TYLER UNION®

Quality Waterworks Products

Utilities Catalog

PC-U2008, February, 2008

Tyler Utilities • 11910 CR. 492 • Tyler, Texas 75706 • (800) 527-8478
Union Foundry Company • Box 309 • Anniston, Alabama 3602 • (800) 226-7601

TYLER UNION®

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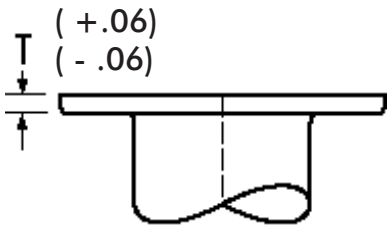
NOTE: Flanged ductile-iron fittings in 24-in. (610 mm) and smaller sizes may be rated for 350 psi (2,413 kPa) with the use of special gaskets.



Flange Thickness of SSB D.I. Class 350 MJxFlange Fittings

Size	T	Size	T
3	.60	14	.87
4	.63	16	.90
6	.63	18	.93
8	.70	20	.96
10	.75	24	1.00
12	.81		

NOTICE: Weights published in this catalog are for shipping purposes only. Actual weights may vary because some fittings are produced in both foundries. All meet the AWWA standards to which they are designed.

For weights of specific fittings, please contact Tyler Pipe or Union Foundry Company.

TYLER UNION®
Quality Waterworks Products

Featuring a new product line . . .

TUFLOCK™

BETTER BY DESIGN

Advantages of the TUF Lock™ mechanical joint restraint:

- UL Listed and FM approved for PVC and Ductile Iron Pipe sizes 4 - 12 inch.
- PVC TUF Lock conforms to ASTM 1674.
- Eliminates cumbersome thrust blocks.
- Currently available to restrain PVC and Ductile Iron Pipe from 3 - 24 inches.
- Proven joint restraint technology utilizes fewer wedges in frequently applied diameters.
- Cast with tested and traceable ASTM A536 compliant 65-45-12 ductile iron.
- Wedges and bolts are E-coated for corrosion resistance.
- Color-coded red for PVC or black for Ductile Iron applications.
- Restrain IPS PVC pipe, standard PVC Pipe and Ductile Iron Pipe.
- PVC wedge design maintains pipe hoop strength integrity.
- Accommodate out-of-round pipe.
- Ductile and PVC TUF Lock™ rated for a 2:1 safety factor based on pipe pressure rating.
- Suitable for potable water and wastewater applications.
- Allows disassembly just like a standard mechanical joint.

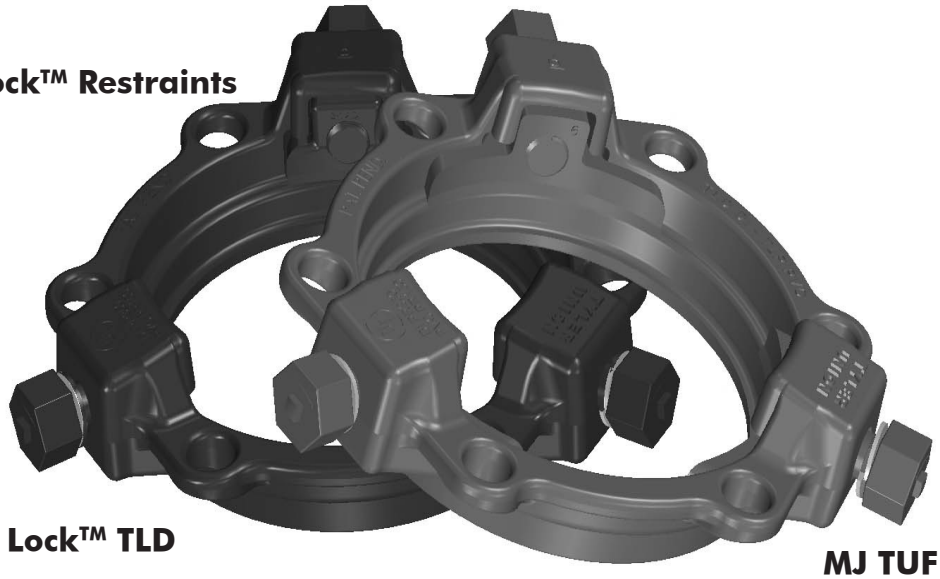
TUF Lock™ Ductile Iron TLD

- Restrain any class of Ductile Iron Pipe.
- Reduce time in the trench utilizing proven joint restraint technology.

TUF Lock™ PVC TLP

- Restrain any class of AWWA C900/905 PVC pipe.
- One restraint accommodates IPS and C900 PVC pipe w/o removing a washer.
- Single tooth design provides superior restraint technology.

MJ TUF Lock™ Restraints

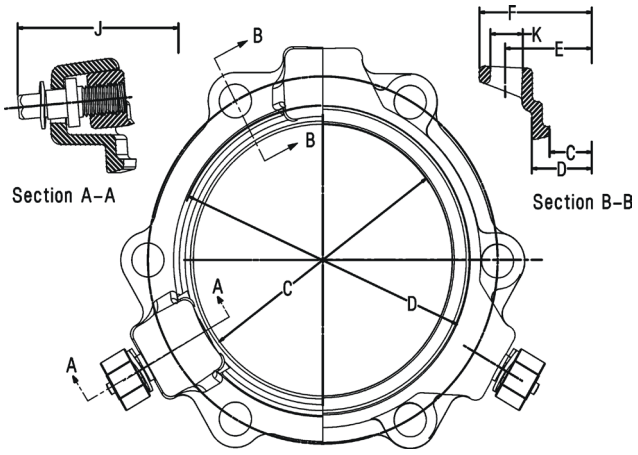


MJ TUF Lock™ TLD

MJ TUF Lock™ TLP

TUF Lock™ MJ Restraint Dimensions

Size (inches)	C	D	E	F	J	K
3	4.08	4.88	6.19	7.67	9.82	3/4
4	4.93	5.92	7.50	8.98	10.67	7/8
6	7.03	8.02	9.50	10.98	12.77	7/8
8	9.18	10.17	11.75	13.23	14.92	7/8
10	11.23	12.22	14.00	15.70	16.97	7/8
12	13.33	14.32	16.25	17.95	19.07	7/8
14	15.44	16.40	18.75	20.43	21.18	7/8
16	17.54	18.50	21.00	22.88	23.28	7/8
18	19.64	20.60	23.25	25.43	25.38	7/8
20	21.74	22.70	25.50	27.50	27.48	7/8
24	25.94	26.90	30.00	32.00	31.68	7/8



Ductile TUF™ Lock Application Chart

Size (inches)	Part Number	Wedge Quantity	T-Bolt Quantity	Weight (lbs)	Weight (w/ Acc.)	Pressure Rating (psi)	Pipe OD
3	TLD-3	2	4	7.0	10.1	350	3.96
4	TLD-4	2	4	7.8	10.9	350	4.80
6	TLD-6	3	6	11.2	17.8	350	6.90
8	TLD-8	3	6	13.1	20.3	350	9.05
10	TLD-10	6	8	26.0	32.5	350	11.10
12	TLD-12	8	8	31.5	40.4	350	13.20
14	TLD-14	10	10	43.3	53.6	350	15.30
16	TLD-16	12	12	54.1	66.3	350	17.40
18	TLD-18	12	12	59.8	72.2	250	19.50
20	TLD-20	14	14	69.8	83.8	250	21.60
24	TLD-24	16	16	90.4	106.9	250	25.80

PVC TUF™ Lock Application Chart

Size (inches)	Part Number	Wedge Quantity	T-Bolt Quantity	Weight (lbs)	Weight (w/ Acc.)	Pressure Rating (psi)	Pipe OD
3	TLP-3	2	4	7.1	10.2	305	3.50
4	TLP-4	2	4	8.3	11.0	305	4.50-4.80
6	TLP-6	3	6	12.4	18.3	305	6.63-6.90
8	TLP-8	3	6	14.9	20.8	305	8.63-9.05
10	TLP-10	6	8	25.7	33.4	305	10.75-11.10
12	TLP-12	8	8	34.1	42.0	305	12.75-13.20
14	TLP-14	10	10	45.1	55.4	235	15.30
16	TLP-16	12	12	56.2	68.4	235	17.40
18	TLP-18	12	12	62.4	74.8	235	19.50
20	TLP-20	14	14	72.9	86.9	235	21.60
24	TLP-24	16	16	93.2	109.8	235	25.80

Suggested Specifications: ***Bold Italicized language applies to Ductile and PVC TUF Lock™***

Restraint glands shall be designed for use with and conform to the applicable requirements of ANSI / AWWA C111.A21.11. Restraint gland product identification shall have traceability. Restraint glands shall have a minimum safety factor of 2:1. Restraint glands shall employ a single tooth wedge design and utilize torque limiting nutsrequiring no more than 60 ft-lbs of torque to actuate wedges. Restraint devices shall accept out of round pipe. Restraint devices shall not utilize stops, shall have a bolt and threaded wedge that can not be removed prior to assembly. Mechanical Joint restraints shall be listed by Underwriters Laboratories in sizes 4"- 12", and have Factory Mutual approval in sizes 4" -12". Specialty tools will not be required for installation. Restraint glands shall be Tyler Union TUF Lock™ or approved equal.

Ductile TUF Lock™ will restrain pipe conforming to the requirements of ANSI/AWWA/C151/A21.51. Ductile Iron Pipe-gripping wedges shall be heat treated and hardened to a BHN range of 370-470.

PVC TUF Lock™ will restrain pipe manufactured to AWWA C900 / C905 and have working pressure ratings equal to the pressure rating of the pipe on which they are used. Restraint glands shall accommodate 3"- 12" IPS pipe without the removal of spacers or other modification of the device and conform to the requirements of ASTM 1674.

TYLER UNION®

MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

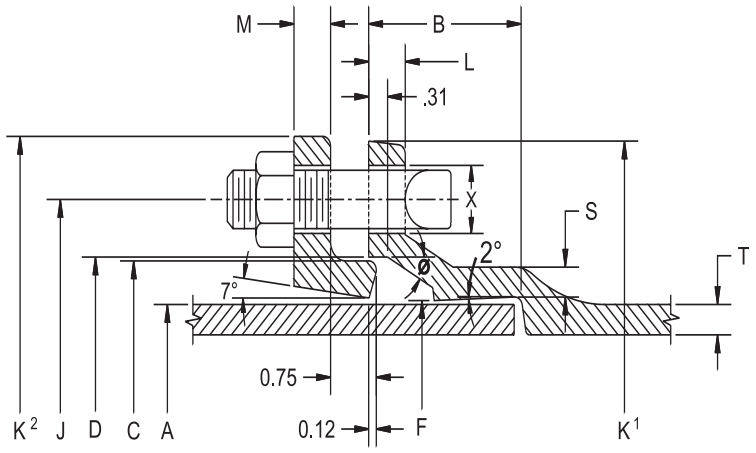
Sizes 3" thru 12" UL Listed For Fire Main Equipment

SAMPLE SPECIFICATIONS

Mechanical Joint watermain fittings with accessories, 3" through 48" shall be manufactured from Ductile Iron in accordance with and meet all applicable terms and provisions of standards ANSI/AWWA C153/A21.53 ANSI/AWWA C111/A21.11 (current revisions). Ductile Iron Mechanical Joint Fittings 3" through 24" shall be rated for 350 PSI working pressure. 30" through 48" shall be rated for 250 psi working pressure. Flanged ductile-iron fittings in 24-in. (610 mm) and smaller sizes may be rated for 350 psi (2,413 kPa) with the use of special gaskets. All coated fittings meet requirements of NSF-61.

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

NOTE: Fittings are CEMENT LINED and seal coated in accordance with ANSI/AWWA C104/A21.4; also available double cement-lined, bare or epoxy coated.



	JOINT DIMENSIONS IN INCHES													BOLTS	
Size	A Dia.	B	C Dia.	D Dia.	F Dia.	J Dia.	K^1 Dia.	K^2 Dia.	L	M	S	T	X	Size	No.
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	.58	.62	.39	.33	¾	⅝x3	4
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	.60	.75	.39	.34	⅞	¾x3½	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	.63	.88	.43	.36	⅞	¾x3½	6
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	.66	1.00	.45	.38	⅞	¾x3½	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	.70	1.00	.47	.40	⅞	¾x3½	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	.73	1.00	.49	.42	⅞	¾x3½	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.31	20.25	.79	1.25	.56	.47	⅞	¾x4	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.56	22.50	.85	1.31	.57	.50	⅞	¾x4	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	.68	.54	⅞	¾x4	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	.69	.57	⅞	¾x4	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	.75	.61	⅞	¾x4½	16
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	.82	.66	1⅛	1x5½	20
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	.74	1⅛	1x5½	24
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	.82	1⅜	1¼x6½	28
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	.90	1⅜	1¼x6½	32

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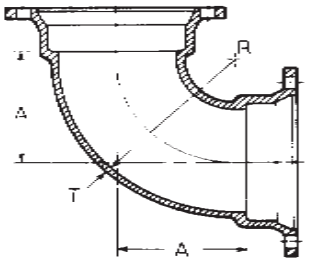
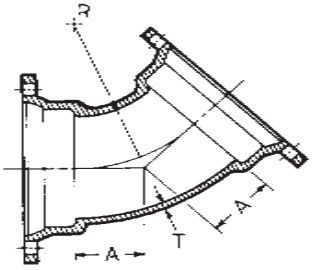
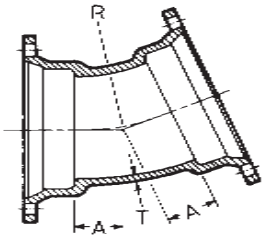
MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

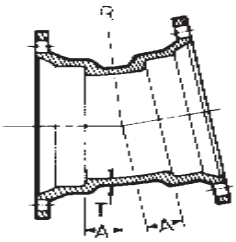
Sizes 3" thru 12" UL Listed For Fire Main Equipment

BENDS





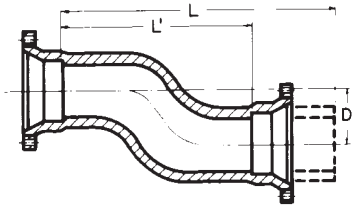




	90° Bends (1/4)				45° Bends (1/8)			22½° Bends (1/16)			11¼° (1/32)		
	Dimensions				Dimensions			Dimensions			Dimensions		
Size	T	A	R	Weight	A	R	Weight	A	R	Weight	A	R	Weight
3	.34	3.5	2.5	19	2.00	2.41	17	1.50	2.51	15	1.25	2.53	16
4	.35	4.0	3.0	26	2.50	3.56	22	1.75	3.81	20	1.50	5.12	20
6	.37	6.5	6.0	49	3.50	7.25	39	2.25	6.35	31	1.50	5.12	29
8	.39	7.5	7.0	64	4.00	8.44	56	2.85	11.80	50	2.06	15.80	45
10	.41	9.5	9.0	102	5.01	10.88	78	3.35	14.35	66	2.32	18.36	59
12	.43	10.5	10.0	129	5.98	13.25	102	3.86	16.90	87	2.56	20.90	82
14	.51	12.0	11.5	214	5.50	12.06	155	3.93	17.25	142	2.59	21.25	136
16	.52	13.0	12.5	273	5.98	13.25	204	3.98	17.50	178	2.62	21.50	157
18	.59	15.5	14.0	411	6.50	12.36	292	7.50	30.19	286	3.00	60.84	283
20	.60	17.0	15.5	519	7.00	13.59	372	8.50	35.19	376	3.50	71.07	374
24	.62	17.0	15.5	721	7.50	14.89	490	9.00	37.69	512	3.50	76.12	487
30	.66	21.50	19.0	930	10.50	9.31	716	6.75	21.36	665	4.75	22.84	600
36	.74	24.50	22.0	1450	11.50	21.73	1110	7.75	26.39	960	5.00	25.38	820
42	.82	29.25	26.7	2205	14.00	27.76	1610	9.00	32.68	1350	6.00	35.54	1180
48	.90	33.25	30.75	2990	15.00	30.17	2090	10.00	27.70	1760	6.50	40.61	1475

*OFFSETS

	MJ x MJ			MJ x PE	
		Dimensions		Weights	
Size	D	L[1]	L	MJxMJ	MJxPE
4	6	10	--	45	--
4	12	16	--	55	--
4	18	22	--	65	--
4	24	28	--	75	--
6	6	12	17.5	41	54
6	12	18	--	65	--
6	18	24	--	75	--
6	24	30	--	85	--
8	6	13	--	84	--
8	12	19	--	90	--
8	18	25	--	100	--



* Not included in AWWA C153.

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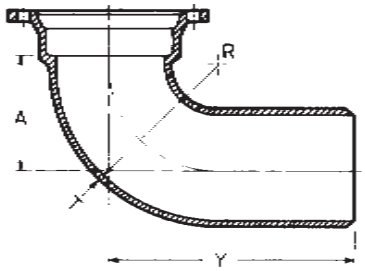
MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

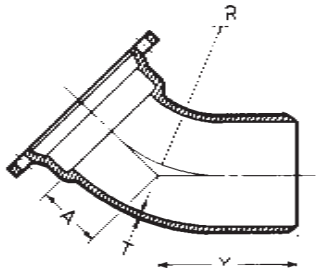
Sizes 3" thru 12" UL Listed For Fire Main Equipment

BENDS



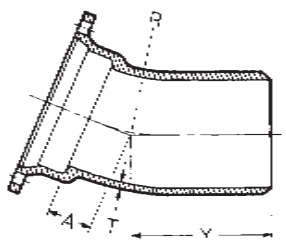
90° Bend MJ x PE (1/4)

Size	Dimensions T	A	Y	R	Weight
3	.34	3.5	9.0	2.5	18
4	.35	4.0	9.5	3.0	26
6	.37	6.0	11.5	5.0	45
8	.39	7.5	13.0	7.0	64
10	.41	9.5	15.0	9.0	108
12	.43	9.0	14.4	6.0	114
14	.51	12.0	20.0	11.5	219
16	.52	13.0	21.0	12.5	254
24	.62	17.0	25.0	15.5	710
30	.68	21.5	30.5	--	865



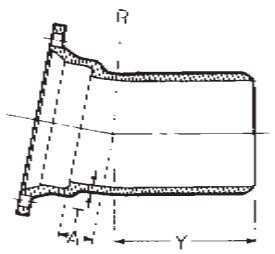
45° Bend MJ x PE (1/8)

Size	Dimensions A	Y	R	Weight
3	2.0	7.5	2.41	17
4	2.5	8.0	3.56	22
6	3.2	8.7	5.49	38
8	4.0	9.5	8.44	55
10	5.0	10.5	10.88	78
12	6.0	11.5	13.25	104
14	5.5	13.4	10.85	165
16	6.0	14.0	13.25	206
24	7.5	16.6	14.69	460
30	10.5	19.5	--	715



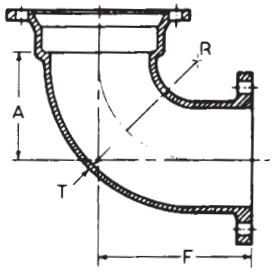
22½° Bend MJ x PE (1/16)

Size	Dimensions A	Y	R	Weight
3	1.50	7.00	2.51	19
4	1.75	7.25	3.81	20
6	2.25	7.75	6.35	33
8	2.84	8.34	11.80	51
10	3.35	8.85	14.35	66
12	3.50	9.00	12.70	89
14	3.93	11.93	17.25	152
16	3.98	11.98	17.50	181
24	9.00	17.66	37.69	455
30	6.75	15.75	--	600



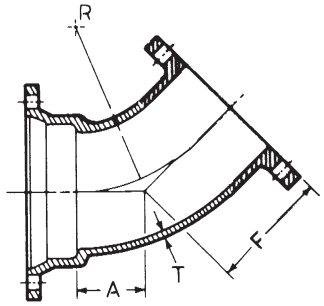
11¼° Bend MJ x PE (1/32)

Size	Dimensions A	Y	R	Weight
3	1.25	6.75	7.62	15
4	1.50	7.00	5.12	20
6	1.50	7.00	5.12	32
8	2.05	7.55	15.80	44
10	2.31	7.81	18.36	60
12	2.56	8.06	20.90	79
14	2.59	10.59	21.25	137
16	2.62	10.62	21.50	161
24	9.00	26.12	12.00	475
30	--	--	--	--



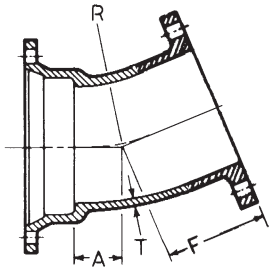
90° Bend MJ x Flange
(1/4)

Size	Dimensions T	A	R	F	Weight
3	.34	3.5	2.5	5.5	21
4	.35	4.0	3.0	6.5	28
6	.37	6.0	5.0	8.0	45
8	.39	7.5	7.0	9.0	73
10	.41	9.5	9.0	11.0	113
12	.43	10.5	10.0	12.0	141
14	.51	12.0	11.5	14.0	217
16	.52	13.0	12.5	15.0	280



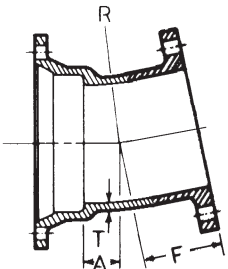
45° Bend MJ x Flange
(1/8)

Size	Dimensions A	R	F	Weight
3	...	...	..	..
4	2.50	3.56	4.0	34
6	3.25	5.49	5.0	57
8	4.25	7.93	5.5	83
10	5.00	9.76	6.5	122
12	6.00	12.19	7.5	159
14	5.50	10.85	8.5	207
16	6.00	12.02	9.5	290



22½° Bend MJ x Flange
(1/16)

Size	Dimensions A	R	F	Weight
3	...	...	..	..
4	1.75	3.81	4.0	34
6	2.25	5.35	5.0	57
8	2.50	7.62	5.5	83
10	3.00	10.16	6.5	122
12	3.50	12.70	7.5	159



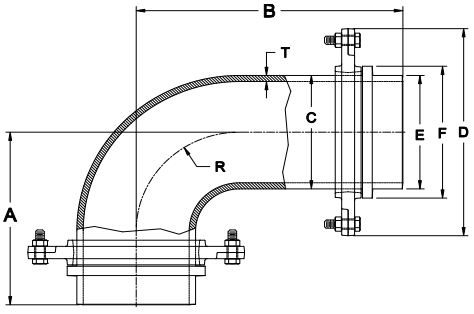
11¼° Bend MJ x Flange
(1/32)

Size	Dimensions A	R	F	Weight
3	...	...	..	..
4	1.50	5.12	4.0	19
6	1.50	5.12	5.0	30
8	1.75	7.70	5.5	50
10	2.00	10.25	6.5	75
12	2.25	12.82	7.5	88

90° Swivel x Swivel Hydrant Ell

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

* Weight includes two swivel glands.



