SUBMITTAL ID: 03

Project Owner:	City of Wichita , Kansas
Project Title:	Sanitary Sewer Improvement Lift Station #23
Project Number:	468-2020-019218 S00551
Subject:	Water Pipe,Fittings,Valves, Accessories
Manufacturer/Supplier:	Clow Valve CO, Sigma Valve Box, Quantum Coupling
Specification Section:	
Submitted By:	Tom Hudspeth

SUBMITTAL DATA

- [x] FOR APPROVAL
- [x] REVIEWED
- [ ] REVIEWED AS NOTED
- [ ] REVISE AND RESUBMIT

FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS.

DATE 10.29.2024 BY _____

WILDCAT CONSTRUCTION CO., INC.

Wildcat Construction Co., Inc.
P.O. Box 9163
Wichita, KS 67277

Office: (316) 945-9408
Fax: (316) 942-4012



3612 S. WEST STREET
WICHITA, KS 67217
P: (316) 522-8900
F: (316) 522-1472

DATE:_____

ATTENTION:_____

FROM:_____

NOTES:

_____

_____

_____

_____

The original, and the definitive standard.

RESILIENT WEDGE GATE VALVES

4" THROUGH 20"
MODEL 2638



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

CLOW VALVE CO.

Clow Valve is a division of McWane, Inc.

www.clowvalve.com

McWANE

For Generations

Flanged Gate Valve will be provided with a Handwheel operator.

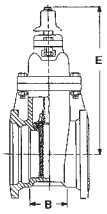
RESILIENT WEDGE VALVE

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

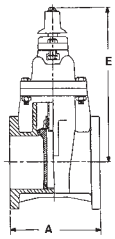
Clow responded by introducing the first R/W (Resilient Wedge) Valve in America. This introduction revolutionized the valve market in the U.S.

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

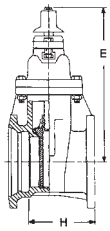
The Clow Resilient Wedge Valve, with its unique features and benefits, is the first to be manufactured with both AWWA and UL/FM approval for all water system requirements.



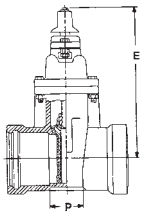
F-6100
MECHANICAL JOINT
4"– 20"



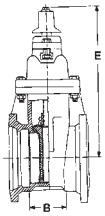
F-6102
FLANGED
4"– 20"



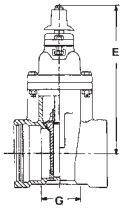
F-6106
FLANGED X
MECHANICAL JOINT
4"– 20"



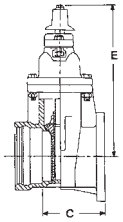
F-6110
PUSH ON FOR
SDR PVC
4"– 12"



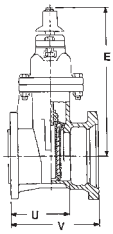
F-6111
MECHANICAL
CUTTING IN JOINT
4"– 12"



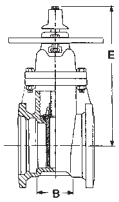
F-6112
TYTON ENDS FOR D.I.
AND C900 PVC PIPE
4"– 16"



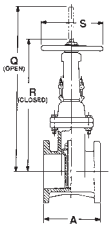
F-6113
FLANGED X TYTON
4"– 12"



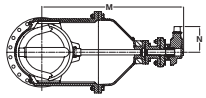
F-6114
MECHANICAL JOINT
FOR TAPPING
4"– 20"



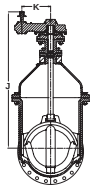
F-6120
MECHANICAL JOINT
POST INDICATOR VALVE
4"– 16"



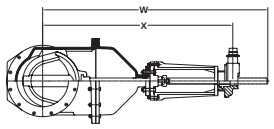
F-6136
FLANGED OS&Y
4"– 16"



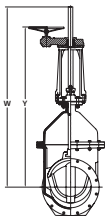
BEVEL GEARING
HORIZONTAL
INSTALLATION
ALL END STYLES
14"– 20"



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



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



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

NOTE:

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

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

COMMITTED TO ENVIRONMENTAL RESPONSIBILITY

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

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

RECOMMENDED SPECIFICATIONS

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

ISO 9001

www.clowvalve.com

CLOW VALVE CO.

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

McWANE
For Generations

Clow Valve is a division of McWane, Inc.

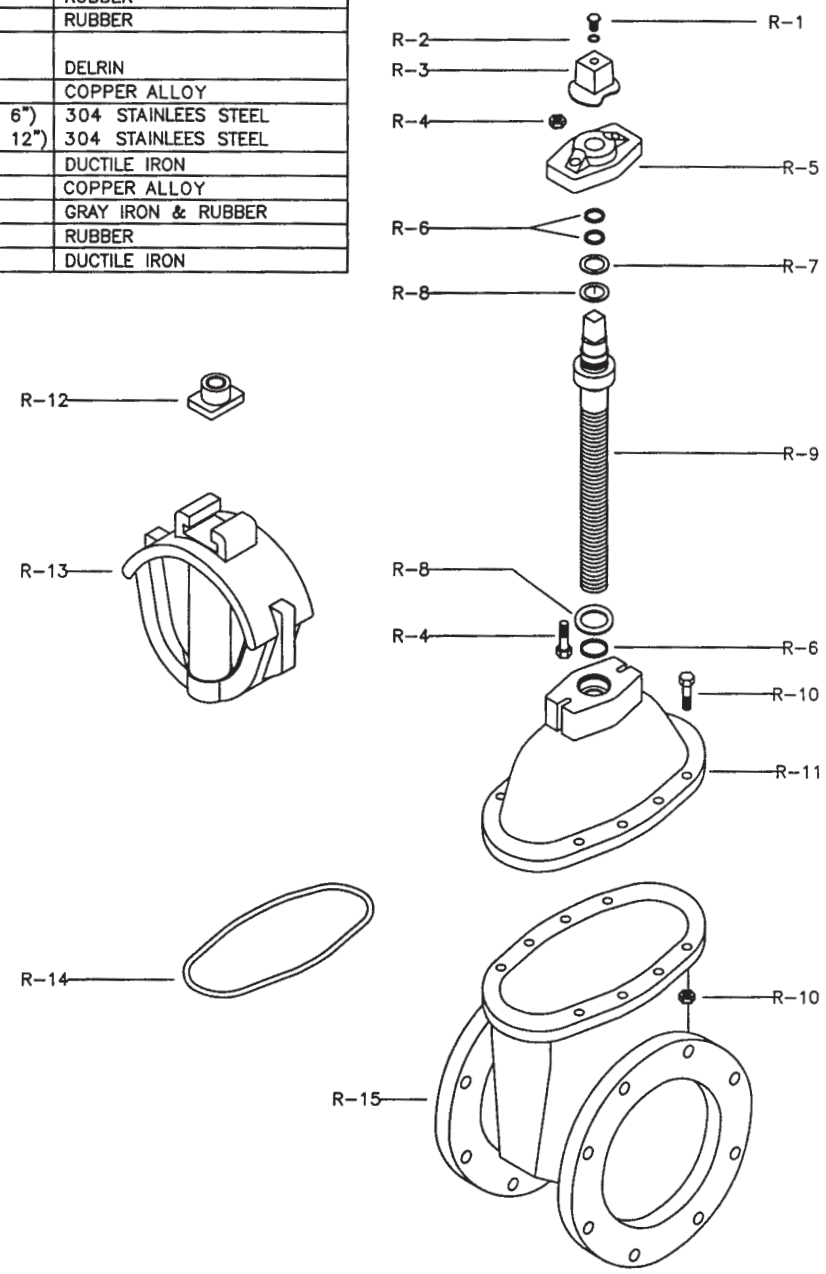
Complies with applicable requirements of AWWA C515

4"-12" R/W VALVE
NRS ASSEMBLY EXPLOSION

CLOW VALVE COMPANY

MODEL 2638

ITEM NO.	QTY.	DESCRIPTION	MATERIAL
R-1	1	HOLD DOWN BOLT	304 STAINLEES STEEL
R-2	1	HOLD DOWN BOLT WASHER	304 STAINLEES STEEL
R-3	1	SQ. OPERATING NUT OR HANDWHEEL (NOT SHOWN)	GRAY IRON
R-4	2	FOLLOWER PLATE BOLT& NUT	304 STAINLEES STEEL
R-5	1	FOLLOWER PLATE	DUCTILE IRON
R-6	3	STEM O-RING	RUBBER
R-7	1	FOLLOWER PLATE O-RING	RUBBER
R-8	1 2	THRUST WASHER (SIZES 2"-2.5") THRUST WASHER (SIZES 3-12")	DELRIN
R-9	1	STEM	COPPER ALLOY
R-10	4 8	COVER BOLTS&NUTS (SIZES 2" THRU 6") COVER BOLTS&NUTS (SIZES 8" THRU 12")	304 STAINLEES STEEL 304 STAINLEES STEEL
R-11	1	COVER	DUCTILE IRON
R-12	1	STEM NUT	COPPER ALLOY
R-13	1	WEDGE	GRAY IRON & RUBBER
R-14	1	COVER O-RING	RUBBER
R-15	1	BODY	DUCTILE IRON



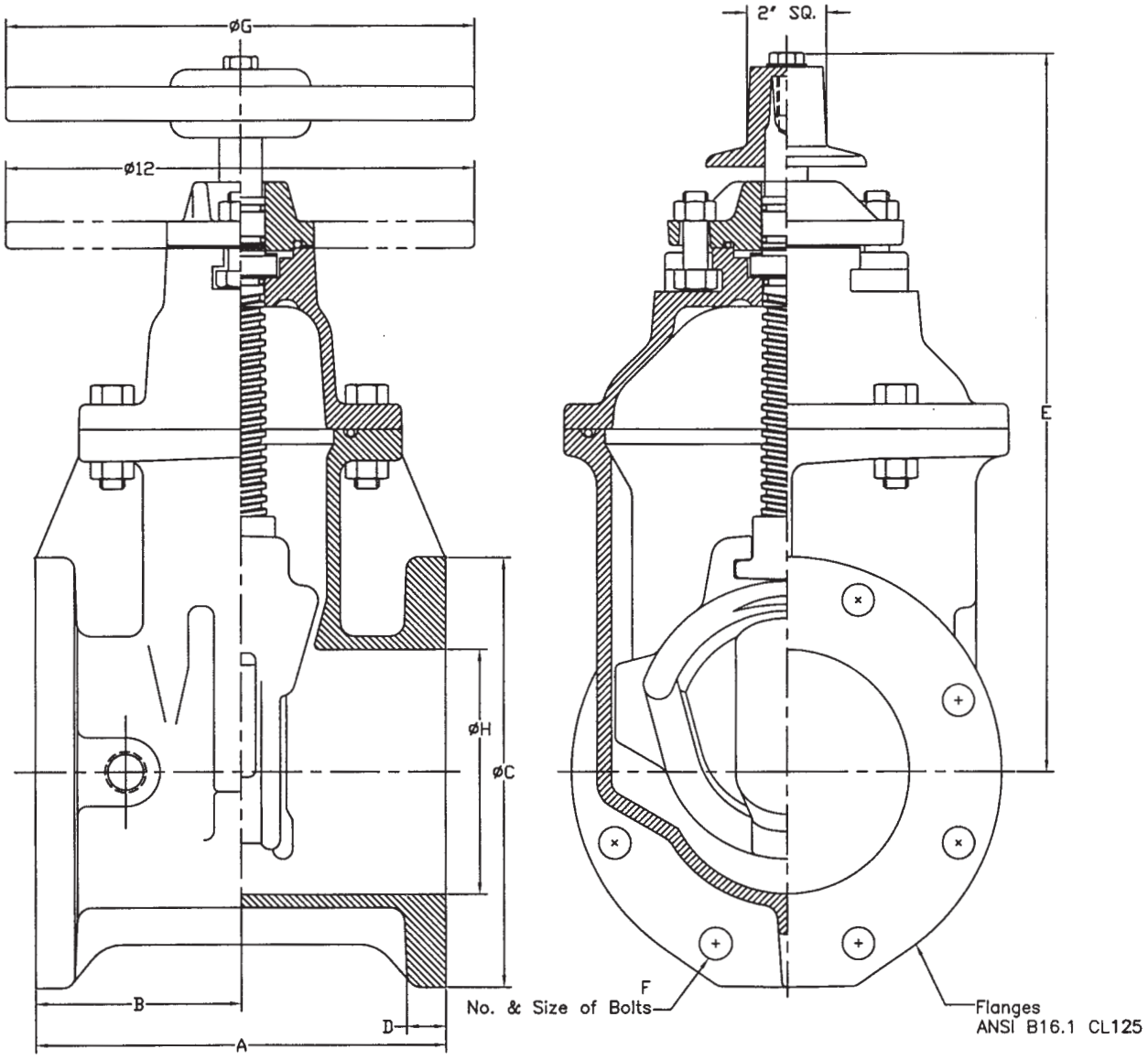
Complies with applicable requirements of AWWA C515

