sealing device
This device is used to detect unauthorized use of valve or stop. Used with lock wings drilled 3/8" or 1/2". The H-11090 is made up of a collar and set screw (H-11091) and a pin (H-11092). The pin is available in 3/8" or 1/2" sizes and the collar with set screw is used on both sizes.



H-11090



Meter bushing with rubber washer
Used on threaded ends of 5/8 x 3/4 or 3/4 meters to adapt to 1" meter thread size (1-1/4")
H-10889: for saddle nuts
H-10889-99000: for plain nuts

H-10889N H-10889N-00

Catalog size	3/4" x 1"	3/4" x 1"
Meter size	5/8" x 3/4", 3/4"	5/8" x 3/4", 3/4"
Length	1-1/4"	15-16"



Meter bushing with rubber washer (complete for both ends)
Used on threaded ends of 5/8x3/4 meter to adapt to 1" meter thread size (1-1/4") and standard length.



H-10879N

Catalog size	5/8" x 3/4"	5/8" x 1"	5/8" x 3/4" x 1"	3/4" x 1"	5/8" x 3/4" x 3/4"	1" x 1 1/2"	1" x 2"	1 1/2" x 2"
Meter size	5/8"	5/8"	5/8" x 3/4"	3/4"	5/8" x 3/4"	1"	1"	1 1/2"
Length	1.019"	2.062"	2.062"	1.13"	1.019"	1"	3"	1.875"



H-10893

Meter coupling washer
H-10893: Fiber washer

Catalog size	5/8"	3/4"	1"	1-1/4"	1-1/2" **	2" **
Meter size	5/8"	5/8" x 3/4", 3/4"	1"	1-1/4"	1-1/2"	2"

** Flange gasket for 1-1/2" and 2" sizes.



H-10895

Meter coupling washer
H-10895: Rubber washer

Catalog size	5/8"	3/4"	1"	1-1/4"	1-1/2" **	2" **
Meter size	5/8"	5/8" x 3/4", 3/4"	1"	1-1/4"	1-1/2"	2"

** Flange gasket for 1-1/2" and 2" sizes.

8E-COUPPLINGS/MISC.

Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft L, CTS, Black

Specifications

Type	Potable Water
Nominal Size	1 in
Length	100 ft
Color	Black
Pressure Rating	250 psi
End Style	CTS

Schedule Rating	SDR 9
Resin Type	4710
Brand	Approved Vendors

Manufacturer	Approved Vendors
Manufacturer Part Number	WPP1100BLK

FORD
Insert, 1 in, Insert, 304/304L
Stainless Steel

Part: FOR52
MFG:
INSERT-52



FORD
Adapter, 1 in, MNPT x CTS Quick
Joint, Lead Free Brass

Part: FORC8444QNL
MFG:
C84-44-Q-NL

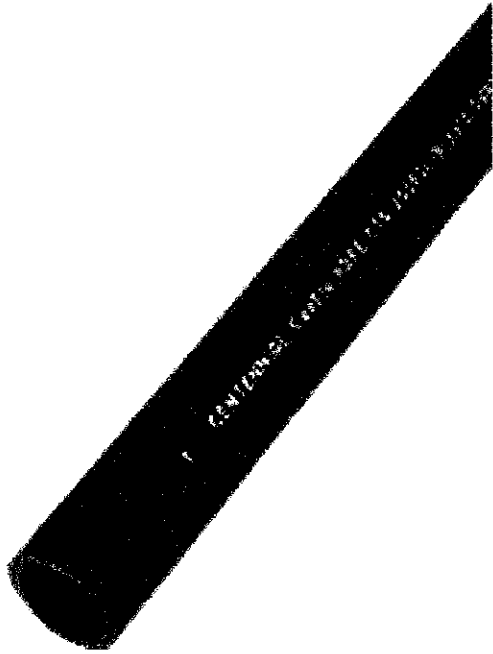


FORD
FB1100 Ball Corporation :
MNPT x CTS Quick Joint, I

Part: FORFB11004QNL
MFG:
FB1100-4-Q-NL

Actual Product Not Shown

Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft L, CTS, Black



Approved Vendors

Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft L, CTS, Black

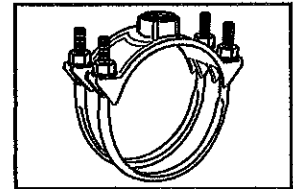
Part: WPP1100BLK **MFG:** WPP1100BLK

Description

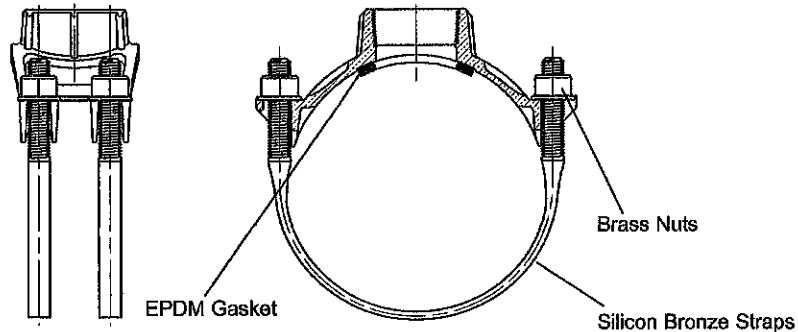
Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft L, CTS, Black

SUBMITTAL INFORMATION

Brass Saddles - (202B-xxxx-TAP style)



202B DOUBLE STRAP BRASS SADDLES FOR DUCTILE IRON PIPE ONLY



NOM. PIPE SIZE (In.)	PIPE O.D. (In.)	APPROX. Wt. LBS.	CATALOG NUMBER	✓ SUBMITTED ITEM(S)
6	6.90	7.7	202B-690-TAP	
8	9.05	8.8	202B-905-TAP	
10	11.10	10.7	202B-1110-TAP	
12	13.20	13.0	202B-1320-TAP	
14	15.30	18.0	202B-1530-TAP	
16	17.40	23.0	202B-1740-TAP	
18	19.50	25.0	202B-1950-TAP	
20	21.60	25.5	202B-2160-TAP	

OUTLET TAP CODE

CC (AWWA) THREAD		IP THREAD		✓ SUBMITTED ITEM(S)
THREAD	CODE NUMBER	THREAD	CODE NUMBER	
3/4" CC	CC3	3/4" IP	IP3	
1" CC	CC4	1" IP	IP4	
1-1/2" CC	CC6	1-1/2" IP	IP6	
2" CC	CC7	2" IP	IP7	

To Order: Select the catalog number for the desired pipe range and complete the catalog number by adding outlet thread tap code. Example: A double strap saddle for 13.20" D.I. pipe with a 3/4" CC thread would be 202B-1320-CC3.

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Straps are 5/8" high quality silicon bronze flattened to provide a wider bearing surface against pipe
- Gasket is EPDM rubber per ASTM D2000

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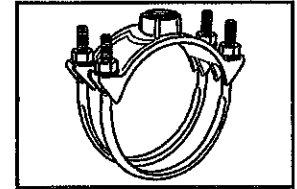
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
 Phone: 260-563-3171 / Fax: 800-826-3487
 Overseas Fax: 260-563-0167
www.fordmeterbox.com

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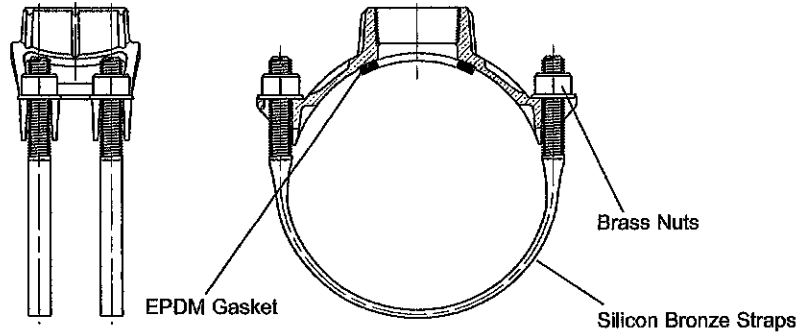
Submitted By:

SUBMITTAL INFORMATION

Brass Saddles - (202B-xxxx-TAP style)



202B DOUBLE STRAP BRASS SADDLES FOR DUCTILE IRON PIPE ONLY



NOM. PIPE SIZE (IN.)	PIPE O.D. (IN.)	APPROX. WT. LBS.	CATALOG NUMBER	✓ SUBMITTED ITEM(S)
6	6.90	7.7	202B-690-TAP	
8	9.05	8.8	202B-905-TAP	
10	11.10	10.7	202B-1110-TAP	
12	13.20	13.0	202B-1320-TAP	
14	15.30	18.0	202B-1530-TAP	
16	17.40	23.0	202B-1740-TAP	
18	19.50	25.0	202B-1950-TAP	
20	21.60	25.5	202B-2160-TAP	

OUTLET TAP CODE

CC (AWWA) THREAD		IP THREAD		✓ SUBMITTED ITEM(S)
THREAD	CODE NUMBER	THREAD	CODE NUMBER	
3/4" CC	CC3	3/4" IP	IP3	
1" CC	CC4	1" IP	IP4	
1-1/2" CC	CC6	1-1/2" IP	IP6	
2" CC	CC7	2" IP	IP7	

To Order: Select the catalog number for the desired pipe range and complete the catalog number by adding outlet thread tap code. Example: A double strap saddle for 13.20" D.I. pipe with a 3/4" CC thread would be 202B-1320-CC3.

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS C83600, 85-5-5-5)
- Straps are 5/8" high quality silicon bronze flattened to provide a wider bearing surface against pipe
- Gasket is EPDM rubber per ASTM D2000

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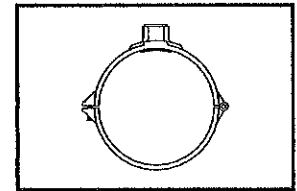
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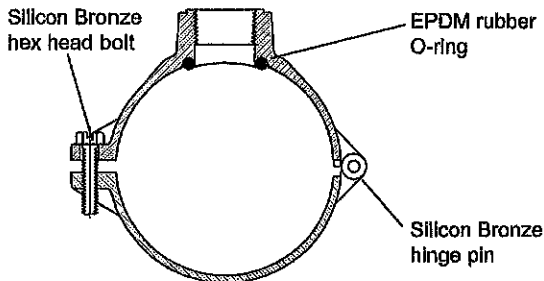
Submitted By:

SUBMITTAL INFORMATION

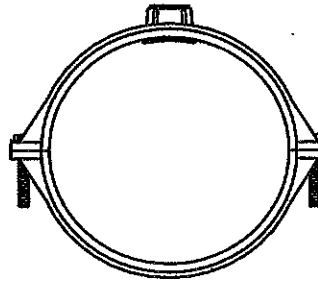
Brass Saddles For C900 PVC - (S91-xxx style)



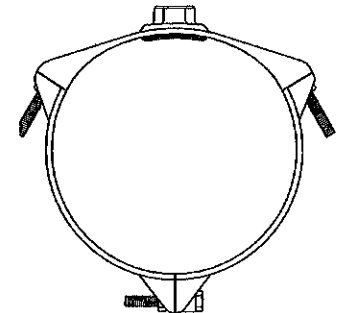
S91 BRASS SADDLES WITH IRON PIPE TAPS FOR C900 PVC PIPE



Style A (Hinged Design)



Style B 2-Piece (Bolted Design)



Style C 3-Piece (Bolted Design)

PVC PIPE SIZE	ACTUAL O.D.	TAP SIZE	APPROX. WT. LBS.	CATALOG NUMBER	STYLE	✓ SUBMITTED ITEM(S)
2"	2.50	1/2"	.9	S91-201	A	
		3/4"	1.1	S91-203	A	
4"	4.80	1/2"	1.8	S91-401	A	
		3/4"	1.8	S91-403	A	
		1"	2.0	S91-404	A	
		1-1/2"	6.5	S91-406	A	
		2"	6.4	S91-407	A	
6"	6.90	3/4"	2.6	S91-603	A	
		1"	2.6	S91-604	A	
		1-1/2"	8.9	S91-606	A	
		2"	7.3	S91-607	A	
8"	9.05	1/2"	2.8	S91-801	A	
		3/4"	2.8	S91-803	A	
		1"	3.2	S91-804	A	
		1-1/2"	8.0	S91-806	A	
		2"	8.5	S91-807	A	
10"	11.10	3/4"	9.3	S91-1003	B	
		1"	9.1	S91-1004	B	
		1-1/2"	10.5	*S71-S91-1006	C	
		2"	10.5	*S71-S91-1007	C	
12"	13.20	3/4"	11.1	S91-1203	B	
		1"	11.0	S91-1204	B	
		1-1/2"	11.5	*S71-S91-1206	C	
		2"	11.0	*S71-S91-1207	C	

* These saddles will cover Steel size PVC and C900 PVC O.D. range.

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS NO C83600 - 85-5-5-5)
- Style A Saddle body and strap permanently held together with silicon bronze pin for saddles sized 2" thru 8"
- Bolt is 5/16" slotted hex head silicon bronze for saddles sized 2" thru 8"
- A three-piece bolted design is used for S91 Saddles sized 10" and 12" with 1-1/2" and 2" taps, two-piece for 3/4" and 1" taps
- All 10" and 12" saddles are held together with 1/2" silicon bronze bolts (3/4" hex head)
- 150 psi working pressure rating

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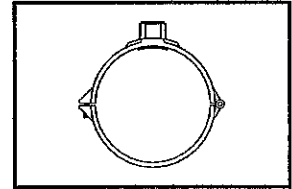
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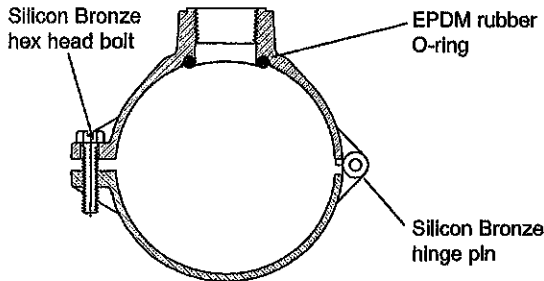
Submitted By:

SUBMITTAL INFORMATION

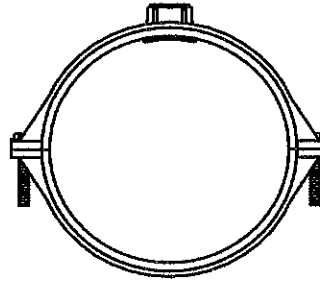
Brass Saddles For C900 PVC - (S91-xxx style)



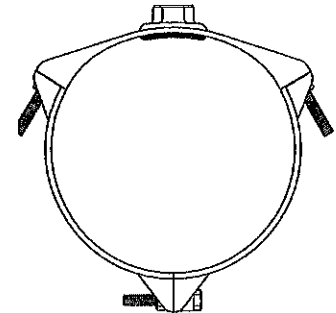
S91 BRASS SADDLES WITH IRON PIPE TAPS FOR C900 PVC PIPE



Style A (Hinged Design)



Style B 2-Piece (Bolted Design)



Style C 3-Piece (Bolted Design)

PVC PIPE SIZE	ACTUAL O.D.	TAP SIZE	APPROX. WT. LBS.	CATALOG NUMBER	STYLE	✓ SUBMITTED ITEM(S)
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		3/4"	1.1	S91-203	A	
4"	4.80	1/2"	1.8	S91-401	A	
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		1-1/2"	6.5	S91-406	A	
		2"	6.4	S91-407	A	
6"	6.90	3/4"	2.6	S91-603	A	
		1"	2.6	S91-604	A	
		1-1/2"	8.9	S91-606	A	
		2"	7.3	S91-607	A	
8"	9.05	1/2"	2.8	S91-801	A	
		3/4"	2.8	S91-803	A	
		1"	3.2	S91-804	A	
		1-1/2"	8.0	S91-806	A	
		2"	8.5	S91-807	A	
10"	11.10	3/4"	9.3	S91-1003	B	
		1"	9.1	S91-1004	B	
		1-1/2"	10.5	*S71-S91-1006	C	
		2"	10.5	*S71-S91-1007	C	
12"	13.20	3/4"	11.1	S91-1203	B	
		1"	11.0	S91-1204	B	
		1-1/2"	11.5	*S71-S91-1206	C	
		2"	11.0	*S71-S91-1207	C	

* These saddles will cover Steel size PVC and C900 PVC O.D. range.

FEATURES

- All brass conforms to AWWA Standard C800 (ASTM B62 and ASTM B584, UNS NO C83600 - 85-5-5-5)
- Style A Saddle body and strap permanently held together with silicon bronze pin for saddles sized 2" thru 8"
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- 150 psi working pressure rating

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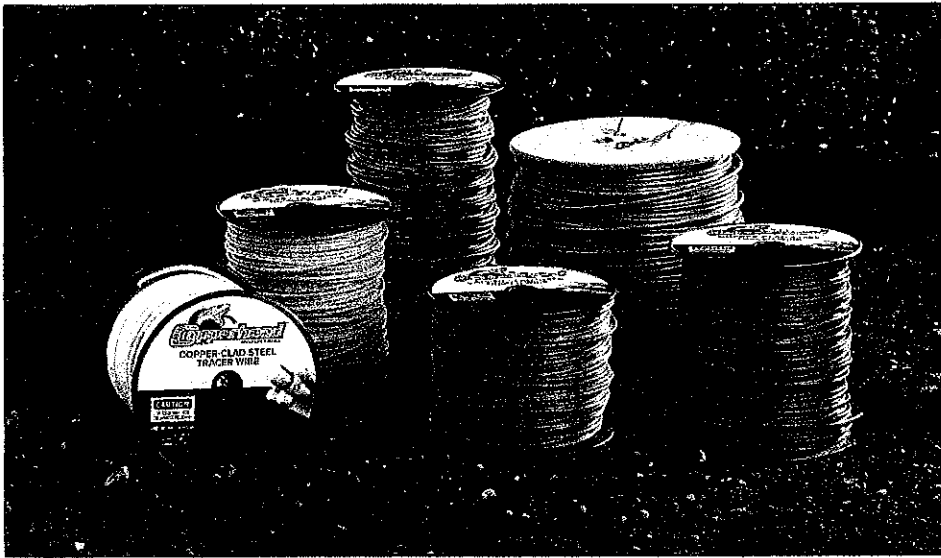
Submitted By:



SOLOSHOT™ EXTRA-HIGH STRENGTH – 1045 CCS TRACER WIRE

APPLICATION

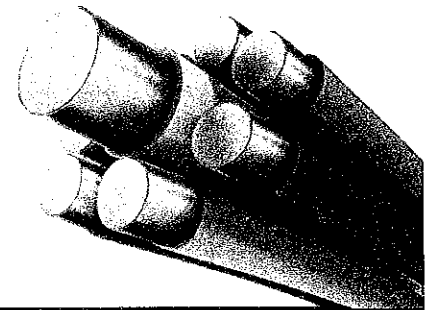
Copper-clad steel (CCS) tracer wire. Install with underground plastic utility pipes, wires, and cables to ensure future location. Best choice for horizontal directional drilling/boring applications when ground above the utilities cannot be disturbed because buildings, roadways, or other obstructions may be in the way.



Product Description

#10 AWG (0.1019" diameter) hard drawn, high carbon 1055 grade steel, extra-high strength solid copper-clad steel conductor (EHS-CCS) rated at 30 volts, insulated with a 45 mil, high-density, high molecular weight polyethylene (HDPE) insulation rated for direct burial use at 600 volts.

1045*-EHS-500 – 500' spool
 1045*-EHS-1000 – 1000' spool
 1045*-EHS-2500 – 2500' spool
 (* denotes color, pg. 2)



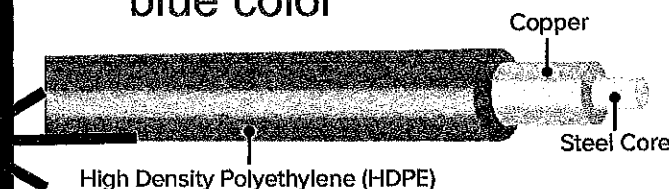
FEATURES AND BENEFITS

- 45 mil HDPE insulation
- 2,032 lb break load
- 6 times the breaking strength of solid copper
- Lighter than solid copper means reduced freight expenses
- Copper-clad steel (CCS) wire combines the strength of hard drawn high-carbon steel with the conductivity and corrosion resistance of solid copper
- Bonded metals mean no separating, no corrosion, and no theft appeal
- More stable pricing than solid copper
- Provided exclusively by Copperhead Industries
- Rated for direct bury
- Color-coded to meet American Public Works (APWA) standards for utility identification

APWA UNIFORM COLOR CODE

[Color swatch]	SEWER
[Color swatch]	GAS
[Color swatch]	COMMUNICATION
[Color swatch]	POTABLE WATER
[Color swatch]	NON-POTABLE WATER

blue color



SPECIFICATIONS

PART #: 1045*-EHS-**

10 (AWG), 45 (insulation mil), * (Indicates insulation color: Y=Yellow, B=Blue, G=Green, N=Orange, P=Purple, R=Red, BN=Brown, K=Black, W=White), EHS (Extra-High Strength), ** (indicates spool size: 500, 1000 or 2500 foot lengths)

MADE IN USA

Copperhead® copper-clad steel tracer wire is 100% made in the USA.

PRODUCT DESCRIPTION

Tracer wire for directional drilling/boring shall be Copperhead® SoloShot™ #10 AWG (0.1019" diameter) hard drawn, high carbon 1055 grade steel, solid extra-high-strength copper-clad steel conductor (EHS-CCS) rated at 30 volts, insulated with 45 mil, high-density, high molecular weight polyethylene (HDPE) insulation rated for direct burial use at 600 volts. EHS-CCS conductor must be at 21% conductivity for locate purposes. Break load of 2032 lbs. HDPE insulation shall be RoHS compliant and utilize virgin grade material. Insulation color shall meet the APWA color code standard for identification of buried utilities. Manufacturers supplying copper-clad steel tracer wire must have available detailed performance data including 5 years of underground testing in terms of durability related to damage of protective insulation and effects of potential corrosion of the specific copper-clad steel used. Origin of copper-clad steel manufacturer is required and steel core must be manufactured in the United States. If manufacturer has not completed 5-year corrosion testing, a 5-year warranty must be provided. Tracer wire shall be Copperhead® SoloShot™ EHS-CCS HDPE 45 mil and made in the USA.

PRINT LINE

Physical, permanent markings: surface legend print on insulation to repeat at minimum interval of every two linear feet. Ink colors will include Black ink for Yellow, Blue, Red, Orange, Purple, Brown, White, and Green insulation, and White ink for Black insulation. **COPPERHEAD * 10 AWG-SOLID EHS-CCS HORIZONTAL DIRECTIONAL DRILL TRACER WIRE * 45 MIL HDPE 600 VOLT * DIRECT BURIAL ONLY**

SPOOL LABEL

Wound wire on a compact spool made of plastic or wood.

COPPERHEAD INDUSTRIES

1045*-EHS-**

10 AWG-Solid CCS Directional Drill Tracer Wire

45 Mil HDPE 600 Volt

Direct Burial Only

copperheadwire.com

CONDUCTOR

This specification describes the properties of the conductor to be used in the fabrication of Extra-High Strength tracer wire.

Material Description: Copperhead® copper-clad steel wire as manufactured by Copperweld® is composed of a steel core with a uniform and continuous copper cladding thoroughly bonded to the steel throughout. Wire must conform to ASTM B1010 and ASTM B227.

- **Cladding:** The steel and copper interface must have a metallurgical bond achieved through a high heat and pressure bonding process. Established process for porosity-free material.
- **Steel:** Extra-high strength with 0.54 carbon or greater. Verified to meet required mechanical properties.
- **Copper:** UNS-C10200; OF Copper according to ASTM B-170 (latest revision). High conductivity, oxygen free copper to achieve optimal signal performance.

Surface Condition: Wire surface shall be free of any defects, including flakes, grooves, pits, and voids. Wire surface shall be smooth, bright and shiny, and free of excessive copper dust and residual drawing lubricants.

Physical, Mechanical, and Electrical Properties: The wire shall conform to the properties listed in Table 1.



#12 CCS High Carbon 1055 Grade Steel 21% Conductivity	CCS Conductor
Conductor Size	10 AWG
Conductor Type	Copper-Clad Steel (CCS)
Temper	Hard Drawn (HD)
Average Break Load	2,032 lbs.
Minimum Tensile Strength	247,000 psi
Minimum Elongation	1%
Nominal Copper Thickness (% of Diameter)	3%
Nominal Copper Weight	13%
Nominal DC Resistance (ohms/1000 ft.)	4.756

Table 1: Physical, Mechanical, and Electrical Properties

*Diameter tolerances: $\pm 1\%$

INSULATION

This specification describes the properties of the material to be used in the insulating of Extra-High Strength tracer wire.

Material Description: Insulation is comprised of a co-polymer high molecular weight natural high density polyethylene (HDPE) designed specifically for high-speed copper wire insulating. It contains the required levels and types of primary antioxidant and metal deactivator additives to satisfy most Wire and Cable industry requirements. HDPE material will be produced with an excellent balance of surface smoothness, processing ease, tensile and elongation properties, abrasion toughness, environmental stress crack, thermal stress crack resistance, and electrical consistency. Insulation must conform to ASTM D1248.

Physical, Mechanical, and Electrical Properties: The wire shall conform to the properties listed in Table 2.

High Density Polyethylene Insulator	Value
Density (ASTM D 792)	0.943 g/cc
Bulk Density (ASTM D 1895)	0.58 g/cc
Melt Index (ASTM D 1238/E)	0.70 dg/min
Tensile-Yield (ASTM D 638)	4300 psi
Tensile-Ultimate (ASTM D 638)	2900 psi
Tensile-Elongation (ASTM D 638)	850%
Flexural Modulus (ASTM D 790/1)	120,000 psi
Hardness (ASTM D 2240)	63 Shore D
Environmental Stress-Crack (ASTM D 1693/B)	F ₂₀ > 48 h
Thermal Stress-Crack (ASTM D 2951)	F ₀ > 1000 h
Brittleness Temperature (ASTM D 746)	< -95° F
Melting Point (DSC) (ASTM D 3417)	262° F
Softening Point (Vicat) (ASTM D 1525)	250° F
Oxidative Induction Time (ASTM D 3895)	> 50 min. @ 200° C
Dielectric Constant (ASTM D 1531)	2.34 @ 1MHz
Dissipation Factor (ASTM D 1531)	0.00007 @ 1 MHz
Volume Resistivity (ASTM D 257)	5 x 10 ¹⁷ ohm-cm
Dielectric Strength (ASTM D 3755)	1000 volts @ 20 mils

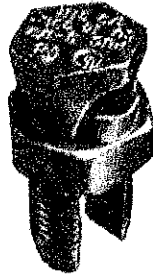
Table 2: Physical, Mechanical, and Electrical Properties

QUALITY ASSURANCE

- Copperhead products are manufactured under a quality control system that ensures products are free of defects and meet performance requirements.
- Copperhead provides best-in-class customer service. We promise to put forth our best efforts for our customers and to treat everyone we encounter with courtesy and respect.



Subject To
Brand On Hand



Approved Vendors

Copper Split Bolt Connector

Part: TRWCSBCS8 MFG: TRWCSBCS8



Description

Copper Split Bolt Connector

Specifications

Type	Splice Kit
Number of Pieces	1
Brand	Approved Vendors

Manufacturer	Approved Vendors
Manufacturer Part Number	TRWCSBCS8

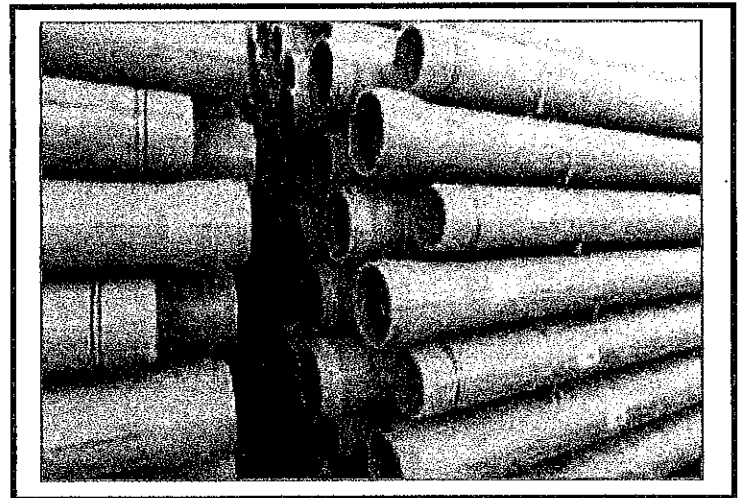


MUNICIPAL PRODUCT SPECIFICATION

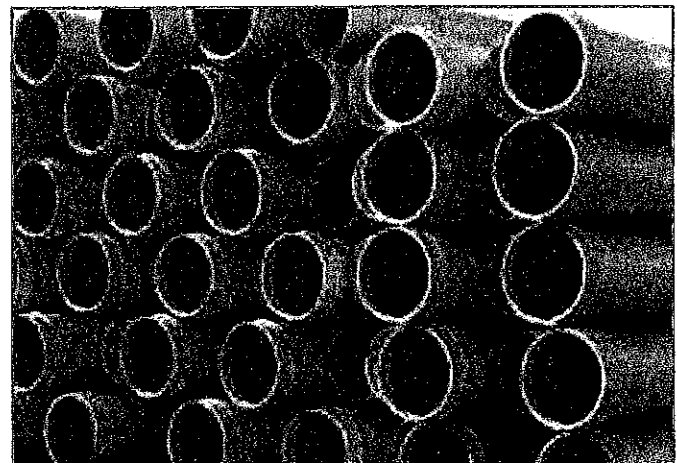
AWWA C900/IB PVC Pressure Pipe | Gasketed Integral Bell

NAPCO's AWWA C900 Gasketed Integral Bell PVC Pipe product line is manufactured to meet the needs of modern municipal water, wastewater, and reclaimed water systems. With top quality raw materials and modern processing technology, our C900 pipe meets all industry standards in addition to our own rigorous quality control requirements.