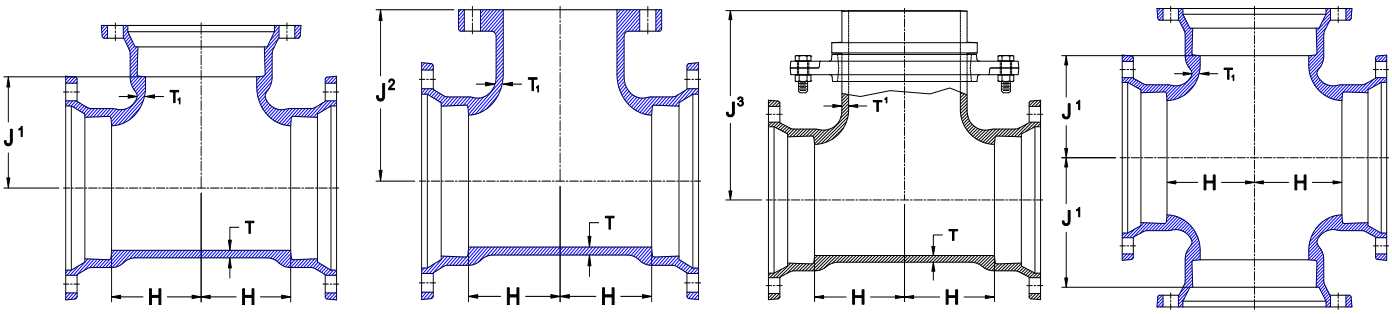
TYLER UNION®

MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

Sizes 3" thru 12" UL Listed For Fire Main Equipment

TEES

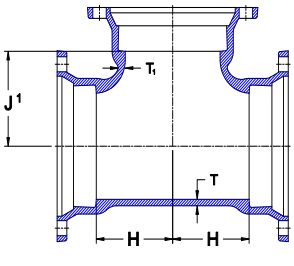
CROSS



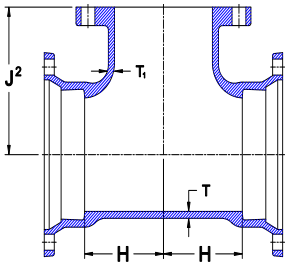
	MJ Tee			MJ x FE Tee		MJ x Swivel Tee				Cross
				Dimensions				Weights		
Size	T	T[1]	H	J[1]	J[2]	J[3]	MJ	MJxFE	†MJxS	Cross
3	.34	.34	3.5	3.50	5.5	...	26	29	...	31
4x3	.35	.34	3.5	4.00	6.5	...	35	34	...	39
4	.35	.35	4.0	4.00	6.5	...	36	39	...	45
6x3	.37	.34	4.0	4.00	6.5	...	51	54	...	...
6x4	.37	.35	4.0	5.00	8.0	...	52	57	...	62
6	.37	.37	5.0	5.00	8.0	10.50	66	68	77	79
8x3	.39	.34	4.0	6.50	9.0	...	56	...	...	...
8x4	.39	.35	4.5	6.50	9.0	...	72	82	...	84
8x6	.39	.37	5.5	6.50	9.0	11.50	79	81	105	98
8	.39	.39	6.5	6.50	9.0	11.50	90	101	116	112
10x3	.41	.34	4.0	7.50	11.0	...	80	...	...	...
10x4	.41	.35	4.5	7.50	11.0	...	82	92	...	98
10x6	.41	.37	5.5	7.50	11.0	13.00	99	116	114	121
10x8	.41	.39	6.5	7.50	11.0	13.00	116	128	138	135
10	.41	.41	7.5	7.50	11.0	...	132	144	...	156
12x3	.43	.34	4.0	8.75	12.0	...	99	...	...	...
12x4	.43	.35	4.5	8.75	12.0	...	108	118	...	119
12x6	.43	.37	5.5	8.75	12.0	14.25	119	133	132	138
12x8	.43	.39	6.5	8.75	12.0	14.25	126	146	149	149
12x10	.43	.41	7.5	8.75	12.0	...	159	174	...	187
12	.43	.43	8.75	8.75	12.0	...	171	198	...	202
14x6	.51	.44	6.5	10.50	14.0	16.00	183	205	211	210
14x8	.51	.45	7.5	10.50	14.0	...	211	...	...	231
14x10	.51	.46	8.5	10.50	14.0	...	229	244	...	255
14x12	.51	.47	9.5	10.50	14.0	...	245	284	...	269
14	.51	.51	10.5	10.50	14.0	...	281	291	...	299
16x6	.52	.45	6.5	11.50	15.0	17.00	222	230	243	250
16x8	.52	.46	7.5	11.50	15.0	...	245	248	...	264
16x10	.52	.47	8.5	11.50	15.0	...	265	287	...	286
16x12	.52	.48	9.5	11.50	15.0	...	277	312	...	312
16x14	.52	.51	10.5	11.50	15.0	...	317	348	...	...
16	.52	.52	11.5	11.50	15.0	...	337	324	...	457
30	.66	.66	22.0	22.00	...	...	...	...	...	1840
36	.74	.74	26.0	26.0	...	...	...	...	...	2655

† Weights include swivel gland

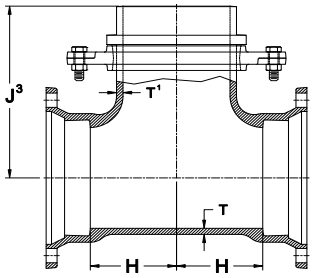
TEES (Continued)



MJ Tee



MJ x FE Tee



MJ x Swivel Tee

Size	Dimensions T	T1	H	J1	J2	J3	MJ	Weights MJxFE	†MJxS
18x6	.59	.44	6.5	14.5	15.5	18.0	275	261	279
18x8	.59	.45	7.5	14.5	14.5	...	280	351	...
18x10	.59	.47	8.5	12.5	...	...	286	...	...
18x12	.59	.49	9.5	12.5	...	...	372	...	...
18x14	.59	.56	10.5	12.5	...	...	415	...	...
18x16	.59	.57	11.5	12.5	...	...	445	...	...
18	.59	.59	13.0	12.5	...	...	490	...	...
20x6	.60	.44	7.0	16.0	17.0	19.5	335	362	358
20x8	.60	.45	8.0	14.0	...	...	390	...	...
20x10	.60	.47	9.0	14.0	...	...	417	...	...
20x12	.60	.49	10.0	14.0	...	...	460	...	...
20x14	.60	.56	11.0	14.0	...	...	475	...	...
20x16	.60	.57	12.0	14.0	...	...	530	...	...
20x18	.60	.59	13.0	14.0	...	...	560	...	...
20	.60	.60	14.0	14.0	...	...	605	...	...
24x6	.62	.44	7.0	18.0	19.0	21.5	465	451	457
24x8	.62	.45	8.0	16.0	...	...	475	...	...
24x10	.62	.47	9.0	16.0	...	...	516	...	...
24x12	.62	.49	10.0	18.0	...	...	549	580	...
24x14	.62	.56	11.0	16.0	...	...	585	...	...
24x16	.62	.57	12.0	19.5	...	...	625	744	...
24x18	.62	.59	13.0	16.0	...	...	675	...	...
24x20	.62	.60	15.0	17.0	...	...	740	...	...
24	.62	.62	17.0	17.0	...	...	844	...	...
30x6	.66	.36	7.00	20.0	...	...	700	...	...
30x8	.66	.38	8.50	20.0	...	...	739	...	...
30x12	.66	.42	10.0	20.0	...	...	739	...	...
30x16	.66	.50	12.5	20.0	...	...	959	...	...
30x20	.66	.57	15.0	20.0	...	...	995	...	...
30x24	.66	.61	16.0	20.0	...	...	1160	...	...
30	.66	.66	20.0	20.0	...	...	1323	...	...
36x16	.74	.50	12.5	23.5	...	...	1350	...	...
36x24	.74	.61	16.0	23.5	...	...	1498	...	...
36x30	.74	.66	20.0	23.5	...	...	1555	...	...
36	.74	.74	23.5	23.5	...	...	1900	...	...
42	.82	.82	30.0	30.0	...	...	3175	...	...

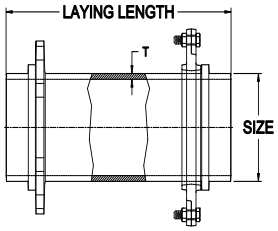
† Weights include swivel gland.

MJ GLANDS

Glands

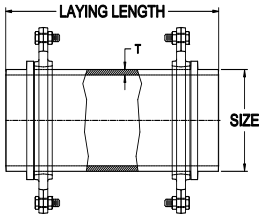
Size	Weight	Size	Weight
3	3	12	10
4	4	14	17
6	5	16	21
8	6	18	22
10	9	20	32
		24	37

Swivel Glands, page 19-20
Retainer Glands, page 7



Swivel x Solid Adapter with Swivel Gland

Size by Laying Length	Wall Thickness	Weight
6x13	.37	52
6x18	.37	65
6x24	.37	69
8x12	.39	52



Swivel x Swivel Adapter

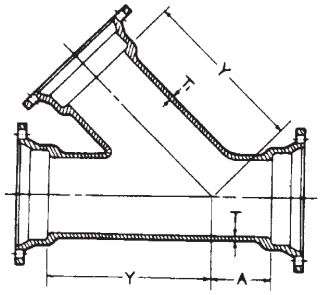
Size by Laying Length	Wall Thickness	Weight
6x12	.37	28
6x18	.37	49
6x24	.37	52

MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

Sizes 3" thru 12" UL Listed For Fire Main Equipment

TYLER UNION®

WYES/LATERAL



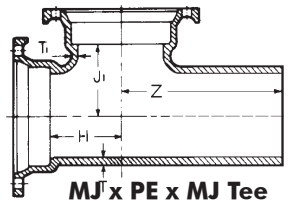
***Wyes**

Size	Dimensions A	Y	T	T1	Weights
3	2.5	7.5	.34	.34	36
4x3	2.0	8.5	.35	.34	39
4	2.5	8.5	.35	.35	45
6x4	1.5	11.0	.37	.35	67
6	3.0	13.0	.37	.37	85
8x4	0.5	13.0	.39	.35	86
8x6	2.0	14.5	.39	.37	109
8	3.5	16.0	.39	.39	117
10x4	0.0	15.0	.41	.35	112
10x6	1.0	16.0	.41	.37	129
10x8	2.5	17.0	.41	.39	162
10	3.5	19.0	.41	.41	199
12x4	0.0	16.5	.43	.35	141
12x6	1.5	18.5	.43	.37	170
12x8	1.5	18.5	.43	.39	177
12x10	3.0	20.0	.43	.41	216
12	4.5	22.5	.43	.43	269
†14	6.0	25.0	.51	.51	476
16x6	0.0	21.0	.52	.45	300
16x8	0.5	22.5	.52	.46	349
†16x12	3.5	25.0	.52	.48	471
†16	6.5	28.0	.52	.52	635

* Not included in AWWA C153.

† Rated at 250 psi.

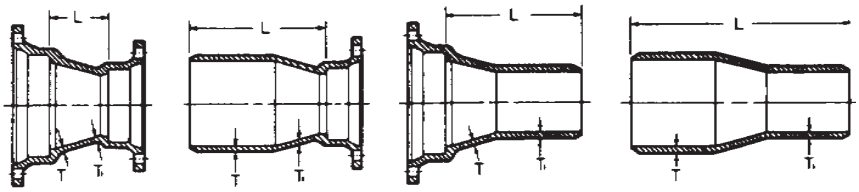
MJ x FE Flange Dimensions are on inside front cover.



MJ x PE x MJ Tee

Size	Dimensions T	T1	H	J1	Z	Weights
6	.37	.37	5.0	5.0	11.5	57
8x6	.39	.37	5.5	6.5	11.5	79
8	.39	.39	6.5	6.5	12.5	83
10	.41	.41	7.5	7.5	13.0	133

REDUCERS



MJ x MJ | **MJSEBxPE** | **MJLEBxPE** | **PE x PE**

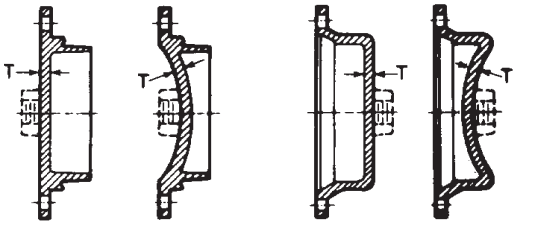
Size	Dimensions T	T1	MJ L	SEB L	LEB L	PE L	Weights MJ	SEB	LEB	PE
4x3	.35	.34	3.0	8.5	8.5	14.0	18	17	17	18
6x3	.37	.34	5.0	10.5	10.5	16.0	28	25	27	20
6x4	.37	.35	4.0	9.5	9.5	15.0	28	26	27	26
8x4	.39	.35	5.0	10.5	10.5	16.0	36	34	36	33
8x6	.39	.37	4.0	9.5	9.5	15.0	39	38	39	30
10x4	.41	.35	7.0	12.5	12.5	18.0	53	46	51	...
10x6	.41	.37	5.0	10.5	10.5	16.0	59	48	52	49
10x8	.41	.39	4.0	9.5	9.5	15.0	54	52	52	47
12x4	.43	.35	9.0	14.5	14.5	20.0	67	61	68	60
12x6	.43	.37	7.0	12.5	12.5	18.0	64	58	66	54
12x8	.43	.39	5.0	10.5	10.5	16.0	57	62	65	60
12x10	.43	.41	4.0	9.5	9.5	15.0	63	61	65	57
14x6	.51	.44	9.0	17.0	14.5	22.5	104	107	112	...
14x8	.51	.45	7.0	15.0	12.5	20.5	104	107	108	...
14x10	.51	.46	5.0	13.0	10.5	18.5	100	102	100	...
14x12	.51	.47	4.0	12.0	9.5	17.5	100	101	100	100
16x6	.52	.45	11.0	19.0	16.5	24.5	132	131	141	128
16x8	.52	.46	9.0	17.0	14.5	22.5	136	128	136	136
16x10	.52	.47	7.0	15.0	12.5	20.5	128	124	128	123
16x12	.52	.48	5.0	13.0	10.5	18.5	120	123	119	113
16x14	.52	.51	4.0	12.0	12.0	20.0	140	139	138	133
18x8	.59	.45	14.0	22.0	19.5	27.5	201	180	195	...
18x10	.59	.47	12.0	20.0	17.5	25.5	196	180	185	...
18x12	.59	.49	10.0	18.0	15.5	23.5	175	170	190	...
18x14	.59	.56	8.0	16.0	16.0	24.0	180	181	200	...
18x16	.59	.57	7.0	15.0	15.0	23.0	194	180	190	...
20x10	.60	.47	14.0	22.0	19.4	27.5	225	210	210	...
20x12	.60	.49	12.0	20.0	17.5	25.5	214	208	210	...
20x14	.60	.56	10.0	18.0	17.8	26.0	208	198	205	...
20x16	.60	.57	8.0	16.0	15.8	24.0	225	215	222	...
20x18	.60	.59	7.0	15.0	15.0	23.0	233	220	...	...
24x12	.62	.49	16.0	24.0	21.4	29.5	320	302	300	...
24x14	.62	.56	14.0	22.0	21.8	30.0	314	325	322	...
24x16	.62	.57	12.0	20.0	19.8	28.0	325	319	340	...
24x18	.62	.59	10.0	18.0	18.0	26.0	325	310	...	...
24x20	.62	.60	8.0	16.0	16.0	24.0	315	305	...	...
30x16	.66	.50	30.0	39.0	...	...	475	565	...	...
30x18	.66	.54	28.0	37.0	...	...	495	590	...	...
30x20	.66	.57	24.0	33.0	...	...	525	560	...	...
30x24	.66	.61	10.0	24.5	...	...	478	495	...	...
36x16	.74	.50	...	...	...	...	...	890	...	,,,
36x20	.74	.57	...	45.0	...	...	...	874	...	...
36x24	.74	.61	19.0	33.0	...	...	770	746	...	...
36x30	.74	.66	...	24.5	...	...	...	725	...	...
42x30	.82	.66	20.0	...	...	...	1185	...	...	...
48x30	.90	.66	40.0	...	...	...	1505	...	...	...

TYLER UNION®

MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

Sizes 3" thru 12" UL Listed For Fire Main Equipment

SOLID & TAPPED PLUGS & CAPS



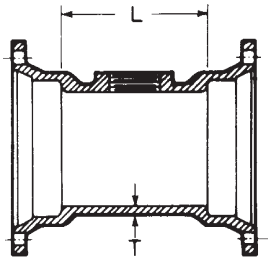
3"-12" 14"-24" 3"-12" 14"-24"

MJ Plug **MJ Cap**

Size	Dimensions T	Max. Tap	Weights Plugs	Caps
3	.46	2	9	8
4	.46	2	9	10
6	.46	2	18	18
8	.46	2	25	26
10	.56	2	36	32
12	.56	2	47	46
14	.62	2	76	85
16	.62	2	98	94
18	.65	2	138	121
20	.66	2	158	149
24	.68	2	223	210
30	.66	2	355	345
36	.74	2	688	626

TAPPED TEE

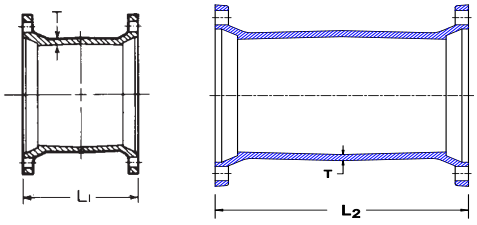
MJ x FE Flange Dimensions are on inside front cover.



MJ Tapped Tee (2" Tap)

Size	Dimensions T	L	Max. Tap	Weights
3	.34	6	2	19
4	.35	6	2	23
6	.37	6	2	35
8	.39	6	2	54
10	.41	6	2	68
12	.43	6	2	88
16	.52	6	2	164

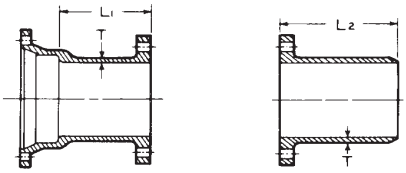
SOLID SLEEVES



Short **Long**

Size	Dimensions T	L^1	L^2	Weights Short	Long
3	.34	7.5	12	13	22
4	.35	7.5	12	19	25
6	.37	7.5	12	28	39
8	.39	7.5	12	38	55
10	.41	7.5	12	48	68
12	.43	7.5	12	62	81
14	.56	9.5	15	116	146
16	.57	9.5	15	138	174
18	.68	9.5	15	160	230
20	.69	9.5	15	212	269
24	.75	9.5	15	272	380
30	.66	15.0	15	500	...
30	.66	...	24	...	640
36	.74	15.0	15	725	...
36	.74	...	24	...	925
42	.82	...	24	...	1146
48	.90	...	24	...	1455

ADAPTERS



MJ x FE **FE x PE**

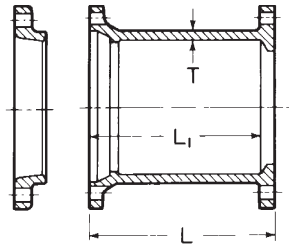
Size	Dimensions T	L^1	L^2	Weights MJxFE	FExPE
3	.34	6	12	18	...
4	.35	6	12	26	23
6	.37	6	12	36	35
8	.39	6	12	50	50
10	.41	6	12	60	69
12	.43	6	12	88	88
14	.51	6	12	127	...
16	.52	6	12	155	149
20	.60	6	...	275	...
30	.66	7	...	470	...
36	.74	8	...	750	...