4"-12" R/W VALVE NRS FLANGED ENDS
GENERAL DIMENSIONS

CLOW VALVE COMPANY

MODEL 2638

F-6102



VALVE SIZE	A	B	C	D	E	F	G	H
4	9	4 1/2	9	15/16	14 3/4	8-5/8	10	4 1/4
6	10 1/2	5 1/4	11	1	19	8-3/4	12	6 1/4
8	11 1/2	5 3/4	13 1/2	1 1/8	22 1/2	8-3/4	14	8 1/4
10	13	6 1/2	16	1 3/16	26 1/2	12-7/8	18	10 1/4
12	14	7	19	1 1/4	30	12-7/8	18	12 1/4

SIGMA

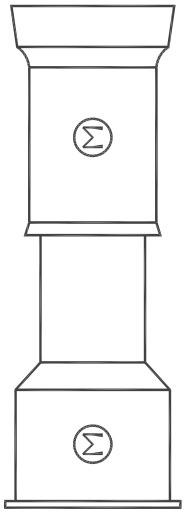
Valve, Curb, & Service Boxes

Municipal Construction

CASTINGS

VB261-8 and VB461-8

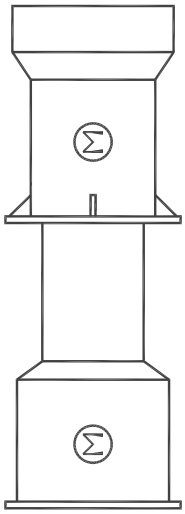
SCREW TYPE



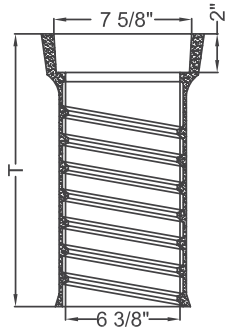
VALVE BOX COMPLETE

SREW TYPE	SPECIFICATIONS COMMON TO SCREW TYPE & SLIP TYPE.						SLIP TYPE
	COMPLETE		TOP		BOTTOM		
ITEM #	HEIGHT RANGE	APPX. WT (LBS.)	LENGTH (T) (INCHES)	APPX. WT (LBS.)	LENGTH (B) (INCHES)	APPX. WT (LBS.)	ITEM #
VB261	18-22	54	10	32	15	32	VB461
VB262	27-37	72	16	41	24	32	VB462
VB264	39-49	81	16	41	36	41	VB464
VB266	39-59	99	26	59	36	41	VB466
VB267	51-71	122	26	59	48	63	VB467
VB268	63-83	131	26	59	60	72	VB468

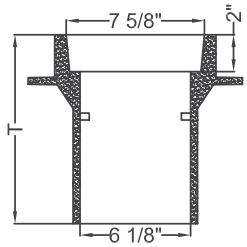
SLIP TYPE



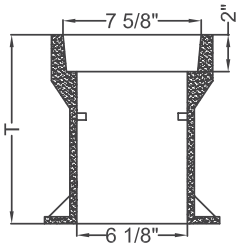
VALVE BOX COMPLETE



TOP SECTION

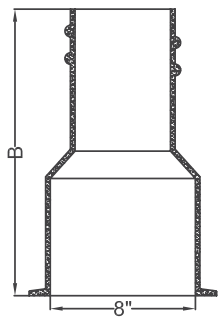


WITH TOP FLANGE



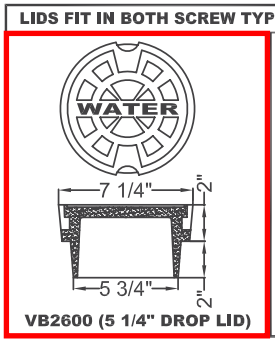
WITH BOTTOM FLANGE

TOP SECTION

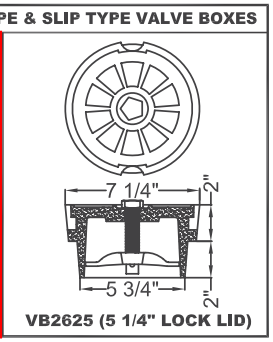


BOTTOM SECTION

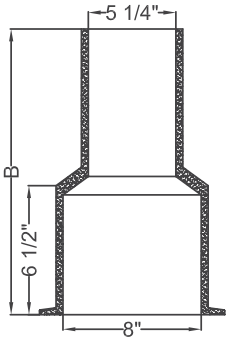
LIDS FIT IN BOTH SCREW TYPE & SLIP TYPE VALVE BOXES



VB2600 (5 1/4" DROP LID)



VB2625 (5 1/4" LOCK LID)



BOTTOM SECTION

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Quantum® Coupling
Wide-Range



Certified to NSF/ANSI 61-G

Patent 6,168,210 B1

The Smith-Blair Quantum® Coupling accommodates up to 1.65-inches of Pipe O.D. differential with a single flange and gasket.

The Quantum's tough ductile iron sleeve and follower flanges provide the tensile strength and corrosion resistance that is necessary for couplings to withstand the punishment they must endure during installation and throughout their long lives.

The coupling's 5/8" bolts are quick and easy to install because no disassembly is required.

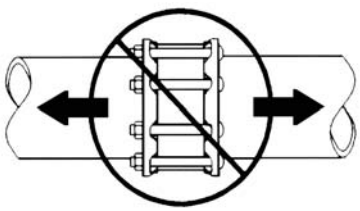
The Quantum also provides for misalignment and settlement deflection (3° per end) and makes a leak-resistant joint that allows for limited line movement due to expansion and contraction.

The Quantum coupling comes standard with fusion bonded NSF 61 approved epoxy coating. Smith-Blair's Flexi-Coat® epoxy system maintains superior flexibility as the product is installed on the pipe. Additionally, this durable epoxy coating provides superior corrosion protection over a wide temperature range and can be shipped with minimal damage.

With a 250 PSI working pressure and all cast ductile parts, the Quantum® is the proven answer for **WIDE** rangeability couplings.

WARNING

THESE PRODUCTS DO NOT RESTRAIN AXIAL PIPE OR PRODUCT MOVEMENT



Material Specifications

Sleeve:	High Strength Ductile Iron ASTM A536
Flanges:	High Strength Ductile Iron ASTM A536
Gasket:	Nitrile (Buna-N) NSF 61 approved
Coating:	Fusion Bonded Flexi-Coat® Epoxy per AWWA C213
Bolts:	HSLA steel per ANSI A21.11 (AWWA C111) with Flexi-Coat epoxy finish. *Stainless Steel optional.*
Nuts:	Heavy Hex HSLA steel per ANSI A21.11 with Fluoropolymer Coating (to prevent galling).

Material specifications subject to change.

461 Standard Coupling
Meets AWWAC219 Standards

Nom. Size (in.)	O.D. Range (in.)	With Epoxy Coated Alloy Bolts & Nuts	With Stainless Steel Bolts & Nuts	Sleeve Length (in.)	5/8" Bolt Quantity	Laying Length (in.)	Wt. (lbs.)
		Catalog Number	Catalog Number				
1 1/2	1.81 - 2.28	461-01810228-000	461-01810228-031	4	2	10.5	8.2
2	2.34 - 2.85	461-02340285-000	461-02340285-031	4	2	10.5	10
2 1/2	2.84 - 3.35	461-02840335-000	461-02840335-031	4	2	10.5	10
3	3.46 - 4.21	461-03460421-000	461-03460421-031	5	4	10.5	15
4	4.46 - 5.60	461-04460560-000	461-04460560-031	5.5	4	10.5	26
6	6.54 - 7.65	461-06540765-000	461-06540765-031	6	4	10.5	33
8	8.54 - 9.85	461-08540985-000	461-08540985-031	6	4	10.5	44
10	10.65 - 12.20	461-10651220-000	461-10651220-031	7.5	8	13.5	72
12	12.75 - 14.40	461-12751440-000	461-12751440-031	7.5	8	13.5	89

462 12” Long Sleeve Coupling
Meets AWWAC219 Standards

Nom. Size (in.)	O.D. Range (in.)	With Epoxy Coated Alloy Bolts & Nuts	With Stainless Steel Bolts & Nuts	Sleeve Length (in.)	5/8" Bolt Quantity	Laying Length (in.)	Wt. (lbs.)
		Catalog Number	Catalog Number				
4	4.46 - 5.60	462-04460560-000	462-04460560-031	12	4	17	31.4
6	6.54 - 7.65	462-06540765-000	462-06540765-031	12	4	17	42.3
8	8.54 - 9.85	462-08540985-000	462-08540985-031	12	4	17	55.3
10	10.65 - 12.20	462-10651220-000	462-10651220-031	12	8	17	73.0
12	12.75 - 14.40	462-12751440-000	462-12751440-031	12	8	17	87.0

WARRANTY:

Smith-Blair warrants its products only against defects in materials and workmanship. Smith-Blair’s liability and customer’s exclusive remedy under this warranty, or any warranty, extends for a period of one (1) year from the date of Smith-Blair’s shipment and is expressly limited to repayment of the purchase price, repair, or replacement, at Smith-Blair’s option, during said period, upon proof satisfactory to Smith-Blair and upon customer’s returning and prepaying all charges on such products to factory or warehouse designated by Smith-Blair. THIS WARRANTY IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, WITH RESPECT TO QUALITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

Physical Address
Smith-Blair, Inc.
30 Globe Ave.
Texarkana, AR 71854

Mailing Address
Smith-Blair, Inc.
P.O. Box 5337
Texarkana, TX 75505

Inside Sales:
Ph: (800) 643-9705 • (870) 773-5127
Fax: (800) 648-6792 • (870) 773-5212
Website: www.smith-blair.com

CHARLOTTE
PIPE AND FOUNDRY COMPANY

Suggested Specification

System: **PVC Schedule 80 Pressure Pipe and Fitting System**

Scope: This specification covers PVC Schedule 80 pipe and fittings for pressure applications. This system is intended for pressure applications where the operating temperature will not exceed 140°F.

Specification: Pipe and fittings shall be manufactured from virgin rigid PVC (polyvinyl chloride) vinyl compounds with a Cell Class of 12454 as identified in ASTM D 1784.

PVC Schedule 80 pipe shall be Iron Pipe Size (IPS) conforming to ASTM D 1785. PVC Schedule 80 fittings shall conform to ASTM D 2467. PVC Schedule 80 threaded fittings shall conform to ASTM D 2464.Pipe and fittings shall be manufactured as a system and be the product of one manufacturer. All pipe and fittings shall be manufactured in the United States. Pipe and fittings shall conform to National Sanitation Foundation (NSF) Standard 61 or the health effects portion of NSF Standard 14.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all local plumbing, building, and fire code requirements. Buried pipe shall be installed in accordance with ASTM F 1668. Solvent cement joints shall be made in a two step process with primer manufactured for thermoplastic piping systems and solvent cement conforming to ASTM D 2564. The system shall be protected from chemical agents, fire stopping materials, thread sealant, plasticized vinyl products, or other aggressive chemical agents not compatible with PVC compounds. Systems shall be hydrostatically tested after installation. **WARNING!** Never test with or transport/store compressed air or gas in PVC pipe or fittings.

Referenced Standards:

ASTM D 1784	Rigid Vinyl Compounds
ASTM D 1785	PVC Plastic Pipe, Schedule 80
ASTM D 2464	Threaded Fittings, Schedule 80
or D 2467 PVC	Threaded Fittings, Schedule 80
ASTM D 2467	PVC Socket Fittings, Schedule 80
ASTM D 2564	Solvent Cements for PVC Pipe and Fittings
ASTM F 1668	Procedures for Buried Plastic Pipe
NSF Standard 14	Plastic Piping Components and Related Materials
NSF Standard 61	Drinking Water System Components - Health Effects

Note: Latest revision of each standard applies.

