

BID SPECIFICATIONS/BIDDERS PROPOSAL/CONTRACT

BID DESCRIPTION: FURNISH AND DELIVER BUTTERFLY VALVES, FLANGE ADAPTERS, AND DUCTILE IRON PIPE FOR ERIE COUNTY WATER AUTHORITY BROADWAY PUMP STATION

PROJECT No.: 201800182

Ship to: ERIE COUNTY WATER AUTHORITY
 Attention: Paul D. Miklos, Production Technician
 Address: 3030 Union Road, Buffalo, New York 14227

Item No.	Quantity	U/M	Catalog No./Description	Unit Price	Total Price
1	3	Ea	10-inch Pratt Butterfly Valve, 150 Lb Flange x Flange with Handwheel (Named manufacturer, no substitution)	\$2,734.	\$8,202.
2	3	Ea	12-inch Pratt Butterfly Valve, 150 Lb Flange x Flange with Handwheel (Named manufacturer, no substitution)	\$3,295.	\$9,885.
3	3	Ea	10-inch EBAA 2100 Series Megaflange Adapter. (Named manufacturer, no substitution)	\$519.	\$1,557.
4	3	Ea	12-inch EBAA 2100 Series Megaflange Adapter. (Named manufacturer, no substitution)	\$549.	\$1,647.
5	3	pc	10 inch x 5 foot ductile Iron Pipe, 150 Lb Flange x Plain End.	\$475.	\$1,425.
6	3	pc	12 inch x 6 foot ductile Iron Pipe, 150 Lb Flange x Plain End.	\$679.	\$2,037.
TOTAL NET BID DELIVERED INSIDE					\$24,753.

NOTE: Bid results are available on the Erie County Water Authority website, www.ecwa.org (under Doing Business tab, select option Business Opportunities). No bid results will be given over the telephone.

Please note (I) - Lead Time 7-8 weeks after receiving PO

(II) - VALVES ARE MUELLER (HENRY PRATT) MODEL # 101 FF - 0110 - SSLHP 205 FOR 10" MODEL # 121 FF - 0110 - SSLHP 205 FOR 12" BOTH STEM & DISC 316 SS LINEDAL III BUTTERFLY VALVES.

(III) - PRICE QUOTES ARE FOR EQUIPMENT ONLY NO INSTALLATION.

(IV) - WARRANTY PER MANUFACTURER'S STANDARD TERMS & CONDITIONS

1.01 Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.

2.01 Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents.

3.01 This obligation shall be null and void if:

- A. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or
- B. All Bids are rejected by OWNER, or
- C. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5.01 hereof).

4.01 Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5.01 Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6.01 No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4.01 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7.01 Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8.01 Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9.01 Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

10.01 This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11.01 The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

END OF BID BOND



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
10/17/2018

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

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

PRODUCER E & K Agency, Inc. 613 Hope Road P.O. Box 600 Eatontown NJ 07724		CONTACT NAME: Stephanie Fakelman PHONE (A/C, No, Ext): (732) 389-6000 E-MAIL ADDRESS: sfakelman@e-kinsurance.com		FAX (A/C, No): (732) 542-5540	
INSURED Valve Industries Inc 4 Slate Ct Apt D-2 Woodland Park NJ 07424		INSURER(S) AFFORDING COVERAGE		NAIC #	
		INSURER A : Sentinel Insurance Company LTD		11000	
		INSURER B : Hartford Casualty Ins Co.		29424	
		INSURER C :			
		INSURER D :			
		INSURER E :			
		INSURER F :			

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR			13SBATE1260	04/01/2018	04/01/2019	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000
	OTHER:						MED EXP (Any one person) \$ 10,000
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			13SBATE1260	04/01/2018	04/01/2019	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
							BODILY INJURY (Per person) \$
							BODILY INJURY (Per accident) \$
							PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB DED \$ RETENTION \$						EACH OCCURRENCE \$
							AGGREGATE \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	13WBCBK9830	04/01/2018	04/01/2019	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER
			E.L. EACH ACCIDENT \$ 1,000,000				
			E.L. DISEASE - EA EMPLOYEE \$ 1,000,000				
							E.L. DISEASE - POLICY LIMIT \$ 1,000,000

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

Re: Project #201800182 Furnish and Deliver Butterfly Valves, Flange Adaptors and Ductile Iron Pipe for Broadway Pump Station

Suffolk County Water Authority is included as an additional insured as per the endorsement SS0008 0405, if additional insured is required in according to an excuted written contract.

CERTIFICATE HOLDER

CANCELLATION

Erie County Water Authority
295 Main Street, Suite 350
Buffalo NY 14203

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

AUTHORIZED REPRESENTATIVE

Stephanie Fakelman

FORM A

Offerer's Affirmation of Understanding of and Agreement Pursuant to State Finance Law §139-j(3) and §139-j(6)(b)

Instructions:

A Governmental Entity must obtain the required affirmation of understanding and agreement to comply with procedures on procurement lobbying restrictions regarding permissible contacts in the restricted period for a procurement contract in accordance with State Finance Law §139-j and §139-k. It is required that this affirmation be obtained as early as possible in the procurement process, but no later than when the Offerer submits its proposal.

Offerer affirms that it understands and agrees to comply with the procedures of the Government Entity relative to permissible contacts as required by State Finance Law §139-j(3) and §139-j(6)(b).

By: [Signature] Date: 10/18/2018

Name: SEYED HASTHEMI

Title: DIRECTOR

Contractor Name: VALVE INDUSTRIES INC

Contractor Address: 4 SLATE CT., D-2

WOODLAND PARK, NJ, 07424

FORM B

**Offerer's Certification of Compliance
With State Finance Law §139-k(5)**

Instructions:

A Governmental Entity must obtain the required Certification that the information is complete, true, and accurate regarding any prior findings of non-responsibility, such as non-responsibility pursuant to State Finance Law §139-j. The Offerer must agree to the Certification and provide it to the procuring Governmental Entity. It is required that the Certification be obtained as early as possible in the process, but no later than when an Offerer submits its proposal.

Offerer Certification:

I certify that all information provided to the Governmental Entity with respect to State Finance Law §139-k is complete, true, and accurate.

By:  Date: 10/18/2018

Name: SEYED HASHEMI

Title: DIRECTOR

Contractor Name: VALVE INDUSTRIES INC

Contractor Address: 4 SLATE CT, D-2

WOODLAND PARK, NJ, 07424

FORM C**Offerer's Disclosure of Prior
Non-Responsibility Determinations****Background:**

New York State Finance Law §139-k(2) obligates a Governmental Entity to obtain specific information regarding prior non-responsibility determinations with respect to State Finance Law §139-j. In accordance with State Finance Law §139-k, an Offerer must be asked to disclose whether there has been a finding of non-responsibility made within the previous four (4) years by any Governmental Entity due to: (a) a violation of State Finance Law §139-j; or (b) the intentional provision of false or incomplete information to a Government Entity.

The terms "Offerer" and "Governmental Entity" are defined in State Finance Law §139-k(1). State Finance Law §139-j sets forth detailed requirements about the restrictions on contacts during the procurement process. A violation of State Finance Law §139-j includes, but is not limited to, an impermissible contact during the restricted period (for example, contacting a person or entity other than the designated contact person, when such contact does not fall within one of the exemptions).