TYLER UNION®

MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS

Sizes 3" thru 12" UL Listed For Fire Main Equipment

DUAL PURPOSE CUTTING-IN SLEEVE



MJ x FE

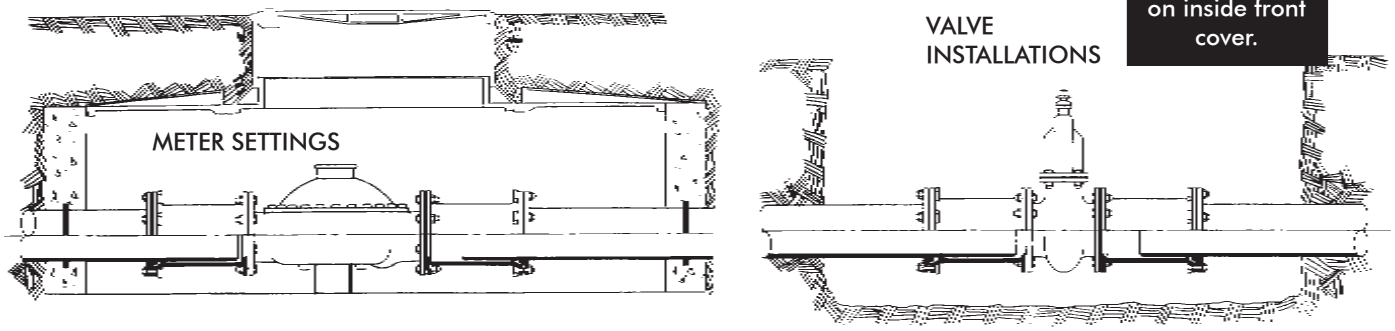
Cutting-In Sleeve with Dual Purpose Accessories

Size	For Pipe Size	Dimensions L	L[1]	T	Shipping Wt. Assembled
4	4.80-5.00 O.D.	10	9.5	.35	33
6	6.90-7.10 O.D.	10	9.5	.37	50
8	9.05-9.30 O.D.	10	9.5	.39	67
10	11.10-11.40 O.D.	10	9.5	.41	122
12	13.20-13.50 O.D.	10	9.5	.43	157

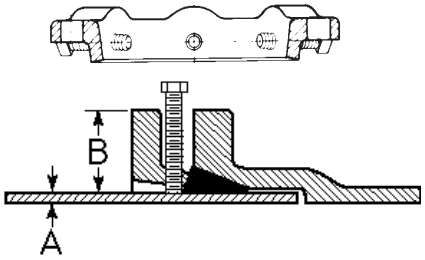
Flanged ends are faced and drilled per ANSI/AWWA C110/A21.10. Mechanical joint ends are designed to receive both standard and oversize gray or ductile iron pipe as shown above.

TYPICAL CUTTING-IN SLEEVE INSTALLATIONS

MJ x FE Flange Dimensions are on inside front cover.



*RETAINER GLAND ASSEMBLY



See Installations Instructions..... Page 50

Size	Pressure Rating, psi	Gland O.D. B	Pipe O.D. O.D. A	D.I. Pipe Wall Class	No of Set Screws	Size of Set Screws	Gland Weight	Weight w/Acces.
3	350	7.69	3.96	50-56	4	⅝x2	5	7
4	350	9.12	4.80	50-56	4	⅝x2	6	13
6	350	11.12	6.90	50-56	6	⅝x2	11	20
8	250	13.37	9.05	50-56	9	⅝x2	13	25
10	250	15.62	11.10	50-56	12	⅝x2	18	33
12	150	17.88	13.20	50-56	16	⅝x2	23	38
14	250	20.25	15.30	53-56	20	⅝x2½	44	55
16	200	22.50	17.40	53-56	24	⅝x2½	51	64
18	200	24.75	19.50	53-56	24	⅝x2½	62	72
20	200	27.00	21.60	53-56	28	⅝x3	73	91
24	150	31.50	25.80	53-56	32	⅝x3	93	118

* Not included in AWWA C110

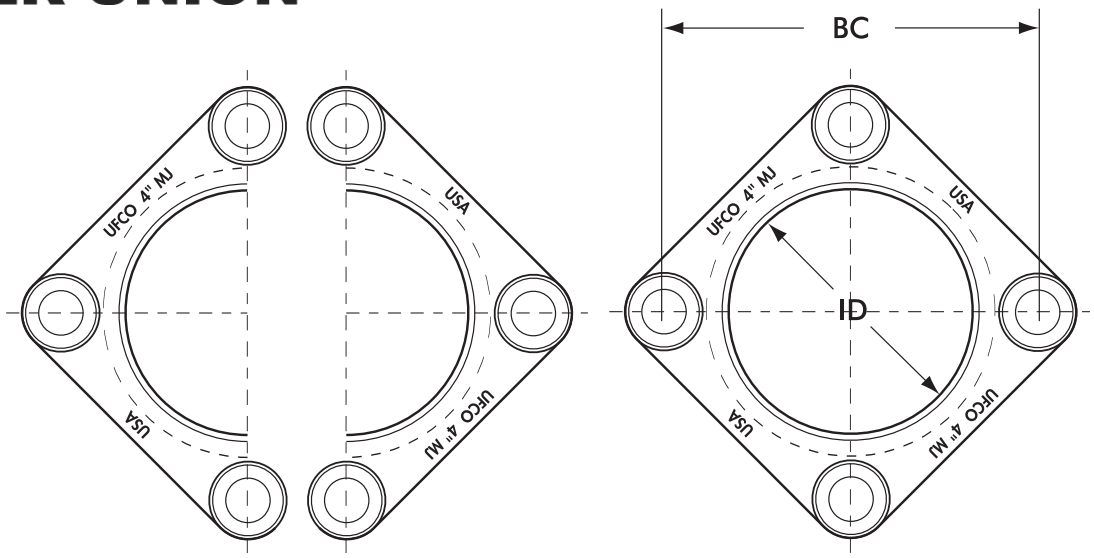
Pipe Wall Thickness:
Sizes 3"-12" are recommended for ductile iron pipe class 50 thru 56. Sizes 14" thru 24" are recommended for ductile iron pipe class 53 thru 56.

DUCTILE IRON RETAINER GLANDS

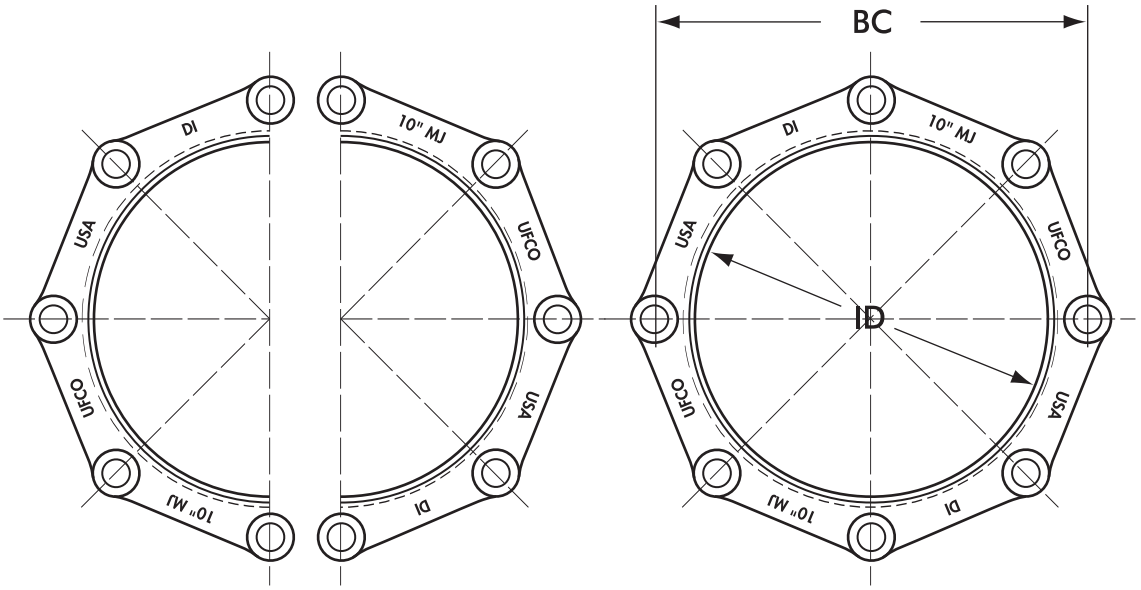
Mechanical Joint Retainer Glands are designed to provide a method for restraining mechanical joint pipe and fittings and other standardized mechanical joints against possible joint separation, rupture or blow-out caused by internal water pressure.

The set screws are square-headed with Type C knurled cup points, and are shipped already assembled in the Glands. They are manufactured of 4140 grade alloy steel, and are heat treated to a Rockwall "C" 45/53 case hardness. Tee-head bolts and gaskets are not included, but may be ordered separately. Recommended torque for set screws is 75 foot pounds, and set screws on opposite sides of the glands should be tightened alternately.

Tee-head bolt hole size and spacing are equal to MJ Glands as shown in AWWA C-111. Standard mechanical Joint gaskets as shown in C-111 should be used.



4" Size



6"-8"-10"-12" Sizes

MJ Compact Split Repair Glands

Size	Inside Diameter (+.07-.03)	Bolt Circle (+-.06)	Weight Lbs.
4	4.90	7.50	4.0
6	7.00	9.50	5.0
8	9.15	11.75	6.0
10	11.20	14.00	7.7
12	13.50	16.25	10.2

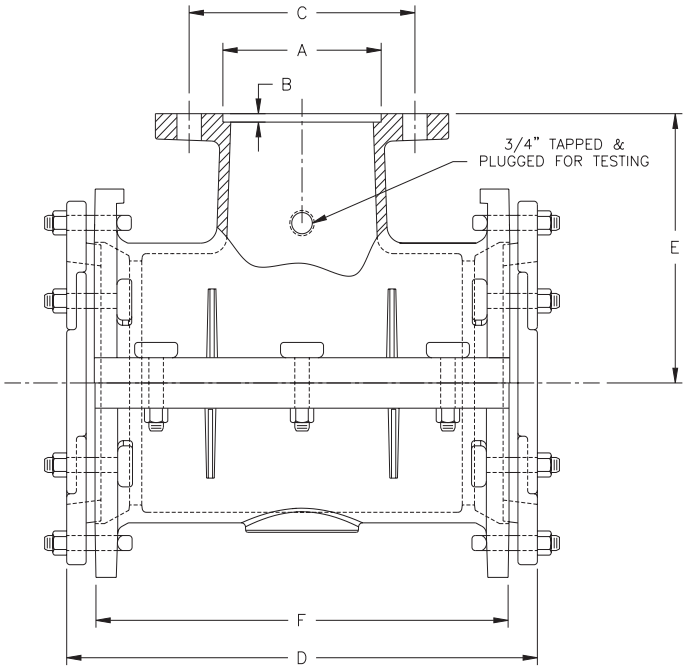
Split glands work with standard MJ gaskets and standard T-head bolts. Glands are shipped in halves and do not need separate bolts. T-head bolts alone hold the halves together.

TYLER UNION®

COMPACT
DUCTILE IRON MJ TAPPING SLEEVES

SAMPLE SPECIFICATION
Ductile Iron Mechanical Joint Tapping Sleeves furnished by Tyler Pipe Company, Tyler, Texas are produced in accordance with manufacturer's standards. Chemical and physical properties of the ductile iron are in accordance with the requirements of ANSI/AWWA C110/A21.10-82.
Recess dimensions are per Manufacturer's Standardization Society standard practice SP-60.

General Installation Instructions for Tyler MJ Tapping Sleeves
1. Clean pipe - insert side gasket into back half of gasket grooves. Make sure ends are flush with or slightly protrude into the end gasket seating area.
2. Bolt sleeve halves together and trim side gaskets as necessary. MAKE SURE SLEEVE WILL ROTATE FREELY ON PIPE.
3. Install end gaskets, locating cut ends 90° from side gasket. If pipe is maximum OD, stretch gasket to make certain cut ends match with no gap in between.
4. Install glands and bolts - rotate sleeve to desired position. Be sure pipe is centered inside the sleeve.
5. Tighten gland bolts alternately, using 80 to 90 foot pounds.
6. After assembly, PRESSURE TEST ALL JOINTS BEFORE TAPPING. If additional tightening is required, release pressure and relax tension on gland bolts before tightening side bolts.



For Cast Iron or Ductile Iron Pipe
Mechanical joint tapping sleeves - for 6" through 12" cast iron or ductile iron pipe.
- Outlet flange per ANSI/AWWA C110/A21.10
- Gaskets furnished.
- Working pressure-200 p.s.i.

Tapping Sleeve for Cast Iron/Ductile Iron

Size	Dimensions A	B	C	D	E	F	O.D. Range DI Min.	O.D. Range DI Max.	Weight DI
6x4	5.016	.250	7.50	15.75	8.00	12.75	6.85	7.15	104
6	7.016	.312	9.50	15.75	8.00	12.75	6.85	7.15	108
8x4	5.016	.250	7.50	16.50	9.00	13.50	9.00	9.35	134
8x6	7.016	.312	9.50	16.50	9.00	13.50	9.00	9.35	140
8	9.016	.312	11.75	16.50	9.00	13.50	9.00	9.35	148
10x4	5.016	.250	7.50	24.00	11.00	20.75	11.04	11.45	236
10x6	7.016	.312	9.50	24.00	11.00	20.75	11.04	11.45	240
10x8	9.016	.312	11.75	24.00	11.00	20.75	11.04	11.45	246
10	11.016	.312	14.25	24.00	11.00	20.75	11.04	11.45	257
12x4	5.016	.250	7.50	26.50	12.00	23.25	13.14	13.56	273
12x6	7.016	.312	9.50	26.50	12.00	23.25	13.14	13.56	286
12x8	9.016	.312	11.75	26.50	12.00	23.25	13.14	13.56	292
12x10	11.016	.312	14.25	26.50	12.00	23.25	13.14	13.56	303
12	13.016	.312	17.00	26.50	12.00	23.25	13.14	13.56	320

SAMPLE SPECIFICATION

Mechanical Joint watermain fittings with accessories, 2" through 48" shall be produced of Ductile Iron in accordance with and meet all applicable terms and provisions of standards ANSI/AWWA C110/A21.10 ANSI/AWWA C111/A21.11 (current revisions). Ductile Iron Mechanical Joint Fittings 3" through 24" shall be rated for 350 PSI working pressure. All Ductile Iron Mechanical Joint Fittings 30" through 48" shall be rated for 250 PSI working pressure. Flanged ductile-iron fittings in 24-in. (610 mm) and smaller sizes may be rated for 350 psi (2,413 kPa) with the use of special gaskets.

NOTE - EXCEPTIONS: Mechanical Joint Fittings with flanged branches and 14" and larger caps and plugs are rated for water pressure of 250 PSI.

NOTE: Fittings are CEMENT-LINED and seal coated in accordance with ANSI/AWWA C104/A21.4; also available double cement-lined, bare or epoxy coated. All coated fittings meet requirements of NSF-61.

JOINT DIMENSIONS IN INCHES FOR MECHANICAL JOINT FITTINGS

DIMENSIONS IN INCHES

Size	A	B	C	D	F	⅓	X	J	K[1]	K[2]	L	M	N	O	P	S
*2	2.50	2.50	3.39	3.50	2.61	28°	¾	4.75	6.25	6.25	.75	.62	...	.31	.63	.44
3	3.96	2.50	4.84	4.94	4.06	28°	¾	6.19	7.69	7.69	.94	.62	1.37	.31	.63	.52
4	4.80	2.50	5.92	6.02	4.90	28°	⅞	7.50	9.12	9.12	1.00	.75	1.50	.31	.75	.65
6	6.90	2.50	8.02	8.12	7.00	28°	⅞	9.50	11.12	11.12	1.06	.88	1.63	.31	.75	.70
8	9.05	2.50	10.17	10.27	9.15	28°	⅞	11.75	13.37	13.37	1.12	1.00	1.75	.31	.75	.75
10	11.10	2.50	12.22	12.34	11.20	28°	⅞	14.00	15.69	15.62	1.19	1.00	1.75	.31	.75	.80
12	13.20	2.50	14.32	14.44	13.30	28°	⅞	16.25	17.94	17.88	1.25	1.00	1.75	.31	.75	.85
14	15.30	3.50	16.40	16.54	15.44	28°	⅞	18.75	20.31	20.25	1.31	1.25	2.00	.31	.75	.89
16	17.40	3.50	18.50	18.64	17.54	28°	⅞	21.00	22.56	22.50	1.38	1.31	2.06	.31	.75	.97
18	19.50	3.50	20.60	20.74	19.64	28°	⅞	23.25	24.83	24.75	1.44	1.38	2.13	.31	.75	1.05
20	21.60	3.50	22.70	22.84	21.74	28°	⅞	25.50	27.08	27.00	1.50	1.44	2.19	.31	.75	1.12
24	25.80	3.50	26.90	27.04	25.94	28°	⅞	30.00	31.58	31.50	1.62	1.56	2.31	.31	.75	1.22
30	32.00	4.00	33.29	33.46	32.17	20°	1⅛	36.88	39.12	39.12	1.81	2.00	2.75	.38	1.00	1.50
36	38.30	4.00	39.59	39.76	38.47	20°	1⅛	43.75	46.00	46.00	2.00	2.00	2.75	.38	1.00	1.80
42	44.50	4.00	45.79	45.96	44.67	20°	1⅜	50.62	53.12	53.12	2.00	2.00	2.75	.38	1.00	1.95
48	50.80	4.00	52.09	52.26	50.97	20°	1⅜	57.50	60.00	60.00	2.00	2.00	2.75	.38	1.00	2.20

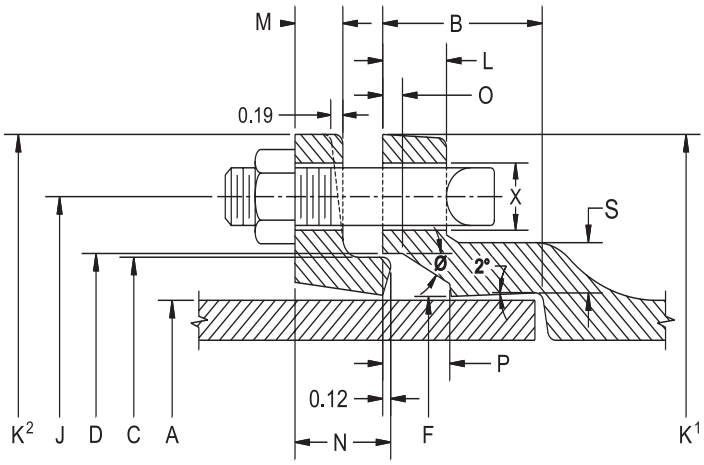
* Not included in AWWA C110.

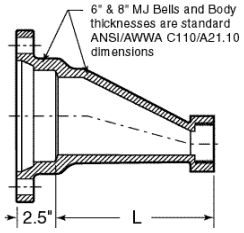
ACCESSORIES AND WEIGHTS

Size	No.	Bolt Size	Bolt Length	Bolt Torque Ft/Lbs.	Wt. of Gland, Bolts and Gasket, Lbs.	Pipe Barrel O.D.
*2	2	⅝	3	45-60	5	2.50
3	4	⅝	3	45-60	7	3.96
4	4	¾	3½	75-90	10	4.80
6	6	¾	4	75-90	16	6.90
8	6	¾	4	75-90	25	9.05
10	8	¾	4	75-90	30	11.10
12	8	¾	4	75-90	40	13.20
14	10	¾	4½	75-90	45	15.30
16	12	¾	4½	75-90	55	17.40
18	12	¾	4½	75-90	65	19.50
20	14	¾	4½	75-90	85	21.60
24	16	¾	5	75-90	105	25.80
30	20	1	6	100-120	220	32.00
36	24	1	6	100-120	301	38.30
42	28	1¼	6½	120-150	389	44.50
48	32	1¼	6½	120-150	477	50.80

* Not included in AWWA C110.

14" THRU 48"
GLANDS MAY
BE TAPERED

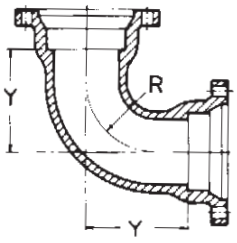




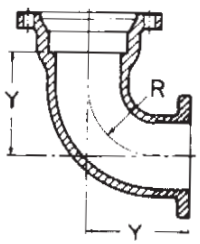
MJ x FIPT ECCENTRIC REDUCER

Size	Dimensions L	Weights
6x2	13	51
8x2	15	71

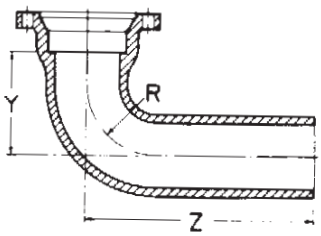
BENDS



90° MJ x MJ (1/4)



90° MJ x FE (1/4)



90° MJ x PE (1/4)

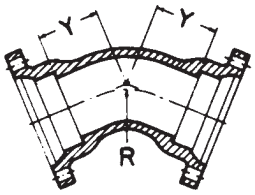
90° Bends (1/4)

Size	Dimensions R	Y	Z	Weights MJxMJ	MJxPE	MJxFE
*2	2.25	3.25	...	16	...	...
3	4.0	5.5	13.5	26	36	...
4	4.5	6.5	14.5	56	53	51
6	6.0	8.0	16.0	88	80	75
8	7.0	9.0	17.0	123	119	118
10	9.0	11.0	19.0	189	181	168
12	10.0	12.0	20.0	268	252	288
14	11.5	14.0	22.0	380	...	...
16	12.5	15.0	23.0	552	470	465
18	14.0	16.5	24.5	625	600	577
20	15.5	18.0	26.0	862	775	...
24	18.5	22.0	30.0	1423	1301	1150
30	21.5	25.0	33.0	1942	1920	...
36	24.5	28.0	36.0	2629	2310	...
42	27.5	31.0		3410	...	...
48	30.5	34.0		4595	...	...