(110)

PO Box 35430 Charlotte, NC 28235 USA 704/372-5030 800/438-6091 FAX 800/553-1605
www.charlottepipe.com

NIBCO
1516 Middlebury Street
Elkhart, IN 46516-4740
Phone: 574.295.3000 • **Fax:** 800.234.0557
Email: info@nibco.com • **Web site:** www.nibco.com

Material Number CA01700, 4501, 4501R - Socket Coupling/Reducing Socket Coupling S x S - PVC Schedule 80

The dark grey PVC socket coupling and reducing socket coupling feature female socket connections. Chemtrol® fittings connect PVC piping lengths together with solvent cementing, threading or flanging to create a highly reliable, leak-free system. Please refer to Chemtrol technical data sheets, chemical resistance guides and catalogs for engineering and installation information. PVC Schedule 80 has the highest long-term hydrostatic strength of any other major thermoplastic material used for

+ more





Specifications	
UPC Code	039923160904
Type	Coupling
Size (Dimensions)	4
Connection Type	S x S
All Basic Material	PVC
Pipe Schedule	80
Description	4501 4 SOC COUP PVC 80
eClass Classification	PVC Sch 80 Couplings
Color	Dark Grey
Net Weight	1.826 lb

Standards- Certificate of Compliance

Lonestar Pipe Fabrication's ductile iron pipe is manufactured to the following standards;

All flanged pipe is manufactured using class 53 pipe in accordance with ANSI A21.15/AWWA C115. Flanges will be drilled to meet ANSI B 16.1 Standard.

All fabricated pipe is manufactured in accordance with the requirements of AWWA C151 Standards.

Rigid grooves are the standard. Flex grooves are available when indicated. The groove depth dimension will comply with the requirements of ANSI/AWWA C606.

Cement lining is applied in accordance with the requirements of ANSI A21.4/ AWWA C104. Double cement available.

The exterior of the pipe will be coated with a NSF61 approved bituninous paint in accordance with ANSI A21.51/ AWWA C151/ AWWA C104.

All pipe can be coated with primer (several options available) if required. All coatings will be applied per paint manufacturer's recommendations or per contract specifications.

100% of 125# flanged pipe will be hydrostatically tested to 300 PSI prior to shipping.

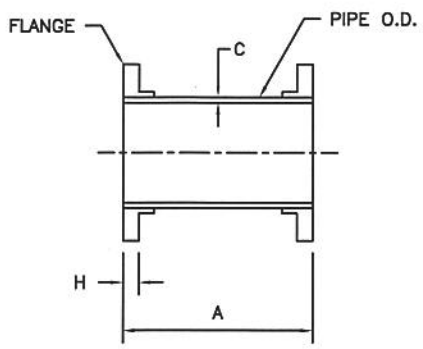
Steven Mackenrodt
President

LONESTAR PIPE FABRICATION

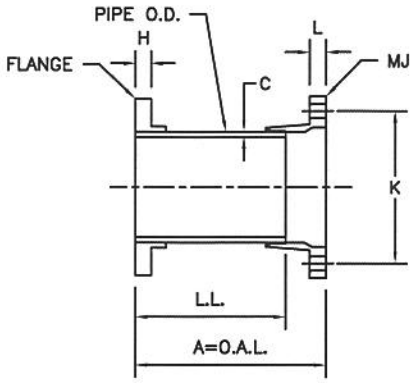
211 Sansom Blvd, Saginaw, TX 76179 Phone: 817.439.5575 Fax: 817.439.3738 www.lonestarpipe.com

DIP Fab Pipe will be Protecto-401 lined for sewer service.

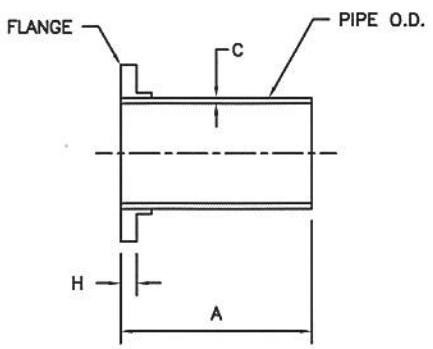
Fabricated Flanged Pipe



FLG X FLG



FLG X MJ



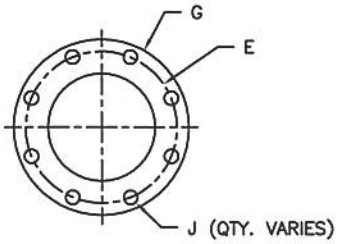
FLG X PE

SIZE	A	C	O.D.		E	G	H		NO. OF FLG'D BOLT HOLES	J	K		L	
			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	*	0.32	4.74	4.86	7.50	9.00	0.82	1.06	8	0.75	7.44	7.56	0.94	1.00
6	*	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
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
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
12	*	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
14	*	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
16	*	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
18	*	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
20	*	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
24	*	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
30	*	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

36" - 48" available upon request.

* As needed
** LL= lay length/ OAL= overall length

1. FLG x FLG tolerance on length +/- 0.125"
2. FLG x PE tolerance on length ≠ 0.25"
3. Ductile iron pipe will have threaded on ductile iron flanges.
4. The mechanical joint bell for 30" ductile iron pipe have thicknesses different from ANSI A21.11.
5. This is submittal material only.
6. 250 # flanges available upon request.
7. Wall rings available upon request



FLANGE DETAIL
APPLICABLE TO ALL 125 LB. FLANGES SHOWN ABOVE

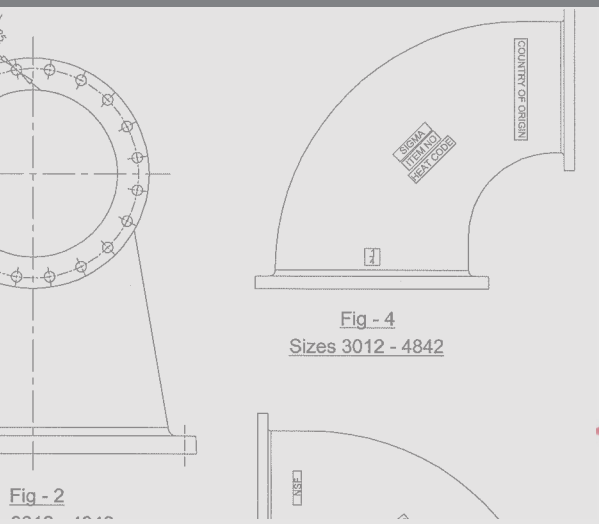
LONESTAR PIPE FABRICATION

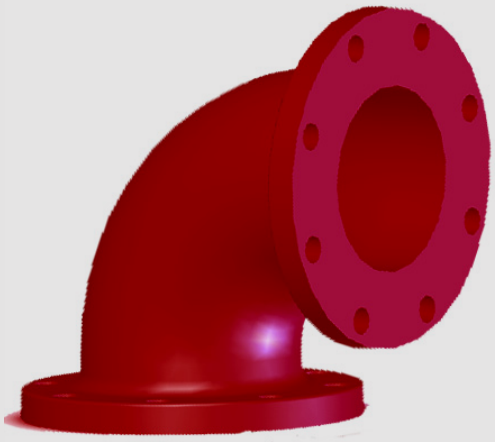
211 Sansom Blvd, Saginaw, TX 76179 Phone: 817.439.5575 Fax: 817.439.3738 www.lonestarpipe.com

SIGMA™

Quality – Service – Commitment – Delivered.

C110 Flanged Fittings







2” - 64” CAST IRON/DUCTILE IRON FLANGED FITTINGS
BASIC SPECIFICATIONS

MATERIAL:	Cast Iron: ASTM A48, Grade 25B (2” - 14”) / Grade 30B (16” - 54”) Ductile Iron ASTM A536
PRESSURE:	250 PSI Water Working Pressure for Cast Iron sizes 2” - 12” 250 PSI Water Working Pressure for Ductile Iron sizes 2” - 48” 150 PSI Water Working Pressure for Ductile Iron sizes 54” - 64” 150 PSI Water Working Pressure for Cast Iron sizes 14” - 54”
TESTING:	In accordance with ANSI / AWWA C110 / A21.10 where applicable. Other items are in accordance with manufacturer’s standards. 54” and above Flanged Fittings are manufactured as per AWWA C153/A21.53
LAYING LENGTH:	In accordance with ANSI / AWWA C110 / A21.10 where applicable. Other items are in accordance with manufacturer’s standards. 54” and above Flanged Fittings are manufactured as per AWWA C153/A21.53
CEMENT LINING:	In accordance with ANSI / AWWA C104 / A21.4
COATING:	Tar coated (bituminous) inside in accordance with ANSI / AWWA C104 / A21.04 Red Primer Outside. For special conditions, other types of coatings and linings are available. Please specify when ordering.
APPROVALS:	2”-16” Underwriters Laboratories listed and Factory Mutual Approved.
STANDARDS:	ANSI / AWWA C110 / A21.10 Where applicable. Other items are in accordance with manufacturer’s standards. 54” and above Flanged Fittings are manufactured as per AWWA C153/A21.53

FM APPROVED

AWWA Member

UL

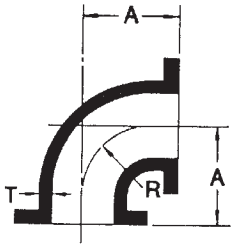
NSF Certified to ANSI/NSF 61

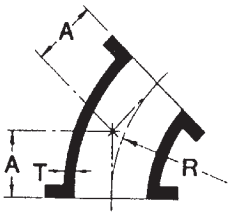
SIGMA Corporation

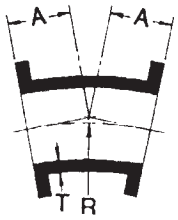
700 Goldman Drive
Cream Ridge, NJ 08514

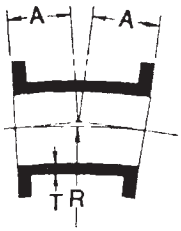
800 999 2550 p
609 758 1163 f
crm-sales@sigmaco.com

www.sigmaco.com









BENDS, 1/4 (90 DEG)

Size	Wt.	A	R	T	DUCTILE IRON
2	16	4.50	3.00	0.31	DFB290
3	25	5.50	4.00	0.48	DFB390
4	45	6.50	4.50	0.52	DFB490
5	52	7.50	5.50	0.52	DFB590
6	65	8.00	6.00	0.55	DFB690
8	105	9.00	7.00	0.60	DFB890
10	165	11.00	9.00	0.68	DFB1090
12	235	12.00	10.00	0.75	DFB1290
14	290	14.00	11.50	0.66	DFB1490
16	370	15.00	12.50	0.70	DFB1690
18	450	16.50	14.00	0.75	DFB1890
20	580	18.00	15.50	0.80	DFB2090
24	900	22.00	18.50	0.89	DFB2490
30	1430	25.00	21.50	1.03	DFB3090
36	2135	28.00	24.50	1.15	DFB3690
42	3055	31.00	27.50	1.28	DFB4290
48	4095	34.00	30.50	1.42	DFB4890
54	3740	39.00	34.50	0.90	DFB5490

BENDS, 1/8 (45 DEG)

Size	Wt.	A	R	T	DUCTILE IRON
2	12	2.50	2.41	.31	DFB245
3	20	3.00	3.62	.48	DFB345
4	40	4.00	4.81	.52	DFB445
5	45	4.50	6.04	.52	DFB545
6	55	5.00	7.25	.55	DFB645
8	90	5.50	8.44	.60	DFB845
10	130	6.50	10.88	.68	DFB1045
12	195	7.50	13.25	.75	DFB1245
14	220	7.50	12.06	.66	DFB1445
16	280	8.00	13.25	.70	DFB1645
18	325	8.50	14.50	.75	DFB1845
20	430	9.50	16.88	.80	DFB2045
24	630	11.00	18.12	.89	DFB2445
30	1120	15.00	27.75	1.03	DFB3045
36	1755	18.00	35.00	1.15	DFB3645
42	2600	21.00	42.25	1.28	DFB4245
48	3580	24.00	49.50	1.42	DFB4845
54	2735	20.50	42.32	0.90	DFB5445

BENDS, 1/16 (22-1/2 DEG)