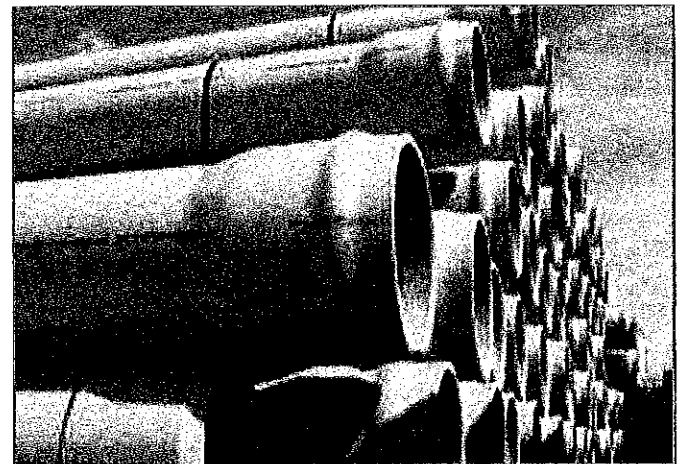
Our C900 pipe utilizes Rieber style gaskets throughout the entire product offering to create a leak-free joint.



Short Form Specification											
Pipe Standard:	AWWA C900-16										
Diameter Std.:	Cast Iron Outside Diameter (CIOD)										
Nominal Sizes:	4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36"										
Dimension Ratios & Pressure Ratings[§]	<table border="1"> <tr> <td>DR 51 – 80 psi</td> <td>DR 18 – 235 psi (185 psi)**</td> </tr> <tr> <td>DR 41 – 100 psi</td> <td>DR 14 – 305 psi (250 psi)**</td> </tr> <tr> <td>DR 32.5 – 125 psi</td> <td></td> </tr> <tr> <td>DR 25 – 165 psi</td> <td></td> </tr> <tr> <td>DR 21 – 200 psi</td> <td></td> </tr> </table>	DR 51 – 80 psi	DR 18 – 235 psi (185 psi)**	DR 41 – 100 psi	DR 14 – 305 psi (250 psi)**	DR 32.5 – 125 psi		DR 25 – 165 psi		DR 21 – 200 psi	
DR 51 – 80 psi	DR 18 – 235 psi (185 psi)**										
DR 41 – 100 psi	DR 14 – 305 psi (250 psi)**										
DR 32.5 – 125 psi											
DR 25 – 165 psi											
DR 21 – 200 psi											
Lay Length:	20' [6.1m]										
Pipe Compound:	ASTM D1784 Cell Class 12454										
Pipe Joint Std.:	ASTM D3139										
Max. Angular Joint Deflection:[‡]	1°										
Gasket Standard:	ASTM F477, UL 157										
Gasket Material Offerings:	Standard – SBR Optional – NBR or EPDM										
Installation Std.:	AWWA C605										



Applications	Potable Water	Waste Water	Reclaimed Water
Color:	Blue	Green	Purple
Certifications:[*]	NSF 14, NSF 61 CSA B137.3* UL 1285 FM 1612** BNQ 3624-250 (24in)*, BNQ 3660-950 (24in)	CSA B137.3*	CSA B137.3*



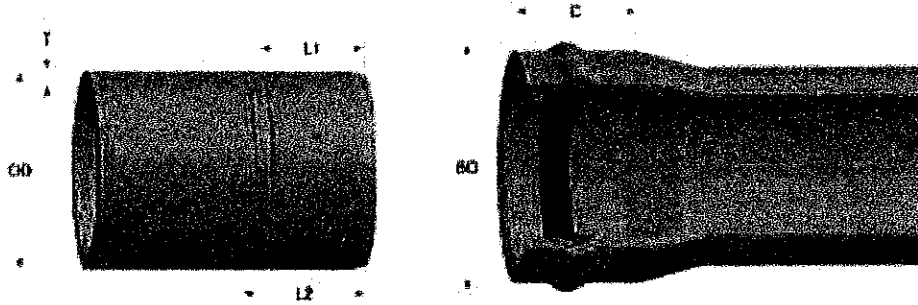
^{*}See Certification Letter for full explanation and list of exceptions.
^{**}FM 1612 calculates pressure ratings differently than AWWA for 4"-12" only with DR 18 as 185 psi and DR 14 as 250 psi.
[‡]See Installation Guide for more information.





MUNICIPAL PRODUCT SPECIFICATION

AWWA C900/IB PVC Pressure Pipe | Gasketed Integral Bell



C900/IB PIPE DIMENSIONS & PERFORMANCE									
Nom. Size	Outside Diameter (OD)	DR	Pressure Class psi [kPa]	Min. Wall Thickness (t)	Internal Diameter (ID)	Approx. Bell Diameter (BD)	Bell Depth (C)	Insertion	
								Mark (L1)	Mark (L2)
4" [100mm]	4.800 [121.9]	25	165 [1150]	0.192 [4.88]	4.416 [112.1]	6.250 [158.8]	5.000 [127]	3.375 [85.7]	4.375 [111.1]
		18	235 [1620]	0.267 [6.78]	4.266 [108.3]				
		14	305 [2130]	0.343 [8.70]	4.114 [104.5]				
6" [150mm]	6.900 [175.3]	25	165 [1150]	0.276 [7.00]	6.348 [161.3]	8.625 [219.1]	5.750 [146.1]	4.625 [117.5]	5.625 [135.3]
		18	235 [1620]	0.383 [9.72]	6.134 [155.9]				
		14	305 [2130]	0.493 [12.50]	5.914 [150.3]				
8" [200mm]	9.050 [229.9]	25	165 [1150]	0.362 [9.20]	8.326 [211.5]	11.500 [292.1]	7.000 [177.8]	5.625 [135.3]	6.625 [168.3]
		18	235 [1620]	0.503 [12.80]	8.044 [204.3]				
		14	305 [2130]	0.646 [16.40]	7.758 [197.1]				
10" [250mm]	11.100 [281.9]	25	165 [1150]	0.444 [11.30]	10.212 [259.3]	14.000 [355.6]	7.250 [184.2]	6.125 [155.6]	7.125 [181.0]
		18	235 [1620]	0.617 [15.70]	9.866 [250.3]				
		14	305 [2130]	0.793 [20.10]	9.514 [241.7]				
12" [300mm]	13.200 [335.3]	25	165 [1150]	0.528 [13.40]	12.144 [308.5]	16.563 [420.7]	8.000 [203.2]	6.875 [174.6]	7.875 [200]
		18	235 [1620]	0.733 [18.60]	11.734 [298.1]				
		14	305 [2130]	0.943 [23.90]	11.314 [287.5]				
14" [350mm]	15.300 [388.6]	32.5	125 [860]	0.471 [12.0]	14.358 [364.7]	19.063 [484.2]	9.000 [228.6]	7.500 [190.5]	8.500 [215.9]
		25	165 [1150]	0.612 [15.6]	14.076 [357.5]				
		21	200	0.729	13.842				
		18	235 [1620]	0.850 [21.6]	13.600 [345.4]				
		14	305	1.093	13.114				
16" [400mm]	17.400 [442.0]	41	100	0.424	16.552	21.750 [552.5]	10.000 [254.0]	8.500 [215.9]	9.500 [241.3]
		32.5	125 [860]	0.535 [13.6]	16.330 [414.8]				
		25	165 [1150]	0.696 [17.7]	16.008 [406.6]				
		21	200	0.829	15.742				
		18	235 [1620]	0.967 [24.6]	15.466 [392.8]				
		14	305	1.243	14.914				

VINYLTECH AWWA C900-07

TECHNICAL DATA SUBMITTAL



CONFORMANCE

These specifications designate the requirements for manufacturing and installing Vinyltech AWWA C900-07 water pipe.

AWWA C900-07 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100mm Through 300mm), for Water Transmission and Distribution

AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals

ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

ASTM D2412 - Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading

PIPE COMPOUND

The pipe shall be extruded from compounds meeting (PVC1120) the requirements of Cell Classification 12454, as defined in ASTM D1784, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds. The PVC shall also be listed by the National Sanitation Foundation (NSF) for use in potable water.

PIPE

Vinyltech pipe shall be manufactured in accordance with AWWA C900-07.

GASKET JOINT

The gasket shall be reinforced with a steel band and meet the requirements of ASTM F477. Vinyltech pipe shall have an integral bell end with a locked-in factory installed gasket and shall meet the joint requirements of ASTM D3139.

MARKING

The pipe shall be marked in accordance with AWWA C900 as in the following example.

- Manufacturer's name and production codes
- Nominal size, dimension ratio number, and O.D. base (for example, 8" DR 18 CIS)
- Materials cell classification (PVC1120)
- AWWA pressure class (235 psi or 305 psi) and hydrostatic test pressure (T600, or T800)
- AWWA designation number (AWWA C900-07)
- National Sanitation Foundation (NSF-61)
- Underwriters Laboratories (UL) logo, third party certification.
- Production date and time code (VABB15B 48.34)
- FM Approvals (FM) logo, required FM pressure rating (150 or 200 psi), third party certification

QUALITY CONTROL

Each length of the pipe including the bell shall be hydrostatically tested. The pipe shall meet all additional test requirements as described in AWWA C900-07. Our full time quality assurance staff continually administers a rigid program of tests to maintain the production of the best pipe products available.

INSTALLATION

Recommended installation procedures of Vinyltech Corporation are outlined in AWWA C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water. The AWWA Manual M23, PVC Pipe-Design and Installation, is also an invaluable resource guide for design and installation.

TAPPING

The consistent success of tapping PVC pressure pipe is contingent upon the use of proper procedures and equipment. Vinyltech recommends strict compliance with the requirements as specified in AWWA C605.

ASSEMBLING THE PIPE

Assembly of Vinyltech PVC water pipe is easily accomplished. A depth of entry mark is on each spigot end to serve as a visual check for rapid, accurate joint inspection. **Do not over insert.**

- Remove any mud, sand, or other foreign matter from the belled and spigot ends of the pipe. Carefully clean the gasket area.
- With a clean applicator (a brush or hand) lubricate the entire surface of the pipe from the spigot end to the depth of entry mark and the contact surface of the gasket with **Vinyltech Brand Lubricant**.
- Brace the bell to avoid disturbing the already installed joints. Align the pipe, insert the spigot into the bell and push.
- Do not insert past the entry mark line.**



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AN OTTERTAIL COMPANY

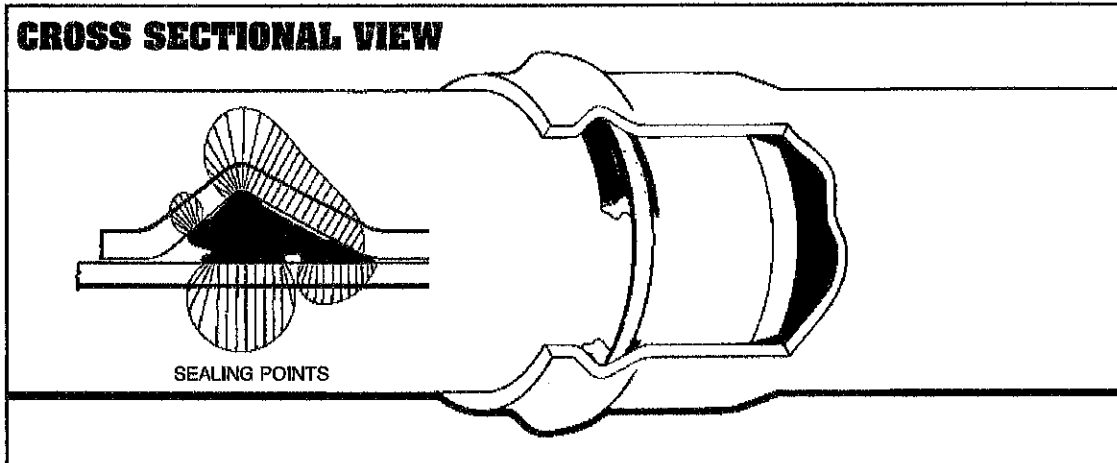
AWWA C900-07

VINYLTECH AWWA C900-07 TECHNICAL DATA SUBMITTAL

AWWA C900-07

C900 DR 18 PRESSURE CLASS 235					
NOMINAL SIZE (IN)	OUTER DIAMETER (IN)	MINIMUM WALL (IN)	LIFTS PER TRUCK	FEET PER LIFT	APPROXIMATE WEIGHT (LB/100')
4 (100)	4.800	0.267	16	1020	251.6
6 (150)	6.900	0.383	16	440	521.2
8 (200)	9.050	0.503	20	200	903.0
10 (250)	11.100	0.617	12	240	1364.4
12 (300)	13.200	0.733	28	60-80	1935.8

C900 DR 14 PRESSURE CLASS 305					
NOMINAL SIZE (IN)	OUTER DIAMETER (IN)	MINIMUM WALL (IN)	LIFTS PER TRUCK	FEET PER LIFT	APPROXIMATE WEIGHT (LB/100')
4 (100)	4.800	0.343	16	1020	317.5
6 (150)	6.900	0.493	16	440	658.7
8 (200)	9.050	0.646	20	200	1139.7
10 (250)	11.100	0.793	12	240	1722.3
12 (300)	13.200	0.943	28	60-80	2445.5



THE RIEBER SEALING SYSTEM

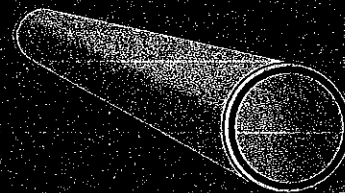
The Rieber system provides a proven pipe joint with an excellent track record in the field. It is the fastest growing system in the world because of its many advantages.

- Factory installed, locked-in gasket
- The pipe bell forms over the gasket, making a perfect fit
- Avoids the possibility of installing the wrong gasket
- Reduces installation problems
- The locked-in gasket eliminates gasket roll-out during joining
- The gasket is molded vs. extruded and spliced
- Works equally well under pressure or vacuum
- Three sealing points achieved vs. two
- **LEAK-PROOF JOINTS**
- **"THE WORLDS BEST JOINT"**



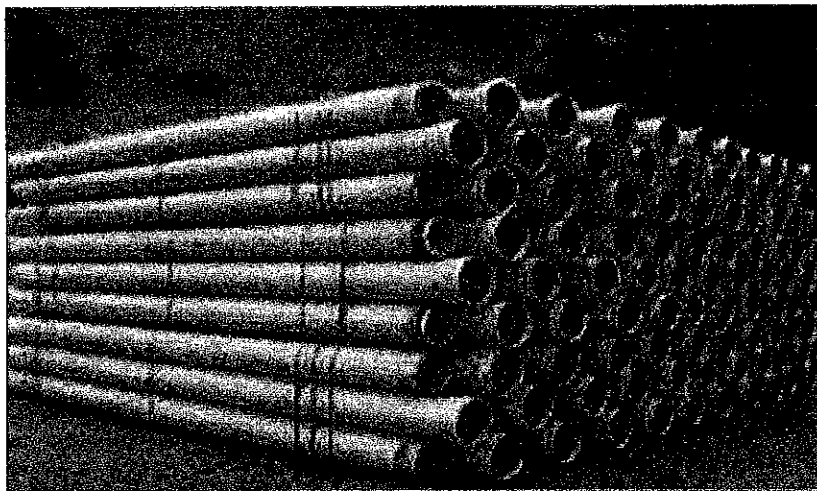
C900: PVC Pressure Pipe

SPECIFICATION DATA



Diamond (C900) PVC Pipe (4" through 12") is made of 12454 compound per ASTM D1784, in accordance with the dimensional, chemical, and physical requirements of AWWA C900.

Diamond (C900) PVC Pipe bears the mark of NSF, International (NSF), the listing of Underwriters Laboratory, Inc. (UL), and (DR14 & DR18) bears the listing of Factory Mutual(FM). Some factory locations produce C900 bearing the mark of the Canadian Standards Association (CSA).



Diamond (C900) PVC Pipe utilizes a gasket, per ASTM F477, to seal the integral bell socket to the spigot of the next joint (which conforms to the requirements of ASTM D3139.) Each male end is beveled to facilitate joint assembly, and the spigot is referenced marked to ensure proper insertion depth. Diamond furnished lubricant is to be used in the joining process. Specialty gaskets may be available upon request.

Diamond C900 is supplied in 20 foot laying lengths.

Physical Properties of PVC 12454:

Property	ASTM Test	Minimum
Specific Gravity	D792	1.40
Tensile Strength, psi	D638	7,000
Tensile Modulus, psi	D638	400,000
IZOD Impact Strength	D256	.65ft., lb./in.



Underwriters Laboratories Inc.®



SHORT FORM Specification for Diamond C900 PVC Water Pipe

Diamond C900 PVC Water Pipe shall be made of compounds conforming to ASTM D1784 with a cell classification of 12454. Diamond C900 shall meet all the dimensional, chemical, and physical requirements as outlined in AWWA C900 and will be supplied in 20 foot laying lengths. Joints shall meet the requirements of ASTM D3139 and shall be formed using Rieber Technology. Gaskets shall meet the requirements of ASTM F477. Potable water pipe shall be manufactured from National Sanitation Foundation (NSF) approved compounds.

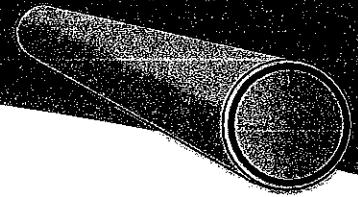
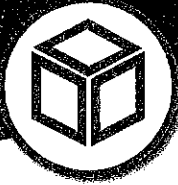


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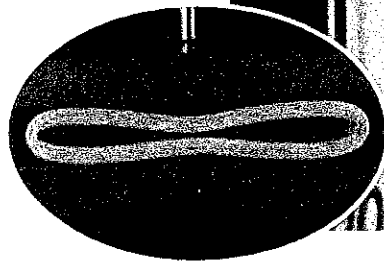
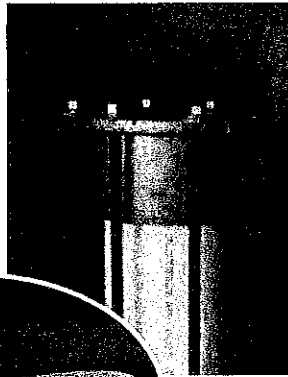
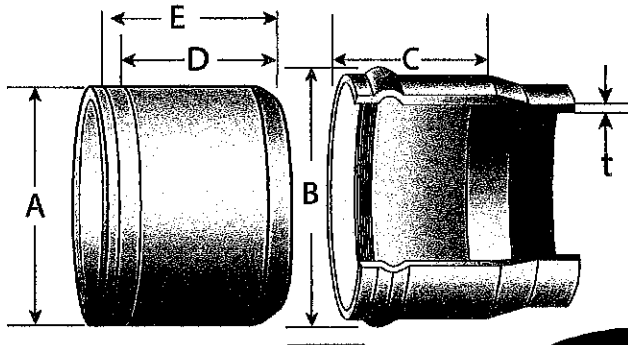


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AWWA C900

C900™		AWWA C900 SPECIFICATION DATA						
Nominal Pipe Size in. (mm)	Outside Dia. A Inches	Bell Dia. B Inches	Approximate Bell Depth C Inches	Assembly Mark 1 (D) Inches #	Assembly Mark 2 (E) Inches #	C900 DR-14 305 psi Min Wall (t) Inches	C900 DR-18 235 psi Min Wall (t) Inches	C900 DR-25 165 psi Min Wall (t) Inches
4" (100)	4.800	6-1/2"	6	4-1/4"	5-1/4"	0.343	0.267	0.192
6" (150)	6.900	9-1/4"	6.5	4-5/8"	5-5/8"	0.493	0.383	0.276
8" (200)	9.050	11-3/4"	7	5-1/8"	6-1/8"	0.646	0.503	0.362
10" (250)	11.100	14-1/4"	7.5	5-3/4"	6-3/4"	0.793	0.617	0.444
12" (300)	13.200	16-3/4"	8	6-1/8"	7-1/8"	0.943	0.733	0.528


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

#Tolerance of +/- 1/4" allowed

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NOTICE: 1). Weights published in this catalog are approximate and provided for shipping purpose only. Actual weights may vary as products are manufactured in multiple locations. All products meet the applicable ANSI/AWWA specification.
 2). Laying length: In accordance with ANSI/AWWA C110/A21.10, ANSI B16.1, ANSI/AWWA C153/A21.53. Fittings not listed in ANSI/AWWA have dimensions as per Tyler Union design. Standard tolerance applies to laying length dimensions.
 3). For projects where fitting weights, specifications, or dimensions are critical, advise upon order placement.



**MECHANICAL JOINT C153 DUCTILE IRON
COMPACT FITTINGS**
 Sizes 3"-12" UL & 3"-10" FM Listed
 For Fire Main Equipment

SAMPLE SPECIFICATIONS (Current ANSI/AWWA revisions apply)

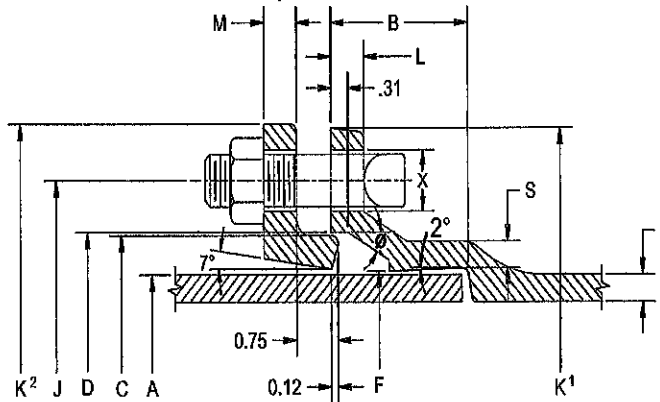
Mechanical joint watermain fittings with accessories, 2" through 64" shall be manufactured from ductile iron in accordance with and meet all applicable terms and provisions of standards ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11. Ductile iron mechanical joint fittings 2" through 24" shall be rated for 350 PSI working pressure. Ductile iron 30" through 48" shall be rated for 250 psi working pressure. Flanged ductile iron fittings in 24" (610 mm) and smaller sizes may be rated for 350 psi (2,413 kPa) with the use of special (annular ring or comparable) gaskets. All coated and lined fittings meet requirements of NSF-61, NSF-372, and Annex G.

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

NOTE - Wyes over 12" are not pressure rated. Contact manufacturer for rating in your application.

NOTE - Fittings are cement lined and seal coated in accordance with ANSI/AWWA C104/A21.4. Fittings are available double cement-lined, bare, or epoxy coated upon request. Epoxy coating per ANSI/AWWA C116

NOTE - Installation per AWWA C600 and AWWA C651, current revision



NOMINAL 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.
2	2.51	2.50	3.50	3.60	2.61	4.75	6.19	6.89	.58	.62	.36	.30	3/4	5/8x3	2
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	3/4x4	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	3/4x4	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	3/4x4	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.31	20.25	.79	1.25	.55	.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	.85	1.31	.58	.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	.68	.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	.69	.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	.75	.61	7/8	3/4x5	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	1x6	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	1x6	24
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.35	.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

NOTE: 2 Inch MJ ASTM A536 ductile iron Compact fittings (2"-22.5 bend, 2"-45 bend, 2"-90 bend, 2"x12" solid sleeve, 2"x2" tee, 4"x2" tee, and 4"x2" reducer) are available. Contact Tyler Union for availability or additional product dimensions.

*NOTE: Contact Tyler Union for 54"-64" product information.

*NOTE: For projects where product weights, specifications, or dimensions are critical, advise upon order placement.

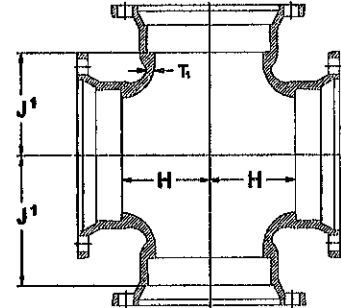
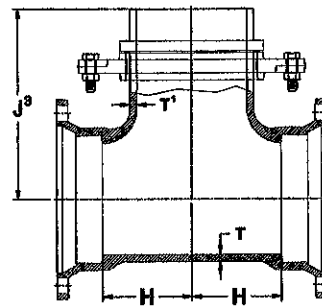
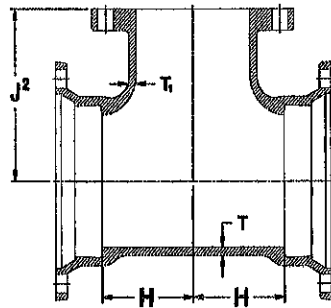
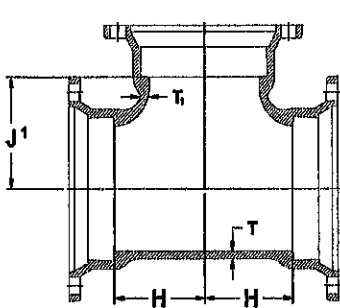


MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

Sizes 3"-12" UL & 3"-10" FM Listed
For Fire Main Equipment

TEES

CROSS



MJ Tee

MJ x FE Tee

MJ x Swivel Tee

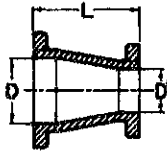
Cross

Size	T	T1	*H	Dimensions			MJ	Weights		
				*J1	*J2	*J3		MJxFE	†MJxS	Cross
3	.34	.34	3.5	3.50	5.5	...	26	29	...	31
4x3	.35	.34	3.5	4.00	6.5	...	35	34	...	39
4	.35	.35	4.0	4.00	6.5	...	36	39	...	45
6x3	.37	.34	4.0	4.00	6.5	...	51	54	...	...
6x4	.37	.35	4.0	5.00	8.0	...	52	57	...	62
6	.37	.37	5.0	5.00	8.0	10.50	66	68	77	79
8x3	.39	.34	4.0	6.50	9.0	...	56	...	...	...
8x4	.39	.35	4.5	6.50	9.0	...	72	82	...	84
8x6	.39	.37	5.5	6.50	9.0	11.50	79	81	105	98
8	.39	.39	6.5	6.50	9.0	11.50	90	101	116	112
10x3	.41	.34	4.0	7.50	11.0	...	80	...	...	...
10x4	.41	.35	4.5	7.50	11.0	...	82	92	...	98
10x6	.41	.37	5.5	7.50	11.0	13.00	99	116	114	121
10x8	.41	.39	6.5	7.50	11.0	13.00	116	128	138	135
10	.41	.41	7.5	7.50	11.0	...	132	144	...	156
12x3	.43	.34	4.0	8.75	12.0	...	99	...	...	...
12x4	.43	.35	4.5	8.75	12.0	...	108	118	...	119
12x6	.43	.37	5.5	8.75	12.0	14.25	119	133	132	138
12x8	.43	.39	6.5	8.75	12.0	14.25	126	146	149	149
12x10	.43	.41	7.5	8.75	12.0	...	159	174	...	187
12	.43	.43	8.75	8.75	12.0	...	171	198	...	202
14x6	.51	.44	6.5	10.50	14.0	16.00	183	205	211	210
14x8	.51	.45	7.5	10.50	14.0	...	211	...	...	231
14x10	.51	.46	8.5	10.50	14.0	...	229	244	...	255
14x12	.51	.47	9.5	10.50	14.0	...	245	284	...	269
14	.51	.51	10.5	10.50	14.0	...	281	291	...	299
16x6	.52	.45	6.5	11.50	15.0	17.00	222	230	243	250
16x8	.52	.46	7.5	11.50	15.0	...	245	248	...	264
16x10	.52	.47	8.5	11.50	15.0	...	265	287	...	286
16x12	.52	.48	9.5	11.50	15.0	...	277	312	...	312
16x14	.52	.51	10.5	11.50	15.0	...	317	348	...	...
16	.52	.52	11.5	11.50	15.0	...	337	324	...	451
18x6	.59	.44	6.5	14.50	15.5	18.00	275	261	279	...
18x8	.59	.45	7.5	14.50	14.5	...	280	351	...	...
18x10	.59	.47	8.5	12.50	...	...	286	...	...	...
18x12	.59	.49	9.5	12.50	...	...	372	...	...	...
18x14	.59	.56	10.5	12.50	...	...	415	...	...	...
18x16	.59	.57	11.5	12.50	...	...	445	...	...	...
18x18	.59	.59	13.0	12.50	...	...	490	...	...	...

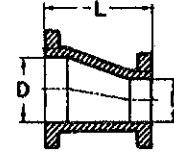
NOTE: Contact TU Inside Sales representative for MJ Crosses larger than 16 inch. †MJxSwl Weights include swivel gland.