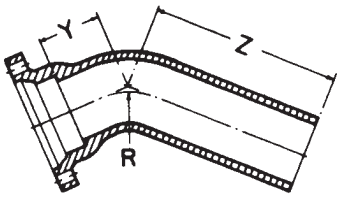
Mechanical Joint weights do not include Glands, Nuts, Bolts and Gaskets. See Joint Accessories.

For sizes not found in this section check MJ-SSB DI fittings, pages 1 thru 8.

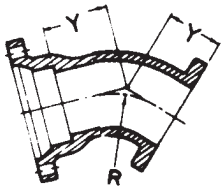
BENDS



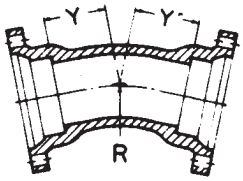
45° MJ (1/8)



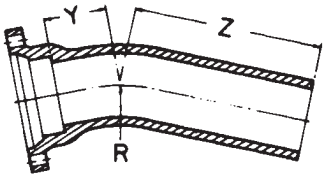
45° MJ x PE (1/8)



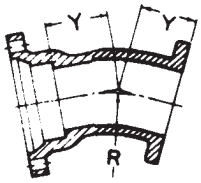
45° MJ x FE (1/8)



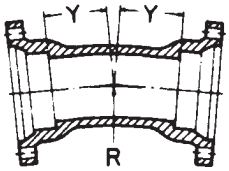
22½° MJ (1/16)



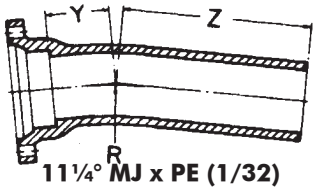
22½° MJ x PE (1/16)



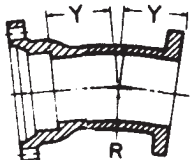
22½° MJ x FE (1/16)



11¼° MJ (1/32)



11¼° MJ x PE (1/32)



11¼° MJ x FE (1/32)

45° Bends (1/8)

	Dimensions				Weights	
Size	R	Y	Z	MJ	MJxFE*	MJxPE
*2	1.96	1.8	...	16	...	...
3	3.62	3.0	11.0	30	...	...
4	4.81	4.0	12.0	53	48	45
6	7.25	5.0	13.0	77	60	69
8	8.44	5.5	13.5	110	107	111
10	10.88	6.5	14.5	172	168	167
12	13.25	7.5	15.5	222	215	218
14	12.06	7.5	15.5	311	...	...
16	13.25	8.0	16.0	364	360	360
18	14.50	8.5	16.5	531	430	455
20	16.88	9.5	17.5	655	543	664
24	18.12	11.0	19.0	865	1099	825
30	27.75	15.0	23.0	1447	...	1510
36	35.00	18.0	26.0	2435	...	1930
42	42.25	21.0		2955	...	...
48	49.50	24.0		4080	...	...

* Not included in AWWA C110.

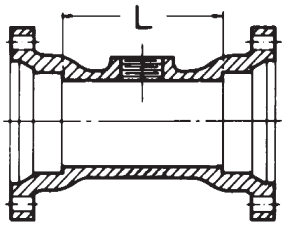
22½° Bends (1/16)

	Dimensions				Weights	
Size	R	Y	Z	MJ	MJxFE*	MJxPE
3	7.56	3.0	11.0	30	...	...
4	10.06	4.0	12.0	52	...	...
6	15.06	5.0	13.0	77	71	70
8	17.62	5.5	13.5	110	107	109
10	22.62	6.5	14.5	156	155	163
12	27.62	7.5	15.5	221	215	224
14	25.12	7.5	15.5	300	...	...
16	27.62	8.0	16.0	391	315	365
18	30.19	8.5	16.5	527	422	455
20	35.19	9.5	17.5	611	...	575
24	37.69	11.0	19.0	986	800	930
30	57.81	15.0	23.0	1898	...	1540
36	72.88	18.0	26.0	2372	...	1970
42	88.00	21.0		3020	...	...
48	103.06	24.0		4170	...	...

11¼° Bends (1/32)

	Dimensions				Weights	
Size	R	Y	Z	MJ	MJxFE*	MJxPE
3	15.25	3.0	11.0	30	...	...
4	20.31	4.0	12.0	52	...	...
6	30.50	5.0	13.0	65	71	...
8	35.50	5.5	13.5	104	105	...
10	45.69	6.5	14.5	171	...	...
12	55.81	7.5	15.5	221	215	...
14	50.75	7.5	15.5	305	...	...
16	55.81	8.0	16.0	391	367	...
18	60.94	8.5	16.5	525	422	...
20	71.06	9.5	17.5	605	...	...
24	76.12	11.0	19.0	996	800	972
30	116.75	15.0	23.0	1410	...	1305
36	147.25	18.0	26.0	2397	...	2185
42	177.69	21.0		3035	...	...
48	208.12	24.0		4190	...	...

MJ TAPPED TEE

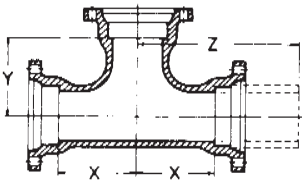


MJ Tapped Tee (2"Tap)

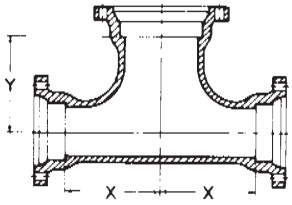
Dimensions			
Size	L	Max. Tap	Weights
3	8	2	40
4	8	2	51
6	8	2	73
8	8	2	104
10	8	2	130
12	8	2	180

For sizes not found in this section check MJ-SSB DI fittings, pages 1 thru 8.

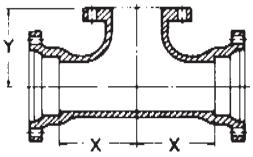
TEES



Straight Tees and Reducing on Branch Tees



Bullhead



MJxMJxFE

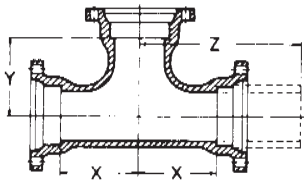
Size			Dimensions			Weights		
Run	Run	Branch	X	Y	Z	MJ	**MJxPExMJ	**MJxMJxFE
*2	2	2	3.25	3.25	...	21	...	...
*3	3	2	3.25	3.25	...	45	...	...
3	3	3	5.5	5.5	13.5	58	...	...
*4	4	2	4.8	4.8	14.5	68	...	49
4	4	3	6.5	6.5	14.5	77	...	...
4	4	4	6.5	6.5	14.5	78	75	76
4	4	6	8.0	8.0	...	112	...	...
*6	6	2	8.0	8.0	...	78	...	...
6	6	3	8.0	8.0	16.0	112	...	...
6	6	4	8.0	8.0	16.0	110	...	109
6	6	6	8.0	8.0	16.0	119	120	141
6	6	8	9.0	9.0	...	158	...	...
8	8	3	9.0	9.0	17.0	155	...	...
8	8	4	9.0	9.0	17.0	157	...	150
8	8	6	9.0	9.0	17.0	175	170	182
8	8	8	9.0	9.0	17.0	199	180	194
10	10	4	11.0	11.0	19.0	...	...	229
10	10	6	11.0	11.0	19.0	258	...	264
10	10	8	11.0	11.0	19.0	268	...	245
10	10	10	11.0	11.0	19.0	300	250	...
12	12	4	12.0	12.0	20.0	318	315	323
12	12	6	12.0	12.0	20.0	325	325	335
12	12	8	12.0	12.0	20.0	335	335	372
12	12	10	12.0	12.0	20.0	392	390	...
12	12	12	12.0	12.0	20.0	396	396	476
*16	16	4	15.0	15.0	...	600	...	575
16	16	6	15.0	15.0	...	656	...	605
16	16	8	15.0	15.0	...	625	...	615
16	16	10	15.0	15.0	...	645	...	...
16	16	12	15.0	15.0	...	715	...	651
16	16	16	15.0	15.0	...	780	...	730

* Not included in AWWA C110
** Made to order only. Not Returnable

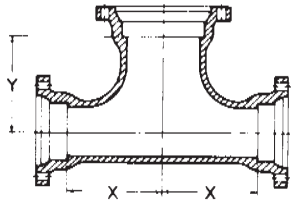
NOTICE: Weights published in this catalog are for shipping purposes only. Actual weights may vary because some fittings are produced in both foundries. All fittings meet the AWWA standards to which they are designed.

For weights of specific fittings, please contact Tyler Pipe or Union Foundry Company.

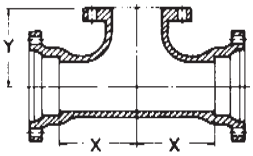
TEES (Con't)



Straight Tees and Reducing on Branch Tees



Bullhead



MJxMJxFE

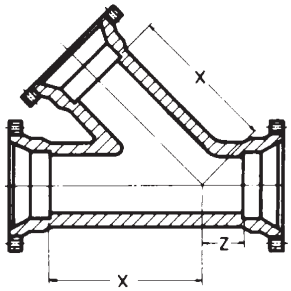
Size			Dimensions			Weights		
Run	Run	Branch	X	Y	Z	MJ	**MJxPExMJ	**MJxMJxFE
18	18	6	13.0	15.5	...	710	...	707
18	18	8	13.0	15.5	...	674	...	675
18	18	12	13.0	15.5	...	749	...	733
18	18	18	16.5	16.5	...	945	...	953
20	20	6	14.0	17.0	...	849	...	...
20	20	8	14.0	17.0	...	892	...	859
20	20	12	14.0	17.0	...	896	...	...
20	20	16	18.0	18.0	...	1095	...	...
20	20	20	18.0	18.0	...	1258	...	1168
24	24	6	15.0	19.0	...	1233	...	1228
24	24	8	15.0	19.0	...	1234	...	1242
24	24	12	15.0	19.0	...	1256	...	1165
24	24	14	15.0	19.0	...	1220	...	...
24	24	16	15.0	19.0	...	1245	...	...
24	24	18	22.0	22.0	...	1735	...	...
24	24	20	22.0	22.0	...	1720	...	...
24	24	24	22.0	22.0	...	1947	...	1795
30	30	6	18.0	23.0	...	2050	...	...
30	30	8	18.0	23.0	...	2060	...	...
30	30	10	18.0	23.0	...	2075	...	...
30	30	12	18.0	23.0	...	2090	....	...
30	30	16	18.0	23.0	...	2145	...	...
30	30	18	18.0	23.0	...	2170	...	...
30	30	20	18.0	23.0	...	2205	...	...
30	30	24	25.0	25.0	...	2880	...	...
30	30	30	25.0	25.0	...	2275	...	3080
36	36	6	20.0	26.0	...	2439	...	2430
36	36	8	20.0	26.0	...	2444	...	...
36	36	10	20.0	26.0	...	2535	...	...
36	36	12	20.0	26.0	...	2541	...	2550
36	36	14	20.0	26.0	...	2570	...	...
36	36	16	20.0	26.0	...	2585	...	2450
36	36	18	20.0	26.0	...	2610	...	...
36	36	20	20.0	26.0	...	2635	...	...
36	36	24	20.0	26.0	...	2792	...	2660
36	36	30	28.0	28.0	...	3545	...	...
36	36	36	28.0	28.0	...	3450	...	...
42	24	42	23.0	30.0	...	3690	...	...
42	30	42	31.0	31.0	...	4650	...	...
42	36	42	31.0	31.0	...	4880	...	...
42	42	42	31.0	31.0	...	6320	...	...
48	24	48	26.0	34.0	...	4995	...	...
48	30	48	26.0	34.0	...	5140	...	...
48	36	48	34.0	34.0	...	6280	...	...
48	42	48	34.0	34.0	...	8130	...	...
48	48	48	34.0	34.0	...	8420	...	...

* Not included in AWWA C110

** Made to order only. Not Returnable

WYES/LATERAL

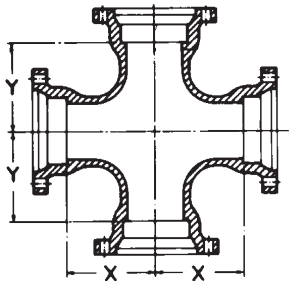
(Not included in AWWA C110.)



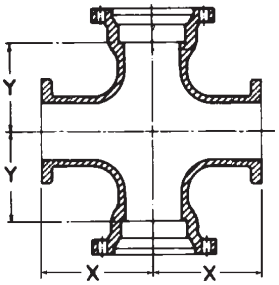
Size		Dimensions		
Run	Branch	X	Z	Weights
3	3	10.0	3.0	60
4	4	12.0	3.0	90
6	4	14.5	3.5	130
6	6	14.5	3.5	145
8	4	17.5	4.5	190
8	6	17.5	4.5	205
8	8	17.5	4.5	230
10	6	20.5	5.0	330
10	8	20.5	5.0	310
10	10	20.5	5.5	435
12	8	24.5	5.5	505
12	12	24.5	5.5	490
14	6	27.0	6.0	626
16	16	30.0	6.5	1079
18	8	32.0	7.0	1073
18	10	32.0	7.0	975
18	12	32.0	7.0	1015
18	16	32.0	7.0	1135
18	18	32.0	7.0	1130
20	10	35.0	8.0	1220
20	12	35.0	8.0	1260
20	16	35.0	8.0	1375
20	20	35.0	8.0	1525
24	24	40.5	9.0	2372
30	30	49.0	10.0	3670

For sizes not found in this section check MJ-SSB DI fittings, pages 1 thru 8.

CROSSES



ALL MJ

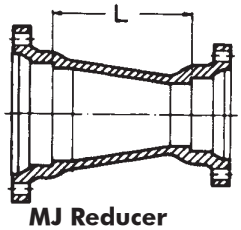


***MJ x MJ x FE x FE**

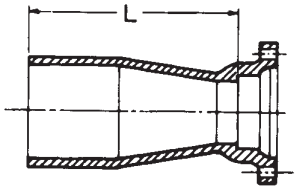
Size		Dimensions			Weights
Run	Branch	X	Y	MJ	*MJxFE
6	6	8.0	8.0	160	141
8	4	9.0	9.0	185	...
8	6	9.0	9.0	205	182
8	8	9.0	9.0	255	245
10	6	11.0	11.0	285	...
10	8	11.0	11.0	310	...
10	10	11.0	11.0	380	360
12	6	12.0	12.0	361	367
12	8	12.0	12.0	371	373
12	12	12.0	12.0	486	487
14	8	14.0	14.0	550	...
14	14	14.0	14.0	779	...
16	6	15.0	15.0	650	...
16	8	15.0	15.0	675	655
16	16	15.0	15.0	895	875
18	8	13.0	15.5	775	...
18	10	13.0	15.5	760	...
18	12	13.0	15.5	860	...
18	18	16.5	16.5	1140	...
20	8	14.0	17.0	951	...
20	12	14.0	17.0	977	...
20	16	18.0	18.0	1245	...
20	20	18.0	18.0	1448	...
24	8	15.0	19.0	1244	...
24	12	15.0	19.0	1326	...
24	16	15.0	19.0	1479	...
24	20	22.0	22.0	1965	...
24	24	22.0	22.0	2192	...
30	6	18.0	23.0	2085	...
30	12	18.0	23.0	2165	...
30	24	25.0	25.0	3180	...
30	30	25.0	25.0	3640	...
36	36	28.0	28.0	4370	...

* Not included in AWWA C110.

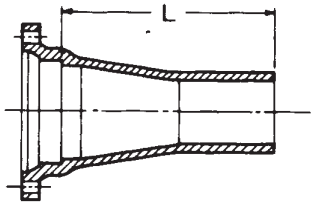
REDUCERS



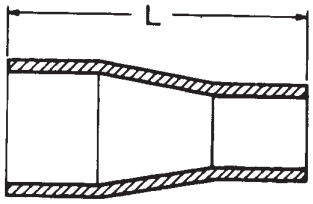
MJ Reducer



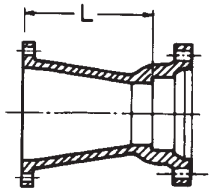
MJ Small End Bell Reducer



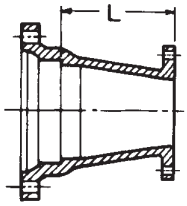
MJ Large End Bell Reducer



Plain End-Plain End Reducer



FExMJ Reducer

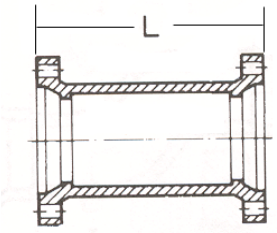


MJxFE Reducer

Size	Laying Lengths (L)						Weights					
	MJ	MJ-SEB	MJ-LEB	PExPE	FExMJ	MJxFE	MJ	MJ-SEB	MJ-LEB	PExPE	FExMJ	MJxFE
* 3x2	6	14	14	...	...	...	24	24	24	...	...	...
* 4x2	7	15	15	...	...	...	31	30	31	...	...	...
4x3	7	15	15	23	7	7	37	38	37	34	34	35
* 6x2	9	17	17	...	...	...	46	43	47	...	...	...
6x3	9	17	17	...	...	9	55	50	55	...	...	50
6x4	9	17	17	25	9	9	56	60	59	57	53	62
8x3	11	19	19	...	...	...	84	77	70	...	...	...
8x4	11	19	19	...	11	11	84	82	84	...	73	75
8x6	11	19	19	27	11	11	94	90	93	96	84	80
10x6	12	20	20	...	12	12	115	116	117	...	100	105
10x8	12	20	20	28	12	12	142	135	130	135	130	130
12x4	14	22	22	...	...	...	139	131	...	...	...	...
12x6	14	22	22	...	14	12	148	150	153	...	145	130
12x8	14	22	22	30	14	12	173	168	165	168	170	175
12x10	14	22	22	30	14	12	194	190	178	185	188	190
14x6	...	...	...	...	...	16	...	...	...	...	...	195
14x8	...	...	...	...	...	16	...	...	...	...	...	215
14x12	...	...	...	...	...	16	...	...	...	...	...	270
16x6	18	...	...	...	...	...	250	...	...	...	...	...
16x8	18	26	...	...	...	...	288	248	...	...	...	...
16x10	18	...	...	...	...	...	300	...	...	...	...	...
16x12	18	26	26	...	18	18	330	304	325	...	305	325
16x14	18	...	...	...	...	...	370	...	...	...	...	...
18x8	19	...	...	...	...	19	320	...	...	...	...	300
18x10	19	...	...	...	...	...	388	...	...	...	...	...
18x12	19	27	...	...	...	19	380	355	...	...	...	405
18x14	19	...	...	...	...	...	450	...	...	...	...	...
18x16	19	...	...	...	...	19	476	...	...	...	...	445
20x10	20	...	...	...	...	...	410	...	...	...	...	...
20x12	20	28	...	...	...	...	515	420	...	...	...	...
20x16	20	28	28	...	...	20	578	525	510	...	...	510
20x18	20	...	...	...	...	...	575	...	...	...	...	...
24x12	24	32	...	...	...	24	610	570	...	...	...	455
24x16	24	32	32	...	...	...	705	665	753	...	...	...
24x18	24	32	...	...	...	...	789	720	...	...	...	...
24x20	24	32	32	...	...	...	815	775	804	...	...	...
*30x16	30	38	...	46	...	...	1150	1040	...	1015	...	...
30x18	30	38	...	46	...	...	1160	1050	...	1025	...	...
30x20	30	38	...	46	...	...	1225	1120	...	1090	...	...
30x24	30	38	38	46	...	...	1360	1255	1320	1215	...	...
36x20	36	...	44	...	...	...	1495	...	1466	...	...	...
36x24	36	...	44	52	...	...	1580	...	1535	1389	...	...
36x30	36	44	...	52	...	...	1919	1721	...	1585	...	...
42x24	42	...	...	...	...	...	2060	...	...	...	...	...
42x30	42	...	...	...	...	...	2370	...	...	...	...	...
42x36	42	...	...	...	...	...	2695	...	...	...	...	...
48x30	48	...	...	...	...	...	3005	...	...	...	...	...
48x36	48	...	...	...	...	...	3370	...	...	...	...	...
48x42	48	...	...	...	...	...	3750	...	...	...	...	...

* Not included in AWWA C110

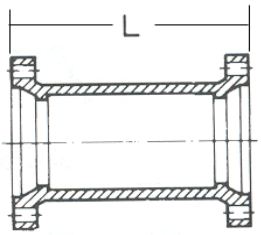
SOLID SLEEVES



Standard

Size	Pipe O.D.	Short L	Short Weight	Long L	Long Weight
*2	2.50	8.0	13	12	18
3	3.96	7.5	...	12	36
4	4.80	7.5	35	12	47
6	6.90	7.5	45	12	65
8	9.05	7.5	65	12	90
10	11.10	7.5	85	12	115
12	13.20	7.5	120	12	136
16	17.40	9.5	206	15	281
18	19.50	9.5	246	15	362
20	21.60	9.5	275	15	404
24	25.80	9.5	360	15	540
30	32.00	15.0	745	24	1085
36	38.30	15.0	1047	24	1502
42	44.50	...	...	24	1550
48	50.8	...	...	24	1940

* Not included in AWWA C110



*** Dual Purpose †**

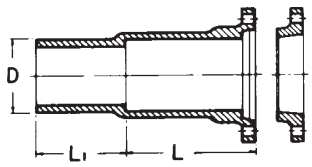
Size	Pipe O.D.	Short L	Short Weight	Long L	Long Weight
4	4.80/5.00	7.5	33	12	44
6	6.90/7.10	7.5	46	12	63
8	9.05/9.30	7.5	65	12	88
10	11.10/11.40	...	...	12	111
†12	13.20/13.50	...	...	12	221
†16	17.40/17.80	...	...	15	385

All Sizes Use MJ Dual Purpose Gland
* Not included in AWWA C110
† 12" & 16" are sold assembled
NOTE: Sizes 4-10" use standard MJ Gaskets;
12" and 16" require special duo gaskets.