Size	Wt.	A	R	T	DUCTILE IRON
2	12	2.50	6.04	0.31	DFB222
3	20	3.00	7.56	0.48	DFB322
4	40	4.00	10.06	0.52	DFB422
5	45	4.50	10.86	0.52	DFB522
6	55	5.00	15.06	0.55	DFB622
8	90	5.50	17.62	0.60	DFB822
10	135	6.50	22.62	0.68	DFB1022
12	205	7.50	27.62	0.75	DFB1222
14	225	7.50	25.12	0.66	DFB1422
16	285	8.00	27.62	0.70	DFB1622
18	335	8.50	30.19	0.75	DFB1822
20	435	9.50	35.19	0.80	DFB2022
24	640	11.00	37.69	0.89	DFB2422
30	1135	15.00	57.81	1.03	DFB3022
36	1790	18.00	72.88	1.15	DFB3622
42	2665	21.00	88.00	1.28	DFB4222
48	3665	24.00	103.06	1.42	DFB4822

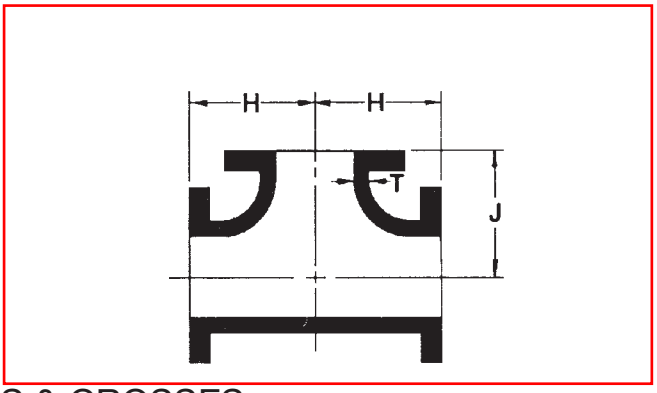
BENDS, 1/32 (11-1/4 DEG)

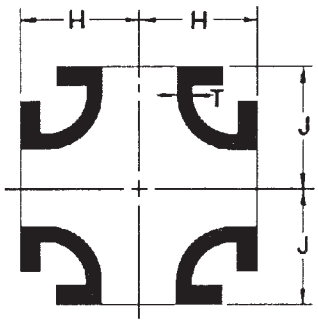
Size	Wt.	A	R	T	DUCTILE IRON
2	12	2.50	12.69	0.31	DFB211
3	20	3.00	15.25	0.48	DFB311
4	40	4.00	20.31	0.52	DFB411
5	45	4.50	22.85	0.52	DFB511
6	55	5.00	30.50	0.55	DFB611
8	90	5.50	35.50	0.60	DFB811
10	135	6.50	45.69	0.68	DFB1011
12	205	7.50	55.81	0.75	DFB1211
14	225	7.50	50.75	0.66	DFB1411
16	285	8.00	55.81	0.70	DFB1611
18	335	8.50	60.94	0.75	DFB1811
20	435	9.50	71.06	0.80	DFB2011
24	645	11.00	76.12	0.89	DFB2411
30	1150	15.00	116.75	1.03	DFB3011
36	1805	18.00	147.25	1.15	DFB3611
42	2680	21.00	177.69	1.28	DFB4211
48	3695	24.00	208.12	1.42	DFB4811

CAST IRON Flanged Fittings are available upon request.

Manufactured in accordance with AWWA/ANSI C110/A21.10.
54" fittings are manufactured in accordance with manufacturer's standards in general guidance of AWWA/ANSI C153/A21.53
Flanges are drilled and faced in accordance with ANSI B16.1 CLASS 125

Dimensions in inches
Weights in pounds



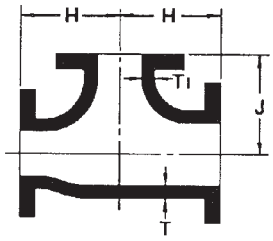


TEES & CROSSES

Size	TEES DUCTILE IRON	Wt.	H	J	T	CROSSES DUCTILE IRON	Wt.
2	DFT22	20	4.50	4.50	0.31	DFC22	30
3	DFT33	40	5.50	5.50	0.48	DFC33	50
4	DFT44	65	6.50	6.50	0.52	DFC44	80
5	DFT55	85	7.50	7.50	0.52	DFC55	105
6	DFT66	95	8.00	8.00	0.55	DFC66	120
8	DFT88	155	9.00	9.00	0.60	DFC88	195
10	DFT1010	270	11.00	11.00	0.80	DFC1010	330
12	DFT1212	385	12.00	12.00	0.87	DFC1212	460
14	DFT1414	435	14.00	14.00	0.66	DFC1414	530
16	DFT1616	550	15.00	15.00	0.70	DFC1616	665
18	DFT1818	665	16.50	16.50	0.75	DFC1818	795
20	DFT2020	855	18.00	18.00	0.80	DFC2020	1015
24	DFT2424	1330	22.00	22.00	0.89	DFC2424	1570
30	DFT3030	2150	25.00	25.00	1.03	DFC3030	2500
36	DFT3636	3160	28.00	28.00	1.15	DFC3636	3620
42	DFT4242	5580	31.00	31.00	1.78	DFC4242	6155
48	DFT4848	7385	34.00	34.00	1.96	DFC4848	8005
54	DFT5454	6025	39.00	39.00	1.05		

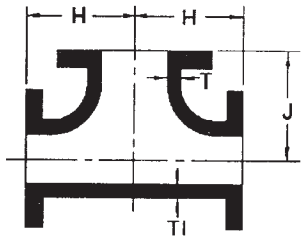
REDUCING ON RUN TEES

Size	Wt.	H	J	T	T1	DUCTILE IRON
6 x 4 x 4	85	8.00	8.00	.55	.52	DRT644
6 x 4 x 6	90	8.00	8.00	.55	.52	DRT646
8 x 6 x 4	125	9.00	9.00	.60	.55	DRT864
8 x 6 x 6	135	9.00	9.00	.60	.55	DRT866
8 x 6 x 8	145	9.00	9.00	.60	.65	DRT868



BULLHEAD TEES

Size	Wt.	H	J	T	T1	DUCTILE IRON
4 x 4 x 6	90	8.00	8.00	.52	.55	DBT446
6 x 6 x 8	140	9.00	9.00	.55	.60	DBT668
8 x 8 x 10	260	11.00	11.00	.60	.67	DBT810
10 x 10 x 12	355	12.00	12.00	.80	.87	DBT1012



CAST IRON Flanged Fittings are available upon request.

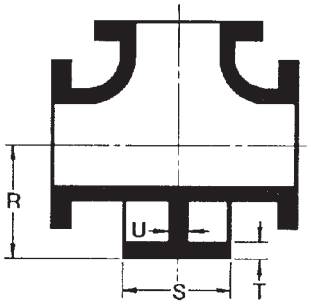
Manufactured in accordance with AWWA/ANSI C110/A21.10.
54" fittings are manufactured in accordance with manufacturer's standards in general guidance of AWWA/ANSI C153/A21.53
Flanges are drilled and faced in accordance with ANSI B16.1 CLASS 125

Dimensions in inches
Weights in pounds

Flanged Fittings

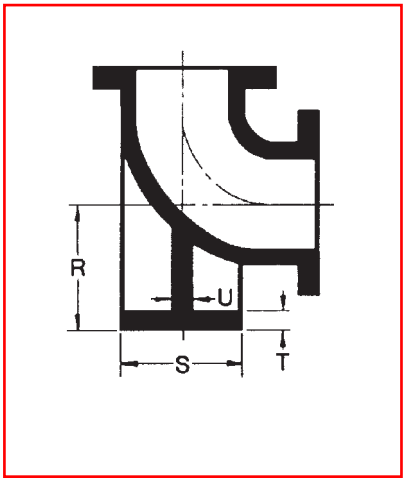
BASE TEES

Size	WEIGHT		R	S	T	U	Diam.	DUCTILE IRON
	Base Tee	Base Only						
3	45	5	4.88	5.00	0.56	0.50	5/8	DFV33
4	75	10	5.50	6.00	0.62	0.50	3/4	DFV44
6	110	15	7.00	7.00	0.69	0.62	3/4	DFV66
8	185	30	8.38	9.00	0.94	0.88	3/4	DFV88
10	300	30	9.75	9.00	0.94	0.88	3/4	DFV1010
12	430	45	11.25	11.00	1.00	1.00	7/8	DFV1212
14	485	50	12.50	11.00	1.00	1.00	7/8	DFV1414
16	600	50	13.75	11.00	1.00	1.00	7/8	DFV1616
18	740	75	15.00	13.50	1.12	1.12	7/8	DFV1818
20	930	75	16.00	13.50	1.12	1.12	7/8	DFV2020
24	1410	80	18.50	13.50	1.12	1.12	7/8	DFV2424
30	2270	120	23.00	16.00	1.19	1.15	1	DFV3030
36	3320	160	26.00	19.00	1.25	1.15	1	DFV3636
42	5850	270	30.00	23.50	1.44	1.28	1 1/8	DFV4242
48	7720	335	34.00	25.00	1.56	1.42	1 1/4	DFV4848



BASE 90 DEGREE BENDS

Size	Weight		R	S	T	U	DUCTILE IRON
	Base Bend	Base Only					
3	35	10	4.88	5.00	0.56	0.50	DFD390
4	55	10	5.50	6.00	0.62	0.50	DFD490
6	85	20	7.00	7.00	0.69	0.62	DFD690
8	145	40	8.38	9.00	0.94	0.88	DFD890
10	210	45	9.75	9.00	0.94	0.88	DFD1090
12	300	65	11.25	11.00	1.00	1.00	DFD1290
14	360	70	12.50	11.00	1.00	1.00	DFD1490
16	445	75	13.75	11.00	1.00	1.00	DFD1690
18	565	115	15.00	13.50	1.12	1.12	DFD1890
20	700	120	16.00	13.50	1.12	1.12	DFD2090
24	1030	130	18.50	13.50	1.12	1.12	DFD2490
30	1625	190	23.00	16.00	1.19	1.15	DFD3090
36	2385	250	26.00	19.00	1.25	1.15	DFD3690
42	3465	410	30.00	23.50	1.44	1.28	DFD4290
48	4610	515	34.00	25.00	1.56	1.42	DFD4890



CAST IRON Flanged Fittings are available upon request.

Manufactured in accordance with AWWA/ANSI C110/A21.10.
54" fittings are manufactured in accordance with manufacturer's standards in general guidance of AWWA/ANSI C153/A21.53
Flanges are drilled and faced in accordance with ANSI B16.1 CLASS 125

Dimensions in inches
Weights in pounds

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SIGMA Stainless Steel 304 Flange Pack

CERTIFICATE

This is to certify the components of the Sigma SS304 Flange Pack

1. One Full Faced Red Rubber / Synthetic Rubber ASTM 13303 Class 2 Gasket 1/8" thick.
2. Hexagonal Bolts with Heavy Hex nuts 304 Stainless Steel.

Bolts and Nuts are threaded in accordance with ASME/ANSI B1.1.

The flange packs are applicable for use with AWWA C110 Flanged Fittings.

Please contact me if you need any further documentation on this matter.

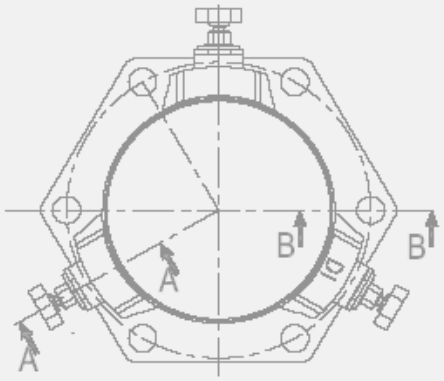
Regards,

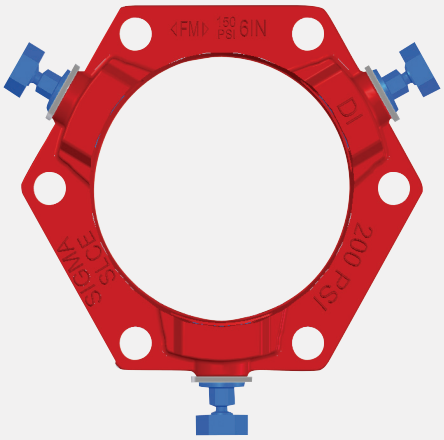
Jim Stohr
Branch Manager
Sigma Corporation
Houston, Texas

SIGMA™

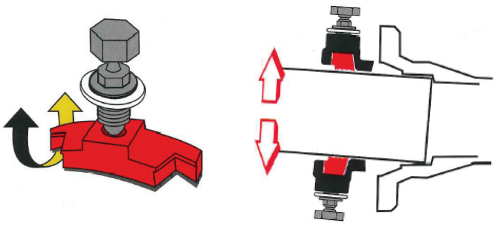
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ONE-LOK™ Series SLCE for PVC Pipe









ONE-LOK's unique **CAM ACTION** allows the restraining lugs to "rock" and grip the PVC pipe wall more securely as thrust force increases, and allows for subsidence, seismic or other forces after installation, up to the maximum allowed deflection.