**NOTE: 2"x2" and 4"x2" Compact C153 tees are available, contact Tyler Union for information.

REDUCERS



Concentric Reducer



***Eccentric Reducer**

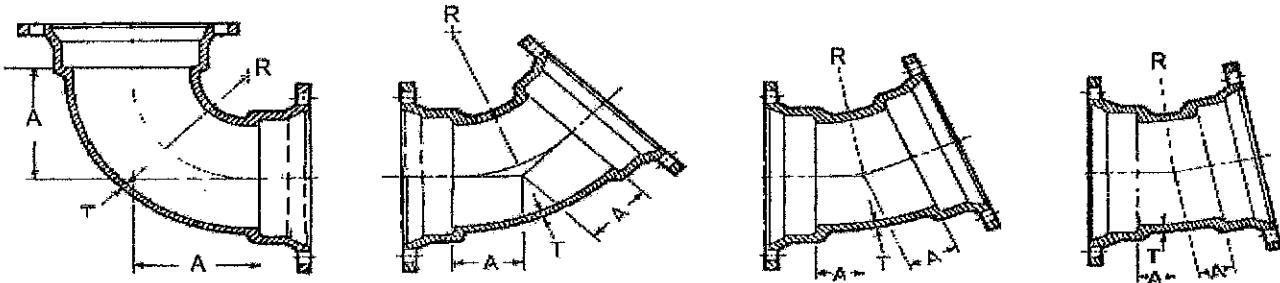
Concentric Reducer				Concentric Reducer			
Size D	Size D'	Dimensions L	Wts	Size D	Size D'	Dimensions L	Wts
3	2	6	17	18	8	19	265
4	2	7	23	18	10	19	290
4	3	7	29	18	12	19	320
6	2	9	30	18	14	19	350
6	3	9	44	18	16	19	405
6	4	9	46	20	10	20	418
6	5	9	56	20	12	20	465
8	3	11	61	20	14	20	430
8	4	11	63	20	16	20	445
8	5	11	70	20	18	20	470
8	6	11	75	24	12	24	608
10	4	12	98	24	14	24	565
10	6	12	107	24	16	24	610
10	8	12	116	24	18	24	645
12	4	14	119	24	20	24	695
12	6	14	130	30	16	30	945
12	8	14	152	30	18	30	970
12	10	14	178	30	20	30	1144
14	6	16	165	30	24	30	1155
14	8	16	185	42	24	42	1810
14	10	16	205	42	30	42	2060
14	12	16	235	42	36	42	2345
16	6	18	210	48	30	48	2615
16	8	18	230	48	36	48	2940
16	10	18	255	48	42	48	3320
16	12	18	285				
16	14	18	315				

*Eccentric Reducer				*Eccentric Reducer			
Size D	Size D'	Dimensions L	Wts	Size D	Size D'	Dimensions L	Wts
4	3	7	30	18	14	19	350
6	3	9	45	18	16	19	385
6	4	9	52	20	10	20	350
8	4	11	70	20	12	20	370
8	6	11	80	20	14	20	402
10	4	12	95	20	16	20	449
10	6	12	98	20	18	20	455
10	8	12	123	24	12	24	535
12	4	14	120	24	14	24	570
12	6	14	135	24	16	24	614
12	8	14	149	24	18	24	645
12	10	14	177	24	20	24	695
14	6	16	165	30	16	30	778
14	8	16	185	30	18	30	810
14	10	16	205	30	20	30	870
14	12	16	294	30	24	30	970
16	6	18	210	36	24	36	1425
16	8	18	230	36	30	36	2120
16	10	18	255	42	24	42	2340
16	12	18	285	42	30	42	2060
16	14	18	315	42	36	42	2345
18	8	19	265	48	30	48	2625
18	10	19	290	48	36	48	2950
18	12	19	306	48	42	48	3320

NOTE: Eccentric Reducers not included in AWWA C110

NOTE: Eccentric Reducers Offset
 $1/2 D \text{ minus } 1/2 D' = \text{Offset}$
 Example:
 6x3 Ecc.Reducer
 $3 - 1/2 = 1 1/2" \text{ Offset}$

BENDS

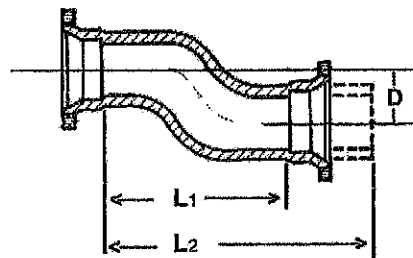


Size	90° Bends (1/4)				45° Bends (1/8)			22 1/2° Bends (1/16)			11 1/4° Bends (1/32)		
	T	A	R	Weight	A	R	Weight	A	R	Weight	A	R	Weight
3	.34	3.5	2.5	19	2.00	2.41	17	1.50	2.51	15	1.25	2.53	16
4	.35	4.0	3.0	22	2.50	3.56	20	1.75	3.81	18	1.50	5.12	18
6	.37	6.5	6.0	49	3.50	7.25	39	2.25	6.35	31	1.50	5.12	29
8	.39	7.5	7.0	64	4.00	8.44	56	2.85	11.80	50	2.06	15.80	45
10	.41	9.5	9.0	102	5.01	10.88	78	3.35	14.35	66	2.32	18.36	59
12	.43	10.5	10.0	129	5.98	13.25	102	3.86	16.90	87	2.56	20.90	82
14	.51	12.0	11.5	214	5.50	12.06	155	3.93	17.25	142	2.59	21.25	136
16	.52	13.0	12.5	273	5.98	13.25	204	3.98	17.50	178	2.62	21.50	157
18	.59	15.5	14.0	411	6.50	12.36	292	7.50	30.19	286	3.00	60.84	283
20	.60	17.0	15.5	519	7.00	13.59	372	8.50	35.19	376	3.50	71.07	374
24	.62	17.0	15.5	721	7.50	14.89	490	9.00	37.69	512	3.50	76.12	487
30	.66	21.50	19.0	930	10.50	9.31	716	6.75	21.36	665	4.75	22.84	600
36	.74	24.50	22.0	1450	11.50	21.73	1110	7.75	26.39	960	5.00	25.38	820
42	.82	29.25	26.7	2205	14.00	27.76	1610	9.00	32.68	1350	6.00	35.54	1180
48	.90	33.25	30.75	2990	15.00	30.17	2090	10.00	27.70	1760	6.50	40.61	1475

**Note: 2 inch compact ductile iron fittings are available, contact Tyler Union for information

*OFFSETS (MJ x MJ) or (MJ x PE)

Size	D	Dimensions		Weights	
		L1	L2	MJxMJ	MJxPE
3	6	9	14.5	23	29
3	12	15	20.5	34	39
3	18	21	26.5	40	48
3	24	27	32.5	47	53
4	6	10	15.5	32	44
4	12	16	21.5	42	54
4	18	22	27.5	56	65
4	24	28	33.5	65	72
6	6	12	17.5	55	54
6	12	18	23.5	72	68
6	18	24	29.5	88	96
6	24	30	35.5	111	117
8	6	13	18.5	79	78
8	12	19	24.5	103	110
8	18	25	30.5	128	124
10	6	15	20.5	112	130
10	12	21	26.5	148	172
10	18	27	32.5	176	189
12	6	17	22.5	157	.....
12	12	23	28.5	174	198
12	18	29	34.5	210	270



Size	Dimensions			Weight	
	D	L1	L2	MJxMJ	MJxPE
12	24	35	40.5	298	334
12	30	41	46.5	283	205

BENDS

5-5/8 Bends (1/64) MJ x MJ

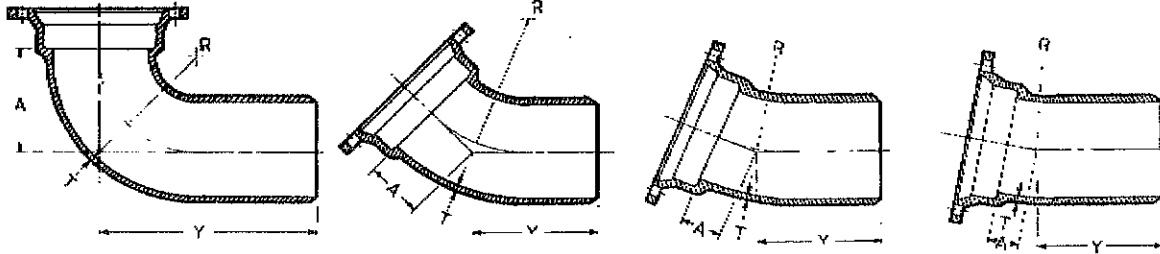
Size	Dimensions		Weight
	*A	R	
3	1.25	5.08	16
4	1.50	7.61	18
6	1.50	10.15	29
8	1.75	12.69	45
10	2.00	15.23	59
12	2.30	17.77	82
14	2.50	20.31	136
16	2.50	20.31	157
18	3.00	25.38	283
20	3.00	25.38	374
24	3.00	25.38	487
30	3.75	32.97	600
36	4.00	34.55	820
42	5.00	42.71	1180
48	5.50	47.35	1475



MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

Sizes 3"-12" UL & 3"-10" FM Listed
For Fire Main Equipment

BENDS



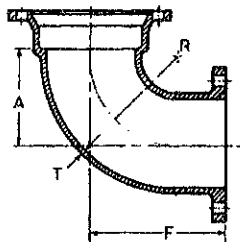
90° Bend MJ x PE (1/4)

45° Bend MJ x PE (1/8)

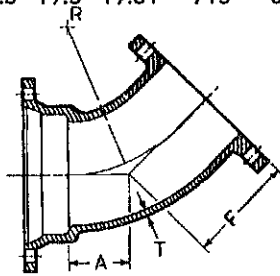
22½° Bend MJ x PE (1/16)

11¼° Bend MJ x PE (1/32)

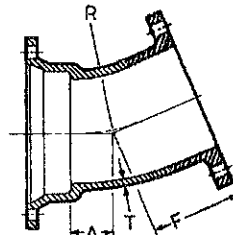
Size	T	Dimensions				Weight	A	Dimensions			Weight	A	Dimensions			Weight	A	Dimensions			Weight
		A	Y	R	Weight			Y	R	Weight			Y	R	Weight			Y	R	Weight	
3	.34	3.5	9.0	2.5	18	2.0	7.5	2.41	17	1.50	7.00	2.51	19	1.25	6.75	7.62	15				
4	.35	4.0	9.5	3.0	26	2.5	8.0	3.56	22	1.75	7.25	3.81	20	1.50	7.00	5.12	20				
6	.37	6.0	11.5	5.0	45	3.2	8.7	5.49	38	2.25	7.75	6.35	33	1.50	7.00	5.12	32				
8	.39	7.5	13.0	7.0	64	4.0	9.5	8.44	55	2.84	8.34	11.80	51	2.05	7.55	15.80	44				
10	.41	9.5	15.0	9.0	108	5.0	10.5	10.88	78	3.35	8.85	14.35	66	2.31	7.81	18.36	60				
12	.43	9.0	14.4	6.0	114	6.0	11.5	13.25	104	3.50	9.00	12.70	89	2.56	8.06	20.90	79				
14	.51	12.0	20.0	11.5	219	5.5	13.4	10.85	165	3.93	11.93	17.25	152	2.59	10.59	21.25	137				
16	.52	13.0	21.0	12.5	254	6.0	14.0	13.25	206	3.98	11.98	17.50	181	2.62	10.62	21.50	161				
20	.57	15.0	23.0	13.5	400	7.0	15.3	13.97	290	7.00	14.00	35.19	290	7.00	14.00	21.07	290				
24	.62	17.0	25.0	15.5	710	7.5	16.6	14.69	460	9.00	17.66	37.69	455	9.00	26.12	12.00	475				
30	.68	21.5	30.5	19.0	865	10.5	19.5	19.31	715	6.75	15.75	21.36	600	4.75	13.75	22.84	535				



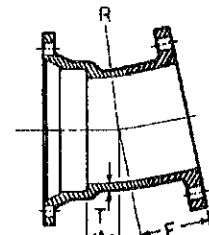
90° Bend MJ x Flange (1/4)



45° Bend MJ x Flange (1/8)



22½° Bend MJ x Flange (1/16)



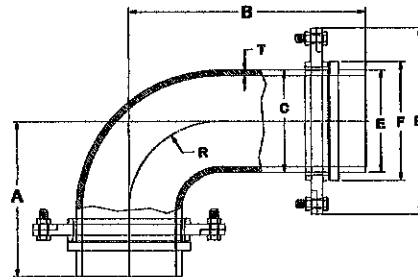
11¼° Bend MJ x Flange (1/32)

Size	T	Dimensions				Weight	A	Dimensions			Weight	A	Dimensions			Weight	A	Dimensions			Weight
		A	R	F	Weight			R	F	Weight			R	F	Weight			R	F	Weight	
3	.34	3.5	2.5	5.5	21	...	...	..	..	...	...	..	..	...	...	..	..
4	.35	4.0	3.0	6.5	28	2.50	3.56	4.0	34	1.75	3.81	4.0	34	1.50	5.12	4.0	19				
6	.37	6.0	5.0	8.0	45	3.25	5.49	5.0	57	2.25	5.35	5.0	57	1.50	5.12	5.0	30				
8	.39	7.5	7.0	9.0	73	4.25	7.93	5.5	83	2.50	7.62	5.5	83	1.75	7.70	5.5	50				
10	.41	9.5	9.0	11.0	113	5.00	9.76	6.5	122	3.00	10.16	6.5	122	2.00	10.25	6.5	75				
12	.43	10.5	10.0	12.0	141	6.00	12.19	7.5	159	3.50	12.70	7.5	159	2.25	12.82	7.5	88				
14	.51	12.0	11.5	14.0	217	5.50	10.85	8.5	207	...	...	...	...	...	...	...	...
16	.52	13.0	12.5	15.0	280	6.00	12.02	9.5	290	...	...	...	...	...	...	...	...

90° Swivel x Swivel Hydrant Ell

Size	T	Dimensions							**Weight
		*A	*B	C	D	E	F	*R	
6	.37	10.5	15.5	6.90	11.2	6.81	7.98	6.0	74

** Weight includes two swivel glands.





AMERICAN

FLOW CONTROL

THE RIGHT WAY

AMERICAN Flow Control

P.O. Box 2727

Birmingham, AL 35202-2727

Telephone: 1-800-326-8051

Fax: 1-800-610-3569

E-mail: afcsales@american-usa.com

Waterous Company

125 Hardman Avenue South

South St. Paul, MN 55075-1191

Telephone: 1-888-266-3686

Fax: 1-800-601-2809

E-mail: afcsales@american-usa.com

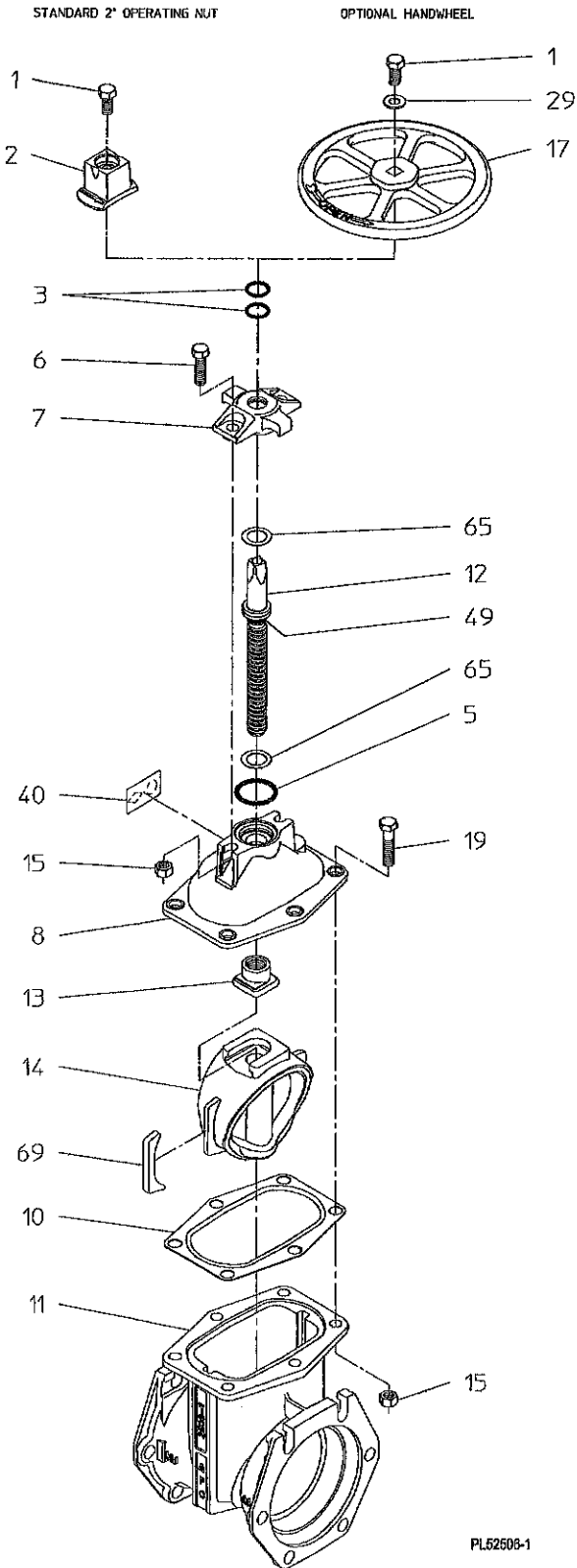
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AMERICAN Flow Control Product Submittal Package

No cover information entered.

Products Submitted in this Package Include:

1. 4" - 12" Series 2500-1 RW Gate Valve, NRS (pg.1)



REF NO.	DESCRIPTION	MATERIAL
1	Hex Head Bolt, 5/8-11 x 1"	304 Stainless Steel
2	Operating Nut, 2" Square	Ductile Iron, ASTM A536
3	O-Ring	Rubber
5	Stuffing Box Gasket	Rubber O-ring
6	Hex Head Bolt, 5/8-11 x 1-3/4"	304 Stainless Steel
7	Stuffing Box	Ductile Iron, ASTM A536
8	Bonnet	Ductile Iron, ASTM A536
10	Bonnet Gasket	Rubber
11	Body	Ductile Iron, ASTM A536
12	Stem	Manganese Bronze, ASTM B763, UNS C86700
13	Wedge Nut	Manganese Bronze, ASTM B763, UNS C86700
14	Resilient Wedge	EPDM Rubber Encapsulated Ductile Iron ASTM A536
15	Hex Nut, 5/8-11	304 Stainless Steel
17	Handwheel	Ductile Iron, ASTM A536
19	Hex Head Bolt, 5/8-11 x 2-1/4"	304 Stainless Steel
29	Flat Washer, 5/8	304 Stainless Steel
40	UL/FM Label	Pressure Sensitive Acrylic Film
49	O-Ring	Rubber
65	Thrust Washer	304 Stainless Steel
69	Wedge Cover	Acetal Polymer

OPTIONAL MATERIALS ARE AS FOLLOWS

BOLTS and NUTS: 316 Stainless Steel
 STEM: Cast NDZ-S Bronze, ASTM B763, UNS C99500
 STEM: Stainless Steel
 WEDGE NUT: Silicon Bronze, ASTM B584, UNS C87600

Open Direction: Left (C.C.W.) Right (C.W.)

NOTES:

1. Available in configurations that are UL Listed and FM Approved with 250 psig rated working pressure.
2. Meets requirements of ANSI/AWWA C515 with 250 psig rated working pressure.
3. Fusion-bonded epoxy-coated in accordance with ANSI/AWWA C550.
4. Certified to ANSI/NSF Standard 61.

Construction shown is typical of the 6-inch size with mechanical joint end connections and is illustrative only. Construction of other sizes and end connection types vary slightly. See elsewhere on this submittal for specific details.

PL52508-1



AMERICAN
FLOW CONTROL

THE RIGHT WAY

AMERICAN Flow Control
 P.O. Box 2727
 Birmingham, Al. 35202-2727
 Phone: 1-800-326-8051
 Fax: 1-800-610-3569
 E-mail: afcsales@american-usa.com

Waterous Company
 125 Hardman Avenue South
 South St. Paul, Mn. 55075-1191
 Phone: 1-888-286-3686
 Fax: 1-800-601-2809
 E-mail: afcsales@american-usa.com

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Mueller® Resilient-Wedge Gate Valves

For reliable performance and
long service life—Certified to NSF 61

Mueller Co.

Optimized design for consistent performance and long-lasting corrosion resistance

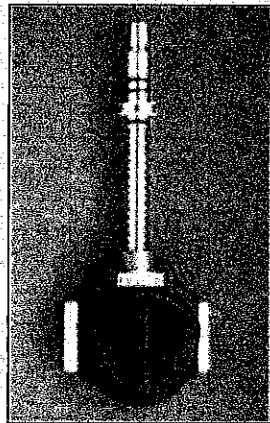
■ The Mueller® 2360 Series™ Resilient Wedge Gate Valve is a symmetrical design with refinements to enhance reliability and service life. Special features protect critical areas of the valve from damage, wear and corrosion. The entire valve is certified to ANSI/NSF Standard 61.

100% elastomer-encapsulated symmetrical wedge

The iron wedge is completely encapsulated by an elastomer, without thin spots or voids. There are no uncoated or weak places for corrosion to start or for the elastomer to begin to peel away.

Extra-long guides stabilize the wedge and prevent binding. Polymer bearing caps protect the wedge guides and interior epoxy coating from damage or wear, even after thousands of cycles under full differential pressure and flow.

The shape of the iron wedge casting and the elastomeric encapsulation are specially designed to provide a positive stop, without overstressing the elastomer or epoxy lining. This avoids splitting the elastomeric encapsulation or crushing the epoxy, and the operator is given positive feedback indicating when the valve is fully closed. It also assures a consistent number of turns to operate the valve.



Superior powder epoxy coating

The valve is covered inside and out with Mueller® PRO-GARD™ Epoxy Coating, an exceptional fusion-bonded powder epoxy.



The powder epoxy protective coating acts as a physical, chemical and electrical barrier between the valve's base metal and the surroundings.

Mueller products receiving our PRO-GARD powder epoxy coating.

Mueller PRO-GARD Epoxy Coating is suitable for field overcoating and touch-up without sanding, special surface preparation or the application of heat. The powder epoxy is non-toxic and imparts no taste to water.

Strength, selection and versatility

The valve is rated at 250 psig working pressure, 25% higher than that stipulated by the AWWA standard, and hydrostatically shell tested at 500 psig. The computer-aided design allows all areas of the valve to be optimized for strength, removing excess weight. Yet the valve includes Mueller's extra-strength safety factors that surpass the minimums set by AWWA standards. The 2360 series valve fully complies with AWWA C509.

End connections include combinations of flanged, mechanical joint, slip-on, radial and threaded. Most end connections are available in the full range of sizes from 2" through 12". Tapping, cut-in, post indicator (PIV), and OS&Y valves are also offered. The valve can be installed in any position.

Resilient wedge gate valves are carefully packaged and palletized prior to shipment, helping assure the valves with their powder epoxy coating arrive to you undamaged.

Mueller plant has ISO 9001 certification

The valve manufacturing facility in Chattanooga has the highest ISO rating available — your assurance of quality products and services.

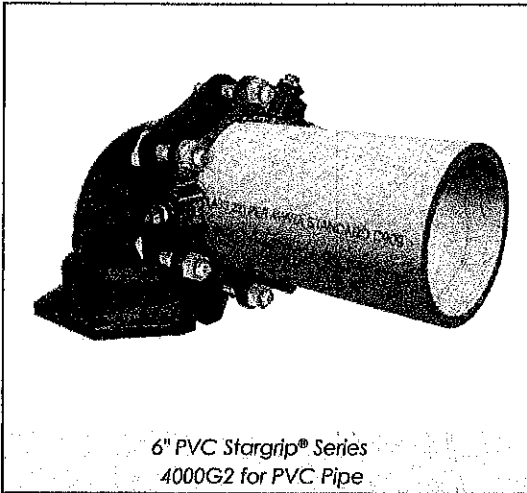
Resilient wedge valves to 48" are available

Refer to the Mueller Water Products Catalog for information about Mueller® 2361 Series™ Ductile Iron Resilient Wedge Valves 14"-48". These larger valves share many of the same features contributing to easy operation, enhanced reliability and long service life as the 2360 Series valves described in this brochure.



PVC Stargrip® series 4000G2

Mechanical Joint Wedge Action Restraint
for AWWA C900/C909 and IPS PVC Pipe
Patent Pending

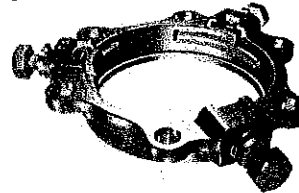


6" PVC Stargrip® Series
4000G2 for PVC Pipe

INFORMATION

The PVC Stargrip® Second Generation (Gen 2) Mechanical Joint Restraint System has all the performance advantages as its predecessor. However, the Gen 2 design offers these advantages with an installation that is quicker and easier. Gen 2 provides an exceptional restraint system for mechanical joint fittings (AWWA C153 or C110), valves, fire hydrants on AWWA C900, C909 and ASTM D2241 PVC pipe.

**Increased performance
with quicker and easier installation.**



FEATURES & ADVANTAGES

- Can be used on 4" through 12" AWWA C900 and AWWA C909 pipe or 3"-12" IPS PVC pipe*. (*A transition gasket is required on IPS PVC Pipe).
- Tested to and meets the requirements of ASTM F1674. Testing was conducted on DR18 AWWA C900 PVC pipe.
- Listed with Underwriters Laboratories in sizes 4" to 12" for use on DR18 PC235 C900 PVC pipe at 235 PSI.
- Approved by Factory Mutual Research in sizes 4" to 12" for use on DR18 PC235 at 150 psi and for sizes 4" to 10" DR14 PC305 C900 PVC pipe at 200 psi.
- The safety factor is twice (2:1) the standardized pressure rating listed on next page.
- Improved design (Gen 2) provides same performance with fewer wedges and lower wedge-bolt torque (45 to 60 ft-lbs).
- Fewer wedges and lower torque results in a quicker and easier installation.
- Gen 2 design uses a spacer that is easily removed when restraint is used on IPS PVC pipe. Wedge bolts no longer need to be removed and reinstalled to remove spacer.
- Curved wedges reduce the amount of localized pipe deformation.
- Gen 2 offers five degrees of deflection on all sizes of AWWA C900 pipe.
- The gland's larger inside diameter allows Gen 2 to be installed on pipe with more ovality.
- Improved design of the wedge bolts prevents over torquing which can damage PVC pipe.
- Wedges are mechanically attached to wedge bolts, which eliminates the possibility of falling out during shipping and handling.
- Gland is made from high strength Ductile Iron per ASTM A536 Grade 65-45-12 and is compatible with all Mechanical Joints that conform to ANSI/AWWA C111/A21.11. Standard gland color is Coral Red (RAL 3016).
- Eliminates the need for tie rods and thrust blocks.
- Patent Pending
- Contact Star Engineering for use on HDPE pipe.

SAMPLE SPECIFICATIONS

Restrainer mechanism shall be integrated into the design of the restraint gland. As the mechanism is activated, multiple wedge action shall be imparted against the pipe OD increasing its resistance as internal pressure increases. After burial of the restraining mechanism, joint flexibility shall be maintained.

The actuating bolt shall be threaded into the gland and have a 1-1/4" hex operating head. The actuating bolt system shall have a torque-limiting head designed to break off at preset torque levels, thus insuring proper action of the restraining device. After removal of the torque-limiting head, a secondary hex head shall remain to facilitate the removal and re-assembly of the gland. Glands, bolts and wedges shall be manufactured of high strength ductile iron in accordance with ASTM A536 Grade 65-45-12 requirements.

Applicable dimensions conforming to ANSI/AWWA C111/A21.11, C110/A21.10 and C153/A21.53 shall be incorporated into the design so that the device facilitates use with standard mechanical joint sockets.

The restraining mechanism shall have a pressure rating as stated in most current catalog and shall have a safety factor of at least 2:1. The restraining device for C900 PVC, C909 PVC and IPS PVC Pipe shall be Star® Pipe Products second Generation PVC Stargrip® Series 4000G2 or equal.

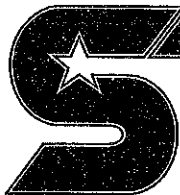
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® REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR® PIPE PRODUCTS
HOUSTON CORPORATE TOLL FREE 1-800-999-3009 FAX 281-558-9000
www.starpipeproducts.com

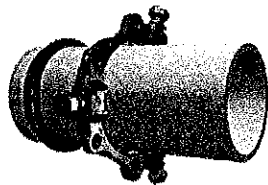
STAR® PIPE PRODUCTS



PVC Stargrip® series 4000G2

Mechanical Joint Wedge Action Restraint
for AWWA C900/C909 and IPS PVC Pipe
Patent Pending

INSTALLATION INSTRUCTIONS - SIZES 3" - 12"



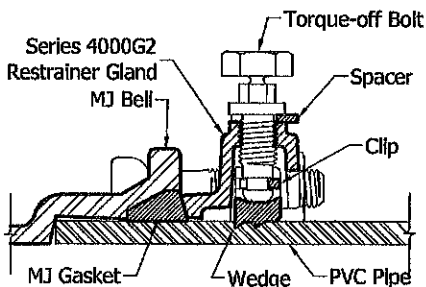
STEP 1

The rubber gasket seals more effectively if the surfaces with which it comes in contact are thoroughly cleaned just before assembly. Remove all foreign material while cleaning. Lubrication and additional cleaning should be provided by brushing both the gasket and the plain end with soapy water or pipe lubricant. Slide the SERIES 4000G2 on the plain end with lip facing the plain end, followed by the MJ gasket with tapered side facing the plain end.

IMPORTANT: When installing sizes 4" through 12" on IPS PVC pipe, MJ Transition gasket must be used.