* MJ x PE DUAL-PURPOSE CUTTING-IN SLEEVE

With Dual-Purpose Accessories
(NOTES: Gland with cup-joint set screws available at extra cost when specified. NOT FOR RESTRAINT.)
Currently, Tyler and Union Dual Purpose Glands are NOT interchangeable.

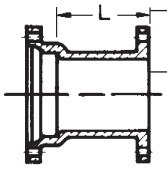
Cutting-In Sleeve & Gland



Size	For Use On Pipe O.D.	L	L1	D	Weight Gland Only	Weight Gland & Sleeve
4	4.80 - 5.00	12	8	4.80	6.0	72
6	6.90 - 7.10	12	8	6.90	10.0	94
8	9.05 - 9.30	12	8	9.05	16.0	122
10	11.10 - 11.40	12	8	11.10	25.0	175
12	13.20 - 13.50	12	8	13.20	30.0	235

* Not included in AWWA C110.

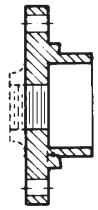
ADAPTERS



MJ x FE

Size	Dimensions L	Weights
3	8	30
4	8	42
6	8	62
8	8	88
10	8	120
12	8	150
16	8	257
18	8	324
20	8	365
24	8	528
30	10	760
36	10	1070

PLUGS

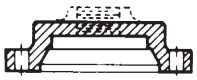


Solid or Tapped

Size	Tap	Weight Solid	Weight Tapped
*2	2	5	5
3	2	9	9
4	2	13	14
6	2	15	15
8	2	45	45
10	2	66	66
12	2	79	79
14	2	120	120
16	2	147	147
†18	2	192	190
†20	2	220	219
†24	2	338	338
†30	2	660	660
†36	2	838	838
42	..	1180	...
48	..	1455	...

† Dished – Not flat as shown.
* Not included in AWWA C110.

CAPS

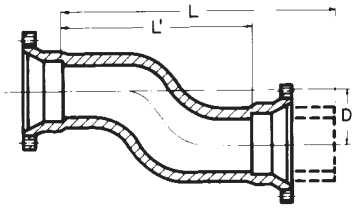


Solid or Tapped

Size	Tap	Weight Solid	Weight Tapped
*2	2	6	...
3	2	10	10
4	2	18	13
6	2	34	30
8	2	46	45
10	2	58	54
12	2	86	80
16	2	178	175
†18	2	215	215
†20	2	250	249
†24	2	370	370
†30	2	680	680
†36	2	850	850
42	..	1180	...
48	..	1595	...

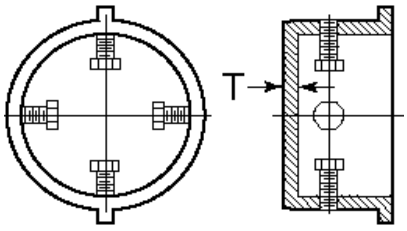
†Dished – Not flat as shown.
* Not included in AWWA C110.

OFFSETS



Size	D	Dimensions L[1]	Dimensions L	Weights MJxMJ	Weights MJxPE
	MJ x MJ		**MJ x PE**		
4	6	19	27	...	82
4	12	22	30	85	80
4	18	30	38	105	...
* 4	24	26	34	126	125
6	6	20	28	114	105
6	12	26	34	148	143
6	18	33	41	188	176
* 6	24	24	32	182	160
8	6	21	29	177	155
8	12	28	36	231	195
8	18	35	43	287	282
* 8	24	36	44	280	285
10	12	30	38	347	280
10	18	38	46	340	340
10	24	38	46	420	...
12	12	37	45	420	420
12	18	48	56	520	520
*12	24	48	56	649	630
16	12	40	48	715	...
16	18	50	58	850	830
*20	12	40	48	1025	...
*20	18	48	60	1362	...

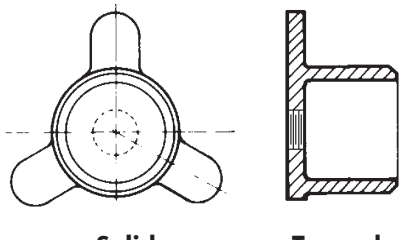
* Not included in AWWA C110.



TYTON® Plug**
Solid or Tapped

Size	Tap	T	Weight*
4	2	.60	18
6	2	.65	25
8	2	.70	46
10	2	.75	70
12	2	.75	95

* Weights do not include accessories
** Not included in AWWA C110.
TYTON® is a registered trademark of U.S. Pipe and Foundry Company.



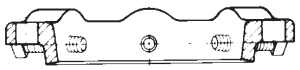
Solid **Tapped**

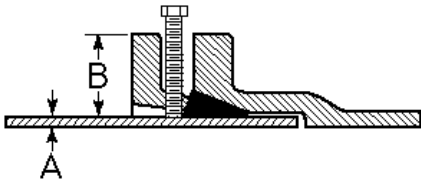
Push-In Plug with Ears
(To be used with all push-in pipe and fittings)

Size	Tap	Weight
14	2.0	101
16	2.0	137
18	2.0	177
†20	2.0	239
†24	2.0	311

† Dished - Not flat as shown
NOTE: Blocking still required–ears for assembly only.

*RETAINER GLAND ASSEMBLY





See Installations Instructions..... Page 50

Size	Pressure Rating, psi	Gland O.D. B	Pipe O.D. O.D. A	D.I. Pipe Wall Class	No of Set Screws	Size of Set Screws	Gland Weight	Weight w/Acces.
3	350	7.69	3.96	50-56	4	⅝x2	4	8
4	350	9.12	4.80	50-56	4	⅝x2	5	11
6	350	11.12	6.90	50-56	6	⅝x2	9	16
8	250	13.37	9.05	50-56	9	⅝x2	13	21
10	250	15.62	11.10	50-56	12	⅝x2	17	26
12	150	17.88	13.20	50-56	16	⅝x2	20	28
14	250	20.25	15.30	53-56	20	⅝x2½	44	55
16	200	22.50	17.40	53-56	24	⅝x2½	54	64
18	200	24.75	19.50	53-56	24	⅝x2½	62	72
20	200	27.00	21.60	53-56	28	⅝x3	76	91
24	150	31.50	25.80	53-56	32	⅝x3	103	118

* Not included in AWWA C110

Pipe Wall Thickness:
Sizes 3"-12" are recommended for ductile iron pipe class 50 thru 56. Sizes 14" thru 24" are recommended for ductile iron pipe class 53 thru 56.

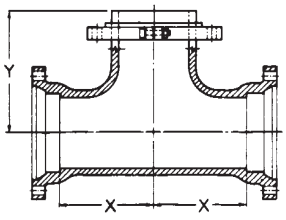
DUCTILE IRON RETAINER GLANDS

Mechanical Joint Retainer Glands are designed to provide a method for restraining mechanical joint pipe and fittings and other standardized mechanical joints against possible joint separation, rupture or blow-out caused by internal water pressure.

The set screws are square-headed with Type C knurled cup points, and are shipped already assembled in the Glands. They are manufactured of 4140 grade alloy steel, and are heat treated to a Rockwall "C" 45/53 case hardness. Tee-head bolts and gaskets are not included, but may be ordered separately. Recommended torque for set screws is 75 foot pounds, and set screws on opposite sides of the glands should be tightened alternately.

Tee-head bolt hole size and spacing are equal to MJ Glands as shown in AWWA C-111. Standard mechanical Joint gaskets as shown in C-111 should be used.

TEES



MJ x MJ x Swivel

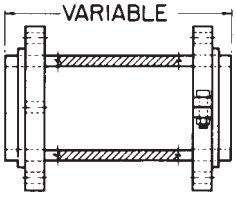
Size	Dimensions X	Y	Weight
6	8.0	10.5	150
8x6	9.0	11.5	199
8	9.0	11.5	210
10x6	11.0	13.5	267
12x6	12.0	14.5	346
16x6	15.0	17.5	619
16x8	15.0	17.5	649
30x6	18.0	24.5	2070

All weights shown include the Swivel Gland

MJ GLAND

Size	Gland Wt. Pack	Weight Gland Only
2	5	3
3	7	4
4	10	6
6	16	10
8	25	16
10	30	19
12	40	26
14	45	34
16	55	54
18	65	52
20	85	73
24	105	91
30	220	90
36	301	127

ADAPTERS



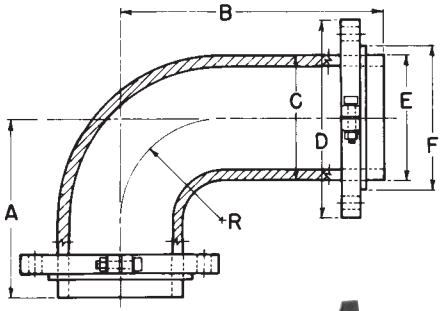
Swivel x Solid Adapter

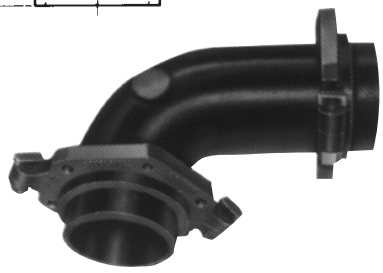
Size by Laying Length	Wall Thickness	Weight*
4x13	.52	52
6x12	.55	84
6x18	.55	91
6x24	.55	105
6x36	.55	156
8x13	.60	126
12x13	.75	186

*Weights with Gland.

Other Swivel Hydrant Fittings, Pages 3, 4 and 5.

ELLS





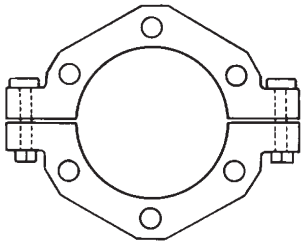
***90° Swivel x Swivel Ell**
(Not Included In AWWA C110)

Size	Wall Thickness	Dimensions A	B	C	D	E	F	R	*Weight
6	.55	10.5	15.5	7.10	11.12	6.90	8.02	6.0	106
8	.60	11.5	16.5	9.20	13.37	9.05	10.17	7.0	156

* With 2 Swivel Glands

SWIVEL GLAND ASSEMBLY

Used with swivel fittings, the TYLER Swivel Gland, with its rotating feature, permits the installer to meet any grade requirements regardless of bolt-hole alignment. In addition, the system permits stiff connections without braces, blocking or strapping.



Swivel Glands**

Size	Weight
12	30

** Not included in AWWA C110.

NOTE: When ordering glands separately,
(1) Specify TYLER UPCode Number,
(2) Description, and
(3) Size of fitting to be joined.

SAMPLE SPECIFICATIONS

4" through 24" Push-On Joint Ductile Iron Fittings shall be produced in accordance with all applicable terms and provisions of ANSI/AWWA C153/A21.53. Fittings are cement-lined and seal-coated in accordance with ANSI/AWWA C104/A21.4. Joints shall be in accordance with ANSI/AWWA C111/A21.11 with bell sockets designed to receive pressure pipe O.D.'s as specified in ANSI/AWWA C151/A21.51 and AWWA C900 TABLE 2. The working pressure rating shall be 350 PSI, except for wyes and flanged-branch fittings. NOTE: Fittings are CEMENT-LINED and seal coated in accordance with ANSI/AWWA C104/A21.4, also available bare or epoxy coated. Double cement lined available in non-domestic only. All coated fittings meet requirements of NSF-61.

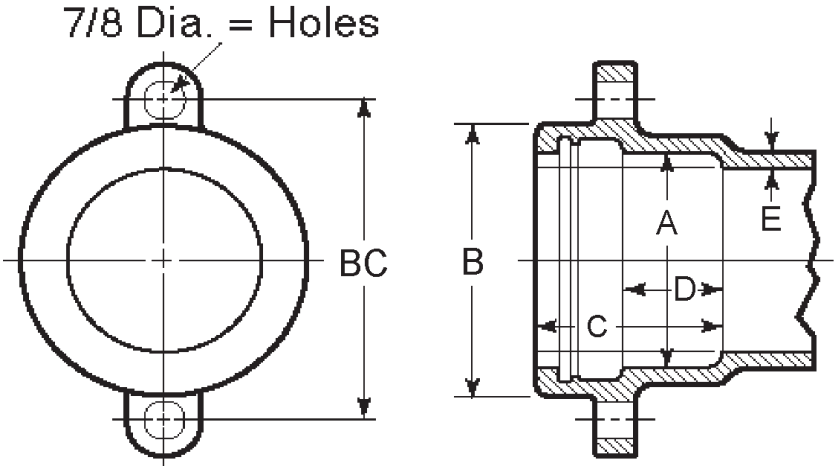
Thicknesses and dimensions of bell sockets and gaskets shall be in accordance with the manufacturer's design. Rubber rings shall be furnished by the manufacturer. Working pressures apply to fittings only and do not apply to restraining lugs or external restraining devices.

NOTE: Restraining lugs are provided on sizes 4" through 12" ONLY.

NOTE - EXCEPTIONS: Union-Tite Fittings with flanged branches are rated for water pressure of 250 PSI.

ADVANTAGES AND FEATURES

- Push-on gasket joint uses TYTON® or SURE 350® STOP gaskets
- For use with Ductile Iron pipe, C-900 plastic pipe, and 4-12" pressure rated IPS diameter plastic pipe using transition gaskets
- Deep stab joint design accommodates taper on plastic pipes
- Slip joint installation eliminates T-bolts and nuts: MJ glands not needed

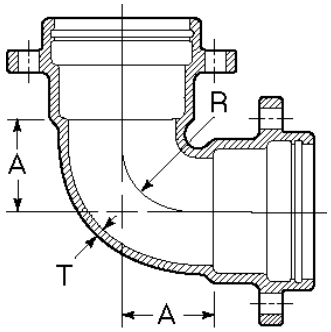


BELL DIMENSIONS IN INCHES FOR UNION-TITE FITTINGS

Pipe Size	A	B	B.C.	C	D	E
4	5.04	6.38	7.88	4.16	2.25	.35
6	7.14	8.52	10.50	4.29	2.25	.37
8	9.32	10.90	12.88	4.78	2.25	.39
10	11.37	12.91	14.69	4.98	2.25	.41
12	13.47	15.12	17.19	4.98	2.25	.43
14	15.64	18.12	...	5.40	2.25	.51
16	17.74	20.32	...	5.40	2.25	.52
18	19.83	22.52	...	5.40	2.25	.59
20	21.94	24.29	...	5.40	2.25	.60
24	26.14	29.14	...	5.65	2.50	.62

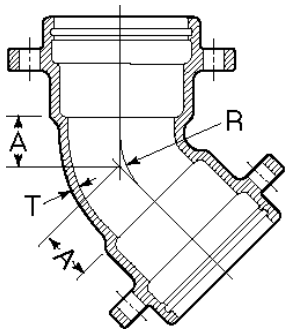
Maximum deflection is 5°.

BENDS



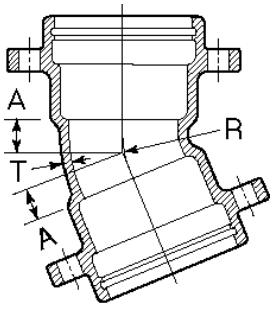
90° (1/4) UT Bends

Size	Dimensions T	A	R	Weight
4	.35	4.5	3.87	24
6	.37	6.0	5.37	51
8	.39	7.0	6.37	80
10	.41	9.0	8.36	121
12	.43	10.0	9.36	151
14	.51	12.0	10.98	254
16	.52	13.0	12.00	328
18	.59	15.5	14.00	482
20	.60	17.0	15.50	340
24	.62	17.0	15.59	674



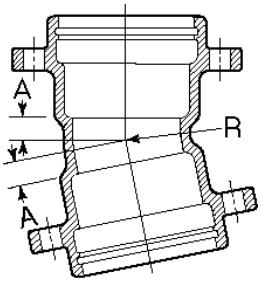
45° (1/8) UT Bends

Size	Dimensions A	R	Weight
4	2.0	3.31	26
6	3.0	5.72	42
8	3.5	6.93	66
10	4.5	9.34	101
12	5.5	11.75	128
14	5.5	10.85	143
16	6.0	12.02	225
18	6.5	12.36	209
20	7.0	13.59	397
24	7.5	14.69	492



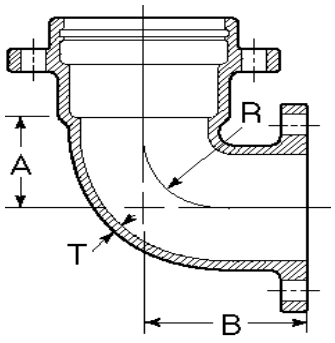
22½° (1/16) UT Bends

Size	Dimensions A	R	Weight
4	1.50	4.38	18
6	2.25	8.16	39
8	2.50	9.40	64
10	3.00	13.17	67
12	3.50	14.42	111
14	3.75	13.82	162
16	4.00	14.97	195
18	7.50	30.19	209
20	8.50	35.19	414
24	9.00	37.69	596



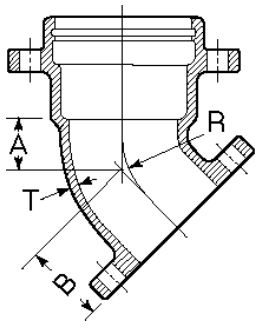
11¼° (1/32) UT Bends

Size	Dimensions A	R	Weight
4	1.25	6.77	18
6	1.50	9.38	40
8	1.75	11.48	60
10	2.00	13.95	77
12	2.25	16.50	94
14	2.60	14.26	113
16	2.60	15.23	172
18	3.00	60.94	209
20	3.50	71.07	265
24	...	...	...



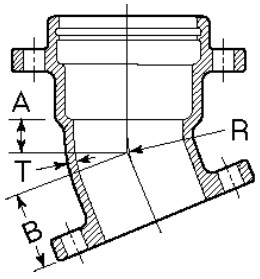
90° (1/4) UT x Flange Bends

Size	Dimensions T	A	B	R	Weight
4	.35	4.5	6.5	3.87	31
6	.37	6.0	7.0	5.37	49
8	.39	7.0	9.0	6.37	74
10	.41	9.0	10.0	8.36	130
12	.43	10.0	12.0	9.36	158
14	.51	12.0	15.5	10.98	231
16	.52	13.0	16.5	12.00	233



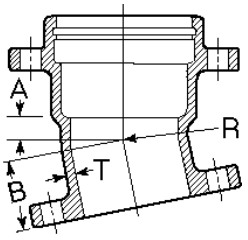
45° (1/8) UT x Flange Bends

Size	Dimensions A	B	R	Weight
4	2.0	4.0	3.31	21
6	3.0	5.0	5.72	42
8	3.5	5.5	6.93	60
10	4.5	6.5	9.34	93
12	5.5	7.5	11.75	122
14	5.5	8.5	10.85	162
16	6.0	9.5	12.02	275



22½° (1/16) UT x Flange Bends

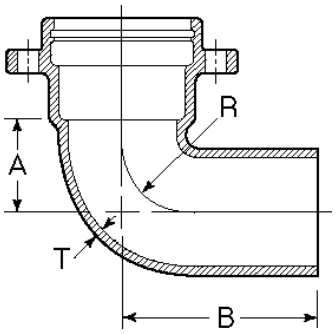
Size	Dimensions A	B	R	Weight
4	1.50	3.5	4.38	25
6	2.25	4.3	8.16	44
8	2.50	4.5	9.40	64
10	3.00	5.3	13.17	90
12	3.50	5.5	14.42	112
14	3.75	6.8	13.82	174
16	4.00	7.5	14.97	228

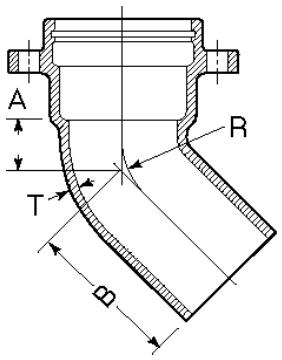


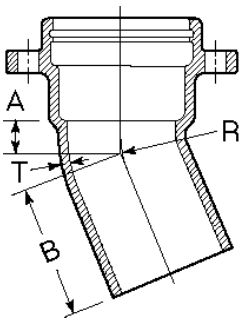
11¼° (1/32) UT x Flange Bends

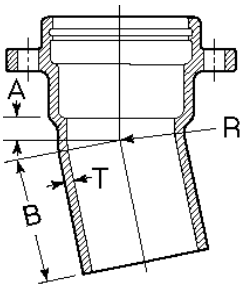
Size	Dimensions A	B	R	Weight
4	1.25	3.30	6.77	24
6	1.50	3.50	9.38	30
8	1.75	3.75	11.48	61
10	2.00	4.00	13.95	80
12	2.25	4.30	16.50	94
14	2.60	5.75	14.26	170
16	2.60	6.10	15.23	228

BENDS









90° (1/4) UT x PE Bends

Size	T	Dimensions A	B	R	Weight
4	.35	4.5	10.5	3.87	35
6	.37	6.0	12.0	5.37	70
8	.39	...	...	...	..