As part of its responsibility determination, State Finance Law §139-k(3) mandates consideration of whether an Offerer fails to timely disclose accurate or complete information regarding the above non-responsibility determination. In accordance with law, no Procurement Contract shall be awarded to any Offerer that fails to timely disclose accurate or complete information under this section, unless a finding is made that the award of the Procurement Contract to the Offerer is necessary to protect public property or public health safety, and the Offerer is the only source capable of supplying the required Article of Procurement within the necessary timeframe. See State Finance Law §139-j(10)(b) and §139-k(3).

Instructions:

A Governmental Entity must include a disclosure request regarding prior non-responsibility determinations in accordance with State Finance Law §139-k in its solicitation of proposals or bid documents or specifications or contract documents, as applicable, for procurement contracts. The attached form is to be completed and submitted by the individual or entity seeking to enter into a Procurement Contract. It shall be submitted to the Governmental Entity conducting the Governmental Procurement no later than when the Offerer submits its proposal.

FORM C (Continued)

Offerer's Disclosure of Prior Non-Responsibility Determinations

Name of Individual or Entity Seeking to Enter into the Procurement Contract:

VALVE INDUSTRIES INC

Address: 4 SLATE CT., D-2

WOODLAND PARK, NJ, 07424

Name and Title of Person Submitting this Form: SEYED HASSEMI
DIRECTOR

Contract Procurement Number: 201800182

Date: 10/18/2018

1. Has any Governmental Entity made a finding of non-responsibility regarding the individual or entity seeking to enter into the Procurement Contract in the previous four years? (Please circle): No Yes

If yes, please answer the next questions:

2. Was the basis for the finding of non-responsibility due to a violation of State Finance Law §139-j (Please circle): No Yes

3. Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity? (Please circle) No Yes

4. If you answered yes to any of the above questions, please provide details regarding the finding of non-responsibility below.

Governmental Entity: _____

Date of Finding of Non-Responsibility: _____

Basis of Finding of Non-Responsibility: _____

(Add additional pages as necessary)

FORM C (Continued)

5. Has any Governmental Entity or other governmental agency terminated or withheld a Procurement Contract with the above-named individual or entity due to the intentional provision of false or incomplete information? (Please circle): No Yes

6. If yes, please provide details below.
Governmental Entity: _____

Date of Termination or Withholding of Contract: _____

Basis of Termination or Withholding:

(Add additional pages as necessary)

Offerer certifies that all information provided to the Governmental Entity with respect to State Finance Law §139-k is complete, true, and accurate.

By: [Signature] Date: 10/18/2018
Signature

Name: SEYED HASHEMI

Title: DIRECTOR

Erie County Water Authority Insurance Requirements for Vendors

Project Number: 201800182

Description: Furnish and Deliver Butterfly Valves, Flange Adaptors and Ductile Iron Pipe For Broadway Pump Station.

The following minimum insurance requirements shall apply to vendors supplying products or goods to the Erie County Water Authority (ECWA). If a product or good, in the opinion of ECWA, represents an unusual or exceptional risk, ECWA may establish additional insurance requirements for that product or service. All insurance required herein shall be obtained at the sole cost and expense of the vendor, including deductibles and self-insured retentions. These requirements include but are not limited to the minimum insurance requirements.

An X indicates insurance coverage is required.

X **Commercial General Liability Insurance** (including, but not limited to, Bodily (Personal) Injury, Premises Operations, Property Damage Liability (broad form), Contractual Liability, Advertising Injury, Independent Contractors, and Product Liability, in an amount not less than \$1,000,000 combined single limit and \$2,000,000 in the aggregate:

- X Per Policy
- ___ Per Project or Job
- ___ Per Location

There should be no exclusions for any claims filed, actual or alleged, for violation of any applicable statute including, but not limited to, the New York State or federal labor laws, ordinances, administrative orders, executive orders, rules, regulations, or decrees of any court of competent jurisdiction.

X **Comprehensive Business Automobile Insurance** in an amount of not less than \$1,000,000 each accident and shall cover liability arising out of any automobile owned, leased, hired, borrowed and non-owned automobiles. Additionally, if vehicles are used for transporting hazardous materials, the contractor shall obtain and maintain the "broadened" coverage (endorsement CA 99 48), as well as proof of MCS 90 04 00.



BUTTERFLY VALVE DIVISION
401 S. Highland Avenue
Aurora, IL 60506-5563
1-800-510-1111 x 2
Fax: 630-844-4305

May 31, 2013

Dear Sir:

We are pleased to have this opportunity to clarify the information related to the Henry Pratt and Mueller Butterfly valves.

The Henry Pratt Co. and Mueller Company AWWA butterfly valves have had exactly the same design and exact same specifications since Tyco International Ltd./Mueller Company purchased Henry Pratt Company in September 1996. At that time the Mueller Co. closed their butterfly plant and all Mueller valves manufactured subsequently have been produced by the Henry Pratt Company's two butterfly valve plants. The Henry Pratt Company is a division of the Mueller Company.

The Henry Pratt Company manufactures all butterfly valves for both the Mueller Company and Henry Pratt; thus the quality and warranty are exactly the same on both of the company's valves with the only difference being the name on the serial number plate affixed to the valve. These valves are made in the Henry Pratt plants in Aurora, Illinois and Hammond, Indiana.

Should you require any additional information, please don't hesitate to call me.

Sincerely,

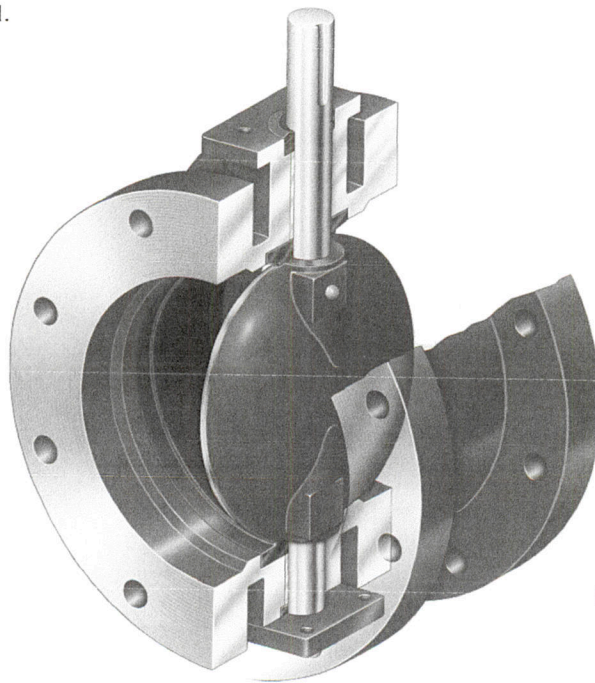
Neil Benson, ISR
Henry Pratt Company
630.844.4065

MUELLER LINESEAL III (Class 150B), LINESEAL XP*, LINESEAL XP II (Class 250B)
Butterfly Valve Features

- ❑ CHEVRON V-TYPE PACKING--
is self-adjusting, long lasting and should never need replacement because quarter-turn valve operation causes little or no wear.
Packing bears on turned, ground and polished stainless steel.

- ❑ CORROSION RESISTANT SHAFT--
is constructed of stainless steel. Shaft is one-piece, through-shaft construction sized to meet or exceed requirements of AWWA Standard C504 for Class 150B or Class 250B service.