After insertion of the pipe into the bell of the fitting, firmly press the gasket into the gasket recess. During this process the joint should be kept straight.

STEP 2



Slide the SERIES 4000G2 toward the MJ bell with the gland lip evenly pressed against the gasket. Insert T-bolts and hand tighten nuts.

STEP 3

IMPORTANT: Make deflection after joint is assembled but before tightening T-bolts to required torque range as listed in table below.

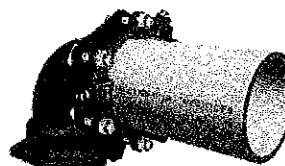
STEP 4

While tightening T-bolts, it is essential that the gland be brought up toward the bell flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket. In order to keep the spigot fully homed in the MJ bell, the joint will need to be kept in compression until the completion of Step 6. All T-bolts should be tightened until they are within the torque range as listed in table below. This process may require multiple rounds.

STEP 5

Hand tighten the Torque-limiting twist-off bolts in a clockwise direction until all wedges are in firm contact with the pipe surface.

IMPORTANT: When installing sizes 4" through 12" on IPS PVC pipe, spacers must be removed from the torque-limiting bolts.



STEP 6

Continue tightening in an alternating manner until all of the Torque-limiting twist-off bolt heads have been twisted off. If removal is necessary, utilize the 5/8" hex head provided. If reassembly is required, assure that all of the Torque-off bolts, wedges, clips and spacers (if required) are in place. Assemble the joint in the same manner as above and tighten the wedge bolts to 45-60 ft.-lbs. using 5/8" hex head provided.

NOMINAL PIPE SIZE	T-BOLT TORQUE (FT-LBS)			MAXIMUM DEFLECTION* ANGLE FOR C900 & IPS (DEG.)
	C900	C909	D2241	
3	-	-	45-60	5
4	75-90	55-65	75-90	5
6	75-90	55-65	75-90	5
8	75-90	55-65	75-90	5
10	75-90	55-65	75-90	5
12	75-90	55-65	75-90	5

* Deflection not allowed for C909.

Notes:

- If effective sealing is not attained at the maximum torque indicated, then the joint should be disassembled, thoroughly cleaned, and reassembled. Overstressing the bolts to compensate for poor installation practice is not acceptable.
- Not to be used on DI or steel pipe.
- PVC Stargrips must be adequately wrapped or protected if they are covered by concrete to ensure that concrete is not allowed to enter the wedge pocket.
- For applications with vertical offsets please contact Star Pipe Products for technical assistance.



STAR® PIPE PRODUCTS

Carbon Steel Flange Nut & Bolt Set

ASTM A307 GRADE A / SAE J995 GRADE 2

FEATURES

- For 150# & 300# ANSI Flanges
- Lengths for Joining Two Flanges*
- Material: Carbon Steel
- Finish: Zinc Plated
- Sizes: 1/2" to 24" (150#), 1/2" to 12" (300#)

STANDARDS

Bolts:

- Material - ASTM A307A Grade A
- Dimensions - ASME B18.2.1
- Thread - Class 2A

Nuts:

- Material - SAE J995 Grade 2
- Dimensions - ASME B18.2.2
- Thread - Class 2B

BOLT PROPERTIES

- Tensile: 60 KSI Minimum
- Elongation: 18% Minimum
- Hardness: 69 - 100 Rb



*Based on 1/16" raised face and 1/8" gasket

300# Pack Quantities & Bolt Sizes (Inches)				
Size	Bolt	Nut Qty	Diameter	Bolt Length
1/2	4	4	1/2-13	2-1/4
3/4	4	4	5/8-11	2-1/2
1	4	4	5/8-11	2-1/2
1-1/4	4	4	5/8-11	2-3/4
1-1/2	4	4	3/4-10	3
2	8	8	5/8-11	3
2-1/2	8	8	3/4-10	3-1/4
3	8	8	3/4-10	3-1/2
4	8	8	3/4-10	3-3/4
5	8	8	3/4-10	4-1/4
6	12	12	3/4-10	4-1/4
8	12	12	7/8-9	4-3/4
10	16	16	1-8	5-1/2
12	16	16	1-1/8-7	5-3/4

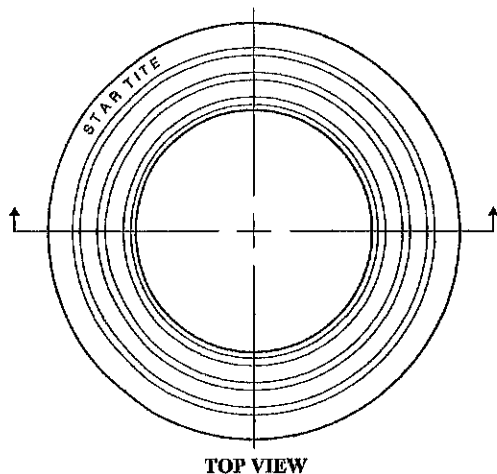
150# Pack Quantities & Bolt Sizes (Inches)				
Size	Bolt	Nut Qty	Diameter	Bolt Length
1/2	4	4	1/2-13	2
3/4	4	4	1/2-13	2
1	4	4	1/2-13	2-1/4
1-1/4	4	4	1/2-13	2-1/4
1-1/2	4	4	1/2-13	2-1/2
2	4	4	5/8-11	2-3/4
2-1/2	4	4	5/8-11	3
3	4	4	5/8-11	3
4	8	8	5/8-11	3
5	8	8	3/4-10	3-1/4
6	8	8	3/4-10	3-1/4
8	8	8	3/4-10	3-1/2
10	12	12	7/8-9	4
12	12	12	7/8-9	4
14	12	12	1-8	4-1/2
16	16	16	1-8	4-1/2
18	16	16	1-1/8-7	5
20	20	20	1-1/8-7	5-1/2
24	20	20	1-1/8-7	6

The contents of this publication are presented for information purposes only, and while effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, expressed or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice. Always verify that you have the most recent product specifications or other documentation prior to the installation of these products.



Star-Tite™ Flanged Gasket

3" to 36", Ring Style



TOP VIEW



SECTION VIEW

INTRODUCTION

Historically, flat red rubber gaskets have been used for sealing flanged joints. These gaskets may not have NSF/ANSI 61 or NSF/ANSI 372 certification and do not qualify for higher ratings in standards such as ANSI/AWWA C110/A21.10. The Star-Tite™ flanged gasket is a specially designed gasket that qualifies for the higher rating. It also is listed by UL as satisfying both NSF/ANSI 61 and NSF/ANSI 372 requirements for potability.



LOWER TORQUE

The Star-Tite™ Ring Gasket has about one half the area to compress when compared to a full face gasket, which results in a reduction of the torque required to achieve a proper seal. In addition, the Star-Tite™ Ring Gasket incorporates three bulbs that are molded into the gasket, a geometry that improves the performance when compared to a typical flat full face red rubber gasket.

HIGHER PERFORMANCE

AWWA standard ANSI/AWWA C110/A21.10 describes specially designed gaskets as follows:

Also available for most sizes are specially designed gaskets, either ring or full-face, using one or more annular rings molded into the gasket to improve the gasket performance.

Appendix A, Section A.2, Gaskets

Footnotes below the pressure rating tables in ANSI/AWWA C110/A21.10 for flanged fittings allow the rating of flanged fittings that use these special gaskets to be 350 psi in sizes 24-inch and less. The Star-Tite™ gasket qualifies as one of these special gasket designs. When normal flat full face red rubber gaskets are used, the rating is 250 psi.

The bulb type rings on the Star-Tite™ ring gasket allow the gasket material to compress in three localized areas of the flange. The inner bulb is located inside the tapered pipe thread that is typical with fabricated pipe. This creates a pressure boundary that prevents leakage through the threaded connection, which is shown in Figure 1 on the next page. The outer two bulbs better accommodate minor misalignment that occasionally occurs when flat surfaces are mated together.

STAR® PIPE PRODUCTS





Star-Tite™ Flanged Gasket

3" to 36", Ring Style

TECHNICAL INFORMATION

Figure 1.

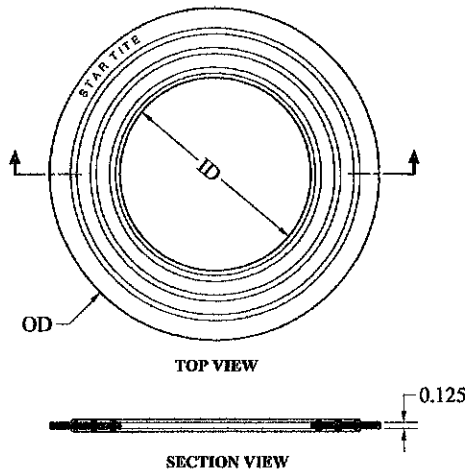
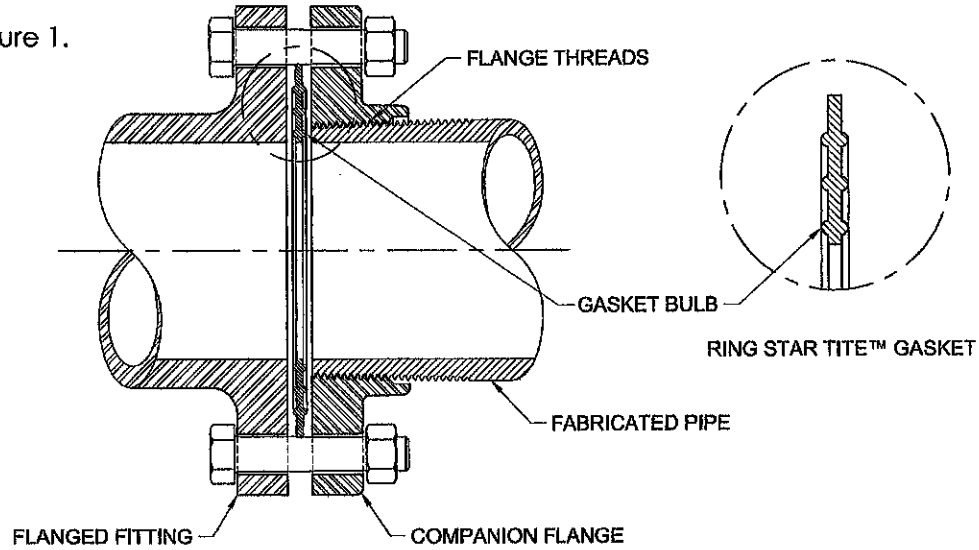


Table 1 - FLANGE ACCESSORY PACKS C111/A.21.11*							
NOM. SIZE	ID	OD	BOLTS	BOLTS (QTY)	MAX PRESSURE RATING (PSI)	BOLT TORQUE (FT-LB)	APPROX. WT. (LBS)
3	3.000	5.375	5/8 x 2 1/2	4	350	110	2
4	4.000	6.875	5/8 x 3	8	350	110	4
6	6.000	8.750	3/4 x 3 1/2	8	350	110	5
8	8.000	11.000	3/4 x 3 1/2	8	350	110	5
10	10.000	13.375	7/8 x 4	12	350	130	12
12	12.000	16.125	7/8 x 4	12	350	130	13
14	14.000	17.750	1 x 4 1/2	12	350	150	19
16	16.000	20.250	1 x 4 1/2	16	350	160	25
18	18.000	21.625	1 1/8 x 5	16	350	180	36
20	20.000	23.875	1 1/8 x 5	20	350	200	45
24	24.000	28.250	1 1/4 x 5 1/2	20	350	220	61
30	30.000	34.750	1 1/4 x 6 1/2	28	250	140	94
36	36.000	41.250	1 1/2 x 7	32	250	160	172

*All dimensions in inches except where indicated.

GENERAL SPECIFICATIONS

- HEX BOLTS:** Per ANSI/ASME B18.2.1 - Material per ASTM A307 Grade B, Zinc Plated
- HEX NUTS:** Per ANSI/ASME B18.2.2 - Material per ASTM A563 Grade A or B, Zinc Plated
- GASKET MATERIAL:** Vulcanized Styrene Butadiene Rubber (SBR)
- DIMENSIONS:** Refer to Table 1 above or FAH03-36RG submittal drawing number A6531.
- CERTIFICATIONS:** UL listed to NSF/ANSI 61 and NSF/ANSI 372 for potability.
- PRESSURE RATING:** 350 psi for sizes 3" to 24"; 250 psi for sizes 30" to 36".

STAR® PIPE PRODUCTS



Star® Pipe Products

Full Face Gasket, 8 in, Star Tite

Part: STTFFG8 MFG: FAH08FFG

Description

Star® Pipe Products, FAH08FFG, Gasket, Full Face, 8 in Nominal, Star Tite

Specifications

Type	Full Face
Nominal Size	8 in
Material	Star Tite

Brand	Star® Pipe Products
-------	---------------------

Manufacturer	Star Pipe Products
Manufacturer Part Number	FAH08FFG



Star® Pipe Products

Full Face Gasket, 12 in, Star Tite

Part: STTFFG12 MFG: FAH12FFG

Description

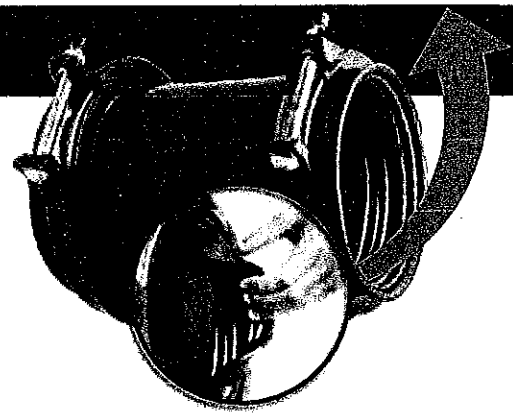
Star® Pipe Products, FAH12FFG, Gasket, Full Face, 12 in Nominal, Star Tite

Specifications

Type	Full Face
Nominal Size	12 in
Material	Star Tite

Brand	Star® Pipe Products
-------	---------------------

Manufacturer	Star Pipe Products
Manufacturer Part Number	FAH12FFG



HYMAX 2

HYMAX[®] 2 COUPLING (4" - 12")

FEATURES

- ADVANCED WIDE-RANGE COUPLING WITH A PATENTED FLIP GASKET
- ELIMINATES GASKET REMOVAL MISTAKES AND MAXIMIZES INSTALLER WORK EFFICIENCY
- ONLY 2-4 TOP FACING BOLTS, FOR FASTER AND SAFER INSTALLATION
- READY-TO-USE DESIGN TO ELIMINATE EXTENSIVE PREPARATORY UNDER-PIPE DIGGING
- ALLOWS 4° DYNAMIC DEFLECTION ON EACH END, REDUCING FUTURE PIPE DAMAGE
- PATENTED HYDRAULICALLY-ASSISTED GASKET WITH 2-STAGE SEALING
- SUITABLE FOR ALL TYPES OF PIPES - DUCTILE IRON, CAST IRON, STEEL, COPPER, PE, PVC, AC, GRP
- ONE PRODUCT CAN CONNECT PIPES OF TWO DIFFERENT MATERIALS
- BASED ON THE GAME-CHANGING HYMAX THAT HAS BEEN FIELD-PROVEN IN MILLIONS OF INSTALLATIONS IN THE US
- PRODUCT PERFORMANCE, OD RANGE AND PRESSURES ARE IDENTICAL TO THOSE OF THE ORIGINAL HYMAX

SPECIFICATIONS

STANDARDS

HYMAX2 MEETS OR EXCEEDS STANDARDS AWWA C-219, NSF 61, NSF 372.

SIZE

AVAILABLE IN NOMINAL DIAMETER FROM 4" - 12" STANDARD. CALL KRAUSZ FOR DETAILS.

MATERIALS

END RINGS 4" - 12" ASTM A283 / A283M GRADE C STEEL.

CENTER RING 4" - 12" ASTM A53 GRADE A STEEL.

GASKETS EPDM COMPOUNDED FOR WATER AND SEWAGE, MEETS INTERNATIONAL STANDARDS FOR CONTACT WITH DRINKING WATER.

BRIDGE AISI 304 STAINLESS STEEL.

SPHERICAL SPACERS AISI 304L STAINLESS STEEL.

COATING 100% FUSION BONDED EPOXY FOR ENHANCED CORROSION PROTECTION. NOMINAL THICKNESS 14 MIL.

NUTS & BOLTS AISI 304 STAINLESS STEEL. ROLLED THREAD AND ANTI-GALLING COATING.

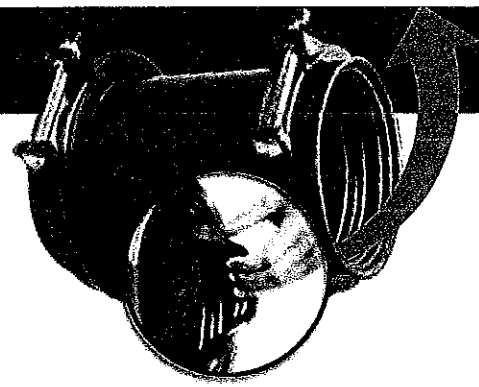
HYMAX[®]

Repair the past. Connect the future.

KRAUSZ is the creator of HYMAX

PRODUCT SPECIFICATIONS

HYMAX 2



PRODUCT PERFORMANCE (*)

WORKING TEMPERATURE	-20°F UP TO +125°F
DYNAMIC DEFLECTION	UP TO 4° PER SIDE
MIN. PIPE INSERTION	2.25"
MAXIMUM OFFSET FOR MISALIGNED PIPES	0.51"
MAXIMUM OUT OF ROUNDES	0.31"
WORKING PRESSURE	260
RATED PRESSURE	390
VACUUM TEST	12 PSI

* See Submittal Drawings For Details.

PRODUCT TABLES

HYMAX®2 NOMINAL SIZES (4" - 12")

Krausz Part Number	Nominal Diameter (Inch)	Overall Range (inch)	Range in closed gasket position (inch)	Range in open gasket position (inch)	Bolt Qty. and Size (mm)	Torque (Ft-Lbs)	Approx. Weight (Lbs)
860-54-0108-16	4	4.25-5.63	4.25-5.00	4.92-5.63	2 -M14	75	15
860-54-0130-16	5	5.12-6.38	5.12-5.75	5.71-6.38	2 -M14	75	19
860-54-0163-16	6	6.42-7.68	6.42-7.05	7.01-7.68	2 -M14	75	23
860-54-0190-16	7	7.48-8.74	7.48-8.11	8.07-8.74	2 -M14	75	24
X 860-54-0217-16	8	8.54-9.84	8.54-9.17	9.13-9.84	2 -M14	75	28
860-54-0272-16	10	10.70-12.00	10.70-11.37	11.33-12.00	2 -M14	75	32
860-54-0278-16	10	10.96-12.26	10.96-11.63	11.59-12.26	2 -M14	75	33
X 860-54-0315-16	12	12.40-13.66	12.40-13.03	12.99-13.66	2 -M14	80	39
860-54-0334-16	12	13.15-14.41	13.15-13.78	13.74-14.41	2 -M14	80	39

For specific sizes of products in stock, call Krausz for details.



Gary Mossa
 Outside Sales Representative
 (209) 302-0591 | gary.mossa@fortiline.com
 3650 Seaport Blvd., West Sacramento, CA 95691
 (916) 234-5455 | fortiline.com

1ST PUBLIC UTILITY DISTRICT

REQUEST FOR SEALED BID'S

(DATE) MAY 21, 2026

OWNER: Olivehurst Public Utility District
PROJECT: OPUD WATER MAIN & SERVICE LINE MATERIAL RFB

TO: Contractor / Bidder
BID DUE DATE: June 12, 2026 2:00 P.M.
BID OPENING DATE/TIME: June 12, 2026 Shortly after Bid Due Date.

SUBMIT BID TO: Olivehurst Public Utility District
 1970 9th Avenue
 Olivehurst, CA 95961
 (530) 682-0736

Notice is hereby given to all prospective Contractors /Suppliers to **submit a sealed BID** on or before the above date. Contractor / Supplier agree to supply all equipment described in the available CONTRACT DOCUMENTS consisting of Plans, proposal document and Specifications. OPUD is looking for BIDS for the purchase of various water service material and pipe material. Copies of the CONTRACT DOCUMENTS may be obtained from Olivehurst Public Utility District, upon the non-refundable payment of \$ 50 per set, or you may request a free electronic copy from the District Public Works Manager via email at sboyal@opud.org.

Any question should be submitted to the Public Works manager via email at sboyal@opud.org or via phone at 530-682-0736. All questions are due by **Wednesday, June 3rd at 2 PM** for Clarification or addendum items.

Sincerely,

Swarnjit Boyal

Swarnjit Boyal, MS
 Public Works Manager

OLIVEHURST PUBLIC UTILITY DISTRICT
 1970 9TH Avenue
 Olivehurst, CA 95961
 Phone: (530) 682-0736

OLIVEHURST PUBLIC UTILITY DISTRICT
NOTICE OF REQUEST FOR SEALED BID'S

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Sincerely,

Swarnjit Boyal

Swarnjit Boyal, MS
Public Works Manager

OLIVEHURST PUBLIC UTILITY DISTRICT
1970 9TH Avenue
Olivehurst, CA 95961
Phone: (530) 682-0736

OLIVEHURST PUBLIC UTILITY DISTRICT

Our mission is to provide high quality services to enhance our community's quality of life.



BOARD OF DIRECTORS

Dennise Burbank Lacey Nelson John Floe Mary Jane Griego Marc Perrault

GENERAL MANAGER

John Tillotson

May 21st, 2026

To: Prospective Bidders

RE: Purchase of aforementioned Water Service Materials for Service Line Replacements throughout Historic Olivehurst

Bids shall include any and all taxes, freight, federal/state fees, hazardous waste disposal fee, weight certificate of completed unit, etc. and be an 'Out-The-Door' cost. Please make sure to include a specification page/build sheet of materials in order to verify compliance with the requested specifications above. Any questions shall be directed to the OPUD Public Works Department at 530-682-0736 or via email at sboval@opud.org. Attached please find an example of what OPUD is looking for (or similar). Item # & MFG# was used as sample from local vendor as reference only. Olivehurst Public Utility District will be accepting as specified below:

Bid FORM for following water service materials:

RFB - BID SHEET FOR WATER SERVICES MATERIAL SUBMITAL - BID FORM

Title	Brand	Item #	MFG #	Unit of Measure	Quantity	Price	TOTAL
1 B-25028N Ball Corporation Stop, 1 in, MNPT x 1/10 CTS, Brass	Mueller Co or similar	MUEB25028N1	025028330N	Each	160	91.16	14585.60
2 Angle Meter Valve, 1 in, 1/10 CTS x Meter Nut Brass	Mueller Co or similar	MUEB24258N1	024258330N	Each	160	168.73	26996.80
3 Bushing 5/8 x 3/4 to 1 in, MNPT x Meter Nut Brass	Mueller Co or similar	MUEH10879N58344	H-10879N 5/8x3/4x1	Per Pair	80	80.34	6454.70
4 Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft, CTS	VARIES	WPP1100BLK	WPP1100BLK	Per Roll	35	.64	2310.00
5 Double Strap Pipe Saddle, 10 in, 1 in FNPT	A.Y. McDonald or similar	MCD3826101	4748-035	Each	30	234.01	7020.30
6 Hinged Pipe Saddle, 8 in, 1 in FNPT	FORD or similar	FORS91804	S91-804	Each	10	100.88	1008.80
7 Double Strap Pipe Saddle, 8 in, 1 in FNPT	A.Y. McDonald or similar	MCD382681	4748-015	Each	95	188.89	17944.55
8 2-Piece Pipe Saddle, 12 in, 1 in FNPT	FORD or similar	FORS911204	S91-1204	Each	30	243.58	7307.40
9 Tracer Wire, 10 AWG, 45 mil, Blue, (500 ft rolls or spool)	VARIES	TRW10BLU45	TRW10BLU45	Each	8	215.00	1720.00
10 Copper Split Bolt Connector (Needs to be compatible with 10 AWG Tracer wire mentioned above)	VARIES	TRWCSB8CS8	TRWCSB8CS8	Each	160	4.25	680.00
11 DR 18 PVC Pipe, 6 in, Bell x plain, 20ft L sticks, Blue	VARIES	PV/DR186	PV/DR186	LF	20	10.42	208.40
12 DR 18 PVC Pipe, 8 in, Bell x plain, 20ft L sticks, Blue	VARIES	PV/DR188	PV/DR188	LF	300	17.82	5347.00
13 DR 18 PVC Pipe, 12 in, Bell x plain, 20ft L sticks, Blue	VARIES	PV/DR1812	PV/DR1812	LF	20	37.83	756.60
14 Cross, 12 x 8 in, Flange, Cement Lined	Various Vendors	DCFCSOSSF1G128	DCFCSOSSF1G128	Each	1	1824.90	1824.90
15 Reducer Coupling, 8 x 6 in, Flange, Cement Lined	Various Vendors	DCFREDFLG86	DCFREDFLG86	Each	1	332.50	332.50
16 Reducer Coupling, 12 x 8 in, Flange, Cement Lined	Various Vendors	DCFREDFLG128	DCFREDFLG128	Each	1	717.50	717.50
17 22.5 deg Elbow, 8 in, Mechanical Joint, Fusion Bond Epoxy Coated	Various Vendors	DCFED212M18	DCFED212M18	Each	2	276.90	553.80
18 22.5 deg Elbow, 8 in, Mechanical Joint, Flange, Cement Lined	Various Vendors	DCF2212M1FG8	DCF2212M1FG8	Each	1	326.90	326.90
19 Non-Rising Stem Gate Valve, 8 in, Flange, Ductile Iron	Various Vendors	WGV/F8	WGV/F8	Each	2	1636.82	3273.64
20 Non-Rising Stem Gate Valve, 12 in, Mechanical Joint x Flange, Ductile Iron	Various Vendors	WGV/MF12	WGV/MF12	Each	1	3228.25	3228.25
21 Non-Rising Stem Gate Valve, 6 in, Flange, Ductile Iron	Various Vendors	WGV/F6	WGV/F6	Each	1	1027.72	1027.72
22 Gland, 6 in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star Pipe Products	STDSRETFVCA56	PVCRSA008G2DD	Each	2	161.13	322.26
23 Gland, 8 in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star Pipe Products	STDSRETFVCA58	PVCRSA008G2DD	Each	3	215.80	647.40
24 Gland, 12 in, Mechanical Joint, PVC, Steel Hardware, Domestic	Star Pipe Products	STDSRETFVCA512	PVCRSA012G2DD	Each	1	385.79	385.79
25 Bolt Set, 10 to 12 in 150#, Zinc CR+3, Grade 2	Various Vendors	WBLBS1012	WBLBS1012	Each	2	2074	4148
26 Bolt Set, 8 in 150#, Zinc CR+3, Grade 2	Various Vendors	WBLBS8	WBLBS8	Each	8	800	6400
27 Ring Gasket, 8 in, Star Tite	Star Pipe Products	STRG8	FAH08RG	Each	4	32.00	128.00
28 Ring Gasket, 6 in, Star Tite	Star Pipe Products	STRG6	FAH06RG	Each	4	27.36	109.44
29 Full Face Gasket, 12 in, Star Tite	Star Pipe Products	STTFG12	FAH12FTG	Each	2	54.73	109.46
30 Full Face Gasket, 8 in, Star Tite	Star Pipe Products	STTFG8	FAH08FTG	Each	2	32.11	64.22
31 860 Transition Coupling, 12 in, Various, Carbon Steel	HYMAX	HYM2CPUG12	860-540-0315-16	Each	1	1032.79	1032.79
32 874 Transition Coupling, 8 in, Flange x Various, Carbon Steel	HYMAX	HYMFA8	874-54-08021712	Each	1	574.61	574.61
33 22.5 deg Elbow, 8 in, Mechanical Joint x Flange, Cement Lined	Various Vendors	DCF2212M1FLG6	DCF2212M1FLG6	Each	1	202.67	202.67
34						TAX (8.25%)	9890.48
						SUM	116813.68



CUSTOMER NO	QUOTING BRANCH	QUOTE NO	QUOTE DATE	PAGE
238082	FORTILINE SACRAMENTO	6862971	5/22/26	1

CUSTOMER	PROJECT INFORMATION
ALL BIDDERS SACRAMENTO 3650 SEAPORT BOULEVARD WEST SACRAMENTO, CA 95691	RFB OPUD WATER MAIN & SVC LINE PART

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
			***** IF, AFTER THE DATE OF THIS QUOTE, ANY NEW OR INCREASED TARIFFS, DUTIES OR OTHER GOVERNMENT-IMPOSED COSTS ON MATERIALS USED IN THE WORK BECOMES EFFECTIVE, THE CONTRACT PRICE SHALL BE ADJUSTED TO REFLECT THE ACTUAL INCREASED COST TO FORTILINE. FORTILINE SHALL PROMPTLY NOTIFY THE CUSTOMER OF ANY SUCH COST IMPACT. FAILURE OF FORTILINE AND THE CUSTOMER TO AGREE ON ANY PRICE ADJUSTMENT SHALL NOT RELIEVE THE CUSTOMER'S OBLIGATION TO PAY THE INCREASED COST. *****		
10	160	EA	1" BALL CORP MIPX110C B-25028N LOW LEAD	91.1600	14,585.60
20	160	EA	1"BALL ANGVLV 110CXMSN B24258N LOW LEAD	168.7300	26,996.80
30	160	EA	5/8X3/4"MTR BUSH TO 1" H10879N LOW LEAD 010879 216N	40.3400	6,454.40
40	3500	FT	1"X100' CTS PE BLK 250PSI TUBING	.6600	2,310.00
50	30	EA	10X1 IP BR2B SDL 11.04-12.12 BR2B1104IP10	234.0100	7,020.30
60	10	EA	8X1 IP H13492 SDL F/C900 PVC	100.5600	1,005.60
70	95	EA	8X1 IP BR2B SDL 8.99-9.67 BR2B0899IP10	188.8900	17,944.55
80	30	EA	12X1 IP H13494 SDL F/C900 PVC	243.5800	7,307.40
90	4000	FT	10GA SOLID COPPER WIRE BLUE	.4300	1,720.00
100	160	EA	SPLIT BOLT CONNECT. 10GA	4.2500	680.00
110	20	FT	6" C900 DR18 PIPE BLUE	10.4200	208.40
120	300	FT	8" C900 DR18 PIPE BLUE	17.8900	5,367.00
130	20	FT	12" C900 DR18 PIPE BLUE	37.8300	756.60
140	1	EA	12"X8" FLG CROSS C110	1,824.9000	1,824.90
150	1	EA	8"X6" FLG CONC REDUCER C110	332.5000	332.50
160	1	EA	12"X8" FLG CONC REDUCER C110	717.5000	717.50
170	2	EA	8" MJ 22-1/2 FUSION BOND C153	276.5000	553.00
180	1	EA	8" MJXFLG 22-1/2 C153	326.9000	326.90
190	2	EA	8" FLG GV O/L 2" OP NUT A2361	1,636.8200	3,273.64
200	1	EA	12" MJXF GV O/L A2361-19 L/ACC	3,228.2500	3,228.25
210	1	EA	6" FLG GV O/L 2" OP NUT A2361	1,027.7200	1,027.72
220	2	EA	6" STARGRIP PVCPKS4006G2DD	161.1300	322.26
230	3	EA	8" STARGRIP PVCPKS4008G2DD	215.8000	647.40
240	1	EA	12" STARGRIP PVCPKS40126G2DD	385.7900	385.79

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date. After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

CUSTOMER NO	JOB NAME	QUOTE NO	QUOTE DATE	PAGE
238082	RFB OPUD WATER MAIN & SVC LINE PAR	6862971	5/22/26	2

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
250	2	EA	10"-12" ZINC FLG BOLT KIT GR2	20.7400	41.48
260	8	EA	8" ZINC FLG BOLT KIT GR2	8.0000	64.00
270	4	EA	8" STAR TITE RING GASKET	32.0000	128.00
280	4	EA	6" STAR TITE RING GASKET	27.3600	109.44
290	2	EA	12" STAR TITE FF GASKET	54.7300	109.46
300	2	EA	8" STAR TITE FF GASKET	32.1100	64.22
310	1	EA	12" HYMAX2 CPLG 12.40-13.66 W/FLIP GASKET	632.7900	632.79
320	1	EA	8" HYMAX2 FLG ADPT 8.54-9.84 874-54-08021712	574.6700	574.67
330	1	EA	6" MJXFLG 22-1/2 C153	202.6700	202.67
				Subtotal:	106,923.24
				Tax:	9,890.41
				Bid Total:	116,813.65

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date.

