



Rich Surratt
 Outside Sales - One Utility
 Utility Infrastructure

Ferguson Waterworks
 7601 14TH Ave
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 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, 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**

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Public Works Manager

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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

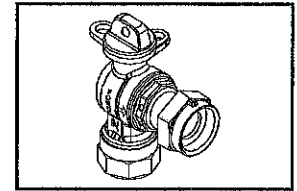
Swarnjit Boyal,
Public Works Manager

FERGUSON WATER WORKS

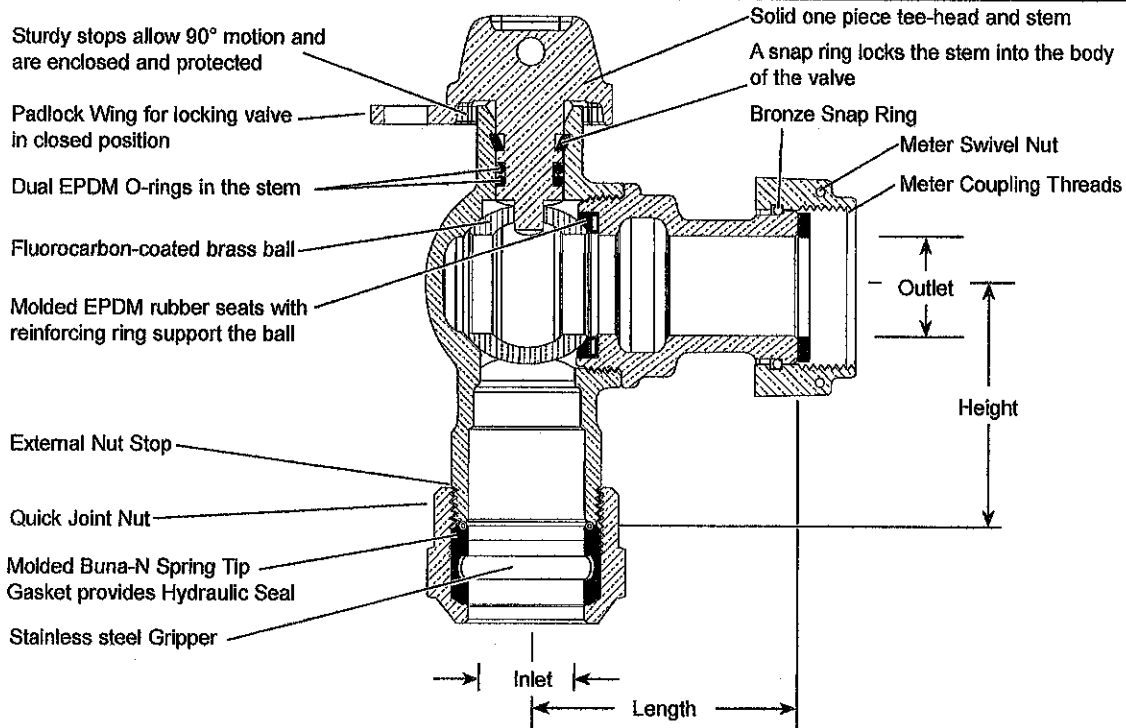
RFB - BID SHEET FOR WATER SERVICES MATERIAL SUBMITAL - BID FORM										
Title	Brend	Item #	MFG #	Unit of Measure	Quantity	Price	TOTAL			
1) B-25028N Bail Corporation Stop, 1 in, MNPT x 110 CTS, Brass	Mueller Co or similar	MUEB25028N1	025028330N	Each	160	81.00	12,960.00			
2) Angle Meter Valve, 1 in, 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: 280-563-3171 / Fax: 800-826-3487
 Overseas Fax: 260-563-0167
 www.fordmeterbox.com

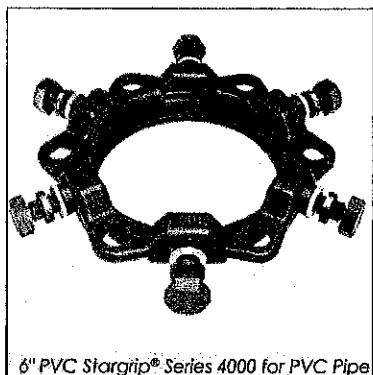
05/16/14

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: []

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

REV.17.02

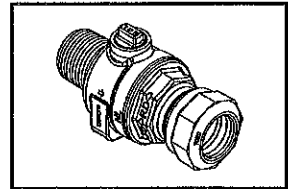


© REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

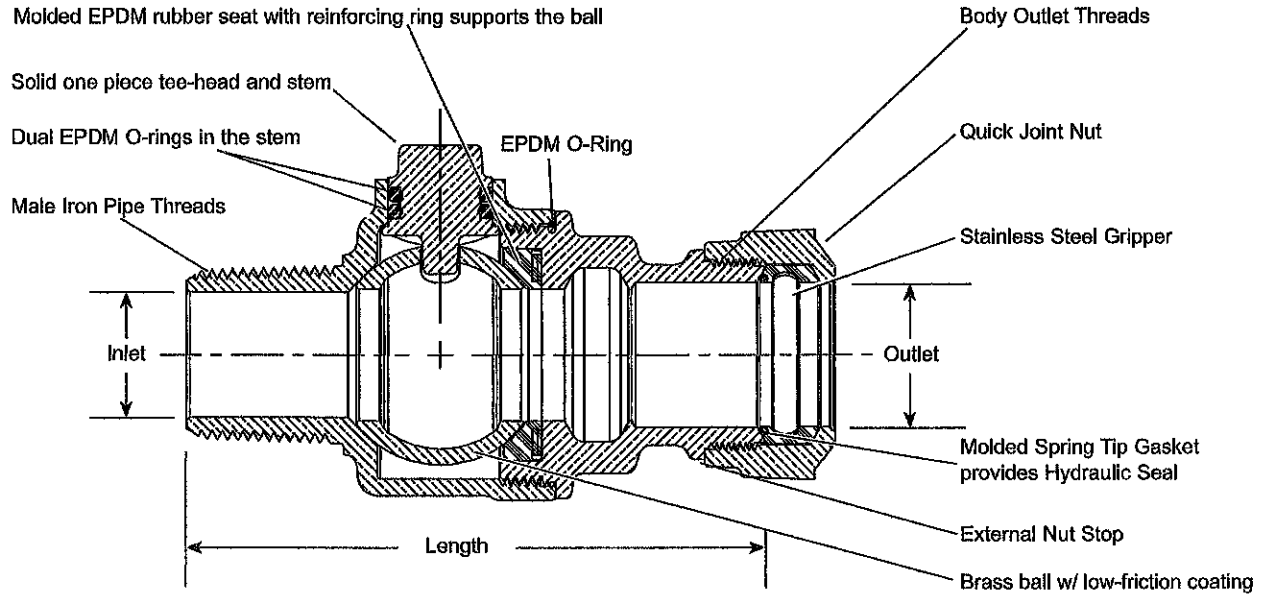
STAR® PIPE PRODUCTS HOUSTON CORPORATE | TOLL FREE 1-800-999-3009 | FAX 281-568-9000 www.starpipeproducts.com

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.