- ❑ HEAVY DUTY BODY--
is extra heavy with flanges fully faced and drilled per ANSI B16.1 Class 125 standard**. Other ends available include integrally cast mechanical joint and slip-on (for DI and PVC C900). Operator mounting trunnion is machined and drilled for four-bolt connection.



- ❑ SELF-LUBRICATING BEARINGS--
are liberally sized, chemically inert bearings that are self-lubricating and should outlast the life of the pipeline.

- ❑ STREAMLINED DISC--
has lens-shaped design to minimize pressure drop and turbulence. Full open valve creates no more friction loss than a 45° elbow. Disc is secured to the shaft by stainless steel pins sized to transmit torques required and withstand stresses imposed under severe operating conditions. Disc has stainless steel disc edge.

- ❑ ELASTOMERIC BODY SEAT--
is made of a special rubber compound (Buna N) that is bonded to the body by a patented process. The seat cannot be torn from the body under normal pipeline conditions. The precision molding process also ensures that the disc-seat indentation cannot cause excessive wear or abrasion upon closing.

- ❑ TAMPER-PROOF DISC CENTERING--
provided by precision molded flats in the bonded seat at the body trunnion mate with machined flats on the disc to provide tamperproof centering of the disc in the body. Positive disc alignment, without play, assures long seat life.

*Linesal XP Valves 3" and 4" only.

**Linesal XP Valve flanges drilled to ANSI B16.1 Class 250 standard.

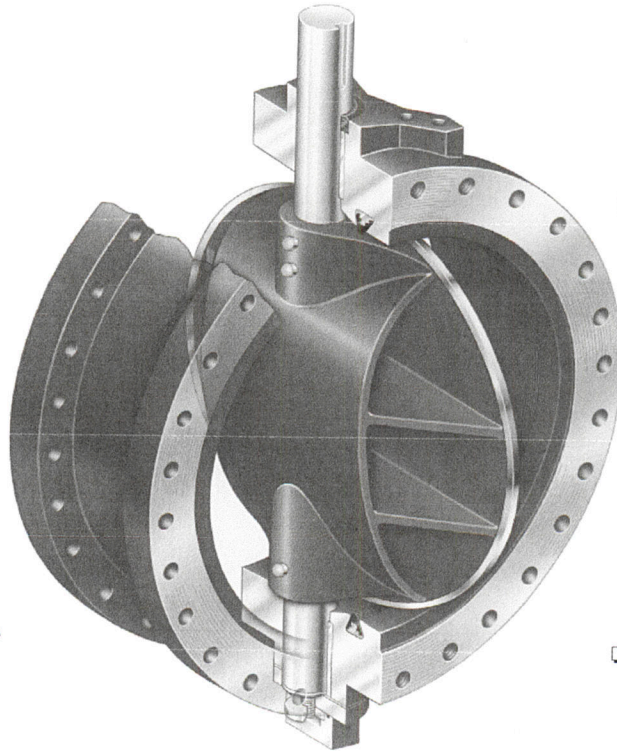
MUELLER LINESEAL III (Class 150B), LINESEAL XP, LINESEAL XP II (Class 250B) Butterfly Valve Features

- ❑ **CORROSION RESISTANT SHAFT--**
is constructed of stainless steel. Two-piece, stub-type shafts are sized per AWWA Standard C504, Class 150B or Class 250.

- ❑ **CHEVRON V-TYPE PACKING--**
is self-adjusting packing in top trunnion of valve body where shaft protrudes.

- ❑ **STRONG DISC AND SHAFT CONNECTIONS--**
with generously sized stainless steel pins designed to transmit torques required and withstand stresses imposed under severe operating conditions.

- ❑ **PRESET TWO-WAY THRUST BEARING ASSEMBLY--**
is preset at factory. On valves 30" and larger, assembly consists of stainless steel stud fastened to the bottom of the valve shaft. Stud extends beyond the bottom cover. Thrust collar is threaded to the stud and pinned. On 24" valves thrust collar is pinned to shaft and adjustment provided by bronze spacers. Thrust collar cavity is packed with grease and fully gasketed to prevent leakage.



- ❑ **HEAVY DUTY BODY--**
is extra heavy with flanges fully faced and drilled per ANSI B16.1 Class 250 or Mechanical Joint ends are also available.

- ❑ **SELF-LUBRICATING, SLEEVE-TYPE BEARINGS--**
are used in both trunnions of the valve body. PTFE lined with special non-metallic backing. Provide electrical insulation between disc and shaft to prevent galvanic corrosion. Lower coefficient of friction reduces operating torque requirements.

- ❑ **FLOW-THROUGH DISC*--**
provides less pressure drop in full-open position than conventional disc shapes. (On 24" size valves the arch side of disc is closed and the flat side is open, forming a slightly concave surface.) Disc structure has no internal cores that can shift during casting, no hollow chambers that can collect water, freeze and fracture the disc. Disc edge has stainless steel spherically shaped seating surface.

- ❑ **ELASTOMERIC SEAT--**
is made of a special rubber compound (Buna N) that seals a full 360° against a stainless steel spherical disc edge. Unique grooved-seal design, coupled with the wide spherically shaped seating edge of the disc, allows greater disc closure tolerance (up to 1° off center in closed position without leakage). Seat is mechanically retained in body without metal hardware by a cast epoxy compound that ensures the seat conforms to the exact radius of the disc with uniform contact pressure. It is fully field adjustable and replaceable.

* Contact your Mueller representative for valves sizes larger than 48" and for Lineseal XP Valves with Class 250 flanges, this page applies to 24"-48" sizes.

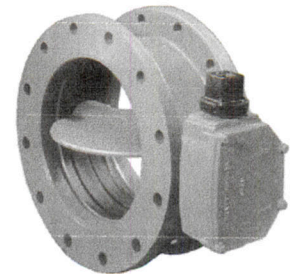
MUELLER® LINESEAL III® BUTTERFLY VALVES (Class 150B) 3" - 48"*

Mueller Co.

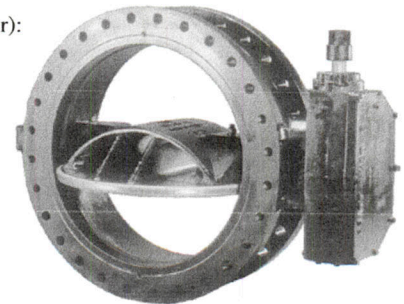
11.3

Rev. 9-09

- Catalog number--
 - 3211-6** Flanged Ends Class 125
Sizes--3", 4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48"
 - 3211-20** Mechanical joint ends (with mechanical joint unassembled accessories)
Sizes--4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48"
 - 3211-23** Mechanical joint ends (without mechanical joint accessories)
Sizes--4", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48"
 - 3211-16** Flanged Class 125 by mechanical joint ends (with mechanical joint unassembled accessories)
Sizes--6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36"
 - 3211-19** Flanged Class 125 by mechanical joint ends (without mechanical joint unassembled accessories)
Sizes--6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36"
 - 3211-41** Flanged Class 125 by slip-on
Sizes--12", 16"
 - 3211-38** Slip-on by slip-on
Sizes--12", 16"
- Meets or exceeds all applicable requirements of ANSI/AWWA C504 Standard Class 150B; NSF 61 certified
- Buried service valves: I.D. and O.D. coated
- Body - Cast Iron ASTM A-126
- Flanges drilled per ANSI B16.1 Class 125
- Above ground valves (ordered with either a handwheel, position indicator on the actuator, or lever): minimum 4 mills epoxy coated interior and exterior; meets AWWA C504 standard.
- Seat-in-body design reduces seat failure due to corrosive buildup in the valve and pipeline
- Through-disc pinning provides a tight disc-to-shaft pin connection, greatly reducing the possibility of loosening through vibration
- Disc edge is 316 Stainless Steel
- Disc - Cast Iron ASTM A-126 (3", 4", 6" Stainless Steel ASTM A-743 CF8M)
- Symmetrical disc for higher Cv and lower head loss
- Nonmetallic bearings prevent galvanic corrosion and provides lower coefficient of friction
- Chevron "V" type packing is self-adjusting to last the life of the valve
- 3"-24" Standard 304 SS hardware.