After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

Ent By CM9 6/10/26 11:50:39

Letter of Transmittal

Fortiline Waterworks
 3650 Seaport Blvd.
 W. Sacramento, CA 95691



Date: 6/9/2026

Contact: _____

Job: RFB OPUD WATER MAIN

Customer: _____

Page(s)	Date	Vendor	Description
3		Westlake	C900 PVC Pipe
5		JM Eagle	C900 PVC Pipe
6		Diamond Plastics	C900 PVC Pipe
7		Sigma	FLG DI Fittings
8		Sigma	MJ DI Fittings
9		Sigma	MJ FB DI Fittings
10		ADS	CTS Poly Tubbing
11		AGAVE	Tracer Wire
12		ITP	Zinc FLG Bolt Kit
13		Pacific Coast Bolt	Zinc FLG Bolt Kit
14		Starpipes	PVC Mega Lug
15		Smith Blair	FCA
16		Hymax	FCA
17		Hymax	Range CPLG
18		Smith Blair	Range CPLG
19		Mueller	Meter Bushing H-10879N
20		AY Mcdonald	Meter Bushing 710J24Kit
21		Mueller	Angle Ball Vlv B-24258N
22		AY Mcdonald	Angle Ball Vlv 74602BSQ
23		Mueller	Ball Corp B-25028N
24		Ay Mcdonald	Ball Corp 74704BQ
25		AVK	65 Series FLG Gate Valve
26		Mueller	A-2361 Gate Valve
27		Mueller	Saddle BR2B
28		Ay Mcdonald	Saddle 3826
29		Mueller	Saddle H1300 Seires
30		Ay Mcdonald	Saddle 3806
31		Mueller	Saddle H1300 Series 10-12"
32		Sigma	PVC Megalug
33		EBAA	PVC Megalug
34		Starpipes	FLG DI Fittings

35		Starpipes	MJ DI Fittings
36		Kristech	Tracer Wire
37		Mueller	A2361 Gate Valve MjxFLG
38		AVK	65 Series MJxFLG Gate Valve

PRODUCT SPECIFICATION

AWWA C900/IB PVC PRESSURE PIPE

Gasketed Integral Bell

Our AWWA C900 Gasketed Integral Bell PVC Pipe product line is manufactured to meet the needs of modern municipal water, wastewater, and reclaimed water systems. With top quality raw materials and modern processing technology, our C900 pipe meets all industry standards in addition to our own rigorous quality control requirements.

Our C900 pipe utilizes Rieber style gaskets throughout the entire product offering to create a leak-free joint.

Short Form Specification											
Pipe Standard:	AWWA C900-16										
Diameter Std.:	Cast Iron Outside Diameter (CIOD)										
Nominal Sizes:	4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36"										
Dimension Ratios & Pressure Ratings	<table border="1"> <tr> <td>DR 51 – 80 psi</td> <td>DR 18 – 235 psi (185 psi)**</td> </tr> <tr> <td>DR 41 – 100 psi</td> <td>DR 14 – 305 psi (250 psi)**</td> </tr> <tr> <td>DR 32.5 – 125 psi</td> <td></td> </tr> <tr> <td>DR 25 – 165 psi</td> <td></td> </tr> <tr> <td>DR 21 – 200 psi</td> <td></td> </tr> </table>	DR 51 – 80 psi	DR 18 – 235 psi (185 psi)**	DR 41 – 100 psi	DR 14 – 305 psi (250 psi)**	DR 32.5 – 125 psi		DR 25 – 165 psi		DR 21 – 200 psi	
DR 51 – 80 psi	DR 18 – 235 psi (185 psi)**										
DR 41 – 100 psi	DR 14 – 305 psi (250 psi)**										
DR 32.5 – 125 psi											
DR 25 – 165 psi											
DR 21 – 200 psi											
Lay Length:	20' [6.1m]										
Pipe Compound:	ASTM D1784 Cell Class 12454										
Pipe Joint Std.:	ASTM D3139										
Max. Angular Joint Deflection: [†]	1°										
Gasket Standard:	ASTM F477, UL 157										
Gasket Material Offerings:	Standard – SBR Optional – NBR or EPDM										
Installation Std.:	AWWA C605										

Applications	Potable Water	Wastewater	Reclaimed Water
Color:	Blue	Green	Purple
Certifications: [*]	NSF 14, NSF 61 CSA B137.3* UL 1285 FM 1612** BNQ 3624-250 (24in)* BNQ 3660-950 (24in)	CSA B137.3*	CSA B137.3*

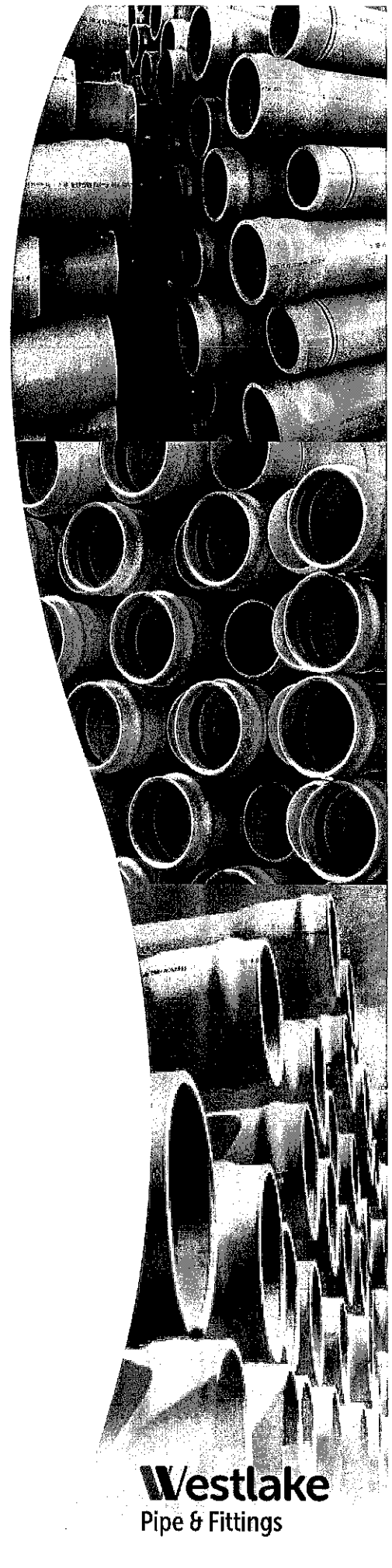
^{*}See Certification Letter for full explanation and list of exceptions.

^{**}FM 1612 calculates pressure ratings differently than AWWA for 4"-12" only with DR 18 as 185 psi and DR 14 as 250 psi.

[†]See Installation Guide for more information.



Only products
bearing the NSF
Mark are Certified

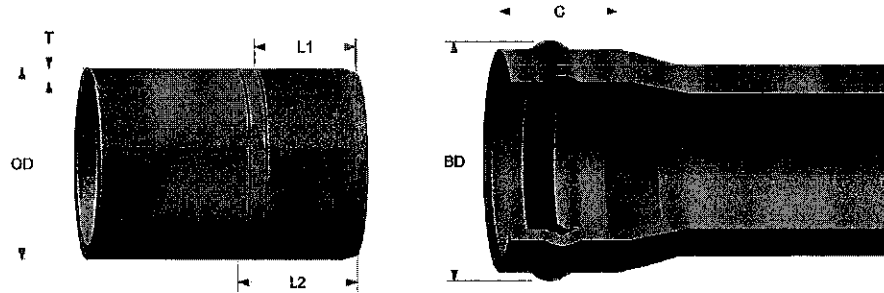




PRODUCT SPECIFICATION

AWWA C900/IB PVC PRESSURE PIPE

Gasketed Integral Bell



C900/IB PIPE DIMENSIONS & PERFORMANCE									
Nom. Size	Outside Diameter (OD)	DR	Pressure Class psi (kPa)	Min. Wall Thickness (T)	Internal Diameter (ID)	Approx. Bell Diameter (BD)	Bell Depth (C)	1 st Insertion Mark (L1)	2 nd Insertion Mark (L2)
4" [100mm]	4.800 [121.9]	25	165 [1150]	0.192 [4.88]	4.416 [112.1]	6.250 [158.8]	5.000 [127]	3.375 [85.7]	4.375 [111.1]
		18	235 [1620]	0.267 [6.78]	4.266 [108.3]				
		14	305 [2130]	0.343 [8.70]	4.114 [104.5]				
6" [150mm]	6.900 [175.3]	25	165 [1150]	0.276 [7.00]	6.348 [161.3]	8.625 [219.1]	5.750 [146.1]	4.625 [117.5]	5.625 [135.3]
		18	235 [1620]	0.383 [9.72]	6.134 [155.9]				
		14	305 [2130]	0.493 [12.50]	5.914 [150.3]				
8" [200mm]	9.050 [229.9]	25	165 [1150]	0.362 [9.20]	8.326 [211.5]	11.500 [292.1]	7.000 [177.8]	5.625 [135.3]	6.625 [168.3]
		18	235 [1620]	0.503 [12.80]	8.044 [204.3]				
		14	305 [2130]	0.646 [16.40]	7.758 [197.1]				
10" [250mm]	11.100 [281.9]	25	165 [1150]	0.444 [11.30]	10.212 [259.3]	14.000 [355.6]	7.250 [184.2]	6.125 [155.6]	7.125 [181.0]
		18	235 [1620]	0.617 [15.70]	9.866 [250.3]				
		14	305 [2130]	0.793 [20.10]	9.514 [241.7]				
12" [300mm]	13.200 [335.3]	25	165 [1150]	0.528 [13.40]	12.144 [308.5]	16.563 [420.7]	8.000 [203.2]	6.875 [174.6]	7.875 [200]
		18	235 [1620]	0.733 [18.60]	11.734 [298.1]				
		14	305 [2130]	0.943 [23.90]	11.314 [287.5]				
14" [350mm]	15.300 [388.6]	32.5	125 [860]	0.471 [12.0]	14.358 [364.7]	19.063 [484.2]	9.000 [228.6]	7.500 [190.5]	8.500 [215.9]
		25	165 [1150]	0.612 [15.6]	14.076 [357.5]				
		21	200	0.729	13.842				
		18	235 [1620]	0.850 [21.6]	13.600 [345.4]				
		14	305	1.093	13.114				
16" [400mm]	17.400 [442.0]	41	100	0.424	16.552	21.750 [552.5]	10.000 [254.0]	8.500 [215.9]	9.500 [241.3]
		32.5	125 [860]	0.535 [13.6]	16.330 [414.8]				
		25	165 [1150]	0.696 [17.7]	16.008 [406.6]				
		21	200	0.829	15.742				
		18	235 [1620]	0.967 [24.6]	15.466 [392.8]				
		14	305	1.243	14.914				

Blue Brute | C900

PRESSURE-RATED PVC PIPE



DELIVERING GOOD WATER TO YOU



AWWA C900-16, CSA B137.3
ASTM D1784 Cell Class 12454
ANSI/NSF 61/14, UL 1285

Gasket: ASTM F477
Joint: ASTM D3139

MARKETS



Potable



Irrigation



Reclaim



Sewer

DESCRIPTION

Available Pipe Sizes (CIOD)

4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48"

Nominal Laying length = 20 feet (Laying length tolerances are in accordance with AWWA and CSA standards)

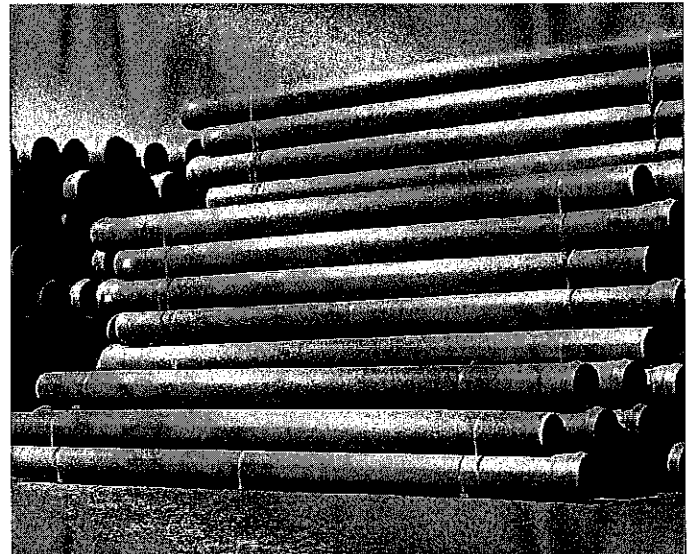
Color: Blue Green Purple White



AWWA C900-16	
305 psi	(DR 14)
235 psi	(DR 18)
200 psi	(DR 21)
165 psi	(DR 25)
125 psi	(DR 32.5)
100 psi	(DR 41)
80 psi	(DR 51)

Note: FM Approvals Pressure Class 185 psi for DR18 and 250 psi for DR14.

CSA B137.3	
309 psi	(DR 14)
235 psi	(DR 18)
167 psi	(DR 25)



BENEFITS

INSTALLATION

Field-cut with a power saw or handsaw; bevel without complicated machinery.

Does not need lining, wrapping, coating, or cathodic protection to prevent galvanic corrosion.

FEATURES

Corrosive resistant, safe, long-lasting, and stable solution for a modern infrastructure.

Consistency in carrying capacity (flow coefficient, C=150), for savings in pumping costs, and size of the pipe.



C900 PVC PRESSURE PIPE

4"-12" SPECIFICATION DATA

Diamond (C900) PVC Pipe (4" through 12") is made of 12454 compound per ASTM D1784, in accordance with the dimensional chemical, and physical requirements of AWWA C900.

Diamond (C900) PVC Pipe bears the mark of NSF, International (NSF) and the listing of Underwriters Laboratory, Inc. (UL). Some factory locations produce C900 bearing the mark of the Canadian Standards Association (CSA) and NSF14.

Diamond (C900) PVC Pipe utilizes a gasket, per ASTM F477, to seal the integral bell socket to the spigot of the next joint (which conforms to the requirements of ASTM D3139.) Each male end is beveled to facilitate joint assembly, and the spigot is referenced marked to ensure proper insertion depth. Diamond furnished lubricant is to be used in the joining process. Specialty gaskets may be available upon request.

PHYSICAL PROPERTIES OF PVC 12454:

Property	ASTM Test	Minimum
Specific Gravity	D792	1.40
Tensile Strength, psi	D638	7,000
Tensile Modulus, psi	D638	400,000
IZOD Impact Strength	D256	.65ft., lb./in.

SHORT FORM Specification for Diamond C900 PVC Water Pipe

Diamond C900 PVC Water Pipe shall be made of compounds conforming to ASTM D1784 with a cell classification of 12454. Diamond C900 shall meet all the dimensional, chemical, and physical requirements as outlined in AWWA C900 and will be supplied in 20 and 22 foot laying lengths. Joints shall meet the requirements of ASTM D3139 and shall be formed using Rieber Technology. Gaskets shall meet the requirements of ASTM F477.

Potable water pipe shall be manufactured from National Sanitation Foundation (NSF) approved compounds.

C900™

AWWA C900 SPECIFICATION DATA. SUPPLIED IN 20 AND 22 FOOT LAYING LENGTHS.

Nominal Pipe Size (in./mm)	A Outside Dia. Inches	B Bell Dia. Inches	C Approximate Bell Depth Inches	D Assembly Mark 1 Inches	E Assembly Mark 2 Inches	t C900 DR-14 305 psi Min Wall Inches	t C900 DR-18 235 psi Min Wall Inches	t C900 DR-25 165 psi Min Wall Inches
4" (100)	4.800	6-1/2"	6	4-1/4"	5-1/4"	0.343	0.267	0.192
6" (150)	6.900	9-1/4"	6.5	4-5/8"	5-5/8"	0.493	0.383	0.276
8" (200)	9.050	11-3/4"	7	5-1/8"	6-1/8"	0.646	0.503	0.362
10" (250)	11.100	14-1/4"	7.5	5-3/4"	6-3/4"	0.793	0.617	0.444
12" (300)	13.200	16-3/4"	8	6-1/8"	7-1/8"	0.943	0.733	0.528

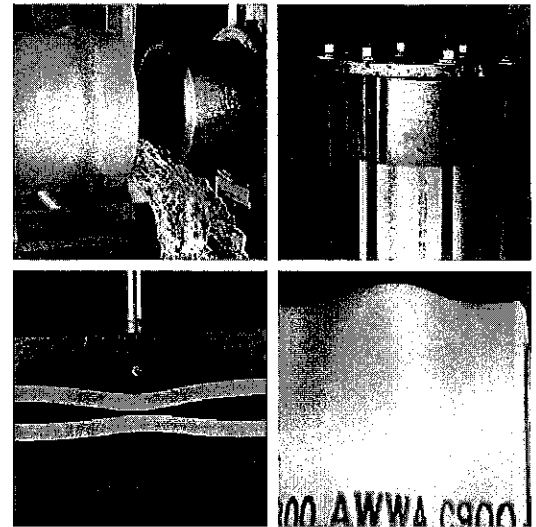
Prices are subject to a firm policy of "Price in effect at time of shipment on regular purchases"

Possession of this page does not constitute an offer of sale

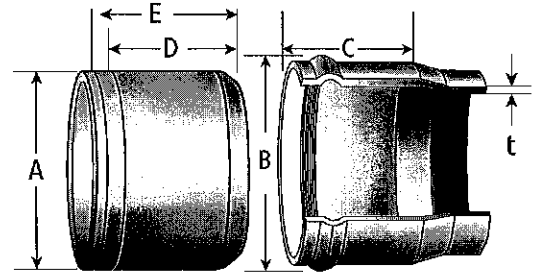
*Tolerance of +/- 1/4" allowed

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")



RIEBER JOINT ILLUSTRATION

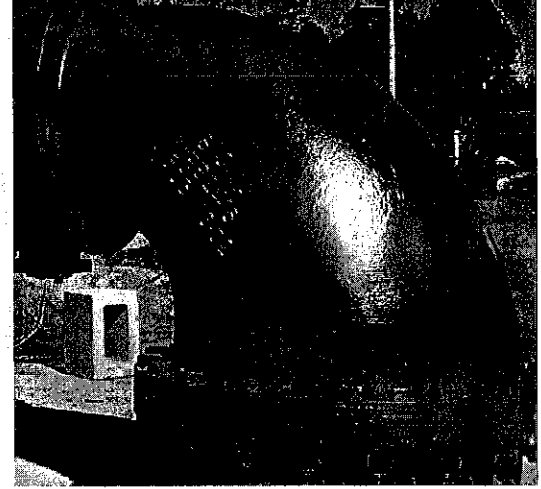
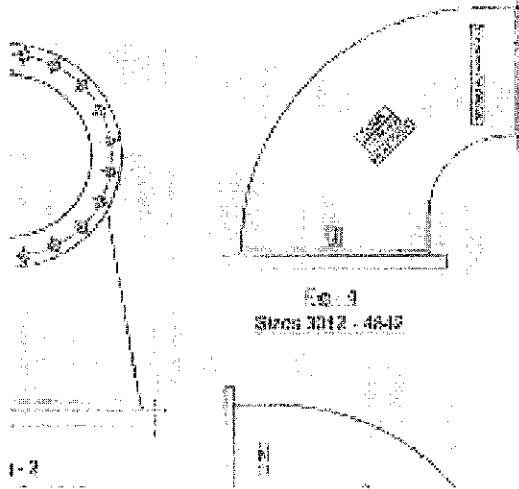




SIGMA™

Quality – Service – Commitment – Delivered.

C110 DUCTILE IRON FLANGED FITTINGS



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 NSF/ANSI/CAN 61 and NSF/ANSI 372.
• 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 and C909.

SIGMA Corporation

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Cream Ridge, NJ 08514

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crmcsr@sigmaco.com

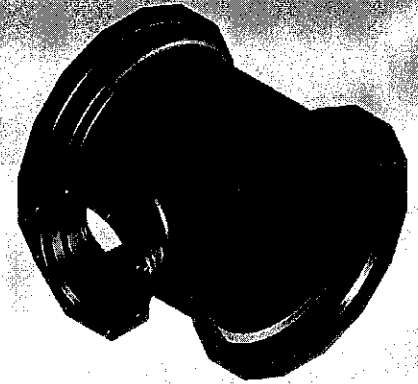
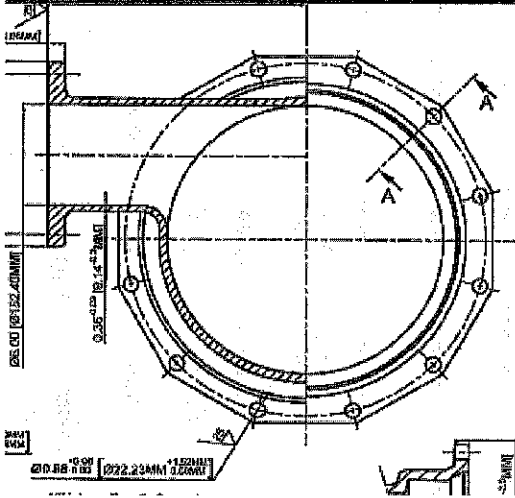
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SIGMA™

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C153 DUCTILE IRON MECHANICAL 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 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 NSF61 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 & 372.
• 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.

For sewer applications that require mandrel passage after installation, SIGMA recommends the end user check the fitting with the respective size mandrel BEFORE installing the fitting. SIGMA Corporation will NOT take responsibility for any back charges incurred due to the fitting not being checked with a mandrel prior to installation.

SIGMA Corporation

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Cream Ridge, NJ 08514

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crm-sales@sigmaco.com

www.sigmaco.com

C153 DUCTILE IRON MECHANICAL JOINT FITTINGS

Project Name: <input type="text"/>	Contractor: <input type="text"/>	Date
Engineer: <input type="text"/>	Spec Section: <input type="text"/>	06/09/26

Optional Specifications

Gaskets	<input type="checkbox"/> SBR <i>(In accordance with ANSI/AWWA C111/A21.11)</i>	Coating	<input type="checkbox"/> Asphaltic Seal Coat <i>(In accordance with ANSI / AWWA C104/A21.04 and ANSI / AWWA C153/A21.10)</i>
	<input type="checkbox"/> EPDM		<input checked="" type="checkbox"/> Fusion Bonded Epoxy (FBE)*Interior and exterior <i>(In accordance with ANSI / AWWA C116/A21.16)</i>
	<input type="checkbox"/> Neoprene		<input type="checkbox"/> Zinc <i>(In accordance with ISO 8179-2)</i>
	<input type="checkbox"/> Nitrile		<input type="checkbox"/> Others- Specify <input type="text"/>
	<input type="checkbox"/> Others -Specify <input type="text"/>		
Bolts & Nuts	<input type="checkbox"/> High Strength Low Alloy Steel (HSLA) <i>(In accordance with ANSI/AWWA C111/A21.11)</i>	Lining	<input type="checkbox"/> Cement-Mortar *Double thickness with asphaltic coating <i>(In accordance with ANSI/AWWA C104/A21.4)</i>
	<input type="checkbox"/> Stainless Steel <input type="checkbox"/> Type 304 <input type="checkbox"/> Type 316		<input checked="" type="checkbox"/> Fusion Bonded Epoxy (FBE)*Interior and exterior <i>(In accordance with ANSI/AWWA C116/A21.16)</i>
	<input type="checkbox"/> Blue Fluoropolymer		<input type="checkbox"/> Protecto 401 Ceramic Epoxy
	<input type="checkbox"/> Other- Specify <input type="text"/>		<input type="checkbox"/> Others- Specify <input type="text"/>
			<input checked="" type="checkbox"/> Refer to: <u>Lining Technical Bulletin and Guideline</u> for more information



WHEN QUALITY
Certified to NSF/
ANSI/CAN 61
and NSF/ANSI 372



Product Specifications

Material:	Ductile Iron ASTM A536 Grade 60-42-10, 65-45-12 or 70-50-05
Pressure Rating:	350 PSI rating for 2"-24" sizes, 250 PSI rating for 30"-48" sizes and 150 PSI rating for 54" - 64" Sizes
Testing:	In accordance with ANSI/AWWA 153/A21.53 & UL-FM Requirements. | Hydrostatically Tested in accordance with SIGMA Quality Management Standard.
Traceability:	All fittings are heat coded to ensure traceability and verification of metallurgical properties in accordance with the prevailing standards and SIGMA Quality Management Standards.
Size Range:	2" - 64"
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. Non-Standard items will be as per SIGMA design.
Deflection:	Maximum allowable deflection for MJ Joint is as mentioned: 2"-4" =8° | 6" =7° | 8"-12"=5° | 14"-48"=3° | 54"-64"=2°
Approvals:	3"-16" Underwriters Laboratories listed and Factory Mutual Approved. UL/NSF61 & 372.
Standards:	ANSI/AWWA C111/A21.11 and ANSI/AWWA C110/A21.10 for Ductile Iron Fittings 2"-48" for water and other liquids. Certified to NSF/ANSI/CAN 61 and NSF/ANSI 372
Installations:	Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900/905 and C909

ADS PolyFlex® Potable Water Service Pipe (SIDR IPS PE4710)

ADS PolyFlex Potable Grade Water Service Pipe is a leader in today's water service and irrigation markets. Its flexibility and durability distinguish it from the competition and make it ideal for a variety of application.

ADS Potable Water Service Pipe is strong and resistant to many common causes of damage such as vibrations, surface loads and pressure surges.