45° (1/8) UT x PE Bends

Dimensions A	B	R	Weight
2.0	8.0	3.31	21
3.0	9.0	5.72	38
3.5	9.5	6.93	60

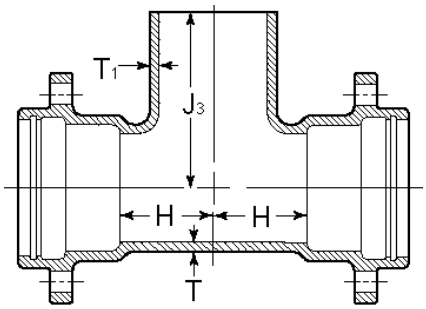
22½° (1/16) UT x PE Bends

Dimensions A	B	R	Weight
...	...	...	..
2.25	8.08	8.16	35
2.50	8.34	9.40	57

11¼° (1/32) UT x PE Bends

Dimensions A	B	R	Weight
...	...	...	..
1.50	7.30	9.38	36
1.75	7.55	11.48	55

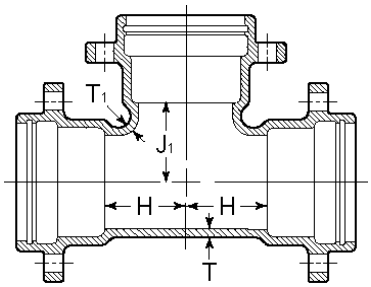
TEES



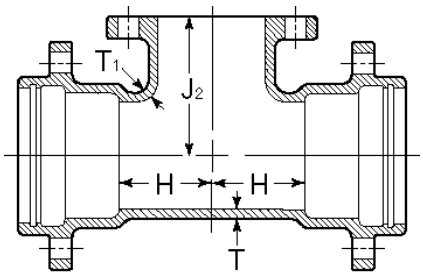
UT x UT x PE Tees

Size Run	Branch	Dimensions T	T1	H	J3	Weight
6	6	.37	.37	6.0	11.5	60
8	6	.39	.37	6.0	12.5	80
12	6	.43	.37	7.0	15.5	140

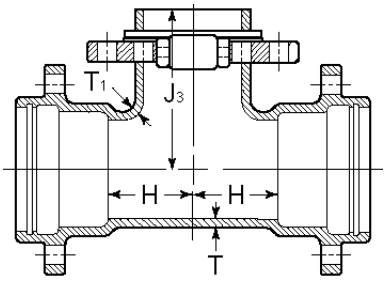
TEES



UT x UT Tees



UT x Flange Tees



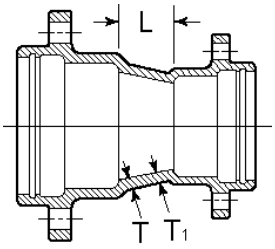
UT x Swivel Tees

	Dimensions						Weights		
Size	T	T1	H	J1	J2	J3	UT x UT	UT xFlange	UT x Swivel
4	.35	.35	4.5	4.5	6.5	...	44	45	...
6x4	.37	.35	5.0	6.0	8.0	...	68	56	...
6	.37	.37	6.0	6.0	8.0	9.5	69	71	65
8x4	.39	.35	5.0	7.0	9.0	...	73	89	...
8x6	.39	.37	6.0	7.0	9.0	10.5	96	101	100
8	.39	.39	7.0	7.0	9.0	10.5	116	117	110
10x4	.41	.35	6.0	9.0	11.0	...	102	115	...
10x6	.41	.37	7.0	9.0	11.0	12.5	113	128	130
10x8	.41	.39	8.0	9.0	11.0	12.5	145	145	156
10	.41	.41	9.0	9.0	11.0	...	155	158	...
12x4	.43	.35	6.0	10.0	12.0	...	119	138	...
12x6	.43	.37	7.0	10.0	12.0	13.5	141	148	162
12x8	.43	.39	8.0	10.0	12.0	13.5	177	170	158
12x10	.43	.41	9.0	10.0	12.0	...	160	162	...
12	.43	.43	10.0	10.0	12.0	...	217	183	...
14x6	.51	.44	6.5	10.5	12.5	14.0	176	212	202
14x10	.51	.46	8.5	10.5	12.5	...	195	246	...
14x12	.51	.47	9.5	10.5	12.5	...	196	296	...
14	.51	.51	10.5	10.5	14.0	...	209	321	...
16x6	.52	.45	6.5	11.5	13.5	15.0	266	160	229
16x8	.52	.46	7.5	11.5	13.5	15.0	292	270	292
16x10	.52	.47	8.5	11.5	13.5	...	232	330	...
16x12	.52	.48	9.5	11.5	13.5	...	239	321	...
16x14	.52	.51	10.5	11.5	15.0	...	349	342	...
16	.52	.52	11.5	11.5	15.0	...	261	355	...
18x6	.59	.44	6.5	12.5	14.5	16.13	348	301	348
18x8	.59	.45	7.5	12.5	14.5	16.13	325	319	324
18x10	.59	.47	8.5	12.5	14.5	...	344	337	...
18x14	.59	.56	10.5	12.5	16.0	...	342	393	...
18x16	.59	.57	11.5	12.5	16.0	...	362	420	...
20x6	.60	.44	7.0	14.0	16.0	17.5	355	341	400
20x10	.60	.47	9.0	14.0	16.0	...	369	420	...
20x14	.60	.56	11.0	14.0	17.5	...	484	474	...
20x16	.60	.57	12.0	14.0	17.5	...	610	498	...
20x18	.60	.59	13.0	14.0	17.5	...	539	...	...
24x6	.62	.44	7.0	16.0	18.0	19.5	385	512	525
24x10	.62	.47	9.0	16.0	18.0	...	478	468	...
24x12	.62	.49	10.0	16.0	18.0	...	663	503	...
24x14	.62	.56	11.0	16.0	19.5	...	542	531	...
24x16	.62	.57	12.0	16.0	19.5	...	566	555	...
24x18	.62	.59	13.0	16.0	...	...	593	...	
24x20	.62	.60	15.0	17.0	...	...	628	...	...
24	.62	.62	17.0	17.0	...	...	884	...	...

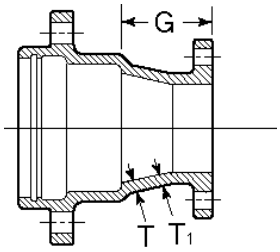
TYLER UNION®

UNION-TITE DUCTILE IRON C153 COMPACT FITTINGS

REDUCERS

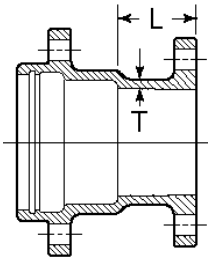


UT x UT Reducers



UT x Flange Reducers

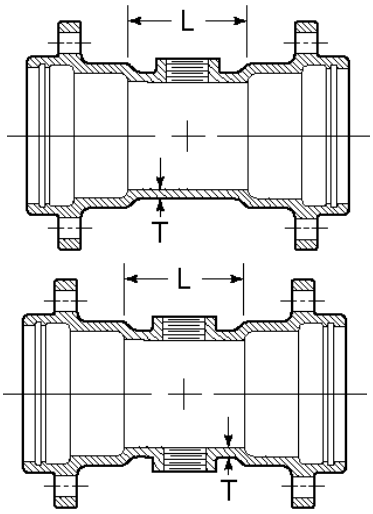
Size	Dimensions T	T1	L	G	Weights UT x UT	UT xFlange
6x4	.37	.35	4.0	6.0	32	32
8x4	.39	.35	5.0	7.0	46	46
8x6	.39	.37	4.0	6.0	49	47
10x4	.41	.35	7.0	9.0	47	55
10x6	.41	.37	5.0	7.0	47	59
10x8	.41	.39	4.0	6.0	53	61
12x4	.43	.35	9.0	11.0	74	78
12x6	.43	.37	7.0	9.0	58	75
12x8	.43	.39	5.0	7.0	74	74
12x10	.43	.41	4.0	6.0	82	95
14x6	.51	.44	9.0	11.0	84	121
14x8	.51	.45	7.0	9.0	85	128
14x10	.51	.46	5.0	7.0	87	127
14x12	.51	.47	4.0	6.0	104	144
16x6	.52	.45	11.0	13.0	94	133
16x8	.52	.46	9.0	11.0	104	141
16x10	.52	.47	7.0	9.0	130	158
16x12	.52	.48	5.0	7.0	152	172
16x14	.52	.51	4.0	6.0	139	196
18x8	.59	.45	14.0	16.0	142	157
18x10	.59	.47	12.0	14.0	151	175
18x12	.59	.49	10.0	12.0	167	215
18x14	.59	.56	8.0	11.5	217	234
18x16	.59	.57	7.0	10.5	202	246
20x10	.60	.47	14.0	16.0	180	234
20x12	.60	.49	12.0	...	205	...
20x14	.60	.56	10.0	13.5	233	249
20x16	.60	.57	8.0	11.5	250	272
20x18	.60	.59	7.0	...	248	...
24x12	.62	.49	16.0	18.0	246	262
24x14	.62	.56	14.0	17.5	281	315
24x16	.62	.57	12.0	15.5	380	328
24x18	.62	.59	10.0	...	390	...
24x20	.62	.60	8.0	...	421	...



UT x Flange Adaptor

Size	Dimensions T	L	Weight
4	.35	6.0	28
6	.37	6.0	36
8	.39	6.0	54
10	.41	6.0	71
12	.43	6.0	102
14	.51	7.0	113
16	.52	7.0	115
20	.60	6.0	295

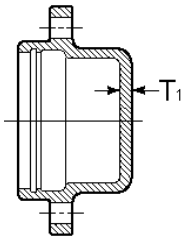
TAPPED TEE/CROSS



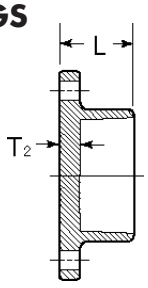
UT x Tapped Tee/Crosses

Size	Dimensions T	Max Tap	L	Weight
4	.35	3.0	6.0	27
6	.37	3.5	6.0	38
8	.39	3.5	6.0	59
10	.41	3.5	6.0	72
12	.43	3.5	6.0	92

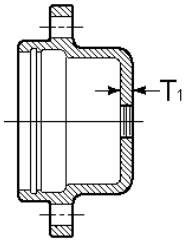
CAPS AND PLUGS



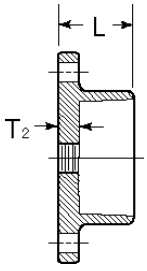
Solid Cap



Solid Plug



2" Tapt Cap



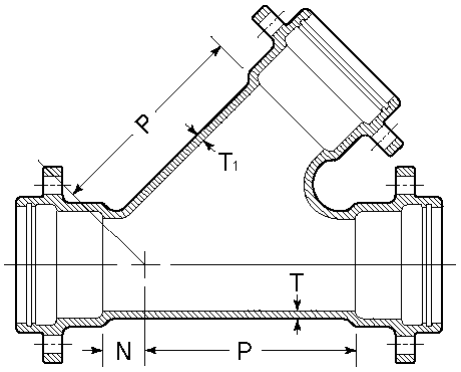
2" Tapt Plug

UT Caps and Plugs*

Size	T1	Dimensions T2	L	Weights Cap	Plug
4	.48	.50	5.25	15	8
6	.48	.50	5.25	20	23
8	.51	.53	5.25	35	32
10	.53	.56	5.25	50	38
12	.55	.62	5.25	75	49

*Restraining lugs (ears) available.

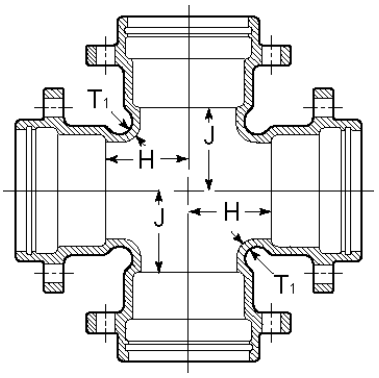
WYES



UT Wyes

Size	Dimensions T	T1	P	N	Weights
8x4	.39	.35	13.5	.0	89
10x4	.41	.35	15.0	.0	141
10x6	.41	.37	16.0	1.0	151
10x8	.41	.39	17.0	2.5	175
10	.41	.41	18.0	4.0	200
12x4	.43	.35	16.5	.0	178
12x6	.43	.37	18.5	1.5	201
12x8	.43	.39	18.5	1.5	224
12x10	.43	.41	20.0	3.0	240
12	.43	.43	20.0	5.0	289
14x6	.51	.44	19.5	.0	236
14x8	.51	.45	21.0	1.5	255
14x10	.51	.46	22.5	3.0	325
14	.51	.51	25.0	6.0	475
16x6	.52	.45	21.0	.0	281
16x8	.52	.46	22.5	0.5	304
16x12	.52	.48	25.0	3.5	346
16	.52	.52	28.0	6.5	380

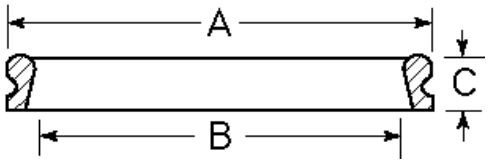
CROSSES



UT Crosses

Size	Dimensions T1	H	J	Weights
6	.37	6.0	6.0	88
8x6	.37	6.0	7.0	117
8	.39	7.0	7.0	156
10x4	.35	6.0	9.0	116
12x8	.39	8.0	10.0	240
12	.43	10.0	10.0	241
14x6	.44	6.5	10.5	189
14x8	.45	7.5	10.5	204
14x10	.46	8.5	10.5	222
14x12	.47	9.5	10.5	239
14	.51	10.5	10.5	270
16x6	.45	6.5	11.5	234
16x8	.46	7.5	11.5	323
16x10	.47	8.5	11.5	268
16x12	.48	9.5	11.5	274
16x14	.51	10.5	11.5	322
16	.52	11.5	11.5	317

TYTON® GASKETS



TYTON® JOINT IPS Transition and Regular Gasket

Size	Dimensions A	Transition (IPS) B(±1%)	Regular (Ductile) B*	C
4	5.74	4.18	4.68	1.00
6	7.86	6.31	6.73	1.10
8	10.15	8.32	8.85	1.29
10	12.10	10.30	10.87	1.36
12	14.31	12.70	12.95	1.45

TYTON® is a registered trademark of
U.S. Pipe and Foundry Company.

NOTICE: Weights published in this catalog are for shipping purposes only. Actual weights may vary because some fittings are produced in both foundries. All fittings are made in the USA and meet the AWWA standards to which they are designed.

For weights of specific fittings, please contact Tyler Pipe or Union Foundry Company.

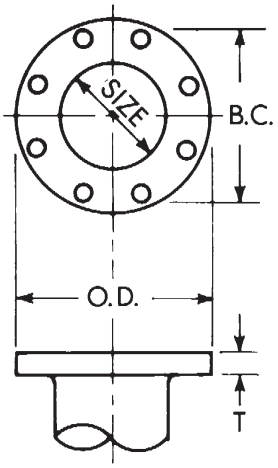
TYLER UNION®

DUCTILE IRON C110 FLANGED FITTINGS

Sizes 3" thru 12" UL Listed for Fire Main Equipment

SAMPLE SPECIFICATION

Flanged Fittings, 2" through 48" shall be manufactured of Ductile Iron in accordance with all applicable terms and provisions of standards ANSI/AWWA C110/A21.10 (current revisions). Flange surface shall be faced and drilled in accordance with ANSI Class 125 B16.1. All Ductile Iron Flanged Fittings shall be rated for water pressure of 250 PSI. Flanged ductile-iron fittings in 24-in. (610 mm) and smaller sizes may be rated for 350 psi (2,413 kPa) with the use of special gaskets. NOTE: Fittings are CEMENT-LINED and seal coated in accordance with ANSI/AWWA C104/A21.4, also available prime coated, bare or epoxy coated. All coated fittings meet requirements of NSF-61. Interiors shall be lined and seal coated in accordance with ANSI/AWWA C104/A21.04, "Cement-mortor Lining for Ductile Iron Pipe and Fittings for Water" unless otherwise specified.



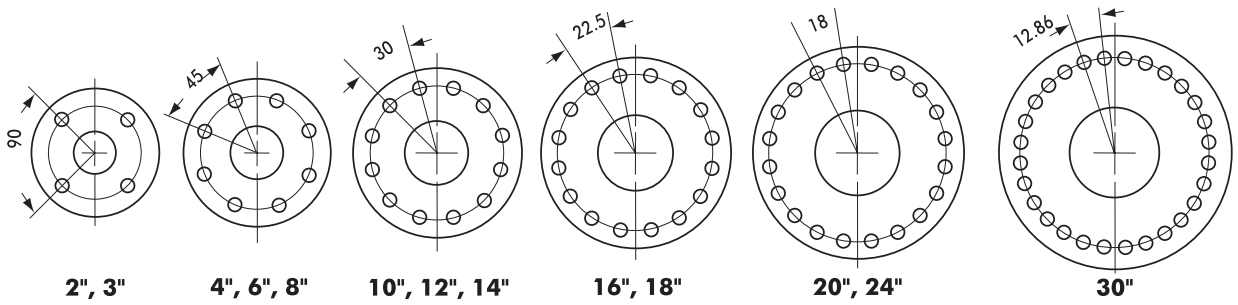
NOTE: No flange joint material furnished.

FLANGE DETAILS

Nominal Pipe Size Inch	Flange O.D.	Dia. of Bolt Circle	Flange Thickness T	Bolt Hole Diameter	Number of Bolts	Bolt Dia. and Lengths
2	6	4.75	.62	.75	4	⅝ x 2¼
3	7.5	6	.75	.75	4	⅝ x 2½
4	9	7.5	.94	.75	8	⅝ x 3
6	11	9.5	1.00	.875	8	¾ x 3½
8	13.5	11.75	1.12	.875	8	¾ x 3½
10	16	14.25	1.19	1.00	12	⅞ x 4
12	19	17	1.25	1.00	12	⅞ x 4
14	21	18.75	1.38	1.125	12	1 x 4½
16	23.5	21.25	1.44	1.125	16	1 x 4½
18	25	22.75	1.56	1.25	16	1⅛ x 5
20	27.5	25	1.69	1.25	20	1⅛ x 5
24	32	29.5	1.88	1.375	20	1¼ x 5½
30	38.75	36	2.12	1.375	28	1¼ x 6½
36	46	42.75	2.38	1.675	32	1½ x 7
42	53	49.50	2.62	1.625	36	1½ x 7½
48	59.50	56.00	2.75	1.625	44	1½ x 8

NOTE: Drilling templates are in multiples of four, so that fittings may be made to face in any quarter. Bolt holes shall straddle the center line.

Tyler Utilities Division • 11910 CR 492 • Tyler, Texas 75706 • (800) 527-8478
Union Foundry Company • Box 309 • Anniston, Alabama 36202 • (800) 226-7601

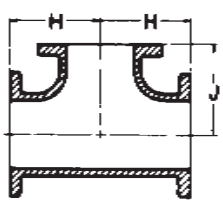


BENDS

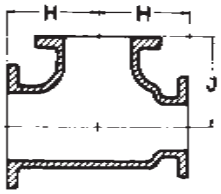
Note: Base Bends are on page 33 and 34, reducing and long radius 90° bends are on page 33.

	90° Bends (1/4)			45° Bends (1/8)			22$^{1}/_{2}$° Bends (1/16)			11$^{1}/_{4}$° Bends (1/32)		
	Dimensions			Dimensions			Dimensions			Dimensions		
Size	R	A	Weight	R	A	Weight	R	A	Weight	R	A	Weight
2	3.0	4.5	14	...	...	...	...	...	...	...	...	...
3	4	5.5	26	3.62	3	20	7.56	3	22	15.25	3	20
4	4.5	6.5	44	4.81	4	36	10.06	4	35	20.31	4	40
6	6	8	67	7.25	5	57	15.06	5	64	30.5	5	56
8	7	9	115	8.44	5.5	105	17.62	5.5	90	35.5	5.5	90
10	9	11	164	10.88	6.5	131	22.62	6.5	130	45.69	6.5	130
12	10	12	236	13.25	7.5	196	27.67	7.5	194	55.81	7.5	193
14	11.5	14	330	12.06	7.5	245	25.12	7.5	250	50.75	7.5	245
16	12.5	15	478	13.25	8	315	27.62	8	315	55.81	8	315
18	14	16.5	527	14.5	8.5	422	30.19	8.5	402	60.94	8.5	385
20	15.5	18	878	16.88	9.5	485	35.19	9.5	505	71.06	9.5	505
24	18.5	22	1085	18.12	11	730	37.69	11	528	76.12	11	760
30	21.5	25	1755	27.75	15	1355	57.81	15	1385	116.75	15	1395
36	24.5	28	2135	35.00	18	1755	72.88	18	1790	147.25	18	1805
42	27.5	31	3055	42.25	21	2600	88.00	21	2665	177.69	21	2680
48	30.5	34	4095	49.50	24	3580	103.06	24	3665	208.12	24	3695

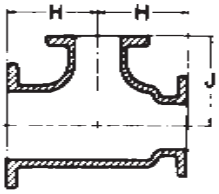
TEES, REDUCING TEES, CROSSES



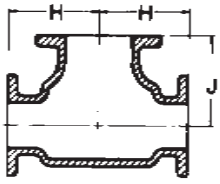
Straight Tees, Reducing on Branch Tees



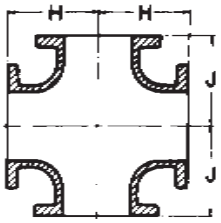
***Reducing on Run**



***Reducing on Run and Branch**



***Bullhead Tees**



Straight and Reducing Crosses

Size			Dimensions		Weights	
Run	Run	Branch	H	J	Tee	Cross
2	2	2	4.5	4.5	20	
3	3	2	5.5	5.5	35	...
3	3	3	5.5	5.5	42	51
4	3	3	6.5	5.5	53	...
*4	4	2	6.5	6.5	55	...
4	4	3	6.5	6.5	54	76
4	4	4	6.5	6.5	60	87
*4	4	6	8.0	8.0	88	...
*6	4	4	8.0	8.0	96	...
*6	4	6	8.0	8.0	100	...
*6	6	2	8.0	8.0	85	...
6	6	3	8.0	8.0	85	96
6	6	4	8.0	8.0	90	112
6	6	6	8.0	8.0	98	141
6	6	8	9.0	9.0	138	...
*8	6	4	9.0	9.0	130	...
*8	6	6	9.0	9.0	148	...
*8	6	8	9.0	9.0	154	...
8	8	3	9.0	9.0	128	140
8	8	4	9.0	9.0	155	155
8	8	6	9.0	9.0	148	172
8	8	8	9.0	9.0	179	195
*8	8	10	11.0	11.0	225	...
*8	8	12	12.0	12.0	277	...
*†10	6	6	13.0	13.0	278	...
*†10	6	10	13.0	13.0	308	...
*†10	8	6	13.0	13.0	298	...
*†10	8	8	13.0	13.0	278	...
*†10	8	10	13.0	13.0	325	...
10	10	4	11.0	11.0	239	220
10	10	6	11.0	11.0	215	242
10	10	8	11.0	11.0	254	294
10	10	10	11.0	11.0	265	330
10	10	12	12.0	12.0	337	...
*†12	6	6	14.0	14.0	346	...
*†12	6	8	14.0	14.0	362	...
*†12	8	6	14.0	14.0	355	...