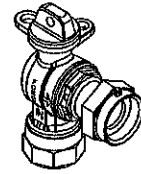
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
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www.fordmeterbox.com

12/12/25

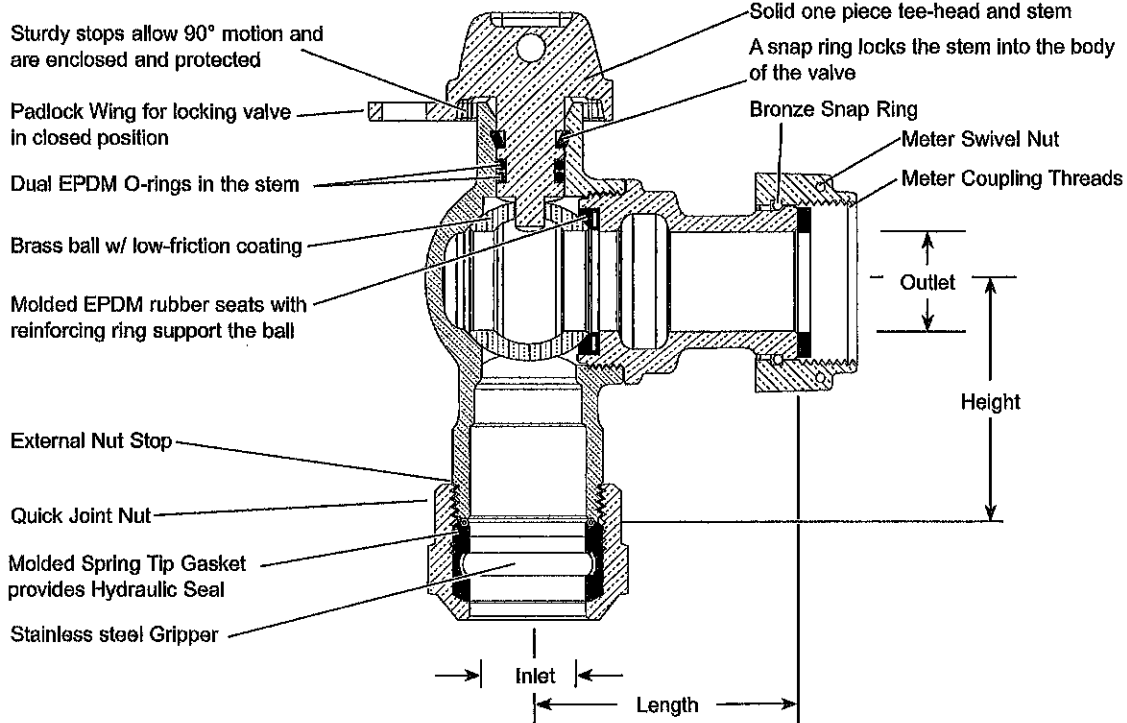
Submitted By:

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

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- 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.

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12/18/25

Submitted By:

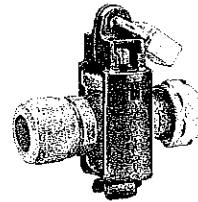
Rev. 4-20 Shaded area indicates changes



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.

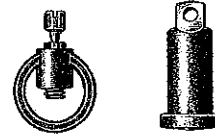
Catalog size	3/4"	1"
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Water meter increaser
Used on threaded ends of 5/8" meter to increase threads to 5/8 x 3/4 or 3/4 meter size (1" thread)
H-10888: for plain nuts
H-10888-99002: for saddle nuts

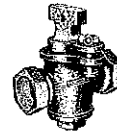
H-10888N H-10888N-02

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

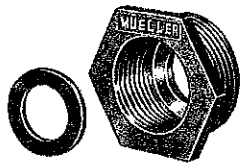


H-11091 H-11092

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.

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

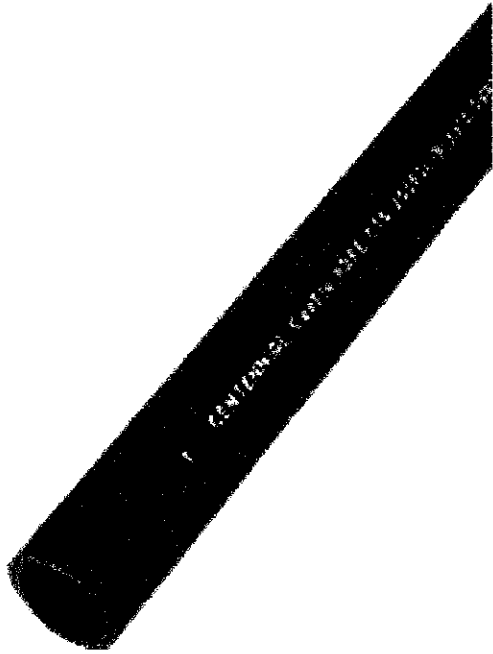
Part: FORC8444QNL
MFG:
C84-44-Q-NL



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

Part: FORFB11004QNL
MFG:
Actual Product Not Shown: FB1100-4-Q-NL

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

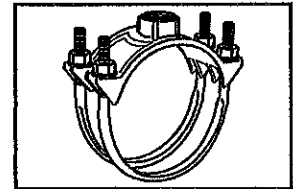
Part: WPP1100BLK **MFG:** WPP1100BLK

Description

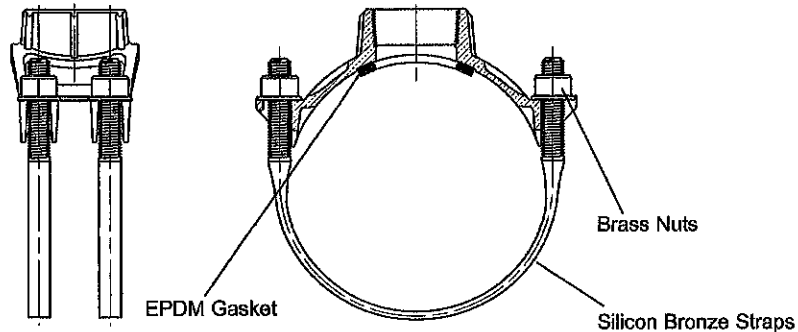
Potable Water Polyethylene Pipe, SDR 9, 4710, 1 in, 100 ft L, CTS, Black