3"-20"



24"-48"

Options

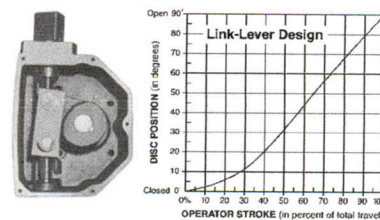
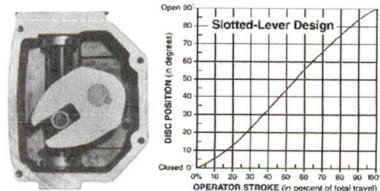
- MDT Actuator with handwheel or chainwheel and position indicator
- MDT Actuator with cylinder actuator (also available with manual override, handjack and 4-way solenoid valve)
- Hand lever for 3"-10" valves
- 200 psi test
- EPDM Rubber seat and seals
- 316 Stainless steel fasteners
- Additional 4 mils minimum Epoxy interior and/or exterior
- Holiday testing
- Ground level position indicator

Standard Buried Service Actuators

Note: Actuator size subject to change based on actual pipeline conditions.

Valve size	Actuator	Number of turns
3"-12"	MDT-2S	32
14"-16"	MDT-3S	30
18"-24"	MDT-4S	40
30"-36"	MDT-5	44
42"	MDT-5S	136
48"	MDT-6S	215

Slotted-Lever (3"-12")

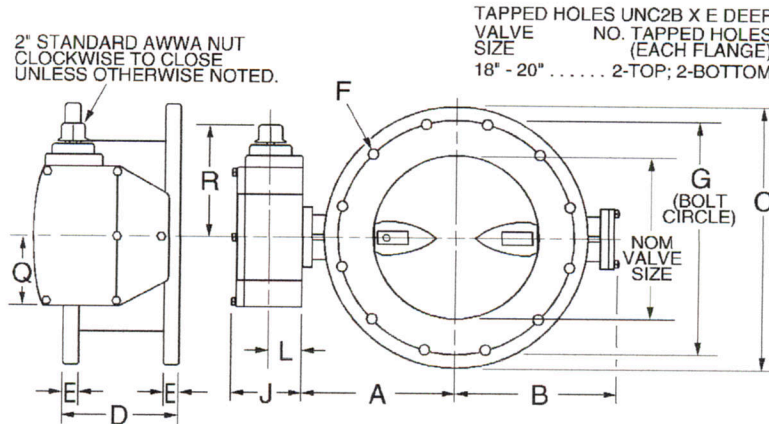


*Contact your Mueller representative for valve sizes larger than 48".

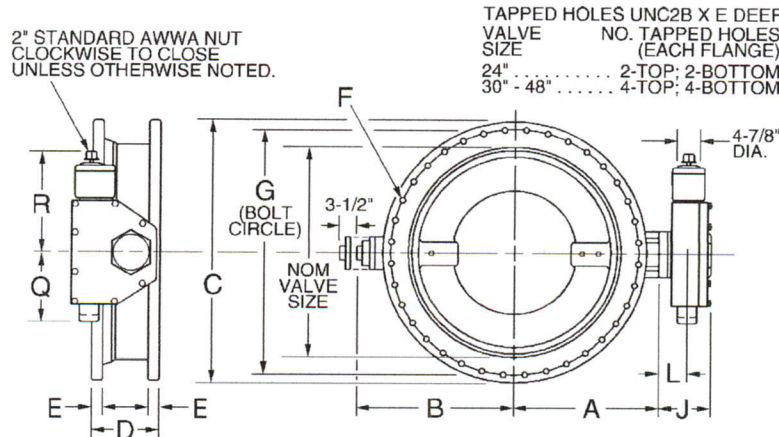
MUELLER® LINESEAL III® BUTTERFLY VALVES-(CLASS 150B) 3"-48"*-FLANGED ENDS

Rev. 9-09

Dimensions - for Line seal III Valves Flanged (Class 125) Ends, 3"-20" Sizes.



Dimensions - for Line seal III Valves Flanged (Class 125) Ends, 24"-48" Sizes.



Notes: These dimensions are correct at time of publication but are not to be construed as certified drawings. Certified drawings available upon request.

Actuator size subject to change based on actual pipeline conditions.

Dimension+	Nominal size*														
	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"
A	4.75	5.50	6.50	7.75	9.00	10.5	11.88	13.50	14.38	16.00	18.63	21.50	25.44	29.88	34.06
B	3.88	4.13	5.13	6.50	9.88	11.38	12.63	14.50	15.38	17.00	18.63	24.38	28.25	32.88	37.13
C	7.50	9.00	11.00	13.50	16.00	19.00	21.00	23.50	25.00	27.50	32.00	38.75	46.00	53.00	59.50
D†	5.00	5.00	5.00	6.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	12.00	12.00	12.00	15.00
E	.75	.94	1.00	1.13	1.19	1.25	1.38	1.44	1.56	1.69	1.88	2.13	2.38	2.63	2.75
F (number and size of holes)	4--.63	8--.63	8--.75	8--.75	12--.88	12--.88	12--1	16--1	16--1.13	20--1.13	20--1.25	28--1.25	32--1.50	36--1.50	44--1.50
G	6.00	7.50	9.50	11.75	14.25	17.00	18.75	21.25	22.75	25.00	29.50	36.00	42.75	49.50	56.00
J	4.69	4.69	4.69	4.69	4.69	4.69	5.63	5.63	6.38	6.38	6.38	7.56	7.56	8.31	9.88
L	2.00	2.00	2.00	2.00	2.00	2.00	2.44	2.44	2.84	2.84	2.84	3.47	3.47	3.94	5.06
Q	4.50	4.50	4.50	4.50	4.50	4.50	5.38	5.38	6.75	6.75	6.75	10.00	10.00	15.94	14.19
R	8.25	8.25	8.25	8.25	8.25	8.25	10.38	10.38	11.31	11.31	11.31	17.00	17.00	19.88	26.50
Turns to open	32	32	32	32	32	32	30	30	40	40	40	44	44	136	215
Actuator (see notes)	MDT-2S	MDT-2S	MDT-2S	MDT-2S	MDT-2S	MDT-2S	MDT-3S	MDT-3S	MDT-4S	MDT-4S	MDT-4S	MDT-5	MDT-5	MDT-5S	MDT-6S

* Larger sizes available upon request.