Features & Advantages:

1) The SIGMA ONE-LOK Series SLCE is a mechanical joint restraining gland that implements a series of individually activated wedges into the mechanical joint follower gland. When the wedge segment is engaged by the actuating bolt, the primary contact edges of each wedge segment lock onto the pipe wall. This action causes the primary contact edges to grip the pipe and effectively restrain all classifications of both AWWA C900/C905 and ASTM D2241 IPS size PVC pipe.

2) ONE-LOK SLCE's precision contoured wedges provide proper contact and support of the PVC pipe wall. Each wedge is manufactured with an elongated contour that evenly matches the outside circumference of each nominal diameter of PVC pipe.

3) ONE-LOK SLCE's wedge actuating bolt provides the installer with two visual torque indicators. The breakaway top and secondary shoulder stop ensure proper engagement of the wedge segment at the time of installation. Unlike other actuating bolts, the ONE-LOK SLCE is manufactured with a proprietary quality control system that ensures the breakaway tops will activate at the correct torque. The breakaway top is sized to match the same dimensions of the bolts and nuts used to assemble the mechanical joint fitting and follower gland, eliminating the need for special installation tools. Once engaged, the actuating bolt leaves a residual hex-head shank, allowing post-installation disassembly of the restrained joint, if necessary.

4) ONE-LOK SLCE also features a non-corrosive, two-piece ABS plastic spacer that is removed when using the product to restrain IPS sized pipes meeting ASTM D2241. The two-piece design of this spacer allows it to be removed without requiring disassembly of the product. When the ONE-LOK SLCE is used to restrain pipes meeting AWWA C900, the spacer is left intact on the actuating bolt.

5) ONE-LOK SLCE's unique wedge segment and actuating bolt design allows the two components to interface using a cam action principle, allowing the wedge segments to rock and increase their grip on the pipe wall as thrust on the assembled joint increases. This also allows improved resistance to subsidence, seismic forces, and other movement within the maximum deflection limitations of the mechanical joint under applicable AWWA standards.

SIGMA ONE-LOK SLCE's can be used on all pressure classes and thicknesses of PVC pipe.

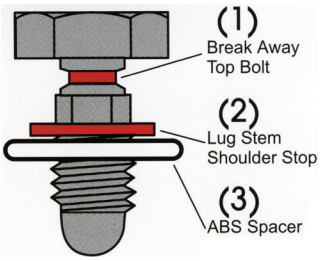
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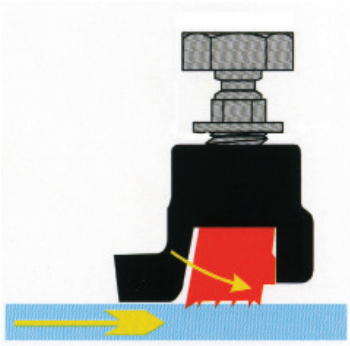
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ONE-LOK™ Series SLCE for PVC Pipe



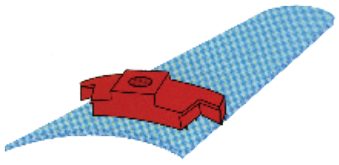


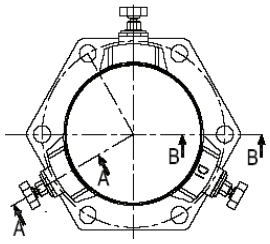
Sample Specification:

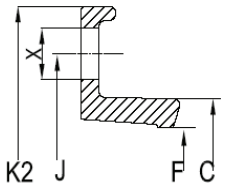
Restraint for standard mechanical joint fittings shall be incorporated in the design of the follower gland and shall utilize multiple wedge segments that act against the pipe, increasing their resistance as the line pressure increases. The assembled joint shall maintain the maximum flexibility and deflection of all nominal pipe sizes after burial. Restraining gland, wedge segments, and actuating bolts shall be manufactured of high strength ductile iron conforming to the requirements of ASTM A536, Grade 65-45-12. Dimensions shall be compatible with standardized mechanical joints conforming to the requirements AWWA C111/ANSI A21.11 and AWWA C153/ANSI 21.53 through 24" (latest revision). Breakaway tops shall be incorporated in the design of the actuating bolts to visually ensure proper torque. The manufacturing of the actuating bolt must incorporate a quality control procedure that is deemed acceptable by the specifier and positively assures precise and consistent operating torque of the breakaway top. The mechanical joint restraining devices shall have a working pressure rating of 200psi (235psi for sizes 14-36") minimum and provide no less than a safety factor of 2:1. Restraint shall be FM approved in applicable sizes. Restraining device shall be SIGMA ONE-LOK™ or approved equal.

Material:

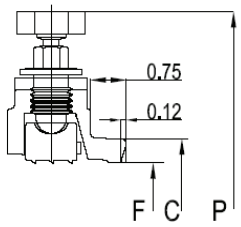
- Gland body, brackets, wedge segments & actuating bolts ASTM A536 65-45-12 ductile iron.
- Restraining Rods & Nuts: High strength, low alloy steel meeting AWWA/ANSI C111/A21.11 with minimum 65,000 psi tensile strength and 45,000 psi yield strength.
- Side Clamping Bolts & Hex Nuts: ASTM A449 high strengh steel.







SECTION B - B



SECTION A - A

Dimensions in Inches, Weights in Pounds

Size	Item #	Weight	PVC Pipe DI OD	IPS Pipe OD	Dimensions								Bolts and Inserts		
					C	F	K2	T	P	P*	X	J	No	Size	Torque
3	SLCE3	6.21		3.50	4.76	3.60	7.18	0.60	9.42	8.50	0.750	6.14	2	7/8	45-55
4	SLCE4	6.78	4.80	4.50	5.92	4.90	7.92	0.60	10.22	9.30	0.875	7.50	2	7/8	50-60
6	SLCE6	10.28	6.90	6.63	8.01	7.00	10.00	0.60	12.87	11.95	0.875	9.50	3	7/8	50-60
8	SLCE8	14.48	9.05	8.63	10.17	9.15	12.18	0.75	14.37	13.45	0.875	11.75	4	7/8	50-60
10	SLCE10	21.40	11.10	10.75	12.22	11.20	14.60	0.85	16.68	15.76	0.875	14.00	6	7/8	50-60
12	SLCE12	26.96	13.20	12.75	14.32	13.30	16.64	0.85	18.58	17.66	0.875	16.25	8	7/8	50-60
14	SLCE14	33.67	15.30		16.40	15.44	20.25	1.20	21.68	19.98	0.875	18.75	10	7/8	55-65
16	SLCE16	41.67	17.40		18.50	17.54	22.45	1.21	23.65	21.95	0.875	21.00	12	7/8	55-65
18	SLCE18	49.50	19.50		20.60	19.64	24.75	1.25	25.79	24.09	0.875	23.25	12	7/8	55-65
20	SLCE20	61.17	21.60		22.70	21.74	27.00	1.34	28.16	26.46	0.875	25.50	14	7/8	55-65
24	SLCE24	79.33	25.80		26.90	25.94	31.50	1.46	32.70	31.00	0.875	30.00	16	7/8	55-65
30	SLCE30	198.00	32.00		33.29	32.17	38.42	2.00	41.92	39.92	1.125	36.88	20	1.00	65-75
36	SLCE36	248.00	38.30		39.59	38.47	46.00	2.00	48.78	46.78	1.125	43.75	24	1.00	65-75

ONE-LOK SLCE was previously referred to as model SLC

P* Dim shows OD after head is broken/removed.

UL LISTED

FM APPROVED

Sizes 4" - 12" are UL listed and have been tested in accordance with ASTM F1674.
Sizes 4" - 12" are FM approved on AWWA C900 pipe.

Nominal Pipe Size	Item #	Pressure Rating											
		C900			ASTM D2241			C905					
		DR14	DR18	DR25	SDR17	SDR21	SDR26	DR18	DR21	DR25	DR32.5	DR41	DR51
3	SLCE3	-	-	-	250	200	160	-	-	-	-	-	-
4	SLCE4	305	235	165	250	200	160	-	-	-	-	-	-
6	SLCE6	305	235	165	250	200	160	-	-	-	-	-	-
8	SLCE8	305	235	165	250	200	160	-	-	-	-	-	-
10	SLCE10	305	235	165	250	200	160	-	-	-	-	-	-
12	SLCE12	305	235	165	250	200	160	-	-	-	-	-	-
14	SLCE14	-	-	-	-	-	-	235	200	165	125	100	-
16	SLCE16	-	-	-	-	-	-	235	200	165	125	100	-
18	SLCE18	-	-	-	-	-	-	235	200	165	125	100	80
20	SLCE20	-	-	-	-	-	-	235	200	165	125	100	80
24	SLCE24	-	-	-	-	-	-	235	200	165	125	100	80
30	SLCE30	-	-	-	-	-	-	-	-	165	125	100	80
36	SLCE36	-	-	-	-	-	-	-	-	165	125	100	80

NOTE: All packs come with ONE-LOK SLCE Gland, MJ or SIGMA Seal Gaskets & required # of T-Bolts

Installation Instructions:

Note: This product is not designed to be used on plain end fittings.

1. Clean fitting socket and pipe end. Lubricate gasket and pipe end with soapy water (or approved pipe lubricant meeting AWWA C111). Install ONE-LOK™ restrainer on the pipe with the lip extension facing the pipe end, followed by the gasket, tapered side toward end of pipe. Insert pipe into fitting outlet and seat the gasket firmly and evenly into the gasket cavity. Maintain a straight joint during assembly.

NOTE: SIGMASEAL Gasket is recommended for ONE-LOK 30-36". When installing SIGMASEAL gasket, the tapered edges of the gasket must face away from the pipe wall.

2. Push the ONE-LOK gland toward the fitting and center it around the pipe with the lip evenly against the gasket. Insert the T-bolts and hand-tighten the nuts. If deflection is required, make up after joint assembly but before tightening T-bolts.

3. Tighten T-bolts in an alternating manner maintaining an even gap between the gland and the fitting face at all points around the socket. Repeat alternate tightening cycle of the t-bolts until one full complete cycle is completed where each individual t-bolt maintains the recommended torque.

4. For installation on IPS O.D. PVC Pipe, twist, break, and remove the ABS spacers from the actuating bolts. DO NOT REMOVE SPACERS when installing product on C900 PVC. Hand tighten all actuating bolt until complete contact of all wedge segments is made with the pipe.

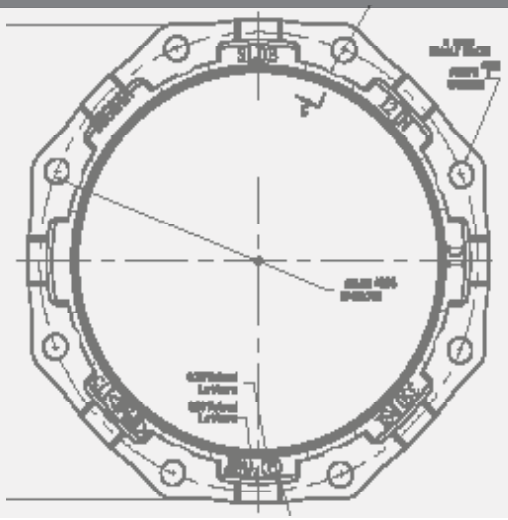
5. Tighten each actuating in a clockwise direction, alternating between the bolts in a star pattern until the break-off tops have been removed. Never tighten an actuating bolt more than 180 degrees before moving to the next bolt.