Applications

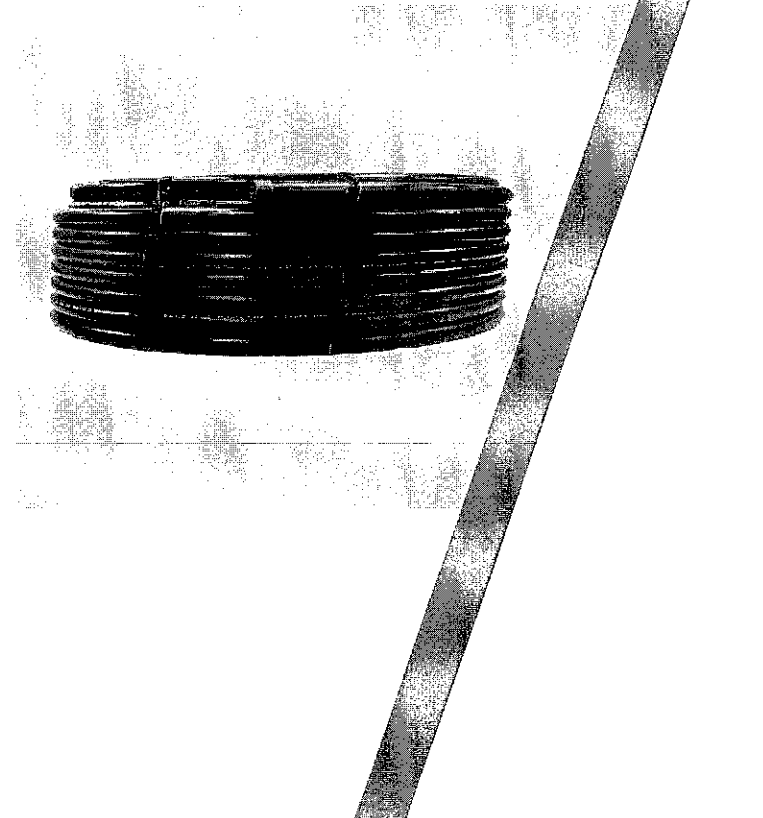
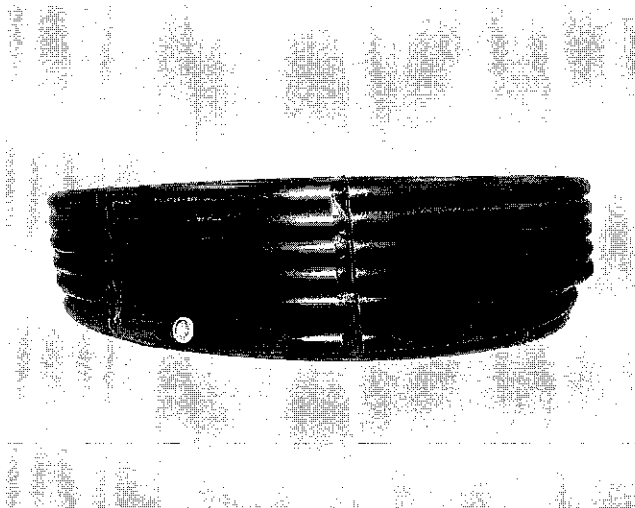
- Non-AWWA Water Service Lines
- Well/pump water systems
- Landscape & agricultural irrigation systems
- Slurry pipelines

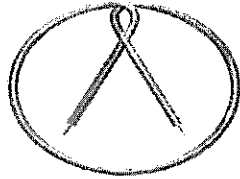
Features

- Certified to meet NSF/ANSI 14/61 standard
- Available in blue or black pipe
- Durable plastic material stands the test of time
- Strength withstands weather and the human element
- Incremental footage markers printed every 2' (0.6 m) throughout each coil length
- Light weight for easy handling
- Chemically resistant

Benefits

- Resistant to rot or corrosion
- Fast and easy to install
- Easy installation provides cost efficiency
- Flexible lengths can be installed in uneven terrain
- Flexibility makes it ideal for a variety of projects
- Available in a variety of lengths





AGAVE WIRE, LTD

Toll-Free (800) 690-3408

An ISO 9001 Certified Quality Management System

Fax: (469) 547-4242

PRODUCT DATA SHEET

PRODUCT OVERVIEW:

APE-1001

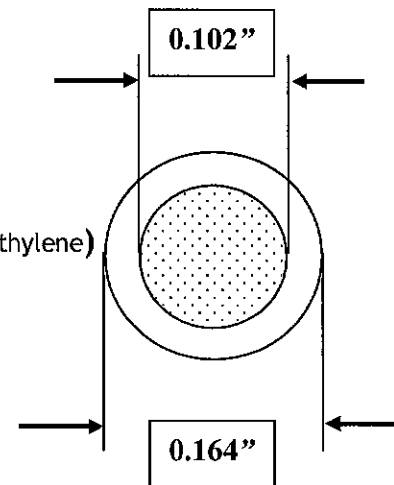
CONSTRUCTION: One 10 AWG Solid Copper HMW-PE Insulated Conductor

APPROVALS: UL - Tracer Wire

APPLICATION: Tracer Wire Suitable For Detecting Buried Facilities

CONSTRUCTION PARAMETERS:

CONDUCTOR: 10 AWG Annealed Bare Copper
STRANDING: Solid
NUMBER OF CONDUCTORS: 1
INSULATION MATERIAL: HMW-PE (High Molecular Weight Polyethylene)
INSULATION THICKNESS: 0.030" Nominal
COPPER O.D.: 0.102" Nominal
FINISHED O.D.: 0.164" Nominal
WEIGHT PER 1000ft: 36.59-lbs/1000'



ELECTRICAL & ENVIRONMENTAL PROPERTIES:

TEMPERATURE RATING: -20° c to 80° c
OPERATING VOLTAGE: 30v -300v
DC RESISTANCE @ 20° c: 0.9988 Ohms/1000'
INSULATION COLOR: Various Colors Available

PRINT LEGEND:

"AGAVE WIRE - 10AWG HMW-PE-(30) TRACER WIRE 30v (UL) E246360"

On special orders, the customer will accept all mil lengths and +/- 10% of total order requested. The information presented here is, to the best of our knowledge, is true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guarantee or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise

This specification is proprietary intellectual property of Agave Wire. Any information contained herein shall not be disclosed to any party without written consent of Agave Wire.

Manufactured in the U.S.A.



Phone: (800) 978-BOLT
 Web: itpbolt.com
 Email: sales@itpbolt.com
 Email: purchasing@itpbolt.com

BREA
 FRESNO
 RANCHO CUCAMONGA
 UNION CITY

HEX BOLTS A307 GRADE A

SUBMITTAL SPECIFICATIONS ABSTRACT OF ASTM A307 GRADE A

GRADE: Low Carbon Steel 60,000 PSI

CHEMICAL REQUIREMENTS

Chemical analysis shall be performed in accordance with ASTM A751

CARBON MAX	MANGANESE MAX	PHOPHOUS MAX	SULFER MAX
0.29	1.20	0.04	0.15

MECHANICAL REQUIREMENTS

HARDNESS BRINEL		HARDNESS ROCKWELL		TENSILE STRENGTH (KSI)		ELONGATION IN 2 IN (50MM)
MIN	MAX	MIN	MAX	MIN	MAX	MIN
121	241	69	100	60	-	18

Hex Nuts ASTM A563 (ASME B18.2.2) Heavy Hex Nuts ASTM A563 (ASME B18.2.2)

Washers ASTM F844-04 (ASME B18.22.1)

BOLTS AND NUTS MAY BE SUPPLIED

Plain Zinc Plated per ASTM B633 Hot Dip Galvanized Per ASTM A153 Cadmium Plated

LOCATION

Buried Submerged Above Grade Below Grade Other

DIMENSIONAL DATA: Unless otherwise specified in the purchase order, parts shall be the coarse threaded series as specified in the latest issue of ANSI / ASME B1.1, page A-26. Having a 2A tolerance. Grade A Bolts shall have Hex Bolt Dimensions as given in the latest issue of ANSI / ASME B 18.2.1, Page C1. Unless otherwise specified Grade A Bolts should be used with Hex Nuts.

ADDITINOAL INFORMATION: Additional information can be found in ASTM A307A-07B, ASTM A563-04A



ASTM A307 GRADE A HEX BOLT

Low Carbon Steel Bolts & Studs, 60,000 PSI Tensile Strength

Material to be Supplied

	IMPORT		DOMESTIC
--	--------	--	----------

Chemical Requirements %

CARBON	MANGANESE	PHOSPHORUS	SULFUR
0.29	1.20	0.04	0.15

Mechanical Requirements

ALL DIAMETERS	Tensile Strength (KSI)	Yield Strength (KSI)	Elongation	Brinell Hardness	Rockwell Hardness
MINIMUM	60	-	18	121	B69
MAXIMUM	-	-	-	241	B100

Recommended Hardware

Nuts	ASTM A563 GR. A HEX FINISH	ASTM A194 GRADE 2H HEAVY HEX
Washers	ASTM F844 FLAT WASHER	ASTM F436 SAE FLAT WASHER

Material Finish

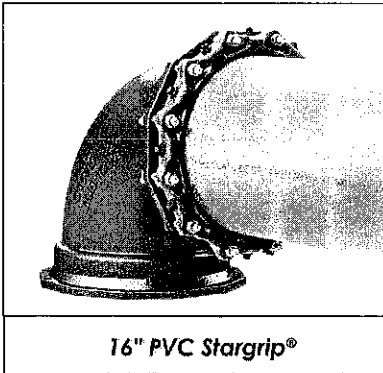
	PLAIN		ZINC		HDG		BLUE TEFLON
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ALL BOLTS & STUDS, UNLESS OTHERWISE SPECIFIED IN THE PURCHASE ORDER, SHALL BE THREADED IN ACCORDANCE WITH ANSI/ASME B1.1 UNIFIED INCH SCREW THREADS, CLASS 2A FIT. BOLT HEADS SHALL BE IN ACCORDANCE WITH THE DIMENSIONS OF ANSI/ASME B18.21, HEX BOLTS. UNLESS OTHERWISE SPECIFIED IN THE PURCHASE ORDER, THE HEX BOLT SERIES SHOULD BE USED. ADDITIONAL INFORMATION CAN BE FOUND IN ASTM A307, (CARBON STEEL BOLTS AND STUDS 60,000 PSI TENSILE STRENGTH).



PVC Stargrip® series 4000

Mechanical Joint Wedge Action Restraint
for Plastic Pressure Pipe
Sizes 3" - 48"



16" PVC Stargrip®

SUBMITTAL INFORMATION

PROJECT NAME:

ENGINEER:

CONTRACTOR:

SPEC. SECTION:



FEATURES & ADVANTAGES

- Sizes 3" - 12" consists of G2 design.
- Can be used on 4"-48" AWWA C900 PVC, 4"-18" AWWA C909 PVCO and AWWA C906 HDPE pipes along with 3"-12" IPS OD* ASTM D2241 PVC pipe. (*A transition gasket is required on IPS Plastic Pipe). See Tables A and B for further details.
- Sizes 4"-12" are listed with Underwriters Laboratories, approved by Factory Mutual Research, and tested to and meets the requirements of ASTM F1674.
- Safety factor is twice (2:1) the standardized pressure rating listed in Tables A and B.
- Offers 5° of deflection on 3"-12" AWWA C900, 3° on 14"-24", 2° on 30"-36" and 1° on 42"-48".
- Standard gland color is Coral Red and is made from high strength Ductile Iron per ASTM A536 Grade 65-45-12 and is compatible with all Mechanical Joints that conform to ANSI/AWWA C111/A21.11.
- Eliminates the need for tie rods and thrust blocks
- Fewer wedges and lower wedge-bolt torque results in quicker and easier installation (see specifications and tables C, D & E).
- Sizes 4"-12" uses a spacer that is easily removed when restraint is used on IPS Plastic pipe.
- Curved wedges reduce the amount of localized pipe deformation.
- The gland's larger inside diameter allows restraint to be installed on pipe with more ovality.
- Improved design of the wedge bolts prevents over torquing which can damage PVC pipe.
- For sizes 3"-12" and 42" -48" wedges are mechanically attached to wedge bolts, which eliminates the possibility of falling out during shipping and handling.
- US Patent# 9,822,910 applies to sizes 3"-12" and 42"-48".

MATERIAL SPECIFICATIONS:

- Wedges: Ductile Iron per ASTM A536, Grade 65-45-12. Wedge coating is a thermally cured fluoropolymer epoxy.

GLAND FINISH OPTIONS (Please check one):

- Standard: alkyd enamel coating
- Optional: Starbond™ TGIC polyester powder coating applied by an electrostatic spray process
- Optional: Other (specify) _____

COUNTRY OF ORIGIN OPTION (Please check one):

- Import
- Domestic - AIS Compliant

HARDWARE OPTIONS (Please check):

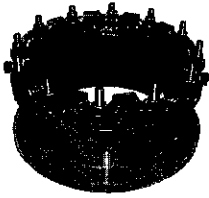
- Standard: T-bolts and nuts are high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11
- Optional: T-bolts alloy SS 304 per ASTM F593; Nuts alloy SS 304 per ASTM F594 CW
- Optional: T-bolts SS 316 per ASTM F593; Nuts SS 316 per ASTM A194 Grade 8M
- Optional: T-bolts and nuts Fluoropolymer Star-Blue coated high strength low alloy steel manufactured in accordance with ANSI/AWWA C111/A21.11

REV.2501



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Flange-Lock Restrained FCA

Ductile Iron and Steel

FOR CONNECTING AND RESTRAINING FLANGED FITTINGS TO PIPE

Patents US 7484775, US 7748100, CA 2511782

911

IMPORTANT LINKS

Click appropriate words to go to:

[Standard Limited Warranty](#)

[Sales Terms & Conditions](#)

[Freight Policy](#)

[Returns Policy](#)

[Corrosion & Product Selection Notice](#)

NOTE: *300 lb. flanges available for 300 PSI applications. For other flanges, contact Smith-Blair for specific details and pricing. The pass-through feature may not be available with some flanges. 300 PSI rating is limited to series 911 on Ductile Iron pipe only through 16". All 18"-48" 911 on Ductile Iron pipe applications will be limited to 250 PSI. All 911 on Steel pipe 3"-12" will be limited to 250 psi..

Description: A fabricated Steel FCA with integral restraint.

Application: For connecting and restraining plain end D.I. or Steel pipe to flanged pipe fittings, valves, meters, or other flanged equipment.

Key Features:

- Mechanical restraint shall be an integral part of the follower gland utilizing multiple single tooth wedges
- Reducing style available
- Breakaway nut torque per wedge is 45 to 60 ft. lbs.
- Longer adapters available

Materials Specifications (subject to change):

SLEEVE: ASTM A36 A283 Gr. C or Carbon Steel having a minimum yield of 30,000 PSI

FLANGE: *AWWA C207 Class D, ANSI 150 lb. drilling, Flat face

FINISH: Flexi-Coat®, Fusion-Bonded epoxy

Cam-Lock™ Specifications:

GLAND: 65-45-12 Ductile Iron (ASTM A536)

WEDGES: Single Tooth, Ductile Iron, heat treated for Ductile Iron pipe applications

ACTUATING BOLTS: 60-40-18 Ductile Iron (ASTM A536)

BREAKAWAY NUTS: Carbon Steel or Cast iron

FINISH: Gland is Flexi-Coat® Fusion-Bonded Epoxy, per AWWA C213; Wedges and actuating bolts are E-coated Epoxy

Kit Specifications:

GASKET: SBR Standard Mechanical Joint. AWWA C111 and ANSI A21. 11 SBR or Multi-Seal Gasket

T-BOLTS: High strength, low alloy, per AWWA C111; Optional: 304 Stainless Steel, fluoropolymer-coated

Pipe Applications: D.I., Steel

Sizes (in inches):

DUCTILE IRON: 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 30, 36, 42, 48

CARBON STEEL: 3, 4, 6, 8, 10, 12

Working Pressure: 150 PSI

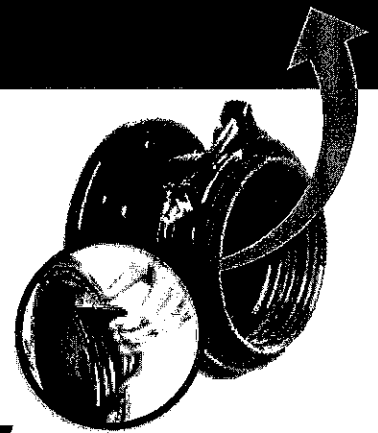
Deflection: Assembled joints into each follower gland through 12" shall allow for five degrees deflection, two degrees 14"-24", 1.5 degrees 18"-24", one degree 30"-48"

PRODUCT SPECIFICATIONS

HYMAX[®] 2

FLANGE ADAPTOR (2"-12")*

AND FLANGE ADAPTOR LONG BODY (2"-12")



FEATURES

- ADVANCED WIDE-RANGE COUPLING WITH A PATENTED FLIP GASKET
- ELIMINATES GASKET REMOVAL MISTAKES AND MAXIMIZES INSTALLER WORK EFFICIENCY
- USING THE GAME-CHANGING HYMAX TECHNOLOGY, PROVEN IN OVER 1M INSTALLATIONS IN THE US
- SUITABLE FOR ALL TYPES OF PIPES - DUCTILE IRON, CAST IRON, STEEL, COPPER, PE, PVC, AC, GRP
- PATENTED HYDRAULICALLY-ASSISTED GASKET WITH 2-STAGE SEALING
- LIGHTWEIGHT CONSTRUCTION ENABLES FAST AND EASY INSTALLATION
- ALLOWS 4° DYNAMIC DEFLECTION, REDUCING FUTURE PIPE DAMAGE

SPECIFICATIONS

STANDARDS

HYMAX FLANGE ADAPTOR AND LONG BODY MEETS OR EXCEEDS REQUIREMENTS OF STANDARDS: AWWA C-219, NSF-61, NSF 372.

SIZE

AVAILABLE IN NOMINAL DIAMETER
FLANGE ADAPTOR 2"-12"
FLANGE ADAPTOR LONG 2"-12"

MATERIAL

FLANGE BODY ASTM A283 / A283M GRADE C STEEL.

FLANGE

F/A	Meets ANSI B16.5, Class 150.
F/A Long	2" OVAL FLANGE FOR FLOW METER
	3" Meets ANSI B16.5
	4"-12" Meets AWWA class D

END RING ASTM A283 / A283M GRADE C STEEL.

SPHERICAL SPACERS AISI 304 STAINLESS STEEL.

BRIDGE AISI 304 STAINLESS STEEL.

GASKET EPDM COMPOUNDED FOR WATER AND SEWAGE, MEETS INTERNATIONAL STANDARDS FOR CONTACT WITH DRINKING WATER.

COATING 100% FUSION BONDED EPOXY FOR ENHANCED CORROSION PROTECTION. AVERAGE THICKNESS 14 MIL.

NUTS & BOLTS AISI 304 STAINLESS STEEL. ROLLED THREAD AND ANTI-GALLING COATING.

HYMAX[®]

Repair the past. Connect the future.

KRAUSZ is the creator of HYMAX

HYMAX[®]

a **MUELLER** brand

HYMAX[®] 2 COUPLING (1.5" - 12") Product Specifications

FEATURES

- Advanced wide-range coupling with a patented flip gasket.
- Eliminates gasket removal mistakes and maximizes installer work efficiency.
- Only 2 - 4 top facing bolts, for faster and safer installation.
- Ready-to-use design to eliminate extensive under-pipe digging.
- Allows 4° dynamic deflection on each end, reducing future pipe damage.
- Patented hydraulically-assisted gasket with 2-stage sealing.
- Suitable for many types of pipe.
- One product can connect pipes of two different materials.
- Based on the game-changing HYMAX that has been field-proven in millions of installations in the US.
- Product performance, OD range and pressures are identical to those of the original HYMAX.
- Lifting T-handle only on 3"-12".

SPECIFICATIONS STANDARDS

- HYMAX2 meets or exceeds standards AWWA C219, NSF 61, NSF 372.

SIZE

- Available in nominal diameter from 1.5" - 12" standard.

MATERIALS END RINGS

- ASTM A283/A283M Grade C steel.



JOIN



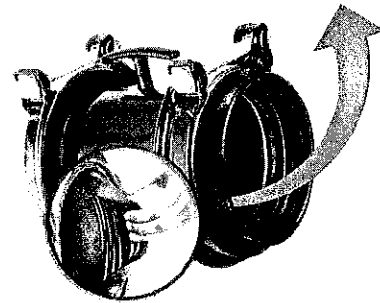
REPAIR



RESTRAIN



TAP



CENTER RING

- ASTM A53 Grade A steel.

GASKETS

- EPDM compounded for water and sewage in accordance with ASTM D2000, meets international standards for contact with drinking water.

BRIDGE

- Available in AISI 304 or 316 Stainless Steel, ASTM A240.

SPHERICAL SPACERS

- Available in AISI 304 (ASTM A351 CF8) or SS316 (ASTM A351 CF8M) Stainless Steel.

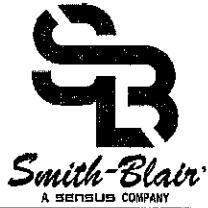
COATING

- 100% fusion bonded epoxy for enhanced corrosion protection.
- Average thickness 14 mm.

BOLTS, NUTS & WASHERS

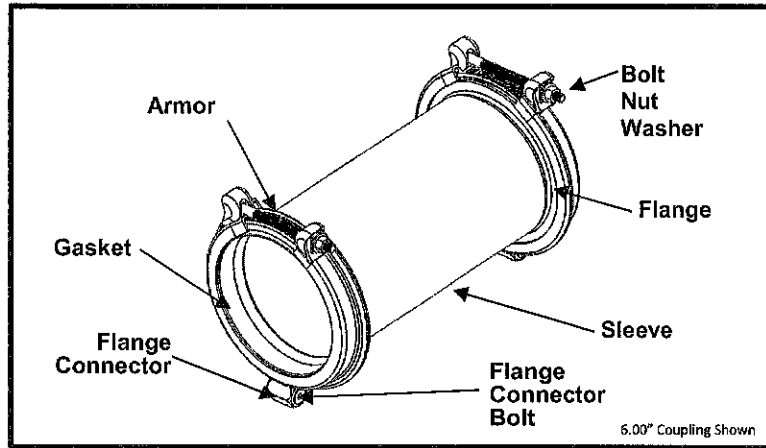
- Available in AISI 304 or SS316 stainless steel. Rolled thread and anti-galling coating. ASTM F593, ASTM F594 and ASTM A240 respectively.

MUELLER



SPECIFICATION

TOP BOLT® WIDE RANGE TWO BOLT COUPLING MODEL 422



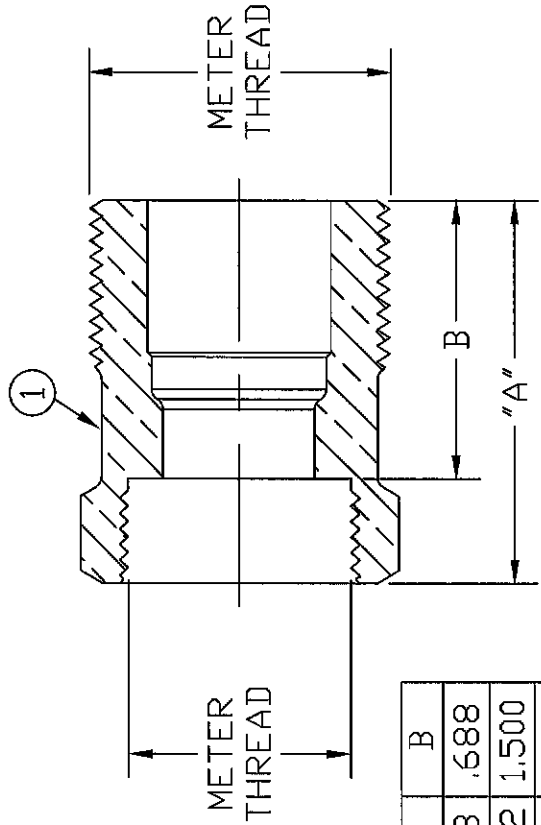
APPLICATIONS

- **Typical Uses**
 - Joining a wide range of plain-end pipe of same outside diameters
 - Joining a wide range of plain-end pipe of different outside diameters with same nominal size
 - Replace split or excessively damaged pipe
- **Standard Pipe Sizes**
 - 2" to 12" nominal
- **Type of Pipe**
 - Carbon Steel, Stainless Steel, Ductile Iron, Asbestos Cement, PVC, HDPE, Copper Tube
(see notes for thin wall PVC & HDPE applications)
- **Working Pressure**
 - 260 psi

MATERIALS

- **Flange**
 - Carbon Steel per ASTM A283C, A285A or A36
 - Flexi-Coat® fusion bonded epoxy finish which meets application methods AWWA C213
 - Integral bolt head pocket for one wrench installation
 - Split flange design
- **Sleeve**
 - Carbon Steel per ASTM A283C, A285A or A36
 - Flexi-Coat® fusion bonded epoxy finish which meets application methods AWWA C213
 - Twice the length of Standard 421 Series Top Bolt® Coupling
- **Gasket**
 - Nitrile (Buna-N) per ASTM D2000
 - NSF/ANSI 61 and 372 certified
 - Compounded to resist water, oil, acids, alkalis, most (aliphatic) hydrocarbon fluids, and many other chemicals
 - Temperature range: -20°F to +180°F
 - Bi-Directional removable inner gasket to accommodate wide range of pipe
 - Inner gasket can be reinstalled after removal
 - Allow for up to 8° (4° per end) of pipe deflection

DWG NUMBER H10879N 442-MRKTG	No.	DESCRIPTION	MATERIAL
	1	HEX BUSHING	CAST NO LEAD BRASS ALLOY
	2	RUBBER GASKET	EPDM D2000



SIZE	A	B
5/8" x 3/4"	1.188	.688
5/8" x 1"	2.062	1.500
3/4"	2.000	1.375
5/8" x 3/4" x 1"	2.062	1.500
3/4" x 1"	1.312	.750

ALL WETTED PARTS ARE NO LEAD BRASS ALLOY
 FILEPATH: PROD-ENG\MUELLER\ASYSUBMITTAL\S\H10879N

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MUELLER

DR/FR	JGarvin	2/21/12
CHKR		
ENGR		
MGR		
	BY	DATE
	STK No:	
	MAT'L	

UNLESS OTHERWISE NOTED
 SURFACE PREPARATION: --- .000
 BREAK CORNER(S) --- XX RMS
 SURFACE FINISH --- XX RMS
 TOLERANCE(S):
 LINEAR --- ± .000
 ANGULAR --- ± 0°00'

THIRD ANGLE PROJECTION

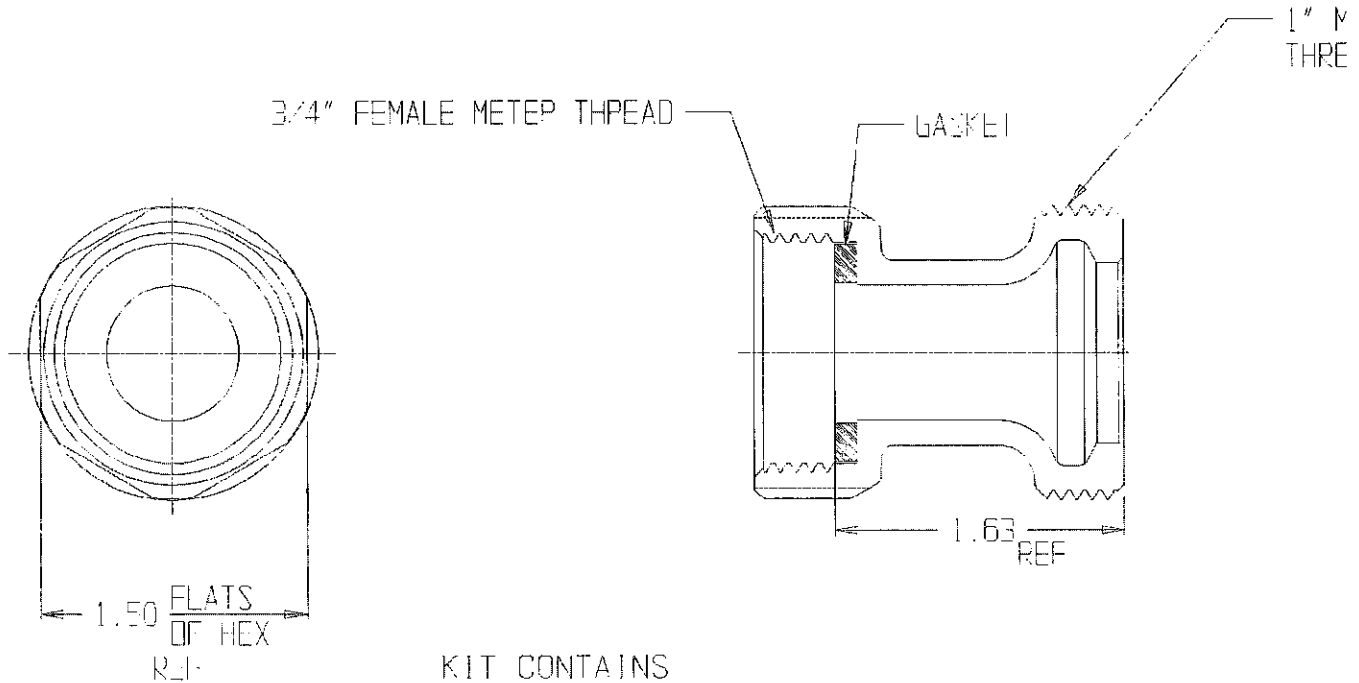
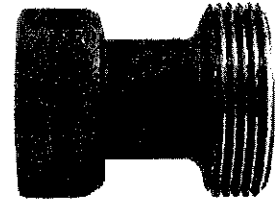
REF. No. SCALE FULL

REV	ECR	DESCRIPTION	DATE	BY	CHKR
PER EST NO:	X-XXXX	EST FIN	WT = 0.0000	lbs	
DESCR.					DWG NUMBER
STRAIGHT METER BUSHING - NLB					H10879N
(FEMALE METER X MALE METER)					

SUBMITTAL DATA SHEET

NL Meter Coupling – 710J24KIT

Female Meter Thread x Male Meter Thread



KIT CONTAINS
2 PIECES OF
THIS ADAPTOR

SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components in contact with potable water conform to ASTM B584, UNS C89833 (latest revision) and identified with "NL"
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Brass components not in contact with potable water conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Large wrench area provided for proper installation