+ All dimensions are in inches.

† +1/16" for 10" valves, and +1/8" for 12"-48" valves per Flange Standard ANSI B16.1.

MUELLER® LINESEAL III® BUTTERFLY VALVES CLASS 150B 3"-48"* PARTS

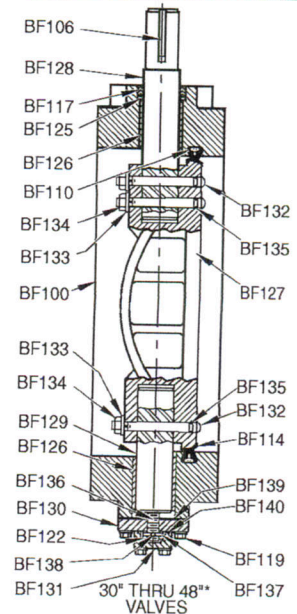
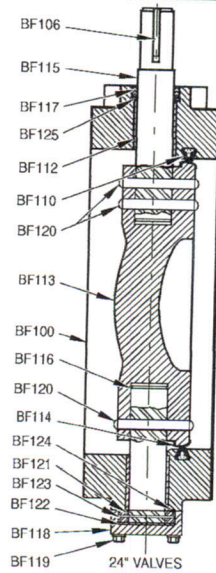
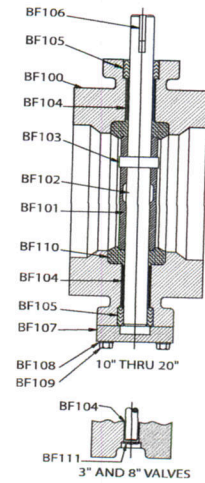
Mueller Co.

11.9

Rev. 9-09

Line Seal III Butterfly Valve Replacement Parts

Catalog Part No.	Description	Material
BF100	Body	Cast iron ASTM A126 CL.B
BF101	Disc**	Cast iron ASTM A126, Class B with 316 Edge
BF102	Shaft	Stainless Steel 18-8 Type 304 ASTM A-276
BF103	Squeeze pin	Stainless Steel 18-8 Type 304 ASTM A-276
BF104	Bearing	Nylatron GS
BF105	Packing	Chevron V-Type
BF106	Key	Carbon Steel C-1045
BF107	Cover	Cast Iron ASTM A-48 Class 40
BF108	Lockwasher	Stainless Steel Type 304
BF109	Cap Screw	Stainless Steel Type 304
BF110	Seat	Buna N
BF111	Plug	Stainless Steel Type 304
BF112	Bearings	PTFE Lined, Filament Wound, Reinforced Plastic, Fiberglass Backed
BF113	Disc	Ductile Iron ASTM A-536 Grade 65-45-12
BF114	Disc edge	Stainless Steel Type 316 ASTM A-240
BF115	Top stub shaft	Stainless Steel Type 304 ASTM A-276 (Standard) Stainless Steel Type 316 ASTM A-276
BF116	Bottom stub shaft	Stainless Steel Type 304 ASTM A-276 (Standard) Stainless Steel Type 316 ASTM A-276
BF117	Packing	Buna N
BF118	Bottom cover	Cast Iron ASTM A-48 Class 40
BF119	Cap screws	Carbon Steel
BF120	Squeeze pins	Stainless Steel Type 304 ASTM A-479
BF121	Thrust collar	Stainless Steel Type 420
BF122	Thrust collar shims	Bronze
BF123	Spring pin	Stainless Steel Type 420
BF124	O-ring	Buna N
BF125	Packing retainer	Nylon
BF126	Bearings	Duralon
BF127	Disc	Ductile Iron ASTM A-536 Grade 65-45-12
BF128	Top stub shaft	Stainless Steel Type 304 ASTM A-276
BF129	Bottom stub shaft	Stainless Steel Type 304 ASTM A-276
BF130	Bottom cover	Cast Iron ASTM A-126 Class B
BF131	Bottom cover cap	Cast Iron ASTM A-126 Class B
BF132	Taper pins	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
BF133	Lockwashers	Stainless Steel Type 304
BF134	Hex nuts	Stainless Steel Type 304
BF135	O-rings	Buna N
BF136	Thrust bearing stud	Stainless Steel Type 304
BF137	Thrust collar	Bronze ASTM B-505 Alloy C93200
BF138	Dowel pin	Alloy Steel
BF139	Bottom cover gasket	Blended Fiber, Cured Nitril Binder
BF140	O-ring	Buna N



* Contact your Mueller representative for sizes larger than 48".
**3", 4", 6" is ASTM A-351 CF8M Stainless Steel.

MUELLER® LINESEAL III®, XP™, XPII™ BUTTERFLY VALVE ORDERING INSTRUCTIONS

Mueller Co.

11.19

Rev. 9-09

Ordering Instructions for MUELLER LINESEAL III, XP, XPII Butterfly Valves with Cylinder Actuators†

1. Quantity: _____
2. Size of Valve: _____
3. Body Style:
 - _____ FLG x FLG (3"-48" ANSI B16.1 Class 125)
 - _____ FLG x FLG (3"-48" ANSI B16.1 Class 250)
 - _____ MJ x MJ (4"-48")
 - _____ FLG x MJ (6"-36")
 - _____ SLP x SLP (12" or 16")
 - _____ FLG x SLP (12" or 16")

Other: _____

Note: MJ valves are supplied without accessory kits standard.

4. Class of valve _____

5. Please provide the following information in addition to the valve class (if known) listed in question 4.

PRESSURE: Normal _____ psig Maximum _____ psig

FLOW: Normal _____ psig Maximum _____ psig

6. Type of service: Water _____ Air _____

7. Cylinder Supply Available:

Water _____ Air _____ Air/Oil _____ Oil _____

8. Minimum Supply Pressure Available to Actuate

Cylinder: _____ psig

9. Fail Safe Spring Return Required?

Yes _____ No _____

10. Manual Override Required?

Yes _____ No _____

11. Accessories: Speed Control _____ Positioner

_____ Solenoid _____ Limit Switches (qty) _____

Other _____

12. Cylinder Material:

Non-Metallic _____ Metallic _____

13. Valve Function: Open/Close _____ Modulating _____

14. Maximum Fluid Line Temperature _____ °F.

15. Coating Requirement*:

_____ mils of Ameron 370 (4 or 8 standard)

16. Number of Certificates of Compliance to AWWA C-504 required. _____

Please note below any additional information or requirements such as extended bonnets and torque tubes, floor stand mounted actuators, special actuator positioning, and special coatings.

PLEASE PROVIDE AS MUCH DESCRIPTIVE INFORMATION AND/OR SPECIFICATIONS AS POSSIBLE TO ENABLE US TO PROVIDE THE MOST SUITABLE VALVE FOR YOUR NEEDS. DO NOT HESITATE TO ATTACH ADDITIONAL PAGES.

Accessory items required (Stems Guides, Ground Line Position Indicators, Floor Stands, etc.):**

*In order to provide valves that meet NSF 61 requirements and certify to that, Ameron 370 will be the paint supplied between 4-24mils thickness. Other paints or mil thickness greater 24 mils will not be NSF 61 compliant.

**Accessory items are listed on pages 11.3, 11.10, and 11.12.

†Please provide Cylinder Specifications if available.