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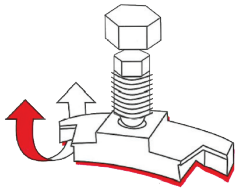
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ONE-LOK™ Series SLDE for Ductile Iron Pipe

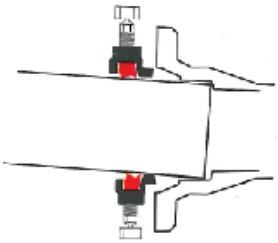








ONE-LOK's unique cam action allows the restraining wedges to "rock," gripping the pipe wall more securely as thrust force increases.



ONE-LOK's cam action also accommodates deflection of the joint during installation, and also allows for subsidence, seismic or other forces after installation, up to the maximum allowed deflection.

Deflection Chart

Nominal Size	Item #	Deflection
3-12"	SLDE3-SLDE12	5 deg
14-16"	SLDE14-SLDE16	2 deg
18-30"	SLDE18-SLDE30	1.5 deg
36-64"	SLDE36-SLDE64	1 deg

Features & Advantages:

1) The SIGMA ONE-LOK Series SLDE is a mechanical joint restraining gland that implements a series of individually activated wedges into the mechanical joint follower gland. When the wedge segment is engaged by the actuating bolt, the primary contact edges of each wedge segment lock onto the pipe wall. This action causes the primary contact edges to grip the pipe and effectively restrain all classifications of ductile iron pipe.

2) ONE-LOK SLDE's precision contoured wedges provide proper contact and support of the ductile iron pipe wall. Each wedge is manufactured with an elongated contour that evenly matches the outside circumference of each nominal diameter of ductile iron pipe. This elongated contour also eliminates the concern of damage to both the pipe wall and the interior cement mortar lining caused by point loading, even on the thinner pressure classes of ductile iron pipe.

3) ONE-LOK SLDE's wedge actuating bolt provides the installer with a visual torque indicator. The breakaway top ensures proper engagement of the wedge segment at the time of installation. Unlike other actuating bolts, the ONE-LOK SLDE is manufactured with a proprietary quality control system that ensures the breakaway tops will activate at the correct torque. The breakaway top is sized to match the same dimensions of the bolts and nuts used to assemble the mechanical joint fitting and follower gland, eliminating the need for special installation tools. Once engaged, the actuating bolt leaves a residual hex-head shank, allowing post-installation disassembly of the restrained joint, if necessary.

4) ONE-LOK SLDE's unique wedge segment and actuating bolt design allows the two components to interface using a cam action principle, allowing the wedge segments to rock and increase their grip on the pipe wall as thrust on the assembled joint increases. This also allows improved resistance to subsidence, seismic forces, and other movement within the maximum deflection limitations of the mechanical joint under applicable AWWA standards.

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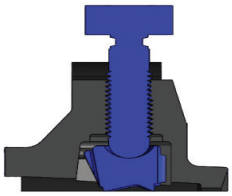
ONE-LOK™ Series SLDE for Ductile Iron Pipe

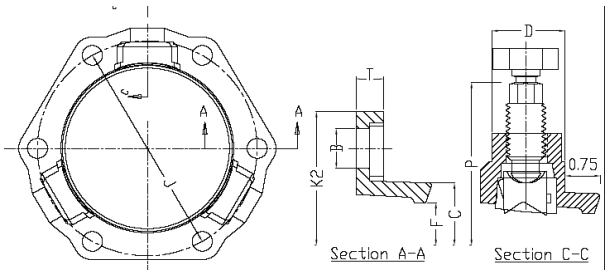
Sample Specification:

Restraint for standard mechanical joint fittings shall be incorporated in the design of the follower gland and shall utilize multiple wedge segments that act against the pipe, increasing their resistance as the line pressure increases. The assembled joint shall maintain the maximum flexibility and deflection of all nominal pipe sizes after burial. Restraining gland, wedge segments, and actuating bolts shall be manufactured of high strength ductile iron conforming to the requirements of ASTM A536, Grade 65-45-12. Wedge segments shall be heat treated to a hardness of 370 BHN minimum. Dimensions shall be compatible with standardized mechanical joints conforming to the requirements AWWA C111/ANSI A21.11 and AWWA C153/ANSI 21.53 through 24" (latest revision). Breakaway tops shall be incorporated in the design of the actuating bolts to visually ensure proper torque. The manufacturing of the actuating bolt must incorporate a quality control procedure that is deemed acceptable by the specifier and positively assures precise and consistent operating torque of the breakaway top. The mechanical joint restraining devices shall have a working pressure rating of 350psi (for sizes 3-16") and 250 psi (for sizes 18-64") minimum and provide no less than a safety factor of 2:1. Restraint shall be UL Listed and FM approved in applicable sizes. Restraining device shall be SIGMA ONE-LOK™ or approved equal.

Materials:

- Gland body, brackets, wedge segments & actuating bolts: ASTM A536 65-45-12 ductile iron.
- Wedge segments are heat treated to a minimum hardness of 370BHN
- T-head bolts & nuts: High strength, low alloy steel meeting AWWA/ANSI C111/A21.11 with minimum 65,000psi tensile strength and 45,000psi yield strength.





Dimensions in Inches, Weights in Pounds

Nom Pipe Size	Item #	Wgt	Pipe OD	Dimensions								Bolts and Inserts			Pressure Rating	T-bolts			Gasket	
				C	F	D	T	P*	B	J	K2	No	Size	Torque		No	Size	Torque	No	Item #
3	SLDE3	5.50	3.96	4.84	4.16	1.58	0.55	9.40	0.750	6.19	7.69	2	7/8	80-90	350	4	5/8 x 30	80-90	1	TG-3
4	SLDE4	6.50	4.80	5.92	5.00	1.58	0.55	10.24	0.875	7.50	9.12	2	7/8	80-90	350	4	¾ x 35	80-90	1	MG-4
6	SLDE6	10.00	6.90	8.02	7.10	1.58	0.60	12.34	0.875	9.50	11.12	3	7/8	80-90	350	6	¾ x 35	80-90	1	MG-6
8	SLDE8	14.50	9.05	10.17	9.25	1.63	0.75	14.32	0.875	11.75	13.37	4	7/8	80-90	350	6	¾ x 40	80-90	1	MG-8
10	SLDE10	23.00	11.10	12.22	11.30	1.58	0.85	16.54	0.875	14.00	15.62	6	7/8	80-90	350	8	¾ x 40	80-90	1	MG-10
12	SLDE12	29.00	13.20	14.32	13.40	1.58	0.85	18.80	0.875	16.25	17.88	8	7/8	80-90	350	8	¾ x 40	80-90	1	MG-12
14	SLDE14	39.60	15.30	16.40	15.55	1.58	1.125	21.20	0.875	18.75	20.25	10	7/8	80-90	350	10	¾ x 45	80-90	1	MG-14
16	SLDE16	49.67	17.40	18.50	17.54	1.77	1.21	23.74	0.875	21.00	22.50	12	7/8	80-90	350	12	¾ x 45	80-90	1	MG-16
18	SLDE18	60.33	19.50	20.60	19.64	1.77	1.25	25.84	0.875	23.25	24.75	12	7/8	80-90	250	12	¾ x 45	80-90	1	MG-18
20	SLDE20	69.00	21.60	22.70	21.74	1.87	1.25	27.94	0.875	25.50	27.00	14	7/8	80-90	250	14	¾ x 50	80-90	1	MG-20
24	SLDE24	103.67	25.80	26.88	25.95	1.92	1.47	32.14	0.875	30.00	31.50	16	7/8	80-90	250	16	¾ x 50	80-90	1	MG-24
30*	SLDE30	158.67	32.00	33.29	32.17	2.13	1.65	39.30	1.125	36.88	39.12	20	1.00	115-125	250	20	1 x 65	100-120	1	MGS-30
36*	SLDE36	234.50	38.30	39.59	38.47	3.15	1.75	46.07	1.125	43.75	46	24	1.00	115-125	250	24	1 x 65	100-120	1	MGS-36
42*	SLDE42	344.00	44.50	45.79	44.67	3.56	2.25	53.25	1.38	50.62	53.38	28	1 1/4	115-125	250	28	1 ¼ x 80	100-120	1	MGS-42
48*	SLDE48	456.00	50.80	52.09	50.97	3.81	2.25	59.55	1.38	57.5	60.26	32	1 1/4	115-125	250	32	1 ¼ x 80	100-120	1	MGS-48
54*	SLDE54	1045.00	57.56	58.85	57.73	6.00	4.50	70.43	1.375	63.20	67.50	18	1½	400 +/- 5	250	36	1 ¼ x 110	150 - 200	1	MGS-54
60*	SLDE60	1136.00	61.61	62.90	61.78	6.00	4.50	74.52	1.375	67.72	72.00	18	1½	400 +/- 5	250	36	1 ¼ x 110	150 - 200	1	MGS-60
64*	SLDE64	1258.00	65.67	66.96	65.84	6.00	4.50	78.68	1.375	71.86	76.00	19	1½	400 +/- 5	250	38	1 ¼ x 110	150 - 200	1	MGS-64

ONE-LOK SLDE was previously referred to as model SLD

** Product is provided with SIGMASEAL™ improved mechanical joint gasket.*

P* Dim shows OD after head is broken/removed.

Sizes 3"-12" is approved for thinnest class of DI pipe.

UL LISTED FM APPROVED

Sizes 3" - 36" are UL listed
Sizes 4" - 12" are FM approved

Installation Instructions:

Note: This product is designed for use on ductile iron pipe. Contact SIGMA for use on plain end fittings.

1. Clean fitting socket and pipe end. Lubricate gasket and pipe end with soapy water (or approved pipe lubricant meeting AWWA C111). Install ONE-LOK™ restrainer on the pipe with the lip extension facing the pipe end, followed by the gasket, tapered side toward end of pipe.

NOTE: SIGMASEAL Gasket is recommended for ONE-LOK 30-64". When installing SIGMASEAL gasket, the tapered edges of the gasket must face away from the pipe wall.

2. Insert pipe into fitting outlet and seat the gasket firmly and evenly into the gasket cavity. Maintain a straight joint during assembly.

3. Push the ONE-LOK gland toward the fitting and center it around the pipe with the lip evenly against the gasket. Insert the T-bolts and hand tighten the nuts. If deflection is required, make up after joint assembly but before tightening T-bolts.

4. Tighten T-bolts in an alternating manner maintaining an even gap between the gland and the fitting face at all points around the socket. Repeat alternate tightening cycle of of the t-bolts until one full cycle is completed where each individual t-bolt maintains the recommended torque.

5. Following proper assembly of the mechanical joint, hand tighten actuating bolts until all wedges make complete contact with the pipe.

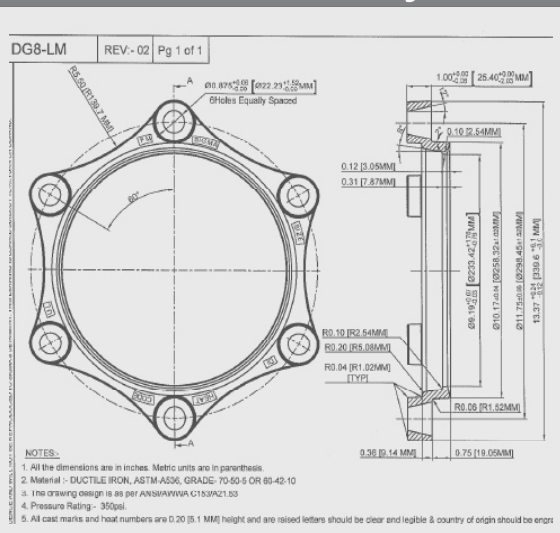
6. Tighten each actuating bolt in a clockwise direction, alternating between the bolts in a star pattern, until the break-off tops have been removed. Never tighten a wedge bolt more than 180 degrees before moving to the next bolt.