A.Y. McDonald Mfg. Co.
4800 Chavenelle Rd
Dubuque, IA 52002

Toll Free: 1-800-292-2737
sales@aymcdonald.com
aymcdonald.com

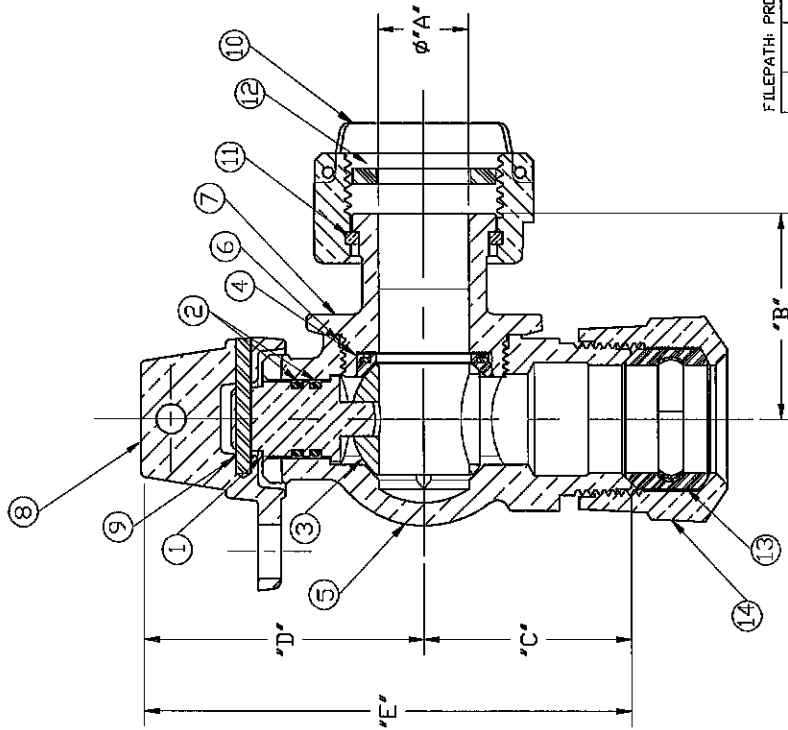
A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

06-21

No.	QTY.	DESCRIPTION	MATERIAL
1	1	STEM	LOW LEAD BRASS
2	2	O-RING	EPDM D2000
3	1	BALL	LOW LEAD BRASS
4	1	GASKET - SEAL	NITRILE D2000
5	1	BODY	CAST LOW LEAD BRASS
6	1	O-RING	EPDM D2000
7	1	END PIECE	CAST LOW LEAD BRASS
8	1	CAP	BRASS ASTM B62 ALLOY C83600
9	1	SOLID PIN	AISI 303 STAINLESS STEEL
10	1	SADDLE NUT	BRASS ASTM B62 ALLOY C83600
11	1	SNAP RING	COPPER ALLOY CDA521
12	1	RUBBER GASKET	NITRILE D2000
13	1	CTS GSKT SUB	SBR D2000 - GSKT 410SS - BAND
14	1	CONNX NUT	CAST BRASS ASTM B62 ALLOY C83600

SIZE	ØA	B	C	D	E
5/8x3/4	.625	1.696	1.719	2.323	4.042
5/8x3/4x3/4	.750	1.696	1.719	2.323	4.042
5/8x3/4x1	.750	1.696	2.125	2.323	4.448
1	1.000	1.952	2.125	2.617	4.742



FILEPATH: PROD-ENG\MUELLER-APPROVED\B24258N

DRFTR	Gar/Vin	6/25/03		
CHKR				
ENGR				
MGR				
	BY	DATE		
	STK No			
	MAT'L			
	DESCR.			
REV	DESCRIPTION	DATE	BY	CHKR
PER	EST. NO. DXXXX	EST FIN WT. = 0.0000	Lbs	

UNLESS OTHERWISE NOTED THIRD ANGLE PROJECTION

SURFACE PREPARATION:

BREAK CORNERS: .000

SURFACE FINISH: -- 000 RMS

TOLERANCES:

LINEAR: ± .000

ANGULAR: ± 0'00"

REF. No. SCALE NONE

44-MRKTG
B24258N
PART NUMBER

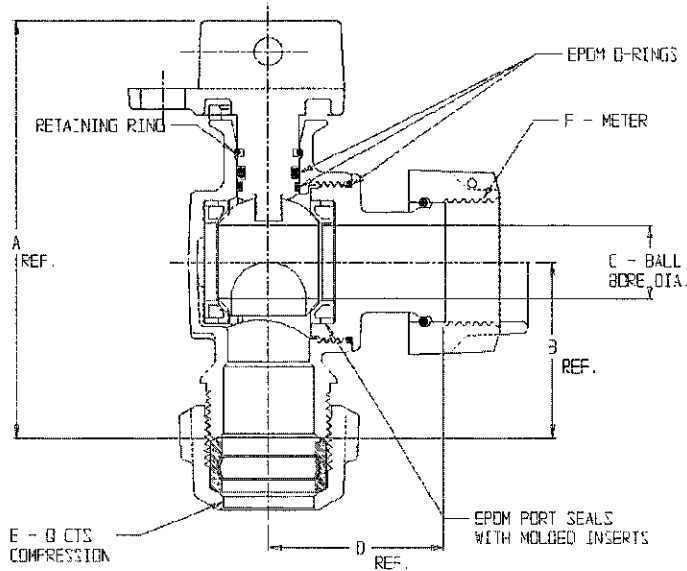
LOW LEAD MUELLER ANGLE METER
BALL VALVE (110 CTS° x MTR)

PART NUMBER
B24258N

SUBMITTAL DATA SHEET

NL Ball Style Meter Stop – 74602BSQ

Q CTS Compression x Meter Nut W/Saddle



MODEL	SIZE	A	B	C	D	E	F
74602BSQ	3/4 x 3/4 x 5/8	4.20	1.76	.75	1.94	3/4	5/8
74602BSQ	1 x 3/4 x 5/8	4.64	2.21	.75	1.94	1	5/8
74602BSQ	3/4	4.20	1.76	.75	1.78	3/4	5/8 x 3/4, 3/4
74602BSQ	1 x 3/4 x 3/4	4.64	2.21	.75	1.78	1	5/8 x 3/4, 3/4
74602BSQ	1	4.90	2.25	1.60	2.45	1	1
74602BSQ	1 1/4 x 1 x 1	5.15	2.50	1.00	2.45	1 1/4	1

SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components in contact with potable water conform to ASTM B584, UNS C89833 (latest revision) and identified with "NL"
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Brass components not in contact with potable water conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Low friction coated brass ball
- Valve rated for 300 PSIG water pressure, end connections not to exceed rated pipe pressure.
- Blow out proof EPDM port seals
- End piece joint sealed with an EPDM o-ring and thread locker
- Insert stiffeners required on all flexible plastic connections



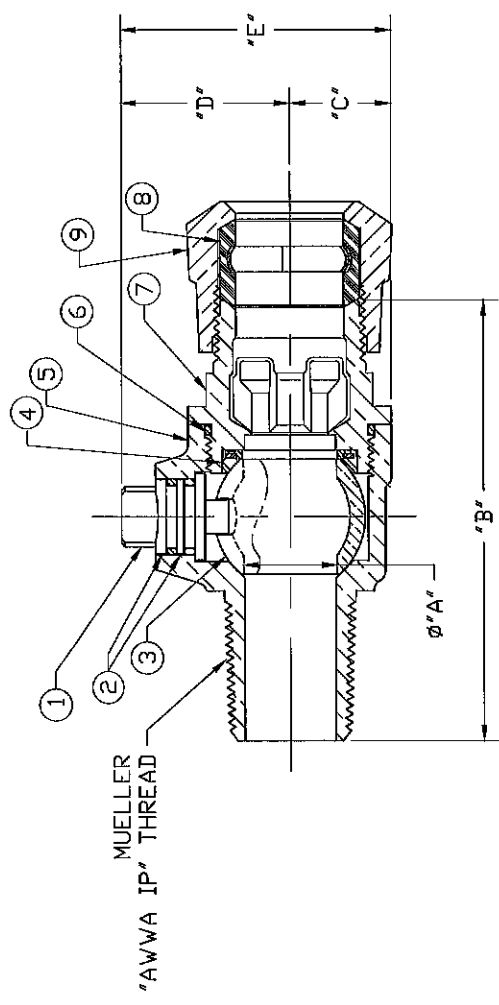
A.Y. McDonald Mfg. Co.
4800 Chavenelle Rd
Dubuque, IA 52002

Toll Free: 1-800-292-2737
sales@aymcdonald.com
aymcdonald.com

A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

No.	DESCRIPTION	MATERIAL
1	STEM	LOW LEAD BRASS ALLOY
2	O-RING	EPDM D2000
3	BALL	LOW LEAD BRASS ALLOY
4	GASKET - SEAL	NITRILE D2000
5	BODY	CAST LOW LEAD BRASS ALLOY
6	O-RING	EPDM D2000
7	END PIECE	CAST LOW LEAD BRASS ALLOY
8	CTS GSCT SUB	SBR D2000 - GSCT 410SS - BAND
9	CONNX NUT	CAST BRASS ASTM B62 ALLOY C83600



SIZE	ØA	B	C	D	E
3/4	.750	3.621	.840	1.363	2.203
3/4x1	.750	3.855	.840	1.390	2.230
1-1/2	1.000	4.648	1.150	1.564	2.714
1-1/2x2	1.500	5.157	1.500	2.120	3.620
2	2.000	5.612	1.820	2.443	4.263

ALL WETTED PARTS ARE LOW LEAD BRASS ALLOY

FILEPATH: PROD-ENG\MUELLER\ASYSUBMITTALS\B25028N

DATE	6/19/13				
CHKR					
ENGR					
MGR					
BY					
DATE					
STK NO					
MAT'L					
DESCR.					
REV	ECR	DESCRIPTION	DATE	BY	CHKR
PER EST. NO. DXXXX EST. FIN. WT. = 0.000 lbs					



UNLESS OTHERWISE NOTED
 THIRD ANGLE PROJECTION
 SURFACE PREPARATION: --- .000
 BREAK CORNERS) --- XX RMS
 SURFACE FINISH --- XX RMS
 TOLERANCE(S):
 LINEAR --- ± .000
 ANGULAR --- ± 0'00'

TITLE TO AND OWNERSHIP OF THIS ENGINEERING DRAWING REMAINS IN THE HANDS OF THE ENGINEER. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER. THE RECIPIENT OF THESE CONDITIONS IS PRESUMED TO ACCEPT THEM.

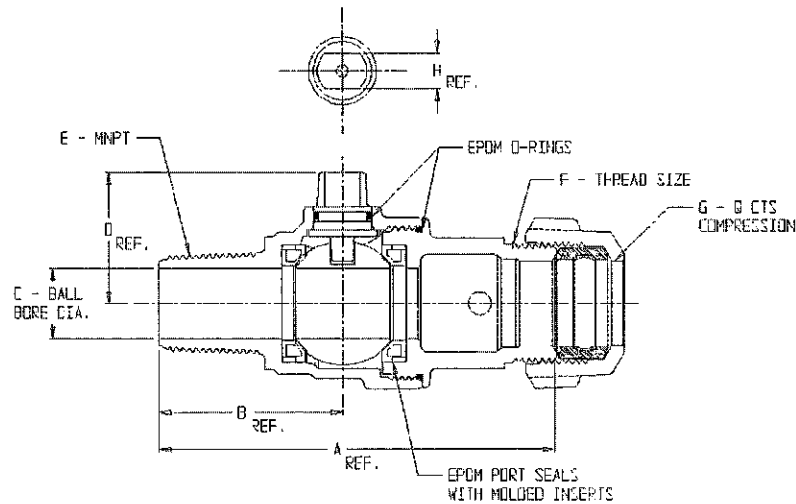
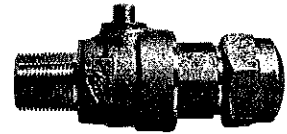
DWG NUMBER
 B25028N
 44-MRKTG

DWG NUMBER
 B25028N
 BALL CORPORATION LLB VALVE
 (AWWA IP" x 110 CTS)

SUBMITTAL DATA SHEET

NL Ball Style Corporation Stop – 74704BQ

MNPT x Q CTS Compression



MODEL	SIZE	A	B	C	D	F	F	G	H
74704BQ	3/4	4.22	1.96	.75	1.39	3/4	3/4 AWWA FLARE	3/4	.36
74704BQ	3/4 X 1	4.44	1.96	.75	1.39	3/4	1 AWWA FLARE	1	.36
74704BQ	1	4.37	2.11	1.00	1.50	1	1 AWWA FLARE	1	.26
74704BQ	1 X 1 1/4	4.63	2.15	1.00	1.47	1	1 1/4 AWWA FLARE	1 1/4	.26
74704BQ	1 1/4	5.90	3.02	1.25	1.88	1 1/4	1 1/4 AWWA FLARE	1 1/4	.42
74704BQ	1 1/2	6.42	3.05	1.50	2.15	1 1/2	2 1/8-16 SPECIAL	1 1/2	.42
74704BQ	1 1/2 X 2	6.97	3.05	1.50	2.15	1 1/2	2 5/8-16 SPECIAL	1 1/2	.38
74704BQ	2	6.86	3.21	2.00	2.46	2	2 5/8-16 SPECIAL	2	.42

SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components in contact with potable water conform to ASTM B584, UNS C89833 (latest revision) and identified with "NL"
- Certified to NSF/ANSI 61 and NSF/ANSI 372
- Brass components not in contact with potable water conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Low friction coated brass ball rotates 360°
- Valve rated for 300 PSIG water pressure, end connections not to exceed rated pipe pressures.
- Blow out proof EPDM port seals
- End piece joint sealed with an EPDM o-ring and thread locker
- Insert stiffeners required on all flexible plastic connections



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Submitted by:

AMERICAN AVK RESILIENT SEATED DUCTILE IRON GATE VALVE
250 PSI, Tested to AWWA C515 (NRS)
 Flanged Ends to ASME B16.42 Class 150 - Valve sizes 2.5" - 12"

65/FFN-WD
FLxFL

Use:

For water and neutral liquids to maximum 160°F.

Tests:

Hydraulic test to AWWA C509:

Shell Test: 500 PSI 3"-16"

Seat Test: 250 PSI 3"-16"

Operating Torque Test

Optional Materials:

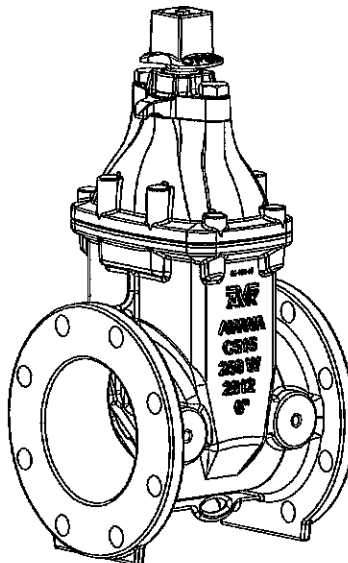
Wedge Ductile iron ASTM A536
 encapsulated with NBR-rubber
 compound

Standard Materials:

Body, Bonnet, Gland Flange, Wrench Nut	Ductile iron ASTM A536 (Wrench Nut-painted black for open left, red for open right)
Coating	Electrostatically applied fusion- bonded epoxy-resin Meets or exceeds AWWA C550
Stem	Standard: Stainless steel 430F
Wedge	Ductile iron ASTM A536 encapsulated with EPDM-rubber compound
Wedge Nut, Thrust Collar	Bronze
Bonnet Bolts	Stainless Steel - 316 sealed with hot melt
Gland Bolts	Stainless Steel - 316 Hexagon bolt
Bonnet Gasket, Wiper Ring, O-Ring Stem Seals, O-Ring Gland Seal	ASTM D2000 Buna "N" nitrile rubber

Approvals:

Certified to: ANSI/NSF 61, ANSI/NSF 372



10.6

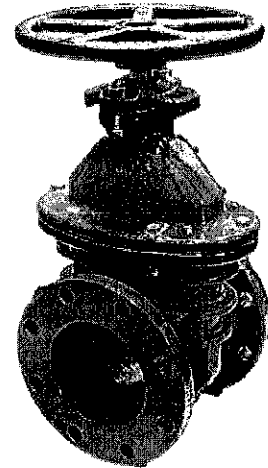


3" - 12" A-2361 RESILIENT WEDGE GATE VALVES - FL. x FL.

Rev. 5-18 Shaded area indicates changes

- Catalog number
A-2361-6 flanged ends
- Sizes – 3", 4", 6", 8", 10", 12"
- Meets or exceeds all applicable requirements of ANSI/AWWA C515*** Standard, UL 262 Listed, FM 1120/1130 Approved, and certified to ANSI/NSF 61 & 372
- Flanged end drilling complies with ASME/ANSI B16.1 Class 125**
- Iron body with nominal 10 mils Mueller Pro-Guard® Fusion Bonded Epoxy Coated interior and exterior surfaces
- Epoxy coating meets or exceeds all applicable requirements of ANSI/AWWA C550 Standard
- Iron wedge, symmetrical and fully encapsulated with molded rubber; no exposed iron
- Non-rising stem (NRS)
- Triple O-ring seal (2 above the thrust collar and 1 below)
- 350 psig (2400 kPa/24 barg) maximum working pressure; 700 psig (4800 kPa/48 barg) static test pressure
- UL Listed, FM Approved: 350 psig (2400 kPa/24 barg)
- Designed for potable water applications

† Approved for backflow prevention devices by USC (for 4" - 10" sizes)



A-2361-6 shown

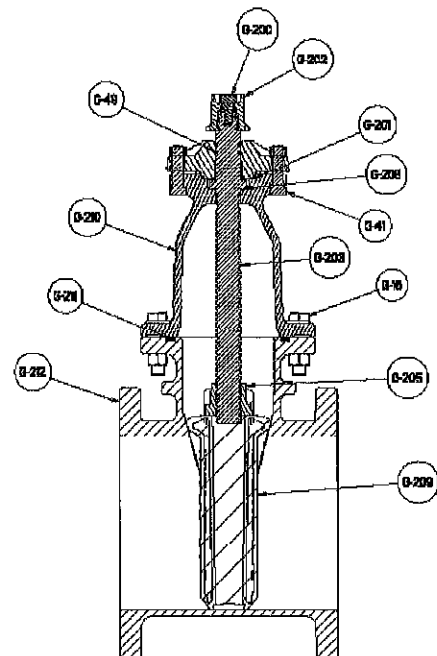
Options

See page 10.54 for more information on Resilient Wedge Gate Valve options

- Position indicators
- Stainless steel stem: Type 304, Type 316
- Low zinc, silicon bronze ASTM B98-C66100/H02 stem
- 2" square wrench nut
- P/N 10/16 Drilling
- EPDM Disc and O-rings

Resilient wedge gate valve parts

Catalog Part Number	Description	Material	Material Standard
G-16	Bonnet Bolts & Nuts	316 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-41	Stuffing Box Bolts & Nuts	316 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-49	Stem O-rings (3)	Nitrile	ASTM D2000
G-200	Wrench Nut Cap Screw	316 Stainless Steel	ASTM F593
G-201	Stuffing Box O-ring	Nitrile	ASTM D2000
G-202	Wrench Nut	Ductile Iron	ASTM A536 ▼
G-203	Stem	Bronze	ASTM B138
G-204	Hand Wheel	Cast Iron +	ASTM A126 CL.B
G-205	Stem Nut	Bronze	ASTM B584
G-206	Guide Cap Bearings	Acetal	-
G-207	Stuffing Box with dirt seal	Ductile Iron Nitrile	ASTM A536 ▼ ASTM D2000
G-208	Anti-friction Washers (2)	Acetal	-
G-209	Wedge, Rubber Encapsulation	Ductile Iron* SBR	ASTM A536 ▼ ASTM D2000
G-210	Bonnet	Ductile Iron	ASTM A536 ▼
G-211	Bonnet O-ring +++	Nitrile	ASTM D2000
G-212	Body	Ductile Iron	ASTM A536 ▼



+++ 3" valves use a bonnet gasket

*Fully encapsulated in molded rubber with no iron exposed;

▼ Material strength ASTM A536 65-45 minimum

** Per ANSI/AWWA C111 working pressure above 250psi requires the use of a special gasket rated for higher pressure.

+ Manufacturer's option to change material to ductile iron ASTM A536

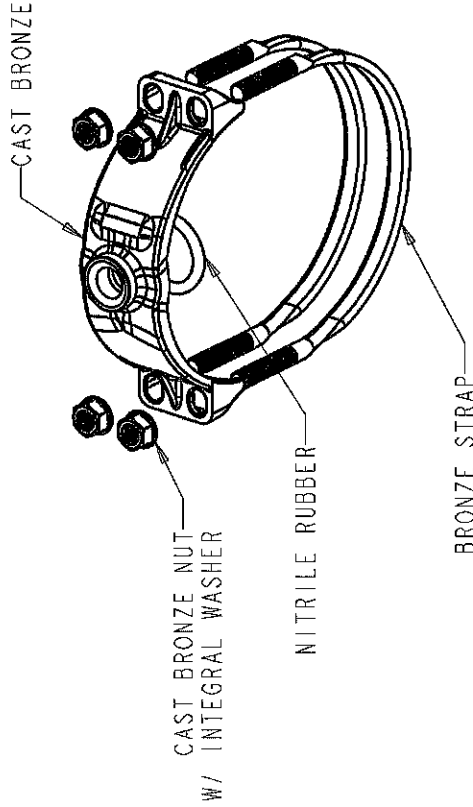
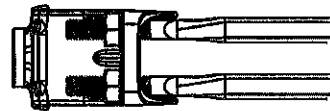
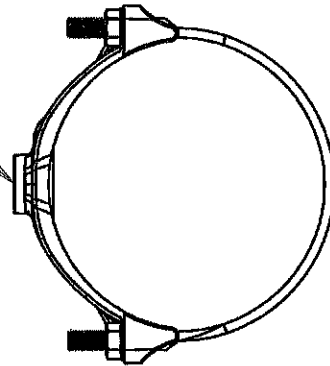
*** 3" valves meet or exceed all applicable requirements of ANSI/AWWA C509 Standard

SEE PAGE 10.57 FOR ORDERING INSTRUCTIONS

PIPE SIZE	PIPE RANGE	TYPE	AVAILABLE TAP SIZES							
			TAP THREAD*	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"
4"	4.74-5.32	BR2B0474	CC OR IP	050	062	075	100	-	-	-
4"	4.74-5.10	BR2B0474	CC OR IP	-	-	-	-	125	150	200
4"	5.10-5.40	BR2B0510	CC OR IP	-	-	-	-	125	150	200
6"	6.84-7.45	BR2B0684	CC OR IP	050	062	075	100	125	150	200
8"	8.99-9.67	BR2B0899	CC OR IP	050	062	075	100	125	150	200
10"	11.04-12.12	BR2B1104	CC OR IP	050	062	075	100	125	150	200
12"	13.14-14.58	BR2B1314	CC OR IP	050	062	075	100	125	150	200
14"	15.22-16.88	BR2B1522	CC OR IP	-	-	075	100	-	150	200
16"	17.32-19.19	BR2B1732	CC OR IP	-	-	075	100	-	150	200

*IP STANDS FOR AWWA I.P. THREAD (F.I.P.T.)
 CC STANDS FOR AWWA TAPER THREAD (C.C.)

SEE TABLE FOR
 AVAILABLE TAP SIZES



DR. BY	TBE	07/19/17	THIRD ANGLE PROJECTION	C.B. NO.
CHKD				
ENGR				
MR				
MFG				
TOOL				
DRY				
DIM'S: SEE DRAWING CALLOUTS				
DESC. 4"-16" BR2B STYLE SERVICE SADDLE				
WITH ALL AVAILABLE TAP OPTIONS				
MUELLER HYMAX				NUMBER
				BR2B

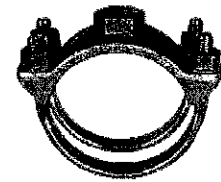
TOLERANCES - SAMA CASTING UNLESS OTHERWISE NOTED		FINISH	PATT. NO.
UP TO 3" ±.039	12.61 25" ±.080		
3.61 - 6" ±.045	ABOVE 25" ±.125		
6.01 - 12" ±.060	FLATNESS .030	SCALE	
ANGLES ±1°	RADII .03	REF. NO.	
DRAFTS 2°		STR. NO.	

BR2B

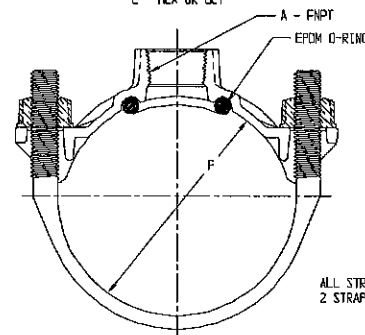
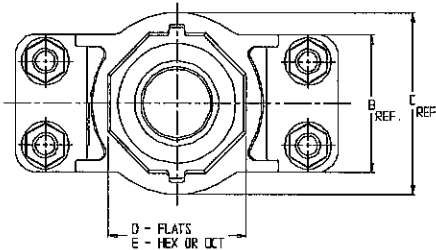
SUBMITTAL DATA SHEET

Silicon Bronze Strap Saddle - 3826

Ductile Iron/Cement-Asbestos/Cast Iron x FNPT



MODEL	SIZE	A	B	C	D	E	F
3826	4 X 3/4	3/4	3.19	3.19	1.69	HEX	4.74 - 5.40
3826	4 X 1	1	3.19	3.19	1.69	HEX	4.74 - 5.40
3826	4 X 1 1/2	1 1/2	3.19	4.19	3.10	OCT	4.74 - 5.40
3826	4 X 2	2	3.19	4.19	3.10	OCT	4.74 - 5.40
3826	6 X 3/4	3/4	3.19	3.19	1.69	HEX	6.84 - 7.50
3826	6 X 1	1	3.19	3.19	1.69	HEX	6.84 - 7.50
3826	6 X 1 1/4	1 1/4	3.19	4.19	3.10	OCT	6.84 - 7.50
3826	6 X 1 1/2	1 1/2	3.19	4.19	3.10	OCT	6.84 - 7.50
3826	6 X 2	2	3.19	4.19	3.10	OCT	6.84 - 7.50
3826	8 X 3/4	3/4	3.19	3.19	1.69	HEX	8.99 - 9.67
3826	8 X 1	1	3.19	3.19	1.69	HEX	8.99 - 9.67
3826	8 X 1 1/4	1 1/4	3.19	4.19	3.10	OCT	8.99 - 9.67
3826	8 X 1 1/2	1 1/2	3.19	4.19	3.10	OCT	8.99 - 9.67
3826	8 X 2	2	3.19	4.19	3.10	OCT	8.99 - 9.67
3826	10 X 3/4	3/4	3.19	3.19	1.69	HEX	11.04 - 12.12
3826	10 X 1	1	3.19	3.19	1.69	HEX	11.04 - 12.12
3826	10 X 1 1/2	1 1/2	3.19	4.19	3.10	OCT	11.04 - 12.12
3826	10 X 2	2	3.19	4.19	3.10	OCT	11.04 - 12.12
3826	12 X 3/4	3/4	3.19	3.19	1.69	HEX	13.20 - 14.39
3826	12 X 1	1	3.19	3.19	1.69	HEX	13.20 - 14.39
3826	12 X 1 1/2	1 1/2	3.19	4.19	3.10	OCT	13.20 - 14.39
3826	12 X 2	2	3.19	4.19	3.10	OCT	13.20 - 14.39
3826	18 X 3/4	3/4	4.93	5.00	3.46	OCT	19.50 - 20.50
3826	18 X 1	1	4.93	5.00	3.46	OCT	19.50 - 20.50
3826	18 X 1 1/2	1 1/2	4.93	5.00	3.46	OCT	19.50 - 20.50
3826	18 X 2	2	4.93	5.00	3.46	OCT	19.50 - 20.50
3826	30 X 3/4	3/4	4.93	5.00	3.46	OCT	31.74 - 32.74
3826	30 X 1	1	4.93	5.00	3.46	OCT	31.74 - 32.74
3826	30 X 1 1/2	1 1/2	4.93	5.00	3.46	OCT	31.74 - 32.74
3826	30 X 2	2	4.93	5.00	3.46	OCT	31.74 - 32.74



DRAWING MAY NOT RESEMBLE
ACTUAL SADDLE CONFIGURATION

SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Certified to NSF/ANSI 61
- Silicon Bronze strap(s) and cast brass nuts with enlarged washer bearing surface
- EPDM o-ring
- Pipe and tap size, and thread type identified on saddle
- Outlet boss with large wrench flats



A.Y. McDonald Mfg. CO.
4800 Chavenelle Rd
Dubuque, IA 52002

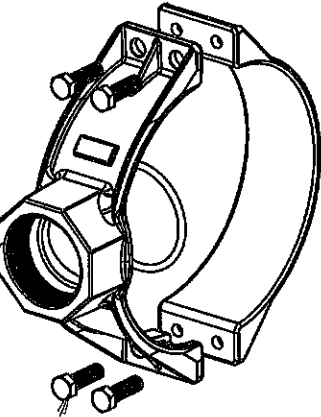
Toll Free: 1-800-292-2737
sales@aymcdonald.com
aymcdonald.com