11.20 **Mueller Co.**

Rev. 9-09

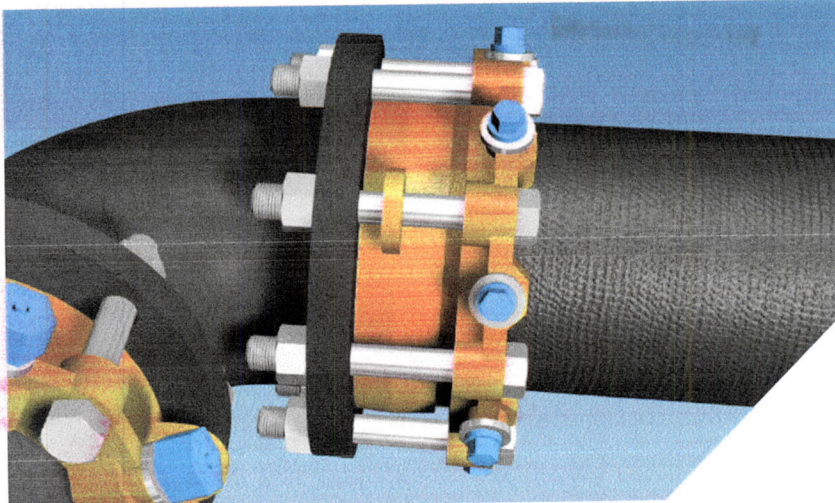
Mueller Co.

www.muellercompany.com moreinfo@muellercompany.com

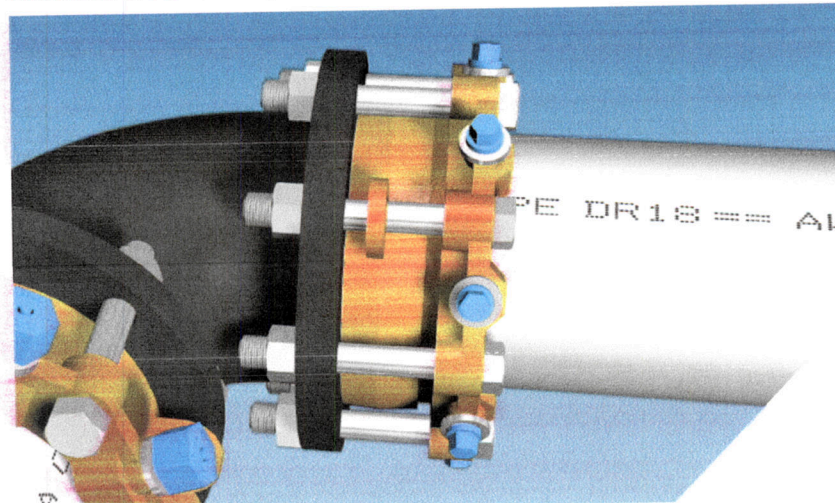


Series 2100

MEGAFLANGE®
 Restrained Flange Adapter
 U.S. Patent Nos. 4627774 and 5071175



Series 2106 on Ductile Iron Pipe



Series 2106 on C900 PVC Pipe

Features and Applications:

- MEGAFLANGE adapts and restrains plain end Ductile Iron, PVC, Steel and HDPE pipe to flanged pipe or fittings, where the flange conforms to ANSI/AWWA C111/A21.11 with flange surface facing in accordance with ANSI/AWWA C207 of the latest revision.
- Meets ANSI B16.5 Class 150/125 drilling pattern.
- Flange Bolts are zinc coated, fastener class coated bolts or stainless steel bolts are available
- Not for use on plain end fittings
- **MEGA-BOND®** Restraint Coating System
- For more information regarding MEGA-BOND, refer to our web site @ www.ebaa.com
- Minimum 2 to 1 Safety Factor
- Fully Restrained
- Constructed of ASTM A536 Ductile Iron
- **UL** listed on sizes 3 inch through 12 inch
- **FM** approved on sizes 4 inch through 12 inch on C900 Class 150 and Class 200 PVC Pipe
- Pipe can be cut to length in the field
- Joint deflection up to 5°
- Easy dismantling allows fast removal of valves, meters or fittings for replacement or repair

For use on water or wastewater pipelines subject to hydrostatic pressure and tested in accordance with either AWWA C600, C605 or ASTM D2774.

Sample Specification

Restrained flange adapters shall be used in lieu of threaded or welded flanged spool pieces. Flanged adapters shall be made of ductile iron conforming to ASTM A536 and have flange bolt circles that are compatible with ANSI/AWWA C110/A21.10 (125#/Class 150 Bolt Pattern).

Restraint for flange adapter shall consist of a plurality of individual actuated gripping wedges to maximize restraint capability. Torque limiting actuating screws shall be used to insure proper initial set of gripping wedges.

The flange adapters shall be capable of deflection during assembly or permit lengths of pipe to be field cut to allow a minimum 0.6 inch gap between the end of the pipe and the mating flange without affecting the integrity of the seal.

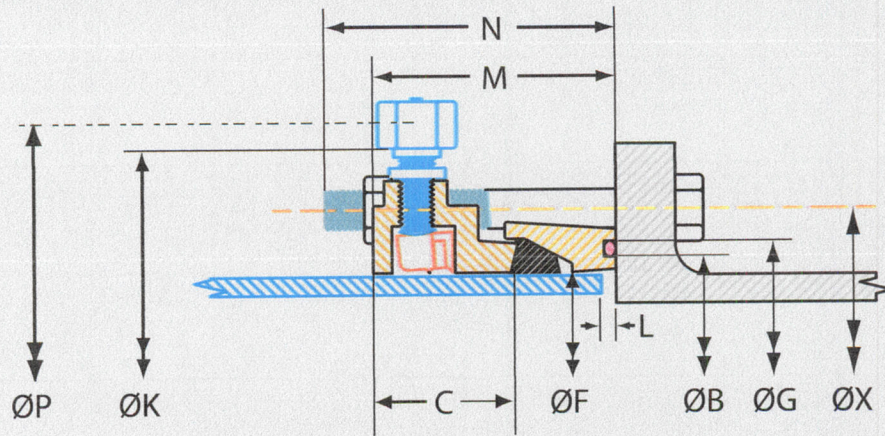
All internal surfaces of the gasket ring (wetted parts) shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213. The coating shall meet ANSI/NSF-61. Exterior surfaces of the gasket ring shall be coated with a minimum of 6 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C116/A21.16.

Restraint Ring coated with MEGA-BOND® Restraint Coating System, More information regarding MEGA-BOND can be found at www.ebaa.com.

Pressure ratings shall be a minimum of those shown in the table within current brochure.

The flange adapter shall be the Series 2100 MEGAFLANGE® Restrained Flange Adapter as produced by EBAA Iron, Inc. or approved equal.