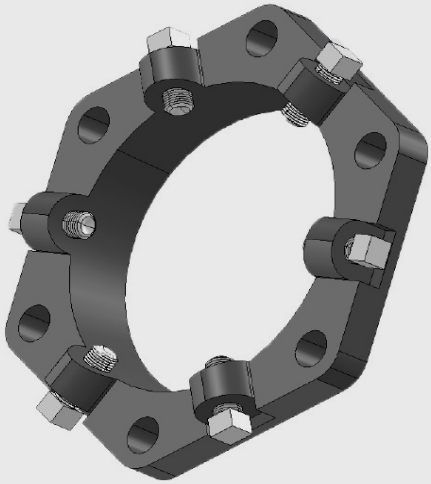
September 2015 SIGMA Corporation

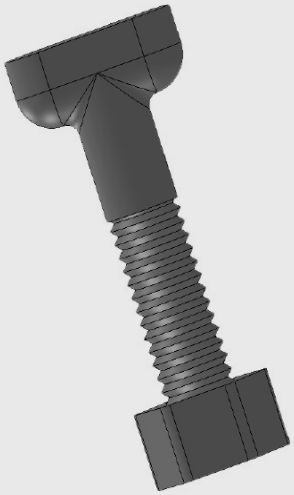
SIGMA™

Quality – Service – Commitment – Delivered.

Accessory Products







- **Ductile Iron Set Screw Retainer Glands**
- **Mechanical Joint And Transition Gaskets**
- **Mechanical Joint Glands**
- **Mechanical Joint T-Bolts And Nuts**
- **Prepackaged Mechanical Joint Accessories**
- **SIGMASEAL™ Improved MJ Gasket**

SIGMA Corporation
700 Goldman Drive
Cream Ridge, NJ 08514
800 999 2550 phone
CRMCSR@sigmaco.com
www.sigmaco.com

Packaged Accessories

Retainer Gland Pack - Includes Gland, MJ Gasket and Std. T-Head Bolts

Size	Item No.	Wt. (lb)
3	RGP3	9.00
4	RGP4	10.00
6	RGP6	15.00
8	RGP8	19.00
10	RGP10	25.00
12	RGP12	32.00

Gland Pack - Includes Gland, MJ Transition Gasket and Std. T-Head Bolts

Size (in.)	Item No.	Wt. (lb.)
3	DXP3	7.00
4	DXP4	8.00
6	DXP6	12.00
8	DXP8	15.00
10	DXP10	20.00
12	DXP12	25.00

MJ Bolt & Gasket (Less Gland)

Size (in.)	Item No.	Wt. (lb.)	Bolt Size
2	MGP2	1.60	
3	MGP3	2.83	5/8 x 3
4	MGP4	3.57	3/4 x 3-1/2
6	MGP6	5.29	3/4 x 3-1/2
8	MGP8	5.84	3/4 x 4
10	MGP10	7.70	3/4 x 4
12	MGP12	7.86	3/4 x 4
14	MGP14	14.00	3/4 x 4-1/2
16	MGP16	12.10	3/4 x 4-1/2
18	MGP18	12.32	3/4 x 4-1/2
20	MGP20	14.25	3/4 x 4-1/2
24	MGP24	17.30	3/4 x 5
30	MGP30	40.00	1 x 6
36	MGP36	28.00	1 x 6
42	MGP42	76.00	1-1/4 x 6-1/2
48	MGP48	90.00	1-1/4 x 6-1/2
54	MGP54	136.00	1-1/4 x 6-1/2
60	MGP60	137.50	1-1/4 x 6-1/2
64	MGP64	145.00	1-1/4 x 6-1/2

MJ Transition Bolt & Gasket Pack (Less Gland)

Size (in.)	Item No.	Wt. (lb.)
2	TGP2	1.00
3	TGP3	3.00
4	TGP4	4.00
6	TGP6	6.00
8	TGP8	7.00
10	TGP10	8.00
12	TGP12	9.00

MJxSDR35 Transition Gasket

Size	Item No.	Wt. (lb)
4	TSG04	0.66
6	TSG06	0.90
8	TSG08	1.22
10	TSG10	1.40
12	TSG12	1.80

SIGMA SEAL MJ Gasket

Size (in.)	Item No.	Wt. (lb.)
3	MGS3	1.00
4	MGS4	0.42
6	MGS6	0.55
8	MGS8	0.76
10	MGS10	0.93
12	MGS12	1.02
14	MGS14	1.00
16	MGS16	1.00
18	MGS18	2.00
20	MGS20	2.00
24	MGS24	2.00
30	MGS30	4.20
36	MGS36	4.00
42	MGS42	5.00
48	MGS48	6.00
54	MGS54	6.50
60	MGS60	7.50
64	MGS64	8.00

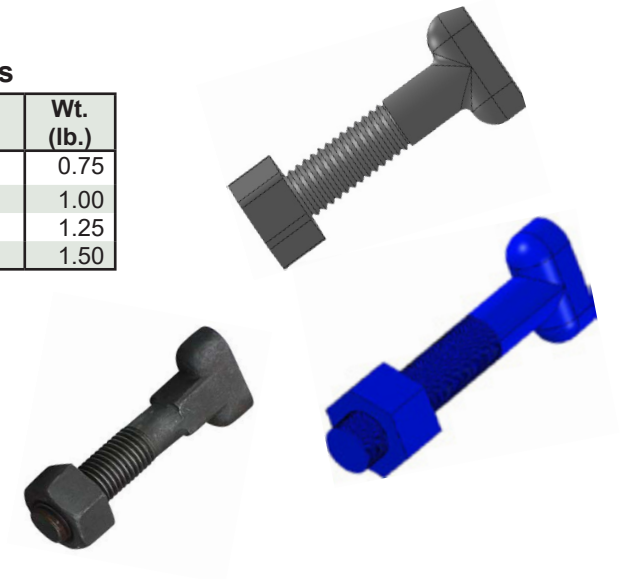
High-Strength, Low Alloy Steel T-Head Bolts

Standard Bolts

Size (in.)	Item No.	Wt. (lb.)
5/8x3	TB30	0.50
3/4x3 1/2	TB35	0.75
3/4x4	TB40	0.85
3/4x4 1/2	TB45	1.00
3/4x5	TB50	1.25
1x5	TB60	1.25
1x6	TB61	2.25
1 1/4x6	TB65	2.50
1 1/4X6 1/2	TB65	4.00
3/4x7	TB70	0.63
1x8	TB80	3.00
3/4x9	TB90	0.72

Anti-Rotation Bolts

Size (in.)	Item No.	Wt. (lb.)
3/4X3 1/2	ATB35	0.75
3/4X4	ATB40	1.00
3/4X4 1/2	ATB45	1.25
3/4X5	ATB50	1.50



Material: Corten ASTM A242 – Standard, Anti-Rotation T-Bolts
Finish: Bare plain finish with antirust corrosion preventative coating

Sigma also offer other materials, coatings & sizes
SS 304,316
Fluoropolymer, Galvanized, Plated

Please contact your territory representative for more information and submittals

May 2024 SIGMA Corporation

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jboucher@repco.ca

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Auburn, WA 98001
Phone (800) 688-6230
ontcsr@sigmaco.com

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Terms and Conditions of Sales available at our website.

AWWA Ductile Iron Fittings



- 2-64” C153 Ductile Iron Mechanical Joint Fittings
- 2-48” C110 Ductile Iron Mechanical Joint Fittings
- 2-64” C110 Ductile Iron Flanged Fittings
- 3-24” C153 Ductile Iron Push-On Fittings
- 4-24” C110 Ductile Iron Push-On Fittings
- 3-36” Ductile Iron Mechanical Joint Connector
- C116 Fusion Bonded Epoxy Lining Available
- PROTECTO 401® Ceramic Epoxy Lining Available

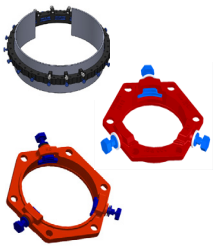
Visit our website for available special coatings. https://www.sigmaco.com/project/fittings-coatings-linings/

Mechanical Joint Accessories



- Prepackaged and Loose Mechanical Joint Accessories
- SIGMASEAL™ Improved Mechanical Joint Gasket
- Snap-On Multi-Purpose Gasket for Ductile Iron or PVC Pressure Pipes
- OMNI-SLEEVE™ Improved Wall Penetration Sleeve
- Specialty Bolts and Nuts for Mechanical Joint Assemblies

ONE-LOK™ Wedge Action Restraints



- 3-48” ONE-LOK D-SLDE Domestic Wedge Restraint for Ductile Iron Pipe
- 3-64” ONE-LOK SLDE Wedge Restraint for Ductile Iron Pipe (Import)
- 4-48” ONE-LOK T-SLDE Tandem Wedge Restraint for High Pressure Ductile Iron Pipe
- 3-36” ONE-LOK D-SLCE Domestic Wedge Restraint for PVC Pipe
- 3-12” ONE-LOK SLC Wedge Restraint for PVC Pipe (Import)
- 3-60” ONE-LOK SLCE Wedge Restraint for PVC Pipe (Import)
- 3-42” ONE-LOK SLDEH Wedge Harness Restraint for Ductile Iron Pipe
- 4-12” /16” /20” ONE-LOK SLDM Wedge Restraint for Oversized Cast Iron Pipe
- 4-48” ONE-LOK SSLD Split Wedge Restraint for Installed Ductile Iron Pipe & Fitting
- 4-36” ONE-LOK SSLDH Split Wedge Harness Restraint for Installed Ductile Iron Pipe
- 4-12” ONE-LOK SLCEH Wedge Harness Restraint for AWWA C900 PVC Pipe
- 3-12” ONE-LOK Series SLO MJ Restraining Gland

Visit our website for available special coatings. https://www.sigmaco.com/download/corrsafe-alternative-coating-for-enhanced-exterior-corrosion-protection-on-wedge-and-serration-type-restrainers/

PV-LOK™ Serration Lock Restraints



- 4-48” PV-LOK PWM Serrated Restraint for Ductile Iron Fitting & AWWA C900/905 PVC Pipe
- 4-48” PV-LOK PWP Serrated Bell Joint Restraint for AWWA C900/905 PVC Pipe
- 4-12” PV-LOK D-PWP Domestic Serrated Bell Joint Restraint for AWWA C900 PVC Pipe
- 4-12” PV-LOK PWPF Restraint for AWWA C900/905 PVC Pipe & PVC Fitting
- 4-12” PV-LOK PWH Serrated Harness Restraint for AWWA C900 PVC Pipe
- 2-12” PV-LOK PVM Serrated Restraint for Ductile Iron & IPS OD PVC pipe
- 2-12” PV-LOK PVP Serrated Bell Joint Restraint for IPS OD PVC Pipe
- 2-8” PV-LOK PVPF Serrated Restraint for IPS OD PVC Pipe & PVC Fitting
- 4-12” PV-LOK PWP Serrated Bell Joint Restraint for Ductile Iron Pipe

Visit our website for available special coatings. https://www.sigmaco.com/download/corrsafe-alternative-coating-for-enhanced-exterior-corrosion-protection-on-wedge-and-serration-type-restrainers/

HDPE (Raven) Products



- Rotational Molded Meter Boxes & Pits
- Optional White Interior Available
- Light & Medium Duty Load Capacities
- Extensive Nationwide Inventory
- Rotational Molded Oil-Water Separators
- OEM Service Available

Municipal Construction Castings



- Manhole Rings and Covers
- Curb and Meter Boxes
- Frames and Grates
- Storm Inlets
- Valve Boxes, Risers, and Extensions

Products for the Ductile Iron Fabricator



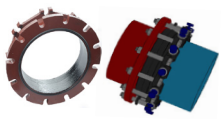
- 3-64” High Hub Threaded Flanges
- 3-48” Tapped High Hub Threaded Flanges
- 3-36” Extra Heavy 250lb Drilled Threaded Flanges
- 3-48” Threaded MJ Bell Adapters
- 3-48” MJ x PE Bell adapter
- 3-48” Anchor Flanges
- 3-16” Filler Flanges

Extended Range Products



- Flange-Pak™ Prepackaged Flange Accessory Sets
- Polyethylene Encasement for Ductile Iron Pipe
- Copper Tubing Products
- Tracer Wire & Detectable/Non-Detectable Marking Tape
- Pipe Joint Lubricant & Hydraulic Cement
- Socket Clamps and Tie Rod Accessories
- Boxlok Valve Box Alignment Device
- Cast Iron Companion Flanges

Flange Adapters



- 3-36” SIGMAFLANGE Flange Adapter Sleeve for PVC and Ductile Iron Pipe
- 2-48” ZIP FLANGE Set Screw Style Flange Adapter
- 3-36” SIGMAFLANGE Universal Joint for Flanged Fittings, Flanged Pipes & Valves

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DIXON

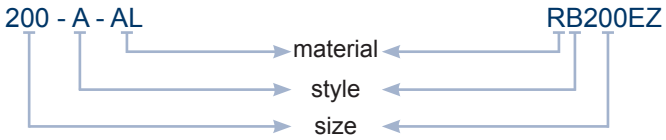
The Right Connection®

Cam & Groove Couplings and Accessories

dixonvalve.com • *Customer Service:* **877.963.4966**



Ordering System



Size represents the coupler or adapter and hose or pipe end (i.e. 200 = 2"). If the coupling is a reducing size, the coupler or adapter is the first size (i.e. 4030-C is 4" coupler to 3" hose shank).