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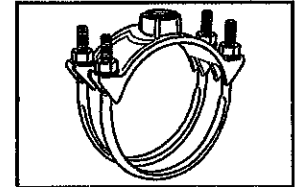
The Ford Meter Box Company, Inc.
 P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
 Phone: 260-563-3171 / Fax: 800-826-3487
 Overseas Fax: 260-563-0167
www.fordmeterbox.com

06/01/26

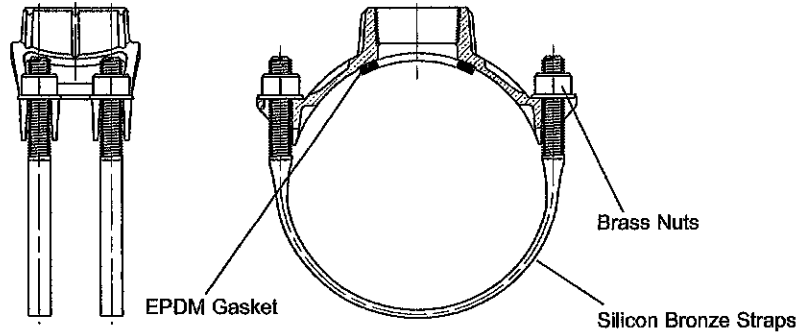
Submitted By:

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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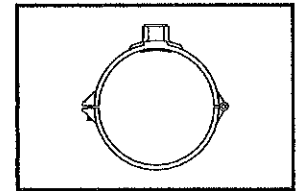
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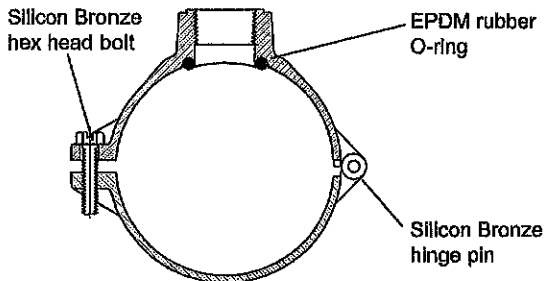
Submitted By:

SUBMITTAL INFORMATION

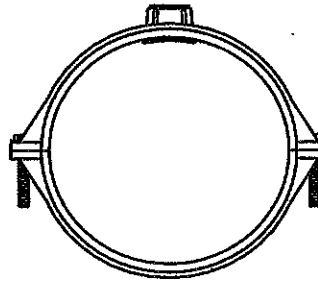
Brass Saddles For C900 PVC - (S91-xxx style)



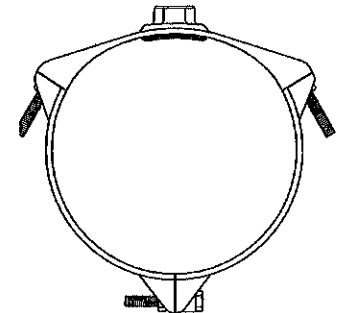
S91 BRASS SADDLES WITH IRON PIPE TAPS FOR C900 PVC PIPE



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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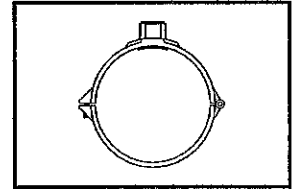
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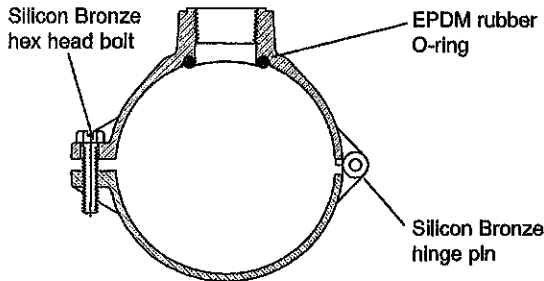
Submitted By:

SUBMITTAL INFORMATION

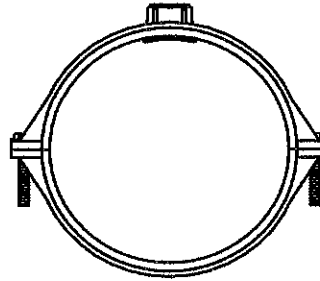
Brass Saddles For C900 PVC - (S91-xxx style)



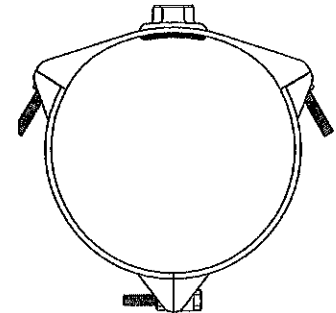
S91 BRASS SADDLES WITH IRON PIPE TAPS FOR C900 PVC PIPE



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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		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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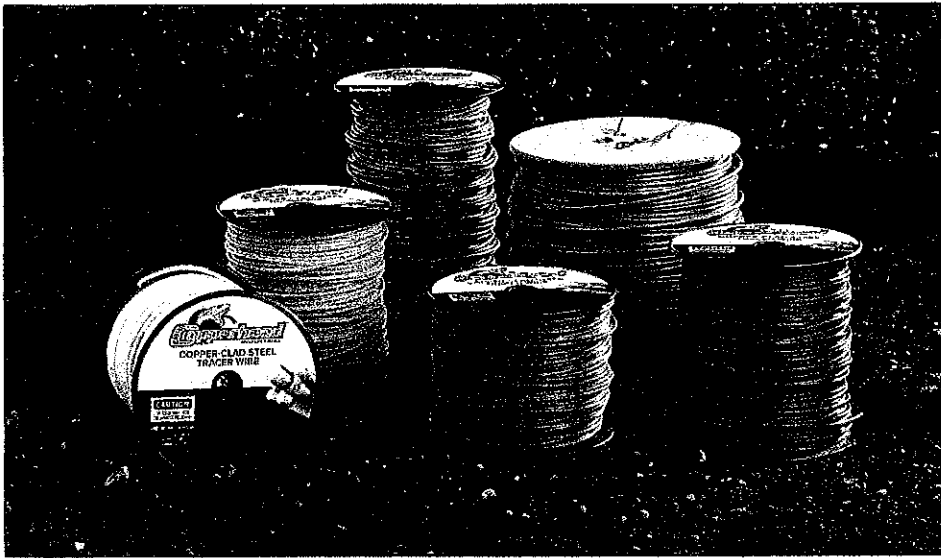
Submitted By:



SOLOSHOT™ EXTRA-HIGH STRENGTH – 1045 CCS TRACER WIRE

APPLICATION

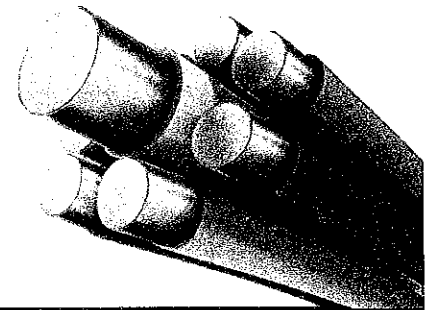
Copper-clad steel (CCS) tracer wire. Install with underground plastic utility pipes, wires, and cables to ensure future location. Best choice for horizontal directional drilling/boring applications when ground above the utilities cannot be disturbed because buildings, roadways, or other obstructions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



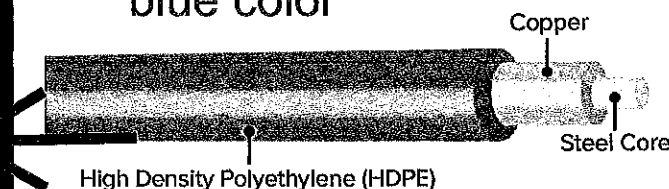
FEATURES AND BENEFITS

- 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

	GAS
	COMMUNICATION
	POTABLE WATER
	SEWER/WASTE
	OTHER

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

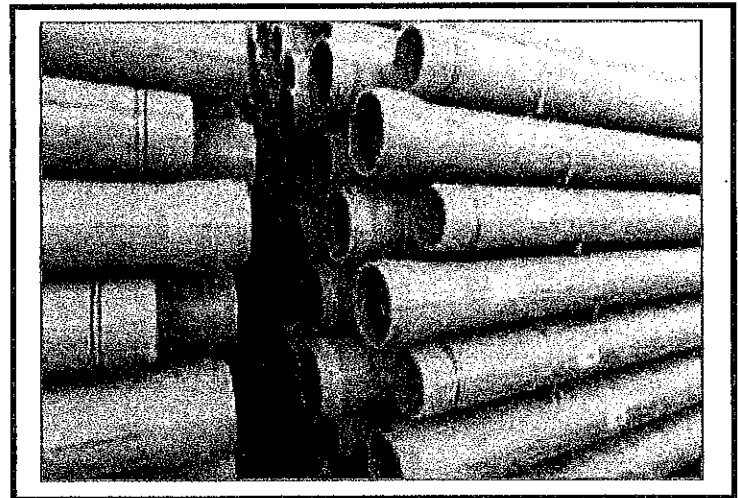


MUNICIPAL PRODUCT SPECIFICATION

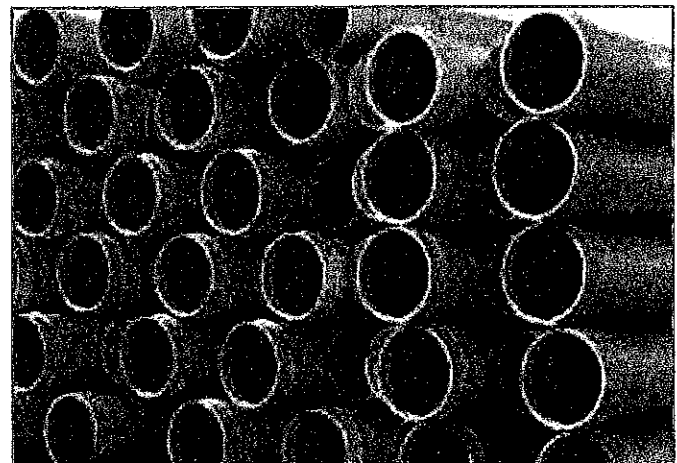
AWWA C900/IB PVC Pressure Pipe | Gasketed Integral Bell

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.

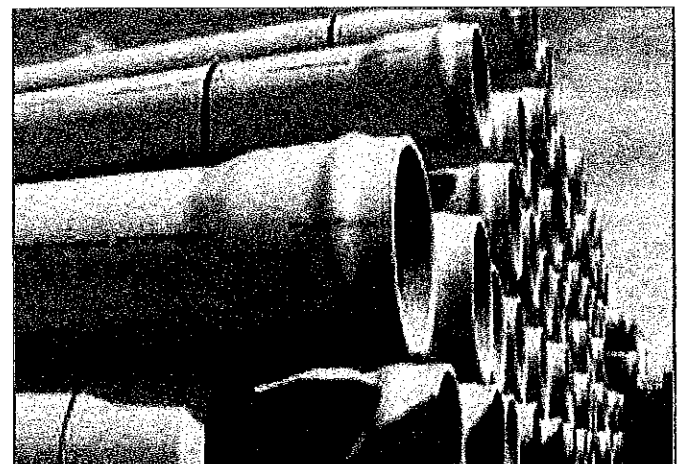
Our C900 pipe utilizes Rieber style gaskets throughout the entire product offering to create a leak-free joint.



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.