Series 2100 Submittal Reference Drawing



Nominal Pipe Size	Series Number	Restraint Ring			Gasket Ring			Bolts				L MAX.	Assembly Deflection		Ship Weight (lbs.)	
		K	F	C	F	B	G	No.	Dia.	Length	X		Degrees	M		P*
3	2103	7.5	4.1	2.2	4.1	4.3	4.9	4	5/8	5½	6.00	0.7	5.0	4.0	9.2	14
4	2104	9.0	4.9	2.2	4.9	5.4	6.0	8	5/8	5½	7.50	0.6	5.0	4.0	10.0	20
6	2106	11.0	7.0	2.3	7.0	7.5	8.1	8	¾	6	9.50	0.8	5.0	4.3	12.1	32
8	2108	13.5	9.2	2.4	9.2	9.8	10.4	8	¾	6	11.75	0.9	5.0	4.5	14.3	38
10	2110	16.0	11.2	2.5	11.2	11.8	12.4	12	7/8	7½	14.25	1.0	3.0	4.7	16.3	65
12	2112	19.0	13.3	2.5	13.3	13.8	14.4	12	7/8	7½	17.00	1.0	3.0	4.8	18.4	73
14	2114	21.0	15.5	2.5	15.5	16.1	16.9	12	1	8	18.75	1.3	2.0	5.0	20.6	89
16	2116	23.5	17.6	2.5	17.6	18.2	19.0	16	1	8	21.25	1.3	2.0	5.0	22.6	109
18	2118	25.0	19.7	2.6	19.7	20.2	21.0	16	1½	8½	22.75	1.3	1.5	5.1	24.7	134
20	2120	27.3	21.8	2.6	21.8	22.4	23.2	20	1½	8½	25.00	1.3	1.5	5.1	26.8	157
24	2124	32.0	26.0	2.6	26.0	26.7	27.5	20	1¼	8½	29.50	1.3	1.0	5.1	31.0	192
30	2130	38.5	32.2	3.3	32.2	32.9	34.1	28	1¼	11	36.00	2.0	1.0	6.0	38.8	296
36	2136	45.5	38.5	3.3	38.5	39.2	40.4	32	1½	10½	42.75	2.0	1.0	6.0	44.6	426
42	2142	52.3	44.7	4.1	44.7	45.8	47.0	36	1½	12	49.50	2.0	1.0	8.0	50.8	642
48	2148	58.8	51.0	4.1	51.0	52.1	53.3	44	1½	12	56.00	2.0	1.0	8.0	57.1	797

* The "P" dimensions is measured with torque-limiting nuts twisted off.

Nominal Pipe Size	Minimal Distance Required To Install N
3	4.75
4	4.56
6	5.00
8	4.88
10	6.31
12	6.25
14	6.62
16	6.56
18	6.94
20	6.81
24	6.62
30	8.88
36	8.12
42	9.38
48	9.25

MEGAFLANGE TESTING RESULTS

PVC TESTING

- Quick Burst Test
- DR18 tested to 755 PSI
- DR14 tested to 985 PSI
- Long Term Pressure Test
- On DR18 PVC pipe at 615 PSI for 1000 hours without failure
- Cyclic Pressure Test
- DR18 tested from 94 to 188 PSI for over 1,000,000 cycles

DUCTILE IRON AND STEEL TESTING

- Leakage Test (one minute required)
- Tested to twice rated pressure without leakage
- Hydrostatic Test (one minute required)
- 3 inch though 6 inch sizes tested to 5 times rated pressure
- 8 inch and 10 inch sizes tested to 4 times rated pressure
- 12 inch size tested to 3 times rated pressure
- Flexural Test
- Tested to withstand a bending moment based on requirements of NFPA 12-1991 "Standard for Installation of Sprinkler Systems"



APPROVED



Note: Dimensions are in inches and are subject to change without notice. All Dimensions are ± 1%.

Pipe Size	Ductile Iron Pipe Pressure (PSI)	Steel Pipe* Pressure (PSI)	C900/C905 PVC Pipe				IPS PVC Pipe*		
			DR14 Pressure (PSI)	DR18 Pressure (PSI)	DR25 Pressure (PSI)	DR32.5 Pressure (PSI)	SDR17 Pressure (PSI)	SDR21 Pressure (PSI)	SDR26 Pressure (PSI)
3	350	350	-	-	-	-	250	200	160
4	350	350	305	235	165	-	250	200	160
6	350	350	305	235	165	-	250	200	160
8	350	350	305	235	165	-	250	200	160
10	300	350	305	235	165	-	250	200	160
12	350	350	305	235	165	-	250	200	160
14	350	-	-	235	165	125	-	-	-
16	350	-	-	235	165	125	-	-	-
18	300	-	-	235	165	125	-	-	-
20	250	-	-	235	165	125	-	-	-
24	200	-	-	150	165	125	-	-	-
30	150	-	-	-	-	-	-	-	-
36	150	-	-	-	-	-	-	-	-
42	150	-	-	-	-	-	-	-	-
48	150	-	-	-	-	-	-	-	-

*Transition Gasket Required
NOTE: For Application on HDPE pipe see EBAA's HDPE Restraint Catalog Sheet.

MEGAFLANGE Components

The **Series 2100 MEGAFLANGE** restrained flange adapter is comprised of two rings. The first is the restraint ring which incorporates wedges around the circumference of the ring to grip the pipe firmly and securely. The wedge style restraint offers enormous pullout strength when compared to set screw restraints. The resiliency of the wedge style restraint allows the MEGAFLANGE to withstand severe moment loads. The restraint ring and its sub-components are protected from corrosion by the MEGA-BOND® Restraint Coating System. For more information regarding MEGA-BOND see our MEGA-BOND Brochure found at www.ebaa.com.

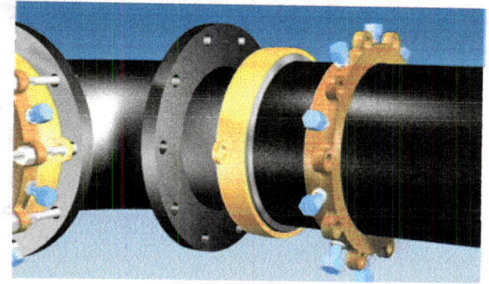
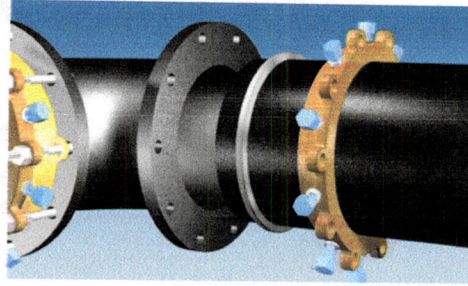
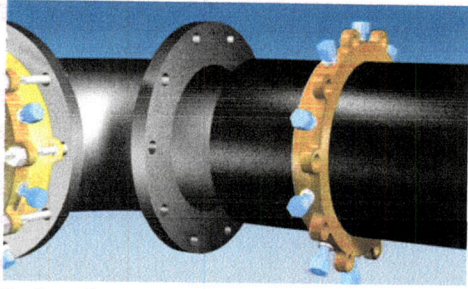
The second ring is the gasket ring which separates the seals dedicated to each sealing surface. This ring allows pipe to be cut to lengths in the field at a tolerance of 0.6 inch or more. In addition, the gasket ring also enables the joint to deflect during assembly. The gasket ring is coated with a NSF 61 approved Fusion Bonded Epoxy (FBE) so that it may be utilized on potable drinking water systems.

DEFLECTION

Traditional flanged joint connections require a tremendous amount of torque on the bolts to achieve a good seal. The pipe layout must be precisely planned to avoid misalignment errors due to deviations in appurtenances of pipe fabrication.