Size			Dimensions		Weights	
Run	Run	Branch	H	J	Tee	Cross
*12	8	8	12.0	12.0	375	...
*12	8	12	12.0	12.0	420	...
*†12	10	6	14.0	14.0	390	...
12	10	8	12.0	12.0	400	...
12	10	10	12.0	12.0	420	...
12	10	12	12.0	12.0	440	...
12	12	4	12.0	12.0	322	310
12	12	6	12.0	12.0	297	326
12	12	8	12.0	12.0	346	351
12	12	10	12.0	12.0	394	415
12	12	12	12.0	12.0	369	438
*14	14	4	14.0	14.0	410	...
14	14	6	14.0	14.0	420	450
14	14	8	14.0	14.0	435	475
14	14	10	14.0	14.0	450	...
14	14	12	14.0	14.0	470	555
14	14	14	14.0	14.0	500	595
*16	16	4	15.0	15.0	525	...
16	16	6	15.0	15.0	573	565
16	16	8	15.0	15.0	555	590
16	16	10	15.0	15.0	565	620
16	16	12	15.0	15.0	590	665
16	16	14	15.0	15.0	610	...
16	16	16	15.0	15.0	635	755
18	18	6	13.0	15.5	780	...
18	18	8	13.0	15.5	609	...
18	18	10	13.0	15.5	585	...
18	18	12	13.0	15.5	638	706
18	18	14	16.5	16.5	808	...
18	18	16	16.5	16.5	760	...
18	18	18	16.5	16.5	865	915

* Not included in AWWA C110

† H and J dimensions are two-inches longer than straight tees.

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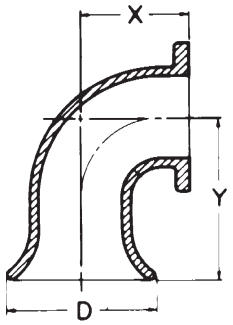
Union Foundry Company • Box 309 • Anniston, Alabama 36202 • (800) 226-7601

TEES, REDUCING TEES, CROSSES (Con't)

Size			Dimensions			Weights
Run	Run	Branch	H	J	Tee	Cross
20	20	6	14.0	17.0	773	...
20	20	8	14.0	17.0	720	...
20	20	10	14.0	17.0	735	...
20	20	12	14.0	17.0	816	820
20	20	14	14.0	17.0	770	...
20	20	16	18.0	18.0	950	1065
20	20	18	18.0	18.0	965	...
20	20	20	18.0	18.0	1005	1175
24	24	6	15.0	19.0	1089	...
24	24	8	15.0	19.0	1060	...
24	24	10	15.0	19.0	1020	...
24	24	12	15.0	19.0	1125	1100
24	24	14	15.0	19.0	1050	1125
24	24	16	15.0	19.0	1070	1160
24	24	18	22.0	22.0	1534	...
24	24	20	22.0	22.0	1510	1695
24	24	24	22.0	22.0	1685	1850
*30	30	6	18.0	23.0	1725	...
30	30	12	18.0	23.0	1801	...
30	30	18	18.0	23.0	1852	...
30	30	24	25.0	25.0	2475	2695
30	30	30	25.0	25.0	2615	2985
36	36	24	20.0	26.0	2255	...
36	36	30	28.0	28.0	3000	...
36	36	36	28.0	28.0	3160	...
42	42	24	23.0	30.0	3245	...
42	42	30	31.0	31.0	4125	...
42	42	36	31.0	31.0	5360	...
42	42	42	31.0	31.0	5580	...
48	48	24	28.0	34.0	4385	...
48	48	30	26.0	34.0	4455	...
48	48	36	34.0	34.0	5555	...
48	48	42	34.0	34.0	7195	...
48	48	48	34.0	34.0	7385	...

* Not included in AWWA C110

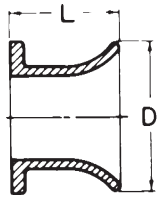
FLANGE AND FLARE



***Flange and Flare 90° Ell**

Size	Dimensions D	X	Y	Weight
3	7.5	5.5	8.5	26
4	9.0	6.5	9.5	39
6	11.0	8.0	12.0	73
8	13.5	9.0	13.0	110
10	16.0	11.0	15.0	171
12	19.0	12.0	16.0	253
14	21.0	14.0	22.0	450
16	23.5	15.0	23.0	545
18	25.0	16.5	24.5	675
20	27.5	18.0	26.0	860
24	32.0	22.0	30.0	1195

* Not included in AWWA C110



***Flange and Flare Piece**

Size	Dimensions D	L	Weight
3	7.25	8	21
4	9.00	8	30
6	11.00	8	44
8	13.50	10	75
10	16.00	10	113
12	19.00	12	155
14	21.00	16	225
16	23.50	16	330
18	25.00	16	355
20	27.50	18	465
24	32.00	18	598

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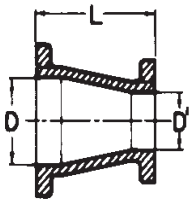
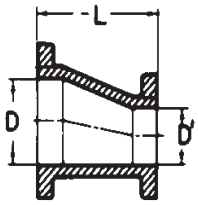
REDUCERS



Concentric Reducer

Size D	Size D1	Dimensions L	Wts
3	2	6	17
4	2	7	23
4	3	7	29
6	2	9	30
6	3	9	44
6	4	9	46
6	5	9	56
8	3	11	61
8	4	11	63
8	5	11	70
8	6	11	75
10	4	12	98
10	6	12	107
10	8	12	116
12	4	14	119
12	6	14	130
12	8	14	152
12	10	14	178
14	6	16	165
14	8	16	185
14	10	16	205
14	12	16	235
16	6	18	210
16	8	18	230
16	10	18	255
16	12	18	285
16	14	18	315
18	8	19	265
18	10	19	290
18	12	19	320
18	14	19	350
18	16	19	405
20	10	20	418
20	12	20	465
20	14	20	430
20	16	20	445
20	18	20	470
24	12	24	608
24	14	24	565
24	16	24	610
24	18	24	645
24	20	24	695
30	16	30	945
30	18	30	970
30	20	30	1144
30	24	30	1155
42	24	42	1810
42	30	42	2060
42	36	42	2345
48	30	48	2615
48	36	48	2940
48	42	48	3320



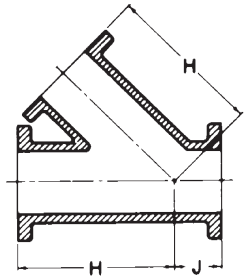
Eccentric Reducer

Size D	Size D1	Dimensions L	Wts
4	3	7	30
6	3	9	45
6	4	9	52
8	4	11	70
8	6	11	80
10	6	12	98
10	8	12	123
12	6	14	135
12	8	14	149
12	10	14	177
16	6	18	210
16	8	18	230
16	10	18	255
16	12	18	285
16	14	18	315
18	8	19	265
18	10	19	290
18	12	19	306
18	14	19	350
18	16	19	385
20	10	20	350
20	12	20	370
20	14	20	402
20	16	20	449
20	18	20	455
24	12	24	535
24	14	24	570
24	16	24	614
24	18	24	645
24	20	24	695
42	24	42	1820
42	30	42	2060
42	36	42	2345
48	30	48	2625
48	36	48	2950
48	42	48	3320

NOTE: Eccentric Reducers not included in AWWA C110

NOTE: Eccentric Reducers Offset
1/2 D minus 1/2 D1=Offset
Example:
6x3 Ecc.Reducer
3-1½ = 1½" Offset

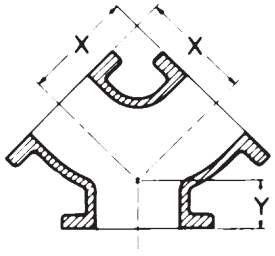
* WYES/LATERALS



*45° Wye

Size Run	Size Branch	Dimensions H	Dimensions J	Weight
3	3	10	3	49
4	3	12	3	68
4	4	12	3	76
6	4	14.5	3.5	106
6	6	14.5	3.5	131
8	4	17.5	4.5	153
8	6	17.5	4.5	188
8	8	17.5	4.5	201
10	4	20.5	5	232
10	6	20.5	5	288
10	8	20.5	5	333
10	10	20.5	5	300
12	4	24.5	5.5	355
12	6	24.5	5.5	370
12	8	24.5	5.5	395
12	10	24.5	5.5	420
12	12	24.5	5.5	460
14	6	27	6	500
14	8	27	6	525
14	10	27	6	555
14	12	27	6	600
14	14	27	6	640
16	6	30	6.5	655
16	8	30	6.5	680
16	10	30	6.5	715
16	12	30	6.5	755
16	14	30	6.5	800
16	16	30	6.5	850
18	8	32	7	820
18	10	32	7	855
18	12	32	7	1003
18	14	32	7	940
18	16	32	7	990
18	18	32	7	1035
20	10	35	8	1095
20	12	35	8	1130
20	14	35	8	1170
20	16	35	8	1220
20	20	35	8	1345
24	24	40.5	9	2020

* Not included in AWWA C110

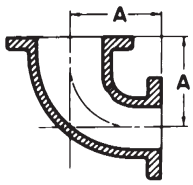


True Wye

Size Stem	Size Branches	Dimensions X	Dimensions Y	Weight
4	4	6.5	3.0	49
6	4	8.0	3.5	75
6	6	8.0	3.5	84
8	6	9.0	4.5	134
8	8	9.0	4.5	125

* Not included in AWWA C110

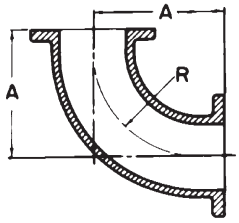
BENDS



*90° Reducing Bend (1/4)

Size	Dimensions A	Weight
4x3	6.5	35
6x4	8	65
8x4	9	88
8x6	9	96
10x6	11	126
10x8	11	151
12x6	12	172
12x8	12	191
12x10	12	218

* Not included in AWWA C110

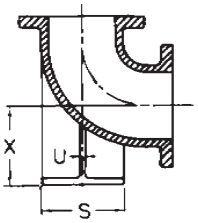


*90° Long Radius Bend (1/4)

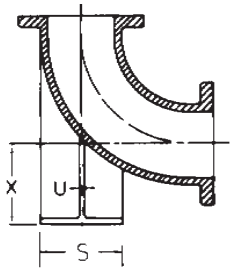
Size	Dimensions R	Dimensions A	Weight
3	6.25	7.75	32
4	7	9	46
6	9.5	11.5	83
8	14	14	140
10	16.5	16.5	252
12	17	19	310
14	19	21.5	475
16	21.5	24	630

* Not included in AWWA C110

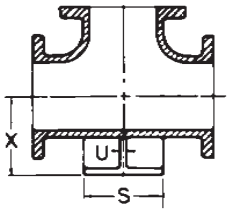
BASE BENDS, BASE TEES



90° Base Bend (1/4)



*90° Long Radius Base Bend (1/4)



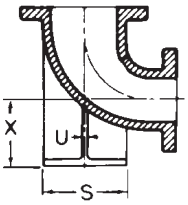
Base Tees

Size	Dimensions X	Dimensions S	Dimensions U	Support Pipe Size	Weight 90°	Weight 90°LR	Weight Tee
3	4.88	5	.50	1.5	38	41	47
4	5.5	6	.50	2	50	60	76
6	7	7	.62	2.5	83	100	115
8	8.38	9	.88	4	142	180	195
10	9.75	9	.88	4	210	315	315
12	11.25	11	1.00	6	300	427	450
14	12.5	11	1.00	6	400	580	570
16	13.75	11	1.00	6	505	740	710
18	15	13.5	1.12	8	645	...	900
20	16	13.5	1.12	8	805	...	1125
24	18.5	13.5	1.12	8	1215	...	1927
30	23	16	1.15	10	1945	...	...

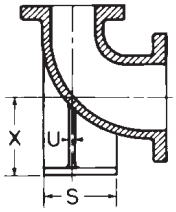
* Not included in AWWA C110

Base Bends are made to order only, not returnable. Bases are furnished faced and drilled.

* REDUCING BASE BENDS



Base Under Large End

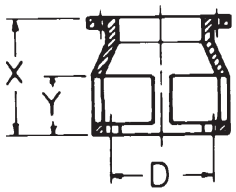


Base Under Small End

Size	Dimensions X	S	U	Weight
4x3	5.5	6	.50	45
6x4	7	7	.62	75
8x4	8.38	9	.88	118
8x6	8.38	9	.88	135
10x6	9.75	9	.88	175
10x8	9.75	9	.88	184
12x6	11.25	11	1.00	230
12x8	11.25	11	1.00	255
12x10	11.25	11	1.00	285

* Not included in AWWA C110
NOTE: "X" dimensions are identical on Base-under-large-end and Base-under-small-end. "S" dimensions are determined by the largest fitting opening.

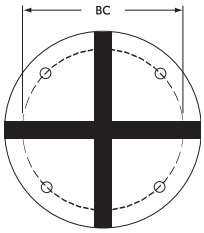
* FLANGE SLUDGE SHOE



Flange Sludge Shoe

Size	Dimensions D	X	Y	Weight
3	5.75	12	6	28
4	7.00	12	6	35
6	7.87	12	6	45
8	10.12	12	6	69
10	12.25	12	6	88
12	15.25	12	6	120

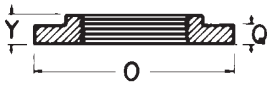
* Not included in AWWA C110



Base Drilling Details

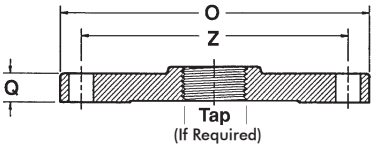
Nom. Diameter Inches	Dimensions - Inches BC	Bolt Hole Diameter	Number of Bolts
3	3.88	5/8	4
4	4.75	3/4	4
6	5.50	3/4	4
8	7.50	3/4	4
10	7.50	3/4	4
12	9.50	7/8	4
14	9.50	7/8	4
16	9.50	7/8	4
18	11.75	7/8	4
20	11.75	7/8	4
24	11.75	7/8	4
30	14.25	1	4
36	17.00	1	4
42	21.25	1-1/8	4
48	22.75	1-1/4	4

FLANGES (COMPANION FLG)

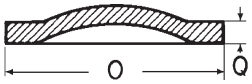


Flange for Steel Pipe
Reducing Flange for Steel Pipe

Flange for DI Pipe
Reducing Flange for DI Pipe



Under 12" Blind Flange
With Optional 2" Taps



12" and Larger Blind Flange
With Optional 2" Taps

Size	Dimensions O	Q	Y	Z	Weight Steel	DI	Blind	Blind Tap
2	6	.62	1	4.75	4	...	...	...
2½	7	.69	1.13	5.50	8	...	...	...
3	7.5	.75	1.19	6.00	7	6	8	8
4	9	.94	1.31	7.50	12	11	15	15
6	11	1.00	1.56	9.50	21	14	28	28
8	13.5	1.12	1.75	11.75	28	34	45	45
10	16	1.19	1.94	14.25	49	33	62	62
12	19	1.25	2.19	...	61	52	72	87
14	21	1.38	2.25	...	...	72	110	110
16	23.5	1.44	2.5	...	...	90	165	165
18	25	1.56	2.69	...	...	105	192	190
20	27.5	1.69	2.88	...	...	115	249	250
24	32	1.88	3.25	...	...	160	375	370
30	38.75	2.12	...	...	...	255	580	580
36	46.00	2.38	...	...	...	...	790	...
42	53.00	2.62	...	...	...	...	1175	...
48	59.50	2.75	...	...	...	...	1585	...

NOTE: All flanges conform to ANSI/AWWA C110/A21.10 Standards.

DI Reducing Flange Threaded For Steel Pipe

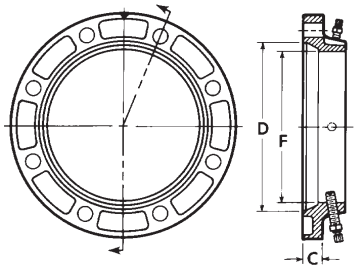
Size	Tap x O.D.	Weight
4x3	3x9	16
6x4	4x11	25
8x4	4x13½	44
8x6	6x13½	31
10x6	6x16	50
12x6	6x19	60
10x8	8x16	55
12x10	10x19	72

DI Reducing Flange Threaded For Cast Iron Pipe

Size	Tap x O.D.	Weight
4x3	3x9	16
6x4	4x11	25
8x4	4x13½	40
8x6	6x13½	35
10x8	8x16	50
12x8	8x19	85

TYLER UNION®

ADAPTER FLANGES (EZ OR UNI)



See Index for Installation Instructions

Size	Rated Working Pressure	No. of Set Screws	Bolt Circle	No. of Bolt & Nuts	Size of Bolt	Bolt Hole Dia.
3	250	4	6.00	4	5/8x2 1/2	3/4
4	250	4	7.50	8	5/8x3	3/4
6	250	8	9.50	8	3/4x3 1/2	7/8
8	250	8	11.75	8	3/4x3 1/2	7/8
10	250	12	14.25	12	7/8x4	1
12	150	12	17.00	12	7/8x4	1

DUCTILE IRON ADAPTER FLANGE

Size	Ductile Iron Pipe OD +.06 or -.06	D +.06 -.04	F +.07 -.03	C	Weight
3	3.96	4.94	4.06	.94	7
4	4.80	6.02	4.90	1.00	10
6	6.90	8.12	7.00	1.06	14
8	9.05	10.27	9.15	1.12	22
10	11.10	12.34	11.20	1.19	30
12	13.20	14.44	13.30	1.25	40

All set screws are 5/8" 80 lb. torque head.

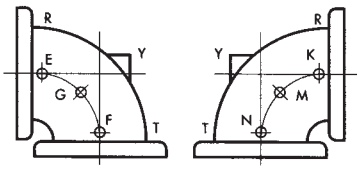
Wall Thickness Note: Recommended for Ductile Iron Pipe Class 53 thru Class 56.

LOCATION OF TAPPED HOLES FOR DRAINS AWWA C110 Flanged Fittings

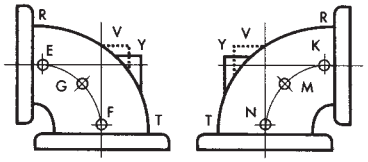
Fittings can be supplied with taps sized and located to ANSI B16.1 and MSS-SP-45. Specify fitting size, tap location by letter (refer to drawings) and tap size by NPT dimension, on order.

NOTE:
A BOSS IS ALWAYS REQUIRED AT "Y" OR "V" ON STRAIGHT AND REDUCING SIZES OF 90-DEGREE ELBOWS, AND ON TAPERED SIDES OF REDUCERS.