Operation of Cam and Groove

1. To make connection, simply slide the adapter into the coupler and with normal hand pressure, press the cam levers down.
2. Uncoupling is as quick and simple as coupling. Just lift the cam arms and remove the adapter.

Specifications on Dixon® Cam and Groove

Specifications:

- Dixon®, Boss-Lock™ and EZ Boss-Lock™ cam and groove couplers and adapters are produced to interchange with all product produced to Commercial Item Description A-A-59326D.
- No standard exists for the ½" and 8" fittings, and generally these sizes do not interchange with other manufacturers.
- Dust caps and dust plugs are ***not*** to be used in pressure applications for safety and environmental reasons.
- *Designed for use with liquids*, consult Dixon® for specific recommendations.

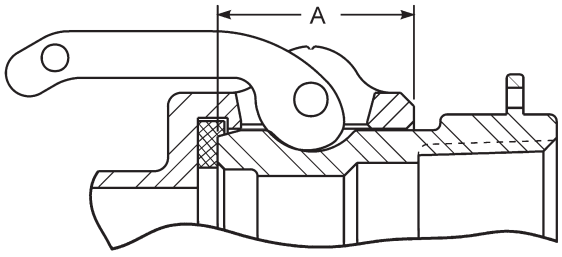
Pressure Ratings:

Recommendations based on the use of mating Dixon® fittings at ambient temperature **70°F (21°C)** with standard Buna-N seal installed. For use at elevated temperature or other unusual operating conditions, consult Dixon®. Dixon®, Boss-Lock™ and EZ Boss-Lock™ couplers and adapters maximum working pressure are as follows:

Size	½"	¾" thru 2"	2½"	3"	4"	5" and 6"	8"
PSI	**150**	**250**	**150**	**125**	**100**	**75**	**50**
PSI [1]	**150**	**250**	**150**	**150**	**150**	**75**	**50**

[1] working pressure with King Crimp™ ferrule system

Cam and Groove Nominal Take-Up Lengths



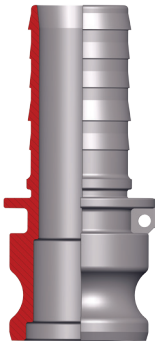
Coupling Size	Dimension A
½"	0.97"
¾"	0.97"
1"	1.20"
1¼"	1.44"
1½"	1.50"
2"	1.81"
2½"	1.82"
3"	1.78"
4"	1.84"
5"	2.00"
6"	2.13"
8"	2.06"
8"	3.22"

Cam and Groove Configurations

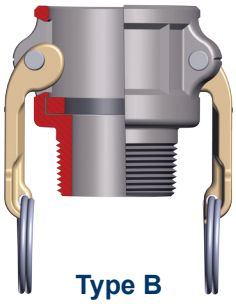
Configurations are representative of the Dixon® line of cam & groove.



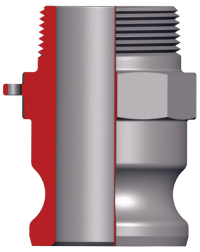
Type A
female NPT x male adapter



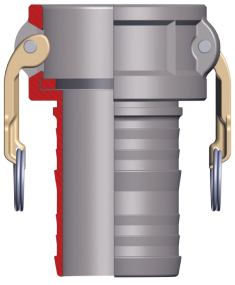
Type E
male adapter x hose shank



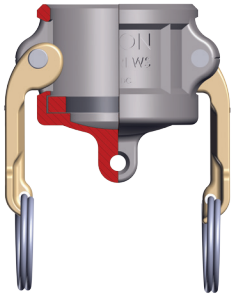
Type B
female coupler x male NPT



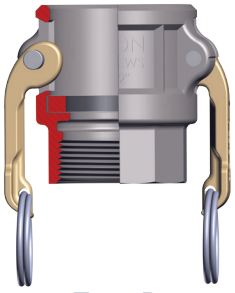
Type F
male NPT x male adapter



Type C
female coupler x hose shank



Type DC [1]
dust cap



Type D
female coupler x female NPT



Type DP [1]
dust plug

[1] Dust caps and dust plugs are ***not*** to be used in pressure applications for safety and environmental reasons.

Under no circumstances should cam & groove couplings be used for compressed air or steam service!

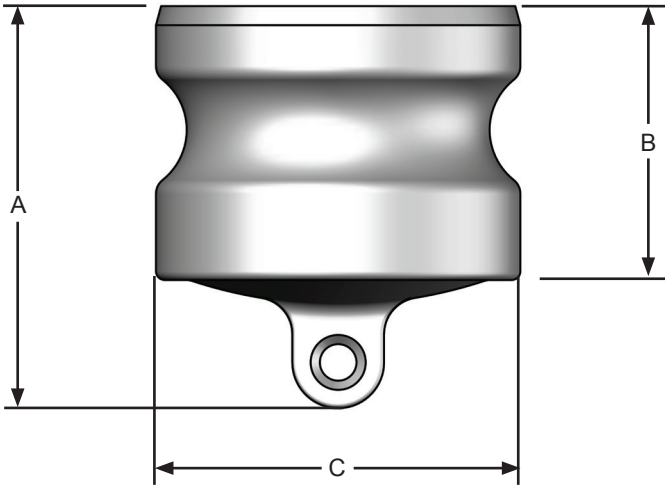
Dixon® Type DP Plugs



Size	356T6 Aluminum Part #	Aluminum Hard Coat Part #	Brass Part #	Unplated Mall. Iron Part #	Plated Mall. Iron Part #	316 Stain.Steel Part #
½"	---	---	50-DP-BR	---	---	50-DP-SS
¾"	75-DP-AL	---	75-DP-BR	---	---	75-DP-SS
1"	100-DP-AL	---	100-DP-BR	---	100-DP-PM	100-DP-SS
1¼"	125-DP-AL	---	125-DP-BR	---	125-DP-PM	125-DP-SS
1½"	150-DP-AL	150-DP-ALH	150-DP-BR	150-DP-MI	150-DP-PM	150-DP-SS
2"	200-DP-AL	200-DP-ALH	200-DP-BR	200-DP-MI	200-DP-PM	200-DP-SS
2½"	250-DP-AL	---	---	---	250-DP-PM	250-DP-SS
3"	300-DP-AL	300-DP-ALH	300-DP-BR	300-DP-MI	300-DP-PM	300-DP-SS
4"	400-DP-AL	400-DP-ALH	400-DP-BR	400-DP-MI	400-DP-PM	400-DP-SS
5"	500-DP-AL	---	---	---	---	---
6"	600-DP-AL	600-DP-ALH	600-DP-BR	---	---	600-DP-SS
8" DIX	800-DP-AL [1]	---	---	---	---	---
8" BL	801-DP-AL [1]	---	---	---	---	---

[1] Dixon® and Boss-Lock™ cam and groove couplings *do not interchange in the 8" and ½" sizes.*

Dust caps and dust plugs are not to be used in pressure applications for safety and environmental reasons.



356T6 aluminum, brass and iron dimensions

	Size	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8" DIX	8" BL
A	overall length	1-7/16	1¾	1-29/32	2⅜	2-13/32	2-13/16	2-13/16	2-13/16	3-1/16	3⅜	3-1/16	5-3/16	4-11/16
B	adapter length	15/16	1-3/32	1-5/16	1-9/16	1⅝	1⅞	1-15/16	2	2-1/16	2-11/32	2¼	3-9/16	3-1/16
C	outside OD	15/16	1¼	1-7/16	1-25/32	2-3/32	2-15/32	2-31/32	3-19/32	4-23/32	5-23/32	6-15/16	9-3/32	8-15/16

316 stainless steel dimensions

	Size	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8" DIX	8" BL
A	overall length	1-7/16	1-11/16	1-15/16	2¼	2½	2¾	2-7/8	2-27/32	3⅛	---	3½	---	---
B	adapter length	15/16	15/16	1-15/16	1-9/16	1⅝	1⅞	1-15/16	2	2-1/16	---	2¼	---	---
C	outside OD	15/16	1¼	1-7/16	1-25/32	2-3/32	2-15/32	2-31/32	3-19/32	4-23/32	---	6-15/16	---	---

Adapters and Couplers x 150# Flanged Drilling

Features:
- aluminum and unplated iron flanges are flat faced
- stainless steel flanges are raised face

Dixon® adapter x 150# flange

Size	*356T6 Aluminum* Part #	Flange Thick.	*Unplated Malleable Iron* Part #	Flange Thick.	*316 Stainless Steel* Part #	Flange Thick.
1"	---	—	---	—	***100-AL-SS***	9/16"
1½"	---	—	---	—	***150-AL-SS***	11/16"
2"	***200-AL-AL***	¾"	---	—	***200-AL-SS***	7/16"
3"	***300-AL-AL***	⅝"	***300-AL-MI***	⅝"	***300-AL-SS***	7/16"
4"	***400-AL-AL***	⅝"	---	—	***400-AL-SS***	7/16"
6"	***600-AL-AL***	⅝"	---	—	***600-AL-SS***	⅝"
8"	***800-AL-AL*** [1]	1⅛"	---	—	---	---

[1] part is produced as a welded fabrication



Feature:
- global product made to Dixon® specifications

Global Dixon® adapter x 150# ANSI flange

Size	*316 Stainless Steel* Part #	Flange Thickness
2"	***200-AL-SSANSI***	¾"
3"	***300-AL-SSANSI***	15/16"

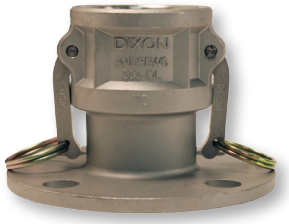


Feature:
- supplied standard with a Buna-N gasket, other gaskets available on pages 65-67

Dixon® coupler x 150# flange

Size	*356T6 Aluminum* Part #	Flange Thickness	*316 Stainless Steel* Part #	Flange Thickness
1"	---	---	***100-DL-SS***	21/32"
1½"	---	---	***150-DL-SS***	25/32"
2"	***200-DL-AL***	3/4"	***200-DL-SS***	7/16"
3"	***300-DL-AL***	15/16"	***300-DL-SS***	7/16"
4"	***400-DL-AL***	15/16"	***400-DL-SS***	7/16"
6"	***600-DL-AL***	1"	***600-DL-SS***	⅝"
8"	***800-DL-AL*** [1]	1-1/8"	---	---

[1] part is produced as a welded fabrication

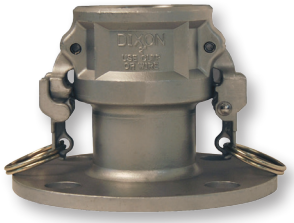


Feature:
- supplied standard with a Buna-N gasket, other gaskets available on pages 65-67

EZ Boss-Lock™ coupler x 150# flange

Size	*316 Stainless Steel* Part #	Flange Thickness
1"	***RDL100EZ*** [1]	9/16"
1½"	***RDL150EZ*** [1]	11/16"
2"	***RDL200EZ***	7/16"
3"	***RDL300EZ*** [1]	7/16"
4"	***RDL400EZ*** [1]	7/16"
6"	***RDL600EZ*** [1]	1"

[1] part is produced as a welded fabrication



In-Line Sight Glass for Bulk Transfer

Applications:
- designed for dry bulk transfer hose
- not intended for liquid service, for dry bulk transfer *only*

Materials:
- aluminum body, Buna seals, acrylic sight glasses, stainless steel hardware and bronze cam arms (where applicable)

Size	coupler x adapter Part #	adapter x adapter Part #	coupler x coupler Part #
3" x 3"	***3533CA***	***3533AA***	***3533CC***
3" x 4"	***3534CA***	***3534AA***	---
4" x 3"	***3543CA***	---	***3543CC***
4" x 4"	***3544CA***	***3544AA***	***3544CC***