A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

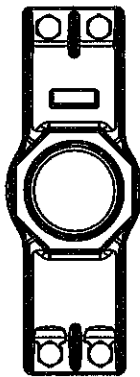
AWWA C900 PVC PIPE							
NOMINAL PIPE SIZE	BASE CATALOG NUMBER	THREAD TYPE	SIZE OF TAPPING			FASTENER MATERIAL	
			.75"	1"	1.5"		2"
4"	OD4B0480	CC or IP	075	100	150	200	316 SS
6"	OD4B0690	CC or IP	075	100	150	200	S6
8"	OD4B0905	CC or IP	075	100	150	200	S6

TAPPING SIZE (SEE TABLE)

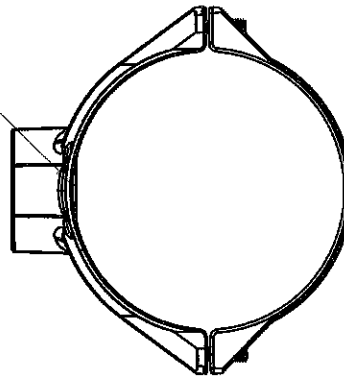
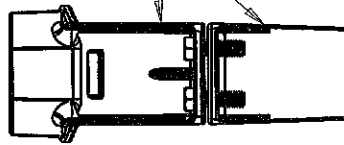


BOLT MATERIAL 316 SS

SADDLE AND STRAP MATERIAL
BRONZE ASTM B62 ALLOY C83600



NITRILE O-RING

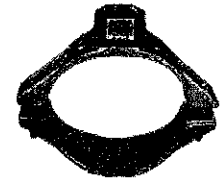


DR. BT.	TBE	10/17/17	UNLESS OTHERWISE NOTED	THIRD ANGLE PROJECTION	C.B. NO.
CHKR			BREAK CAST CORNER(S)---	FINISH	PATT. NO.
ENGR			BREAK MACH CORNER(S)---		
MR			TOLERANCES	REF. NO.	SCALE
HW			UNLESS OTHERWISE NOTED	STK. NO.	NONE
TOOL			LINEAR		
DRY			ANGULAR		
ACT'L: SEE PRINT					
DESCR: OD SERIES SERVICE SADDLES FOR C900 PVC PIPE SIZES 4" THROUGH 8" WITH 316 SS FASTENERS					NUMBER
					OD4B-S6

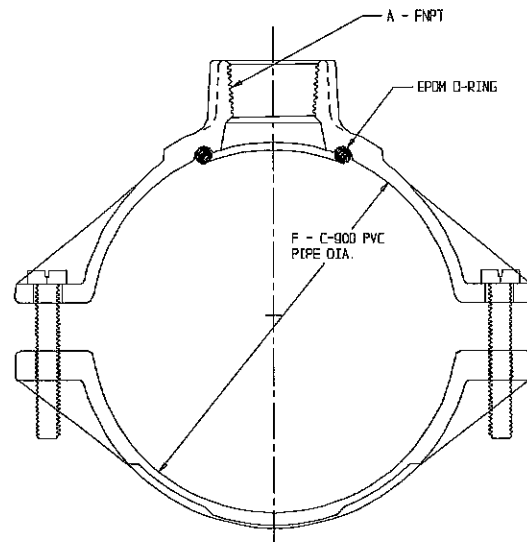
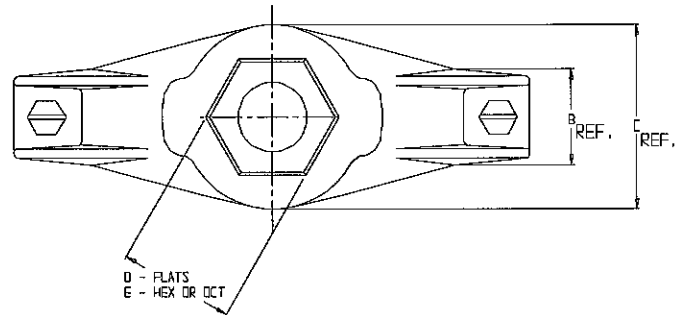
SUBMITTAL DATA SHEET

Two Piece Brass Saddle - 3806

C900 PVC x FNPT



MODEL	SIZE	A	B	C	D	E	F
3806	4 X 3/4	3/4	1.23	2.38	1.50	HEX	4.800
3806	4 X 1	1	1.32	2.56	1.72	HEX	4.800
3806	4 X 1 1/2	1 1/2	1.50	3.46	2.34	OCT	4.800
3806	4 X 2	2	1.50	3.72	2.82	OCT	4.800
3806	6 X 3/4	3/4	1.28	2.26	1.50	HEX	6.900
3806	6 X 1	1	1.24	2.56	1.72	HEX	6.900
3806	6 X 1 1/2	1 1/2	1.63	3.40	2.34	OCT	6.900
3806	6 X 2	2	1.63	3.72	2.82	OCT	6.900
3806	8 X 3/4	3/4	1.26	2.30	1.50	HEX	9.050
3806	8 X 1	1	1.26	2.56	1.72	HEX	9.050
3806	8 X 1 1/2	1 1/2	1.50	3.66	3.10	OCT	9.050
3806	8 X 2	2	1.50	3.96	3.10	OCT	9.050
3806	10 X 3/4	3/4	2.32	2.92	1.69	HEX	11.100
3806	10 X 1	1	2.32	2.92	1.69	HEX	11.100
3806	10 X 1 1/2	1 1/2	2.30	4.37	3.10	HEX	11.100
3806	10 X 2	2	2.30	4.37	3.10	HEX	11.100
3806	12 X 3/4	3/4	2.32	2.92	1.69	HEX	13.200
3806	12 X 1	1	2.32	2.92	1.69	HEX	13.200
3806	12 X 1 1/2	1 1/2	2.30	4.37	3.10	HEX	13.200
3806	12 X 2	2	2.30	4.37	3.10	HEX	13.200



SUBMITTAL INFORMATION

- Manufactured in compliance with ANSI/AWWA C800 (latest revision)
- Brass components conform to ASTM B62 and ASTM B584, UNS C83600 -85-5-5-5 (latest revision)
- Certified to NSF/ANSI 61
- Silicon Bronze bolts
- EPDM o-ring
- Pipe and tap size, and thread type identified on saddle
- Outlet boss with large wrench flats



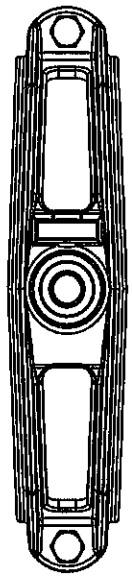
A.Y. McDonald Mfg. CO.
4800 Chavenelle Rd
Dubuque, IA 52002

Toll Free: 1-800-292-2737
sales@aymcdonald.com
aymcdonald.com

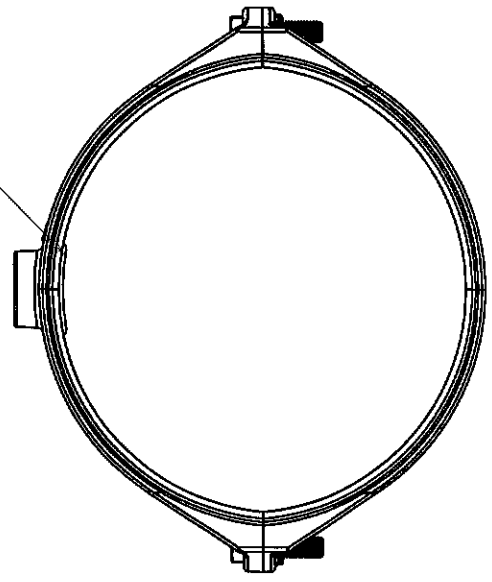
A.Y. McDonald considers the information on this assembly drawing correct when published. Item and option availability, including specifications, are subject to change without notice.

Submitted by:

AWWA C900 PVC PIPE					
NOMINAL PIPE SIZE	BASE CATALOG NUMBER	THREAD TYPE	SIZE OF TAPPING	FASTENER MATERIAL	
			.75"		1"	1.5"	2"
10"	OD2B1110	CC or IP	100	-	S6
12"	OD2B1320	CC or IP	100	-	S6

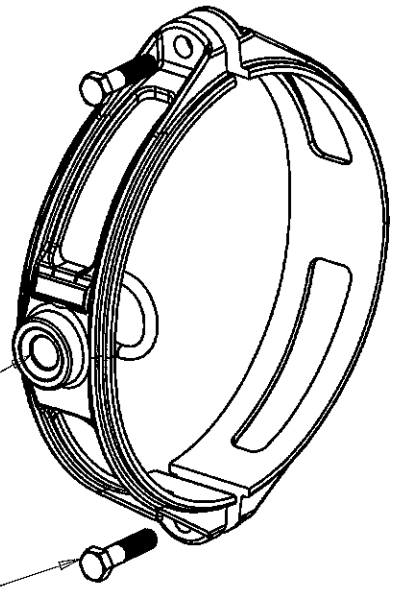


NITRILE O-RING



TAPPING SIZE (SEE TABLE)

BOLT MATERIAL 316 SS



SADDLE AND STRAP MATERIAL
BRONZE ASTM B62 ALLOY C83600



DR. BY	TBE	0/17/17	UNLESS OTHERWISE NOTED	FEED ANGLE PROJECTION	C.B. NO.
CHKD			BREAK CAST CORNERS(1)---	FINISH	
ENGR			BREAK MACH CORNERS(2)---	REF. NO.	
MR			TOLERANCES	SCALE	
W/C			UNLESS OTHERWISE NOTED	STK. NO.	
TOOL			LINEAR		
FORM			ANGULAR		
FACT'Y: SEE PRINT					
DESCR: OD SERIES SERVICE SADDLES					NUMBER
FOR C900 PVC PIPE SIZES 10" THROUGH 12"					OD2B-S6
					WITH 316 SS FASTENERS
Muller Co.					

ONE-LOK™ MODEL SLCE WEDGE ACTION RESTRAINT FOR PVC PIPE

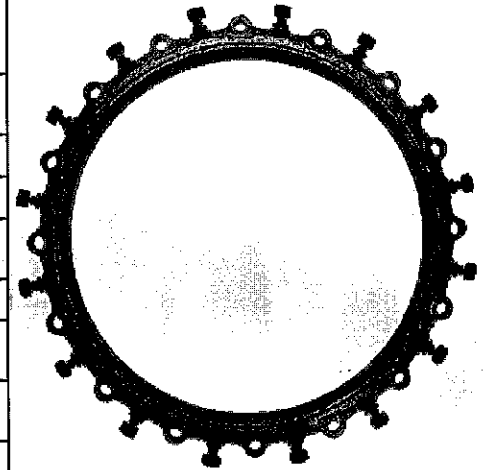
Project Name: _____	Contractor: _____	Date
Engineer: _____	Spec Section: _____	06/09/26

Optional Specifications

Bolts & Nuts	<input type="checkbox"/>	High Strength, Low Alloy Steel (HSLA) <i>(In accordance with ANSI/AWWA C111/A21.11)</i>	Gaskets	<input type="checkbox"/>	SBR <i>(In accordance with ANSI/AWWA C111/A21.11)</i>
	<input checked="" type="checkbox"/>	Stainless Steel <input type="checkbox"/> Type 304 <input type="checkbox"/> Type 316		<input type="checkbox"/>	EPDM
	<input type="checkbox"/>	Blue Fluoropolymer		<input type="checkbox"/>	Neoprene
	<input type="checkbox"/>	Other- Specify _____		<input type="checkbox"/>	Nitrile
Coating	<input checked="" type="checkbox"/>	Red Alkyd paint	<input type="checkbox"/>	Other- Specify _____	
	<input type="checkbox"/>	Electro-deposition "CORRSAFE™"			

Product Specifications

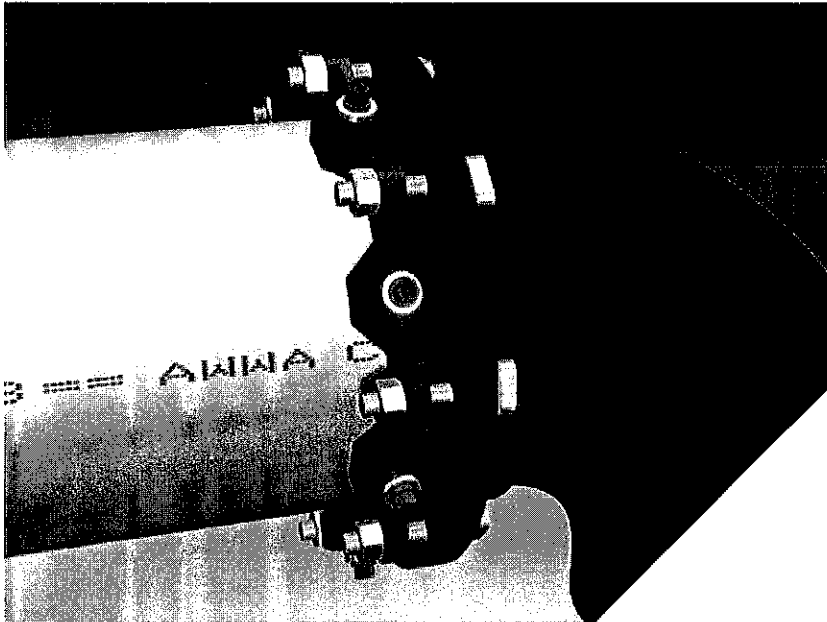
Material:	Gland body, wedge inserts and break-off top actuating bolts are manufactured of high strength ductile iron in accordance with ASTM A536, Grade 65-45-12.
Pressure Rating:	Equal to the water working pressure rating of the pipe on which it is installed.
Factor of Safety:	2:1
Size Range:	3" - 60"
Approvals:	Underwriters Laboratories' listed in sizes 4"-12" 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" - 60"
Dimension:	Conform to ANSI/AWWA C111/A21.11 & ANSI/AWWA C153/A21.53 standards.
Traceability:	Gland body, wedge inserts and break-off top actuating bolts are individually cast with exact heat code information.
Installations:	In accordance with manufacturer's recommendation and applicable AWWA standards





Series 2000PV

Mechanical Joint Restraint for PVC Pipe



Series 2012PV on 12inch C900 PVC pipe at a ductile iron fitting

Features and Applications:

- For restraining plain end PVC pipe at mechanical joint fittings and appurtenances
- Sizes 3 inch through 36 inch
Sizes 42 inch through 48 inch accommodated by Series 2200
- MEGA-BOND® Restraint Coating System
For more information on MEGA-BOND, refer to www.ebaa.com
- Constructed of ASTM A536 Ductile Iron
- The mechanical joint follower gland is incorporated into the restraint
- Accommodates full deflection of the mechanical joint on which it is used
- Heavy duty thick wall design
- Support Products Available:
 - Split mechanical Joint style available for 3 inch through 12 inch
EBAA Series 2000SV
 - Solid restraint ring harness available for C905 PVC pipe bells
EBAA Series 2800
 - Split restraint ring harness available for C900 and C905 PVC pipe bells and PVC fittings
EBAA Series 1500, 1600 and 2500
- All 2000PV and related restraint products can be furnished as packaged accessories complete with appropriate restraint, gasket, lubrication and bolting hardware

Nominal Pipe Size	Series Number	Shipping Weight
3	2003PV	7.0
4	2004PV	8.8
6	2006PV	12.1
8	2008PV	16.3
10	2010PV	26.0
12	2012PV	31.4
14	2014PV	47.6
16	2016PV	52.8
18	2018PV	61.8
20	2020PV	70.9
24	2024PV	92.9
30	2030PV	128.5
36	2036PV	161.3
42	2242*	652.0
48	2248*	711.1

*Restraint for pipe size 42 inch and greater, please refer to Series 2200 Brochure found at www.ebaa.com.

U.S. Patent No.
4627775 4896903 5071175

For use on water or wastewater pipelines subject to hydrostatic pressure and tested in accordance with either AWWA C600 or ASTM D2774.



Ductile Iron Flanged Fittings

ANSI/AWWA C110/A21.10

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:** 2" - 12" Underwriters Laboratories and ULC Listed and Factory Mutual approved for 300 PSI rating. Please consult factory for detail listing and approvals. 2" and greater are UL/NSF-61.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise.
- INSTALLATION:** Per ANSI/AWWA C110 and C111



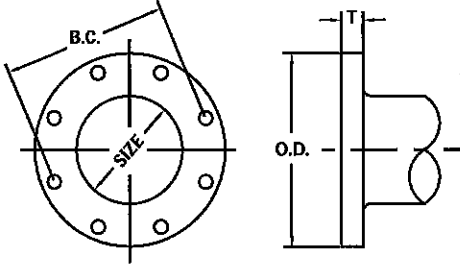
SUBMITTAL INFORMATION

PROJECT NAME: _____

ENGINEER: _____

CONTRACTOR: _____

SPEC. SECTION: _____



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	3/8 x 2 1/4	4
2 1/2	7.00	5.50	0.69	0.75	3/8 x 2 1/2	4
3	7.50	6.00	0.75	0.75	3/8 x 2 1/2	4
4	9.00	7.50	0.94	0.75	3/8 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

SIZE RANGE (Please specify):

Size Range _____

LINING OPTIONS (Please check one):

- Standard: Cement-lined and asphalt seal coat per ANSI/AWWA C104/A21.4 and UL/NSF-61
- Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61 - ID & OD Only
- Optional: P401 (Protecto 401) Ceramic Epoxy - sewer applications only. Not NSF-61
- Optional: Other (specify) _____

COATING OPTIONS (Please check one):

- Standard: Red Prime Coat
- Optional: Asphaltic seal coat per ANSI/AWWA C104/A21.4
- Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61 - ID & OD Only
- Optional: Other (specify) _____





Ductile Iron MJ Compact Fittings

ANSI/AWWA C153/A21.53

GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
- PRESSURE:** 350 PSI rating for 2" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 64" 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)
- DEFLECTION:** 2" - 4"=8° | 6"=7° | 8" - 12"=5° | 14" - 16"=3 1/2° | 18" - 24"=3° | 30" - 48"=2°
- WEIGHTS:** Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
- FLANGES:** Flanged ends on fittings match ANSI/AWWA 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 and referenced in ANSI/AWWA C153/A21.53
- GASKETS:** SBR in accordance with ANSI/AWWA C111/A21.11
- T-BOLTS/NUTS:** Low alloy steel in accordance with ANSI/AWWA C111/A21.11
- APPROVALS:** 3" - 12" UL/ULC Listed | 2" and greater are UL/ANSI/NSF Standards 61 and 372 | 3" - 16" FM APPROVED. Please consult factory for detail listing and approvals.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise.
- INSTALLATION:** Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900/C905



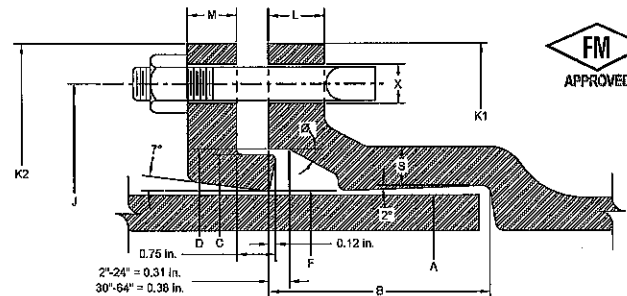
SUBMITTAL INFORMATION

PROJECT NAME: _____

ENGINEER: _____

CONTRACTOR: _____

SPEC. SECTION: _____



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	3/8 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	3/8 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 3 1/2	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 3 1/2	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	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	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	0.68	28°	7/8	3/4 x 4	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	0.69	28°	7/8	3/4 x 4	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	0.75	28°	7/8	3/4 x 4 1/2	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 1/2	1 x 5 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	20°	1 1/2	1 x 5 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	20°	1 3/8	1 1/4 x 6	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	32
54	{Fittings & Dimensions Available On Request}														
60															
64															

SIZE RANGE (Please specify): _____

Size Range _____

- LINING OPTIONS (Please check one):**
- Standard: Cement-lined and asphalt seal coat per ANSI/AWWA C104/A21.4 and UL/NSF-61
 - Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61 - ID & OD Only
 - Optional: P401 (Protecto 401) Ceramic Epoxy - sewer applications only. Not NSF-61
 - Optional: Other (specify) _____

- COATING OPTIONS (Please check one):**
- Standard: Asphaltic seal coat per ANSI/AWWA C104/A21.4
 - Optional: FBE (Fusion Bonded Epoxy) per ANSI/AWWA C116/A21.15 and UL/NSF-61 - ID & OD Only
 - Optional: Other (specify) _____



UCAT:15.01-SUB
*REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR PIPE PRODUCTS
HOUSTON CORPORATE TOLL FREE 1-800-999-3009 FAX 281-538-9000
www.starpipeproducts.com

TW/THW



APPLICABLE TESTS AND STANDARDS

- ✓ ASTM B-1, B-3, B-8, B-33, AND B-173
- ✓ UL 1685
- ✓ NFPA 70/NEC 310
- ✓ CSA C22.2 NO. 75

FEATURES

- ✓ 600V RATED
- ✓ -25°C TO 75°C MAX CONTINUING OPERATING TEMPERATURE IN WET OR DRY LOCATIONS

PRINT LEGEND

- ✓ KRIS-TECH WIRE CO. #XX AWG TYPE TW OR THW 75C 600V (UL)

VALUE ADD SERVICE

- ✓ CUSTOM LENGTHS AND PUT-UPS
- ✓ 12 AVAILABLE COLORS
- ✓ WIRE PARALLELING AND CABLING
- ✓ WIRE STRIPING
- ✓ CUSTOM PRINT LEGENDS AND LABELS

SCOPE

This single-conductor cable is commonly used in general purpose wiring circuits, as machine tool wiring, and for internal wiring in appliances. Other applications include refrigeration wiring, air conditioning equipment, machine control wiring, service entrances, and some motor types.

CONSTRUCTION

Conductors: Single conductors are stranded, annealed, tin coated or uncoated copper.

Insulation: Conductors are insulated with a concentrically applied PVC (polyvinyl chloride).

IDENTIFICATION AND PACKAGING

Print legends on the wire include the manufacturer, conductor size, voltage rating, UL symbol (if applicable) and type designation. Standard length spools are 500 or 2500 feet.

AWG	Standard Number of Strands	Insulation Thickness (Mils)	Alternative Insulation Thickness (Mils)	Nominal Overall Diameter (Inches)	Approx. Shipping Weight (Lbs./1000')	Ampacity @ 75°C*
14	1,7	30	45	0.13 / 0.16	18 / 22	15
12	1,7	30	45	0.15 / 0.18	27 / 31	20
10	1,7	30	45	0.18 / 0.21	40 / 45	30
8	1,7	45	60	0.24 / 0.27	66 / 73	40
6	1,7	60	-	0.30	107	55
4	7,133	60	-	0.38	163	70
2	7,133	60	-	0.45	246	95
1	19	80	-	0.49	316	110
1/0	19	80	-	0.53	390	125
2/0	19	80	-	0.58	481	145
3/0	19	80	-	0.63	593	165
4/0	19	80	-	0.69	739	195
250	37	95	-	0.77	884	215
300	37	95	-	0.82	1045	240
350	37	95	-	0.87	1213	260
400	37	95	-	0.95	1379	280
500	37	95	-	1.00	1725	320

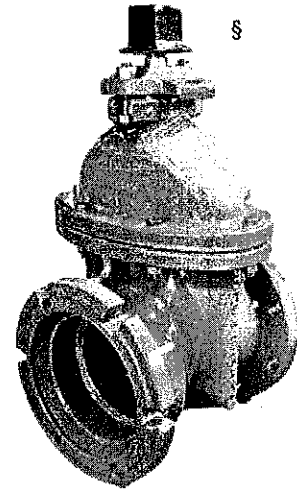
*Ampacity is from NEC Article 310. Check with local codes authority for guidance with your application.



SNAP FOR MORE INFORMATION

Rev. 3-16 Shaded area indicates changes

- Catalog number –
 - A-2361-16** mechanical joint x flanged ends (with accessories unassembled)
 - A-2361-19** mechanical joint x flanged ends (less accessories)
- Sizes – 4", 6", 8", 10", 12"
- Meets or exceeds all applicable requirements of ANSI/AWWA C515 Standard, UL Listed, FM Approved, and certified to ANSI/NSF 61 & 372.
- Flanged end drilling complies with ANSI B16.42 Class 150**
- Mechanical joint end complies with ANSI/AWWA C111 Standard
- Iron body with nominal 10 mils MUELLER[®] Pro-Guard[®] Fusion Epoxy Coated interior and exterior surfaces
- Epoxy coating meets or exceeds all applicable requirements of ANSI/AWWA C550 Standard.
- Iron wedge, symmetrical & fully encapsulated with molded rubber; no exposed iron
- Non-rising stem (NRS)
- Triple O-ring seal stuffing box (2 upper & 1 lower O-rings) with fourth o-ring serving as dirt seal
- 2" square wrench nut (optional handwheel available) – open left or open right
- 350 psig (2400 kPa/24 barg) maximum working pressure
700 psig (4800 kPa/48 barg) static test pressure
- UL Listed, FM Approved – 350 psig (2400 kPa/24 barg)
- Mueller valves are designed for potable water application



A-2361-16
M.J. accessories
shipped unassembled

Options

See page 10.46 for more information on Resilient Wedge Gate Valve options

- Position indicators
- ASTM B98-C66100/H02 stem
- Stainless steel stem: Type 304, Type 316
- Handwheel
- EPDM Disc and o-rings
- Stainless steel fasteners: Type 316

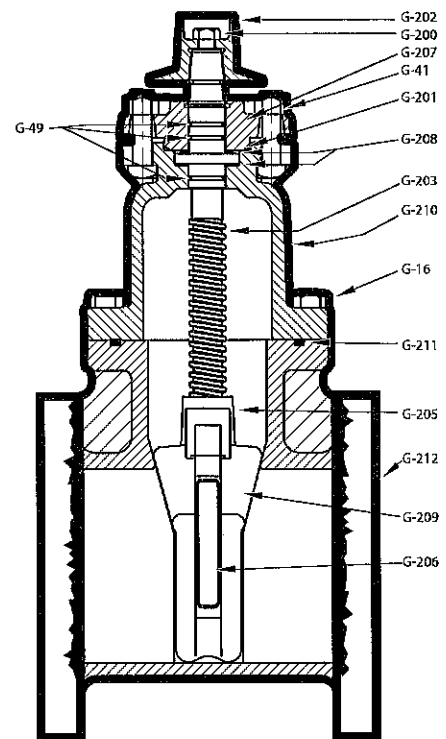
Resilient wedge gate valve parts

Catalog Part No.	Description	Material	Material Standard
G-16	Bonnet Bolts & Nuts	304 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-41	Stuffing Box Bolts & Nuts	304 Stainless Steel	ASTM F593 (bolt) ASTM F594 (nut)
G-49	Stem O-rings (3)	Nitrile	ASTM D2000
G-200	Wrench Nut Cap Screw	304 Stainless Steel	ASTM F593
G-201	Stuffing Box O-ring	Nitrile	ASTM D2000
G-202	Wrench Nut	Ductile Iron	ASTM A536 ▼
G-203	Stem	Bronze	ASTM B138
G-204	Hand Wheel (not shown)	Cast Iron	ASTM A126 CL.B
G-205	Stem Nut	Bronze	ASTM B584
G-206	Guide Cap Bearings	Acetal	-
G-207	Stuffing Box with dirt seal	Ductile Iron Nitrile	ASTM A536 ▼ ASTM D2000
G-208	Anti-friction Washers (2)	Acetal	-
G-209	Wedge, Rubber Encapsulation	Ductile Iron* SBR	ASTM A536 ▼ ASTM D2000
G-210	Bonnet	Ductile Iron	ASTM A536 ▼
G-211	Bonnet gasket	Nitrile	ASTM D2000
G-212	Body	Ductile Iron	ASTM A536 ▼

*Fully encapsulated in molded rubber with no iron exposed

▼ Material strength ASTM A536 65-45 minimum

** Per ANSI/AWWA C111, working pressure above 250psi requires the use of a special gasket rated for the higher pressure.



AMERICAN AVK RESILIENT SEATED DUCTILE IRON GATE VALVE 65/MFN-WD
250 PSI, Tested to AWWA C515 (NRS) MJxFL
Mechanical Joint by Flanged Ends to ASME B16.42 Class 150 - Valve Sizes 3" - 12"

Use:

For water and neutral liquids to maximum 160°F.

Tests:

Hydraulic test to AWWA C515:

Shell Test: 500 PSI

Seat Test: 250 PSI

Operating Torque Test

Optional Materials:

Wedge Ductile iron ASTM A536
 encapsulated with NBR-rubber
 compound

Standard Materials:

Body, Bonnet, Gland Flange, Wrench Nut	Ductile iron ASTM A536 (Wrench Nut-painted black for open left, red for open right)
Coating	Electrostatically applied fusion- bonded epoxy-resin Meets or exceeds AWWA C550
Stem	Standard: Stainless steel 430F
Wedge	Ductile iron ASTM A536 encapsulated with EPDM-rubber compound
Wedge Nut, Thrust Collar	Bronze
Bonnet Bolts	Stainless Steel - 316 sealed with hot melt
Gland Bolts	Stainless Steel - 316 Hexagon bolt
Bonnet Gasket, Wiper Ring, O-Ring Stem Seals, O-Ring Gland Seal	ASTM D2000 Buna "N" nitrile rubber

Approvals:

Certified to: ANSI/NSF 61, ANSI/NSF 372