The Series 2100 MEGAFLANGE is a speedy, on-site fabrication tool which is generous in its deflection limits, from 0.5° to 5° depending on pipe size. The deflection capabilities provided by the gasket ring allow offset of almost nineteen inches of an eighteen foot length of pipe through the eight inch size.

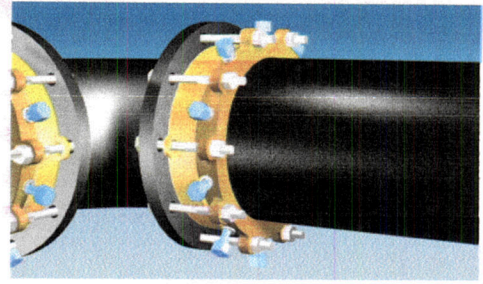
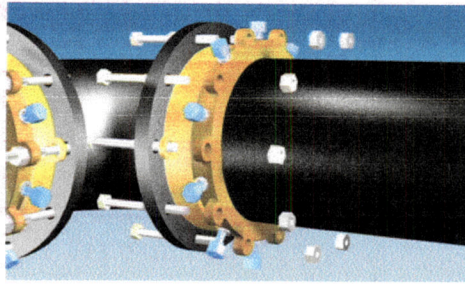
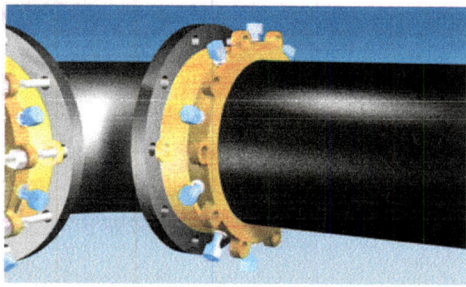
1. **Identify the pipe.** The MEGAFLANGE 2100 Flange Adapter, sizes 4 inch through 12 inch, is designed for use on ductile iron pipe, PVC (C900 & IPS O.D. (ASTM D2241)) pipe, and steel pipe. Check to see if the spacers under the screws are in place. If the pipe is ductile iron or C.I. O.D. PVC (C900) DO NOT REMOVE THE SPACERS. If the pipe is steel or IPS O.D. PVC, REMOVE THE SPACERS (sizes 4-inch through 12-inch). The 3-inch size is designed for use on ductile iron, IPS O.D. PVC pipe. Sizes 30-inch and larger are designed for ductile iron pipe only. There are no spacers on the 3 inch and the 14 inch and larger sizes.



2. Cut the pipe to the required length. Clean the end of the pipe for a length approximately one foot using a wire brush if needed, removing all excess paint and foreign material. Also clean the opposing flange to be connected to the 2100. Place the 2100 restraint ring on the clean pipe with the lip facing the plain end.

3. Lubricate and place the EBAA-Seal™ Gasket on the clean pipe following the restraint ring. (USE A TRANSITION GASKET IN PLACE OF THE EBAA-SEAL GASKET FOR STEEL AND IPS. O.D. PVC PIPE.)

4. Place the O-ring into the groove of the 2100 Gasket Ring. (This step may have been completed at the factory, check Gasket Ring to see if O-ring is already in place.) Place the Gasket Ring on the pipe with the O-ring facing the pipe end and the gasket recess facing the EBAA-Seal (or transition) Gasket and restraint ring.



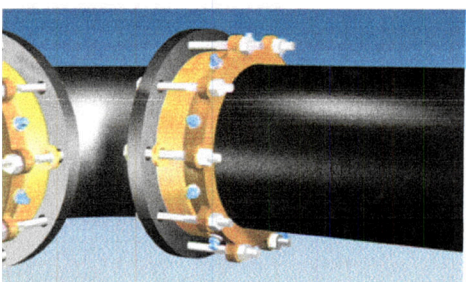
5. Bring the pipe and flanges together within the maximum assembled deflection and maximum allowable gap "L" to the flange face. Slide the gasket ring, gasket and restraint ring until contact is made with the opposing flange.

6. Insert and tighten all flange bolts. Torque all flange bolts an alternating manner to the value listed in Table 1.1. Be sure to make any necessary joint deflection before tightening the actuating screws. Joint deflection should not exceed the maximum allowable deflection. Be sure that deflection of the joint does not cause the end of the pipe to be separated from the opposing flange more than the maximum allowable gap "L".

7. Tighten the actuating screws in an alternating manner until all wedges touch the pipe. Continue tightening the nuts in an alternating pattern until all the torque-limiting nuts have been twisted off.

Table 1.1 Flange Bolt Torques

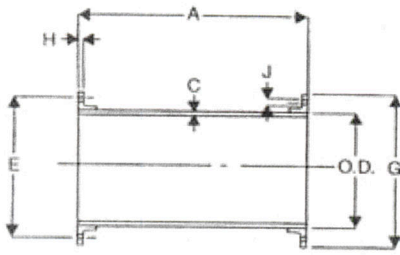
Nominal Pipe Size	Bolt Torque (ft.-lbs.)
3	45 - 60
4 - 6	75 - 90
8 - 24	90 - 110
30 - 48	110 - 130



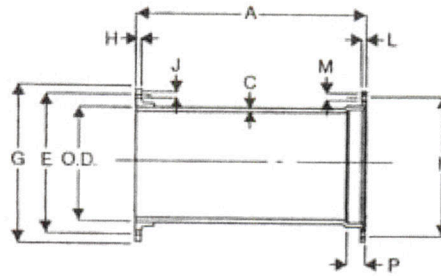
8. If removal is necessary, utilize the 5/8 inch hex head provided. For reinstallation, repeat steps 2 through 7, torquing the actuating screws to 70 ft.-lbs. or until the hex heads bottom out on the spacers or gland.

EBAA IRON Sales, Inc.
P.O. Box 857, Eastland, TX 76448
Tel: (254) 629-1731
Fax: (254) 629-8931
(800) 433-1716 within US and Canada
contact@ebaa.com
www.ebaa.com

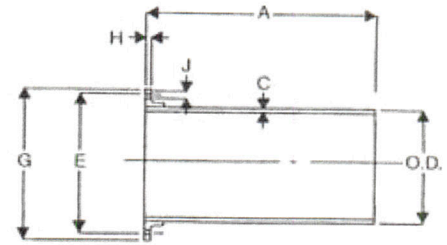
FABRICATED FLANGE PIPES



FLG. x FLG.



FLG. x M.J.



FLG. x P.E.

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

1. Tolerance on length of FLG. x FLG. and FLG. x M.J. pipe shall be $\pm 0.125"$.
2. Tolerance on length of FLG. x P.E. shall be $\pm 0.25"$.
3. Above material shall meet all applicable sections of ANSI A21.10, A21.15, A21.51, B2.1, B16.1/ AWWA, C110, C115, C150, C151, and all revisions thereto.
4. Flanged pipe shall be ductile iron pipe with ductile iron flanges threaded on.
5. Flange pipe is provided with cement lining per AWWA C104/A21.4. If other linings are required, contact your local sales representative.
6. The mechanical joint bell for 30" & 36" sizes of ductile iron pipe have thicknesses different from those shown in ANSI A21.11, which are based on gray iron pipe. These reduced thicknesses provide a lighter-weight bell which is compatible with the wall thickness of ductile iron pipe.
7. Submitted material only. Consult engineer for application.
8. 250 lb. faced and drilled flanges available upon request.