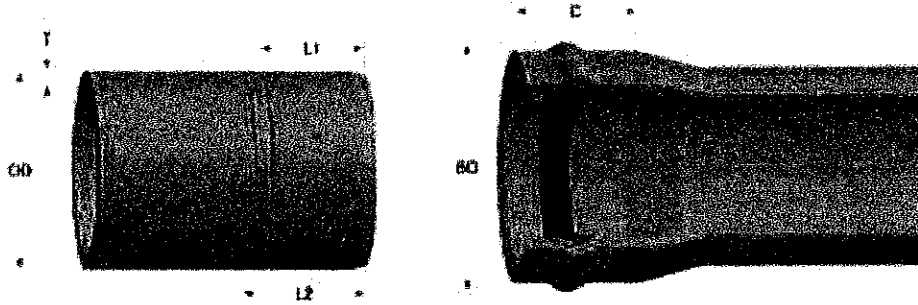


napcopipe.com | 1.855.624.7473



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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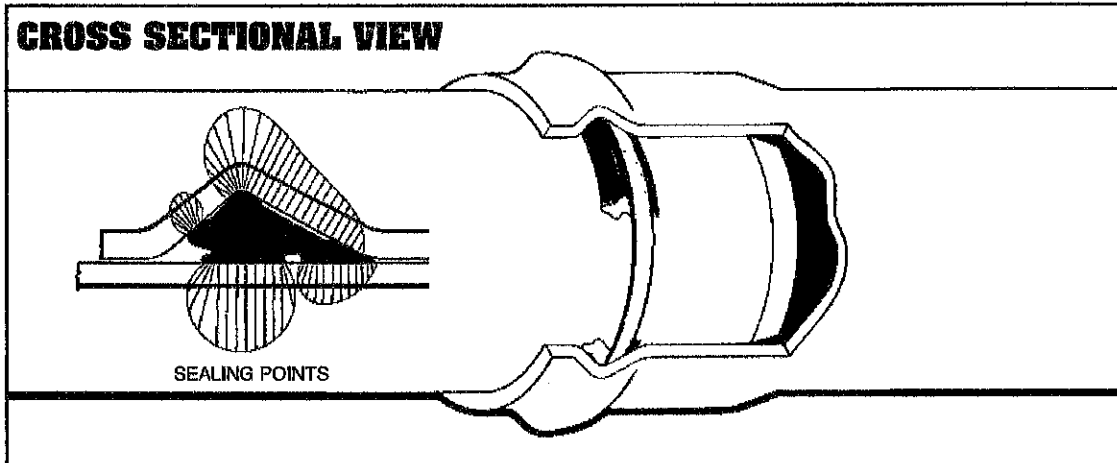
AWWA C900-07

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

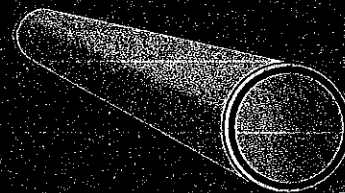
The Rieber system provides a proven pipe joint with an excellent track record in the field. It is the fastest growing system in the world because of its many advantages.

- 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"**



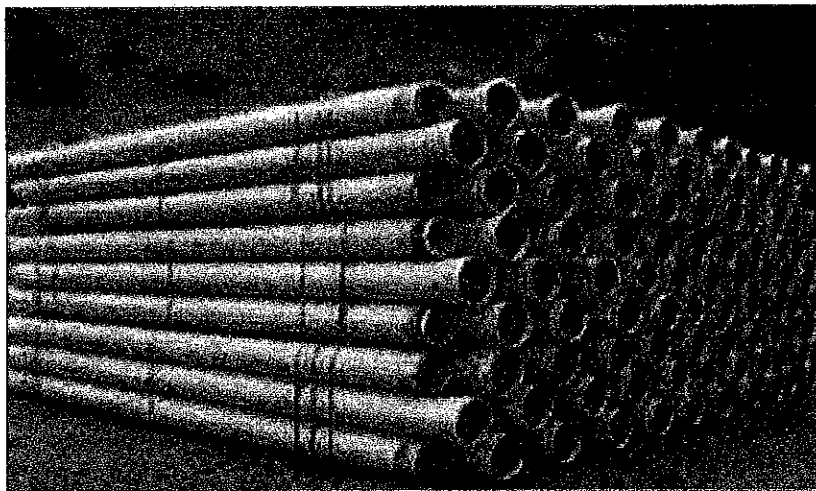
C900: PVC Pressure Pipe

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.



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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.

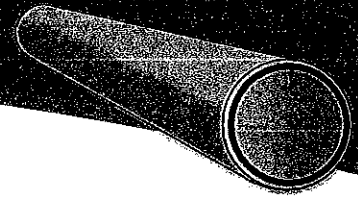


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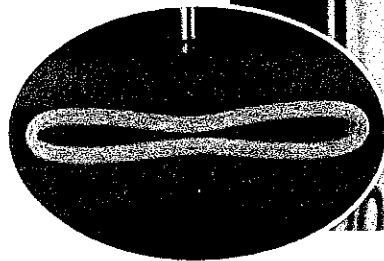
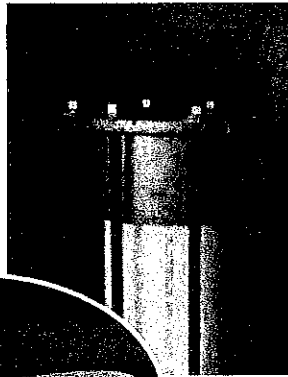
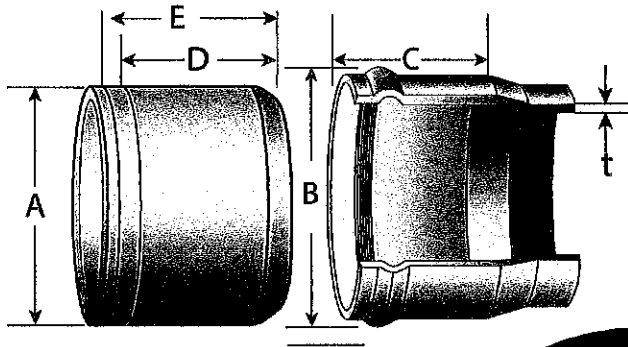


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Rieber Joint Illustration



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


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#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)

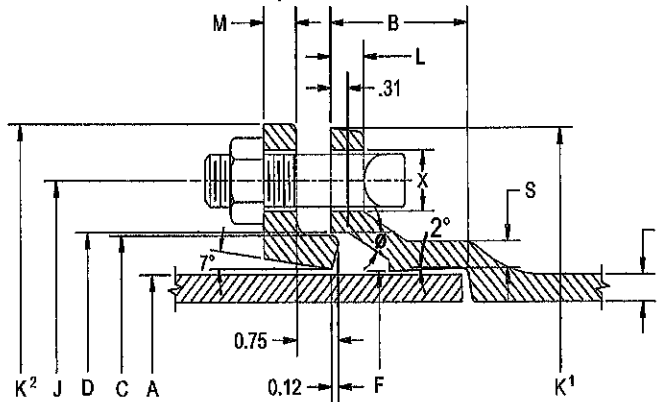
Mechanical joint watermain fittings with accessories, 2" through 64" shall be manufactured from ductile iron in accordance with and meet all applicable terms and provisions of standards ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11. Ductile iron mechanical joint fittings 2" through 24" shall be rated 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.

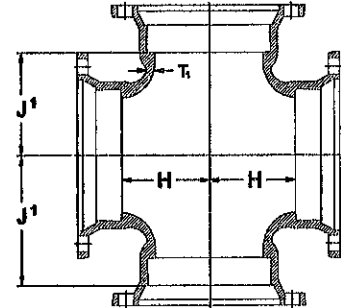
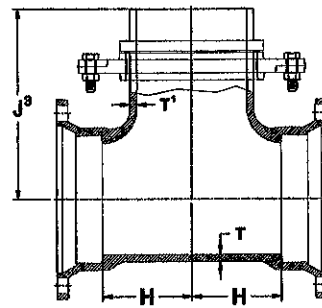
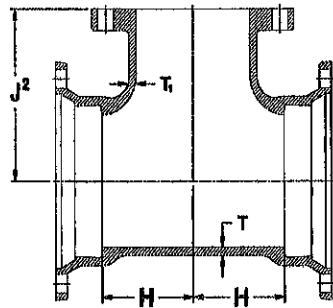
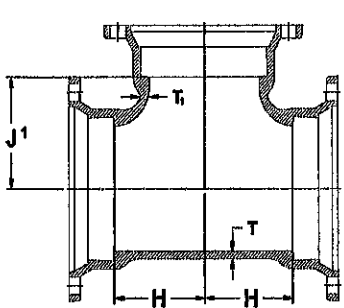


MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

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

TEES

CROSS



MJ Tee

MJ x FE Tee

MJ x Swivel Tee

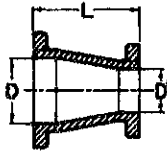
Cross

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	...	...	...

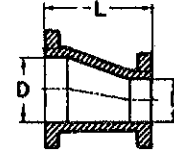
NOTE: Contact TU Inside Sales representative for MJ Crosses larger than 16 inch. †MJxSwl Weights include swivel gland.

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

REDUCERS



Concentric Reducer



***Eccentric Reducer**

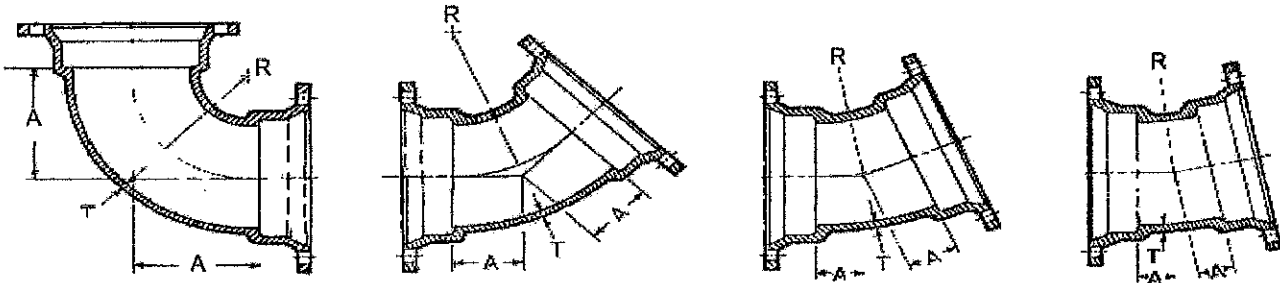
Concentric Reducer				Concentric Reducer			
Size D	Size D'	Dimensions L	Wts	Size D	Size D'	Dimensions L	Wts
3	2	6	17	18	8	19	265
4	2	7	23	18	10	19	290
4	3	7	29	18	12	19	320
6	2	9	30	18	14	19	350
6	3	9	44	18	16	19	405
6	4	9	46	20	10	20	418
6	5	9	56	20	12	20	465
8	3	11	61	20	14	20	430
8	4	11	63	20	16	20	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

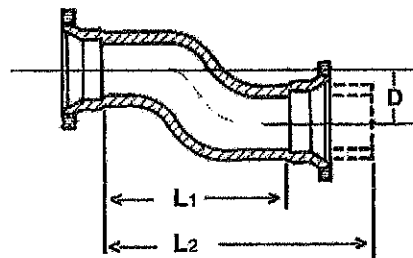


Size	90° Bends (1/4)				45° Bends (1/8)			22 1/2° Bends (1/16)			11 1/4° Bends (1/32)		
	T	A	R	Weight	A	R	Weight	A	R	Weight	A	R	Weight
3	.34	3.5	2.5	19	2.00	2.41	17	1.50	2.51	15	1.25	2.53	16
4	.35	4.0	3.0	22	2.50	3.56	20	1.75	3.81	18	1.50	5.12	18
6	.37	6.5	6.0	49	3.50	7.25	39	2.25	6.35	31	1.50	5.12	29
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

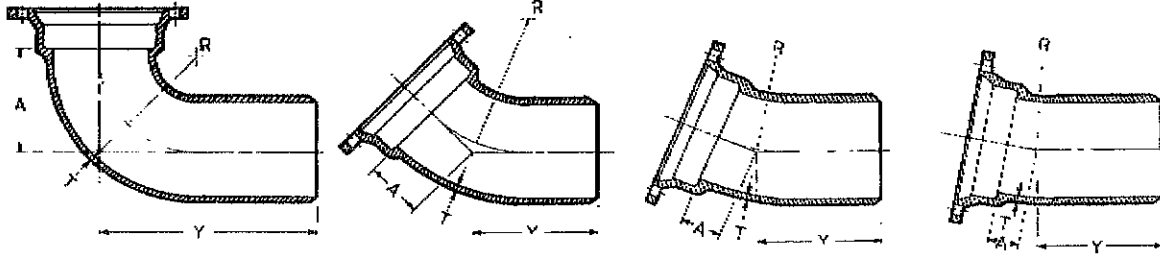
Size	Dimensions		Weight
	*A	R	
3	1.25	5.08	16
4	1.50	7.61	18
6	1.50	10.15	29
8	1.75	12.69	45
10	2.00	15.23	59
12	2.30	17.77	82
14	2.50	20.31	136
16	2.50	20.31	157
18	3.00	25.38	283
20	3.00	25.38	374
24	3.00	25.38	487
30	3.75	32.97	600
36	4.00	34.55	820
42	5.00	42.71	1180
48	5.50	47.35	1475



MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

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

BENDS



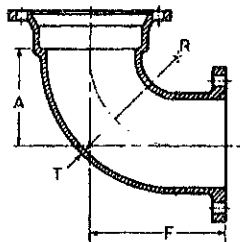
90° Bend MJ x PE (1/4)

45° Bend MJ x PE (1/8)

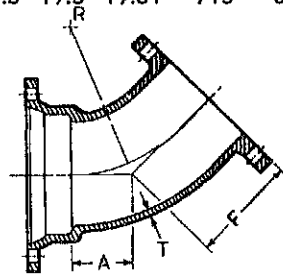
22 1/2° Bend MJ x PE (1/16)

11 1/4° Bend MJ x PE (1/32)

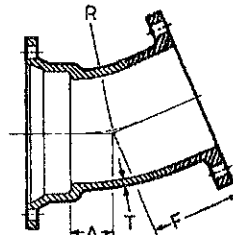
Size	T	Dimensions				Weight	A	Dimensions			Weight	A	Dimensions			Weight	A	Dimensions			Weight
		A	Y	R	Weight			A	Y	R			A	Y	R			A	Y	R	
3	.34	3.5	9.0	2.5	18	2.0	7.5	2.41	17	1.50	7.00	2.51	19	1.25	6.75	7.62	15				
4	.35	4.0	9.5	3.0	26	2.5	8.0	3.56	22	1.75	7.25	3.81	20	1.50	7.00	5.12	20				
6	.37	6.0	11.5	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				



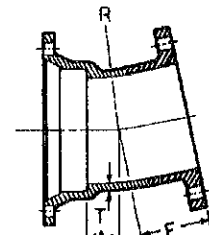
90° Bend MJ x Flange (1/4)



45° Bend MJ x Flange (1/8)



22 1/2° Bend MJ x Flange (1/16)



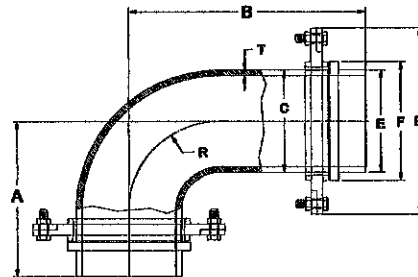
11 1/4° Bend MJ x Flange (1/32)

Size	T	Dimensions				Weight	Dimensions				Weight	Dimensions				Weight	Dimensions				Weight
		A	R	F	Weight		A	R	F	Weight		A	R	F	Weight		A	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

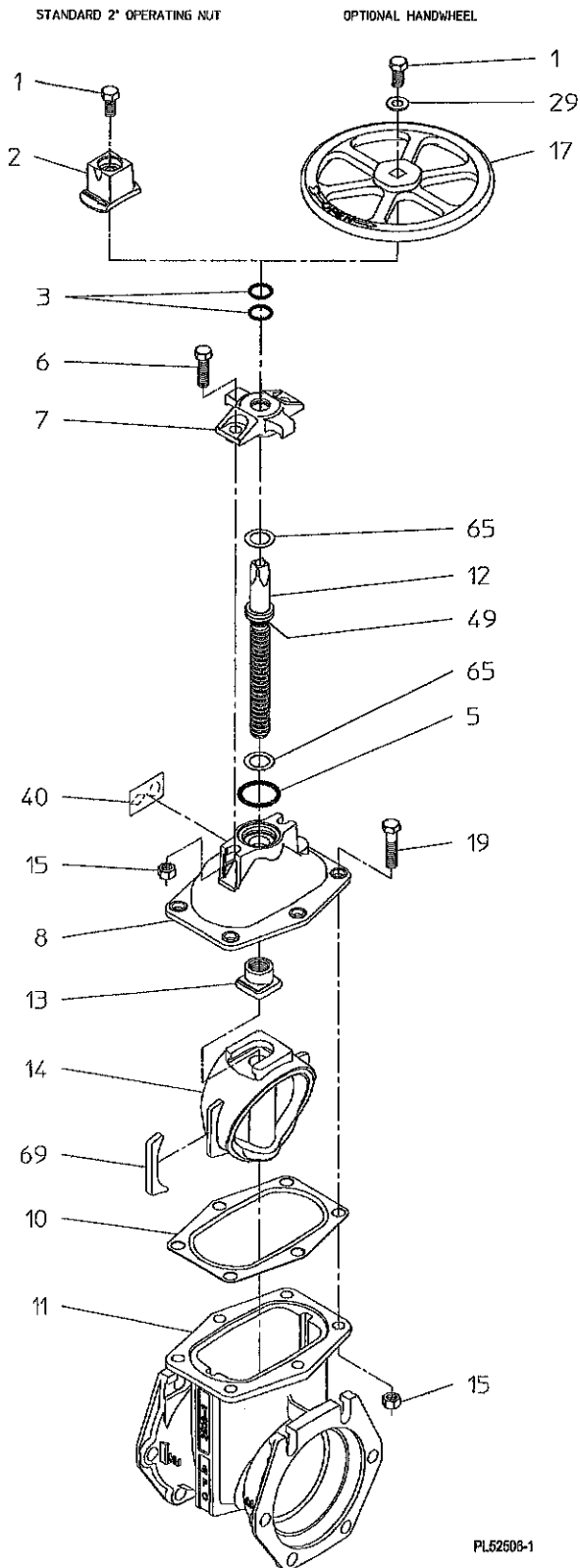
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AMERICAN Flow Control Product Submittal Package

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

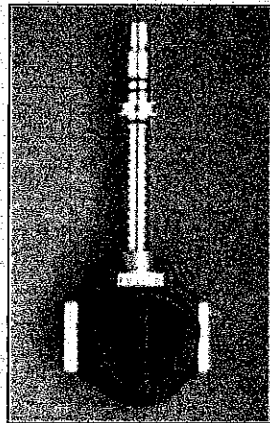
■ The Mueller® 2360 Series™ Resilient Wedge Gate Valve is a symmetrical design with refinements to enhance reliability and service life. Special features protect critical areas of the valve from damage, wear and corrosion. The entire valve is certified to ANSI/NSF Standard 61.

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.

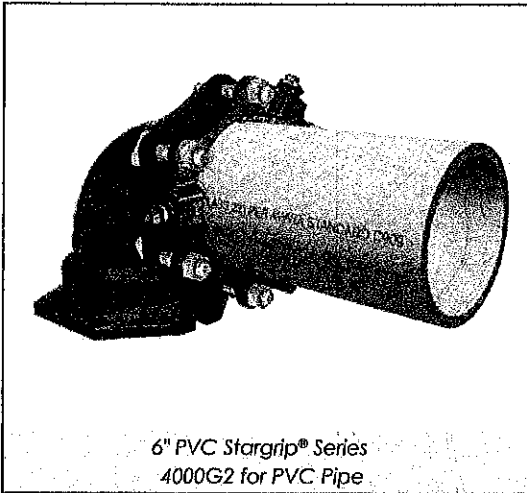
Resilient wedge valves to 48" are available

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

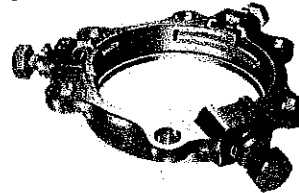


6" PVC Stargrip® Series
4000G2 for PVC Pipe

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.

JRCAT15.01



® REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

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

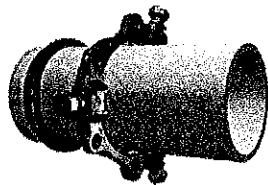
STAR® PIPE PRODUCTS



PVC Stargrip® series 4000G2

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

INSTALLATION INSTRUCTIONS - SIZES 3" - 12"

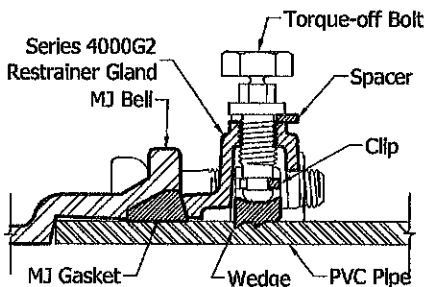


STEP 1

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.

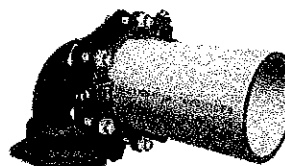
IMPORTANT: Make deflection after joint is assembled but before tightening T-bolts to required torque range as listed in table below.

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.

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

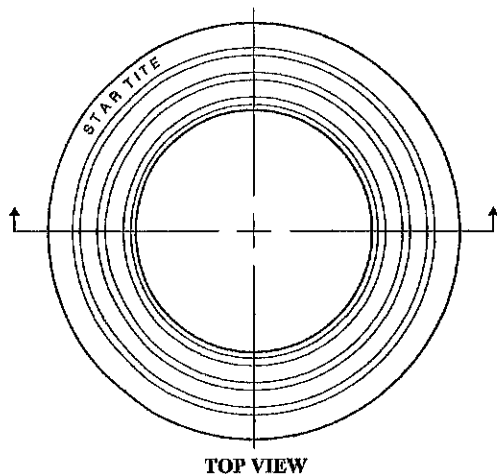
150# Pack Quantities & Bolt Sizes (Inches)				
Size	Bolt	Nut Qty	Diameter	Bolt Length
1/2	4	4	1/2-13	2
3/4	4	4	1/2-13	2
1	4	4	1/2-13	2-1/4
1-1/4	4	4	1/2-13	2-1/4
1-1/2	4	4	1/2-13	2-1/2
2	4	4	5/8-11	2-3/4
2-1/2	4	4	5/8-11	3
3	4	4	5/8-11	3
4	8	8	5/8-11	3
5	8	8	3/4-10	3-1/4
6	8	8	3/4-10	3-1/4
8	8	8	3/4-10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

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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.

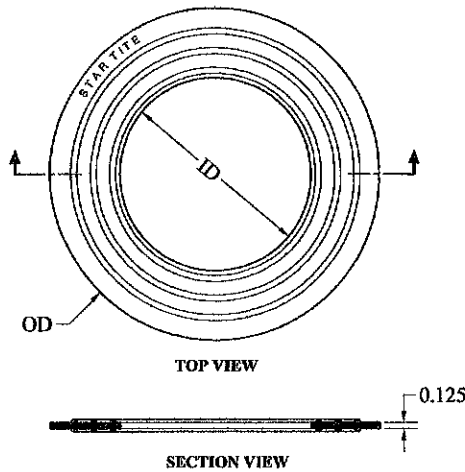
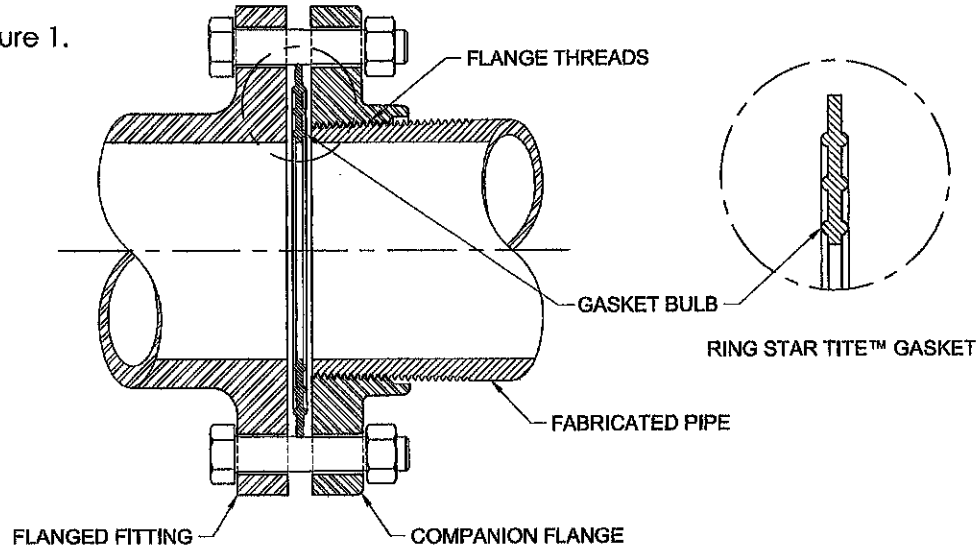


Table 1 - FLANGE ACCESSORY PACKS C111/A.21.11*							
NOM. SIZE	ID	OD	BOLTS	BOLTS (QTY)	MAX PRESSURE RATING (PSI)	BOLT TORQUE (FT-LB)	APPROX. WT. (LBS)
3	3.000	5.375	5/8 x 2 1/2	4	350	110	2
4	4.000	6.875	5/8 x 3	8	350	110	4
6	6.000	8.750	3/4 x 3 1/2	8	350	110	5
8	8.000	11.000	3/4 x 3 1/2	8	350	110	5
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

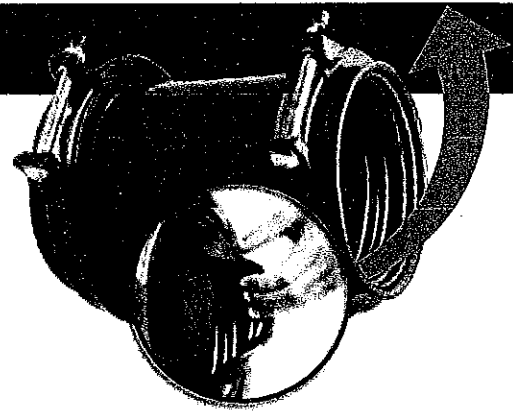
Type	Full Face
Nominal Size	12 in
Material	Star Tite

Brand	Star® Pipe Products
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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 SEWEGE, 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.

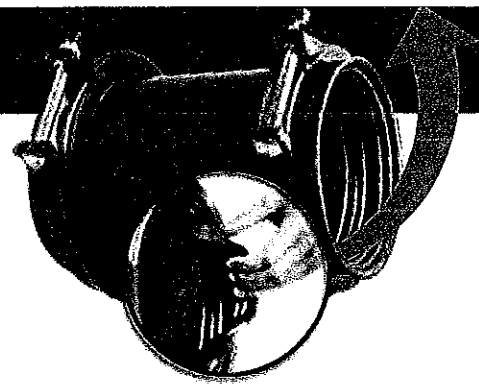
HYMAX[®]

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.