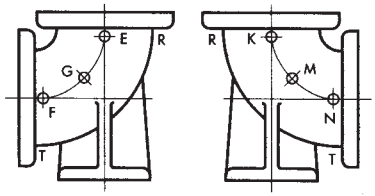
Fitting Size	Maximum Tap Without Boss
3"	1/2"
4" - 6"	3/4"
8"	1-1/4"
10" - 16"	1-1/2"
18" - 30"	2"



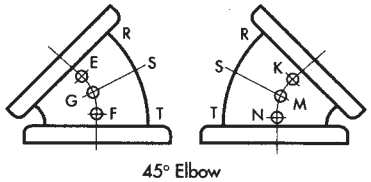
90° Elbow, Straight Size



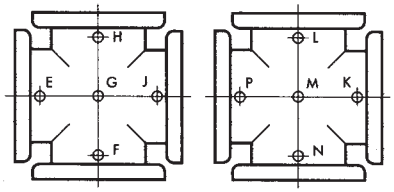
90° Elbow, Reducing Size



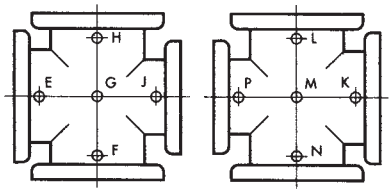
90° Base Elbow



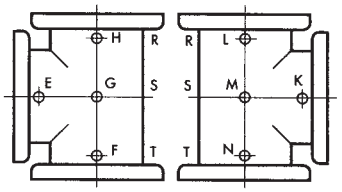
45° Elbow



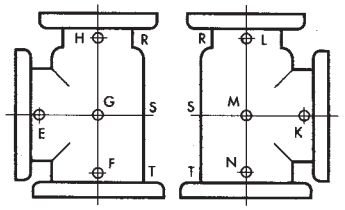
Cross, Straight Size



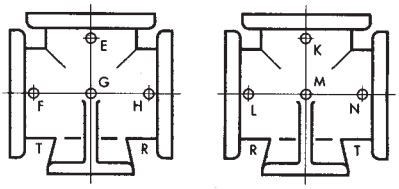
Cross, Reducing Size



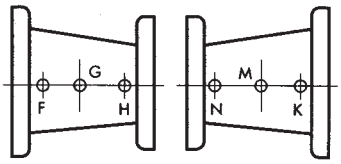
Tee, Straight Size



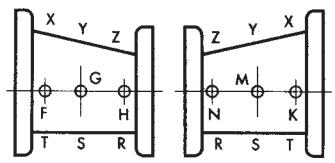
Tee, Reducing Size



Base Tee



Concentric Reducer



Eccentric Reducer

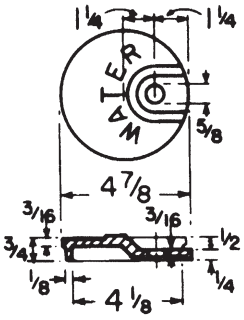
SPECIAL TAP PRICING POLICY

Special taps in fittings apply to C-110 Flanged Fittings only. Flanged Fittings that require a tapping boss will have a one time $200.00 (net) set up charge per boss per position. Consult your Customer Service Representative for current special tap pricing and more details.

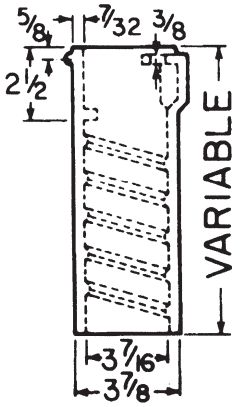
TYLER UNION®

CAST IRON SERVICE BOXES, ADJUSTABLE

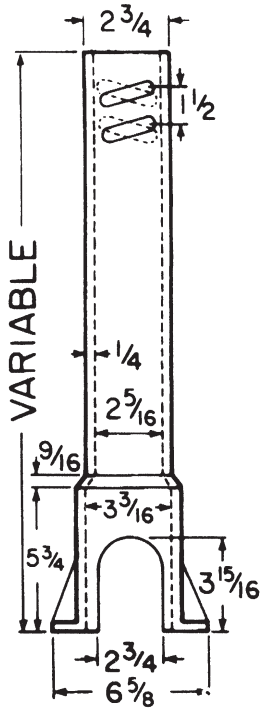
Accommodates 2" through 1¼" curbstops; enlarged base
Accommodates 2" curbstops; 2½" shaft - screw type



Lid



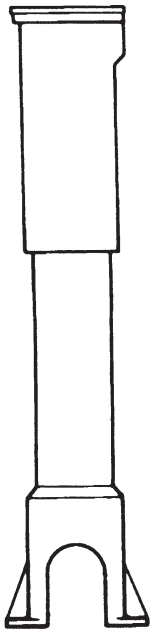
Top



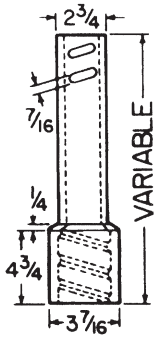
Bottom

6500 SERIES, SCREW TYPE WITH WATER LID

Box (Compoents)	UPCode 67610	Ship Code	Extension In Inches	Weight
89-A (12T & 12B)	146681	S	15-21	20
90-B (12T & 15B)	146742	S	18-24	21
90-C (15T & 15B)	146803	S	21-27	22
91-C (15T & 21B)	146865	S	24-33	24
92-C (15T & 27B)	146926	S	30-39	26
92-D (18T & 27B)	146988	S	30-42	28
93-D (18T & 33B)	147046	S	36-48	32
93-E (24T & 33B)	147114	S	36-54	37
94-E (24T & 39B)	147183	S	42-60	41
95-E (30T & 39B)	147251	S	41-64	44
100-E (24T & 21B & #154 Ext)	147312	S	54-72	50
100-F (30T & 21B & #154 Ext)	147381	S	54-78	53
101-F (30T & 27B & #154 Ext)	147459	S	60-84	55



Box Assembled

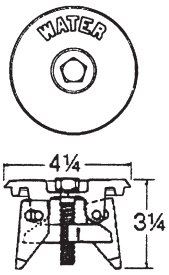


TOP SECTION WITH WATER LID

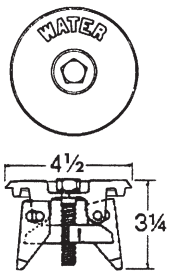
Item	UPCode 67610	Ship Code	Weight
12T	147510	S	11
15T	147589	S	12
18T	147640	S	14
24T	147701	S	19
30T	147763	S	22

BOTTOM ONLY

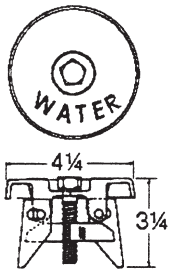
Item	UPCode 67610	Ship Code	Weight
12B	144670	S	9
15B	144687	S	10
21B	144694	S	12
27B	144700	S	14
33B	144717	S	18
39B	144724	S	22



(New Style) Repair Lid



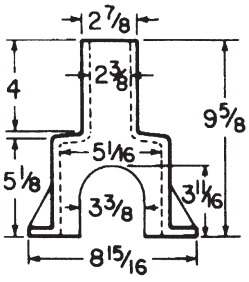
(Old Style) Repair Lid



(Outside Cover) Repair Lid

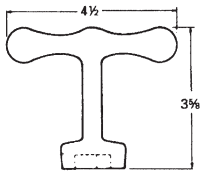
EXTENSION

Item	Height Increase
151	9
152	16
153	28
154	30



ENLARGED BASE
For 2" Curbstop

Item	Height Increase
6500	6"



Wrench

Brass Screw
Std. WW Pentagon

6500 SERIES PARTS

Item	UPCode 67610	Ship Code	Wt.
151 Ext	144762	S	7.0
152 Ext	144779	5	12.0
153 Ext	144786	S	17.0
154 Ext	144793	S	19.0
Enlarged Base	144809	S	8.0
2½" "Water Lid"	144830	S	1.0
Brass Screw (Std. WW Pentagon)	144816	S	...
Wrench (Std. WW Pentagon)	144908	S	0.5
2½" "Repair Lid Old"	144915	S	4.5
2½" "Repair Lid New"	144922	S	4.5
2½" "Repair Lid Outside Cover"	381518	S	4.5

TYLER UNION®

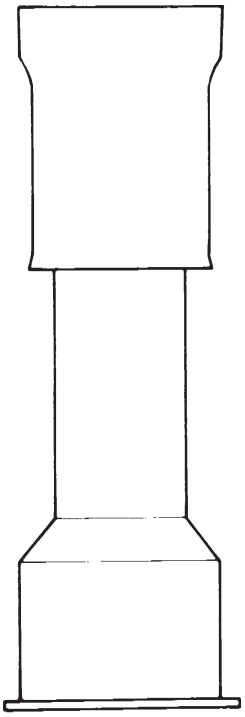
6850 SERIES
CAST IRON TWO-PIECE VALVE BOXES
for 4" through 12" valves, 5 1/4" shaft, screw-type

New ways to save on valve boxes. Eliminate extra handling by buying pre-assembled units. Save on single parts and accessories. Lower unit cost by purchasing Valu-Paks of 30 to 80 pieces of tops and bottoms in crates. See list price sheet for pricing details.

THREE WAYS TO SAVE 6850 VALVE BOX

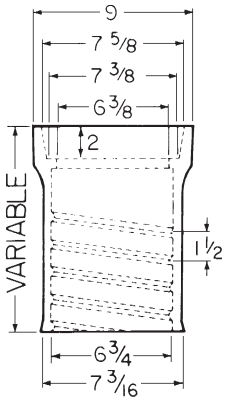
Level I	Level 2	Level 3
Boxes Assembled	Individual Parts Not Assembled	VALU-PAK Parts Not Assembled

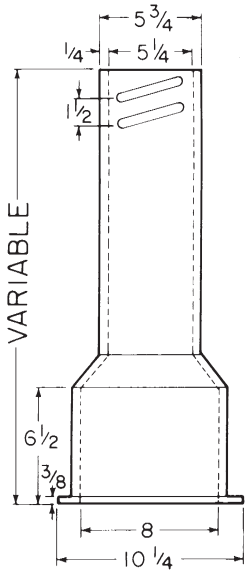
Note: A "BOX" is one top and one bottom



Box Assembled

Level Two Top





Level Two Bottom

LEVEL ONE: BOXES ASSEMBLED LESS LIDS

Box (Components)	Extension Height	UPCode 670610	Weight
461-S (10T + 15B)	19-22	(Not Offered Assembled	
462-S (10T + 24B)	27-32	(Not Offered Assembled	
562-S (16T + 24B)	27-37	145790	71
563-S (I 6T + 30B)	33-43	145752	78
564-S (I 6T + 36B)	39-50	145806	85
662-S (26T + 30B)	36-52	145769	93
664-S (26T + 36B)	39-60	145813	100
666-S (26T + 24B + #60 Ext)	51-71	(Not Offered Assembled)	
668-S (26T + 36B + #60 Ext)	62-82	(Not Offered Assembled)	

Lids marked "WATER" will ship unless otherwise specified:
Also available 5¼" Drop Lids"
- WATER OMA
- SEWER
- MWW
- (PLAIN)
- GAS

TYLER UNION®

6850 SERIES
CAST IRON TWO-PIECE VALVE BOXES
for 4" through 12" valves, 5 1/4" shaft, screw-type

LEVEL TWO - Parts Not Assembled/Less Lids

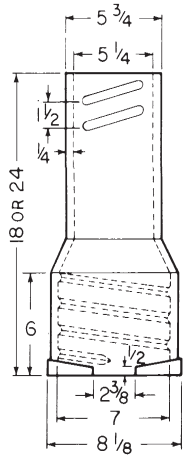
TOPS & BOTTOMS

Box (Components)	Assy Height	Tops (less lids) UPCode 670610	Lgt	Wt	Bottoms UPCode 670610	Lgt	Wt	Extensions UPCode 670610
461-S (10T + 15B)	19-22	144939	10T	22	145004	15B	27	
462-S (10T + 24B)	27-32	144939	10T	22	145011	24B	35	
562-S (16T + 24B)	27-37	144946	16T	36	145011	24B	35	
563-S (16T + 30B)	33-43	144946	16T	36	144991	30B	42	
564-S (16T - 36B)	39-50	144946	16T	36	145028	36B	49	
662-S (26T - 30B)	36-52	144953	26T	51	144991	30B	42	
664-S (26T + 36B)	39-60	144953	26T	51	145028	36B	49	
666-S (26T + 24B + #60 Ext)	51-71	144953	26T	51	*145011	24B	35	145059
668-S (26T + 36B + #60 Ext)	62-82	144953	26T	51	*145028	36B	49	145059

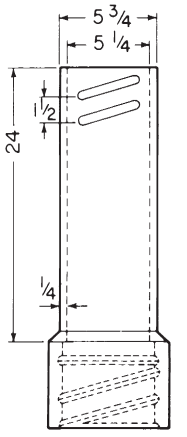
* 6850 Bottoms

EXTENSIONS

Item/Description	UPCode 670610	Height Increase	Wt
#58 Screw-Type	145141	14	29
#59 Screw-Type	145158	18	30
#60 Screw-Type	145059	24	37



58 and 59 Extension



60 Extension

LEVEL THREE - Crates of tops and bottoms, not assembled, less lids. Easy to handle, ships from stock.

TOPS OR BOTTOMS

Box (Components)	Assy Height	Tops (less lids) UPCode 670610	Lgt	Wt	Qty	Bottoms UPCode 670610	Lgt	Wt	Qty
461-S (10T + 15 B)	19-22	376910	10T	1840	80	376941	15B	1080	40
462-S (10T + 24B)	27-32	376910	10T	1840	80	376958	24B	1050	30
562-S (16T + 24B)	27-37	376927	16T	2160	60	376958	24B	1050	30
563-S (16T + 30B)	33-43	376927	16T	2160	60	376965	30B	1260	30
564-S (16T + 36B)	39-50	376927	16T	2160	60	376972	36B	1470	30
662-S (26T + 30B)	36-52	376934	26T	1530	30	376965	30B	1260	30
664-S (26T + 36B)	39-60	376934	26T	1530	30	376972	36B	1470	30
666-S (26T + 24B + #60 Ext)	*51-71	376934	26T	1530	30	*376958	24B	1050	30
668-S (26T + 36B + #60 Ext)	*62-82	376934	26T	1530	30	*376972	36B	1470	30

***Extensions (Required on 666-S & 668-S)** *6850 Bottoms

#60 Screw-Type 24" Height Increase	376989	1080	30

NOTES: To get equal numbers, order two crates of bottoms for each crate of tops for 461S, 562S, 563S and 564S. Order lids separately, see above.

TYLER UNION®

6855 SERIES
CAST IRON TWO-PIECE VALVE BOXES
for 4" through 12" valves, 5 1/4" shaft, slip-type

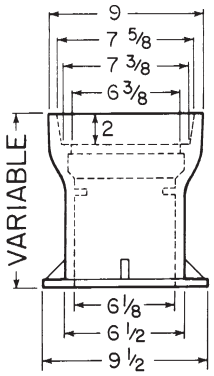
New ways to save on valve boxes. Eliminate extra handling by buying pre-assembled units. Save on single parts and accessories. Lower unit cost by purchasing Valu-Paks of 30 to 80 pieces of tops and bottoms in crates. See list price sheet for pricing details.

THREE WAYS TO SAVE 6855 VALVE BOX

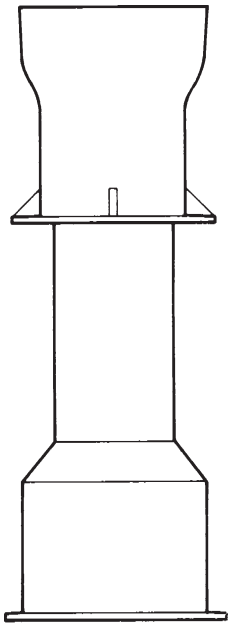
Level I	Level 2	Level 3
Boxes Assembled	Individual Parts Not Assembled	VALU-PAK Parts Not Assembled

Note: A "BOX" is one top and one bottom

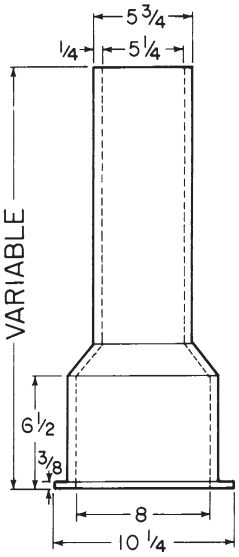
Level Two Top



LEVEL ONE
Boxes Assembled/Less Lid



Box Assembled



Level Two Bottom

LEVEL ONE: BOXES ASSEMBLED LESS LIDS

Box (Components)	Extension Height	UPCode 670610	Weight
461-A (10T + 15B)	19-22	(Not Offered Assembled	
462-A (10T + 24B)	27-32	(Not Offered Assembled	
562-A (16T + 24B)	27-37	145868	72
563-A (l 6T + 30B)	33-43	145714	81
564-A (l 6T + 36B)	39-50	145875	83
662-A (26T + 30B)	36-52	145721	97
664-A (26T + 36B)	39-60	145882	99
666-A (26T + 24B + #60 Ext)	51-71	(Not Offered Assembled)	
668-A (26T + 36B + #60 Ext)	62-82	(Not Offered Assembled)	

Lids marked "WATER" will ship unless otherwise specified:
Also available 5 1/4" Drop Lids"
WATER OMA
SEWER
MWW
(PLAIN)
GAS

LEVEL TWO - Parts Not Assembled/Less Lids

TOPS & BOTTOMS

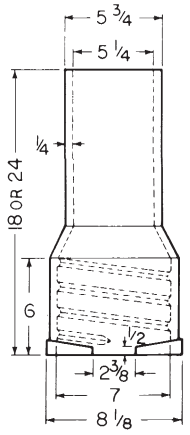
Box (Components)	Assy Height	Tops (less lids) UPCode 670610	Lgt	Wt	Bottoms UPCode 670610	Lgt	Wt	Extensions UPCode 670610
461-A (10T + 15B)	19-22	144960	10T	29	145073	15B	26	
462-A (10T + 24B)	27-32	144960	10T	29	145080	24B	36	
562-A (16T + 24B)	27-37	144977	16T	36	145080	24B	36	
563-A (16T + 30B)	33-43	144977	16T	36	145127	30B	45	
564-A (16T - 36B)	39-50	144977	16T	36	145097	36B	47	
662-A (26T - 30B)	36-52	144984	26T	52	145127	30B	45	
664-A (26T + 36B)	39-60	144984	26T	52	145097	36B	47	
666-A (26T + 24B + #60 Ext)	51-71	144984	26T	52	*145011	24B	35	145066
668-A (26T + 36B + #60 Ext)	62-82	144984	26T	52	*145028	36B	49	145066

*NOTE: These are 6850 Bottoms used to accommodate the interior threads of the applicable extensions.

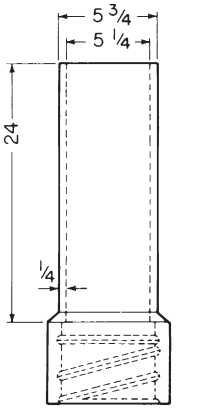
LIDS & RISERS
All Lids..... Page 45
All Risers..... Page 46

EXTENSIONS

Item/Description	UPCode 670610	Height Increase	Wt
#58-A Slip-Type	145233	14	29
#59-A Slip-Type	145240	18	30
#60-A Slip-Type	145066	24	36



58-A and 59-A Extension



60-A Extension

LEVEL THREE - Crates of tops and bottoms, not assembled, less lids. Easy to handle, ships from stock.

TOPS OR BOTTOMS

Box (Components)	Assy Height	Tops (less lids) UPCode 670610	Lgt	Wt	Qty	Bottoms UPCode 670610	Lgt	Wt	Qty
461-A (10T + 15 B)	19-22	376996	10T	2320	80	372023	15B	1040	40
462-A (10T + 24B)	27-32	376996	10T	2320	80	377030	24B	1080	30
562-A (16T + 24B)	27-37	377009	16T	1080	30	377030	24B	1080	30
563-A (16T + 30B)	33-43	377009	16T	1080	30	377047	30B	1350	30
564-A (16T + 36B)	39-50	377009	16T	1080	30	377054	36B	1410	30
662-A (26T + 30B)	36-52	377016	26T	1560	30	377047	30B	1350	30
664-A (26T + 36B)	39-60	377016	26T	1560	30	377054	36B	1410	30
666-A (26T + 24B + #60 Ext)	*51-71	377016	26T	1560	30	*376958	24B	1050	30
668-A (26T + 36B + #60 Ext)	*62-82	377016	26T	1560	30	*376972	36B	1470	30

*Extensions (Required on 666-A & 668-A) * See Note Above.

#60-A Slip-Type 24" Height Increase	377061	1080	30

NOTES: To get equal numbers, order two crates of bottoms for each crate of tops for 461A, 562A, 563A and 564A. Order lids separately, see above.

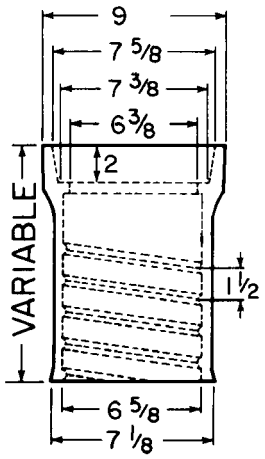
TYLER UNION®

6860 SERIES
CAST IRON THREE-PIECE VALVE BOXES
for 3" through 20" valves, 5 1/4" shaft, screw-type
(Base required, order separately)

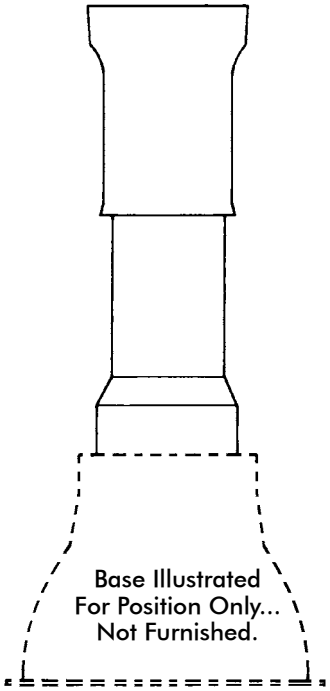
New ways to save on valve boxes. Eliminate extra handling by buying pre-assembled units. Save on single parts and accessories. Lower unit cost by purchasing Valu-Paks of 30 to 80 pieces of tops and bottoms in crates. See list price sheet for pricing details.

THREE WAYS TO SAVE 6860 VALVE BOX		
Level I Boxes Assembled	Level 2 Individual Parts Not Assembled	Level 3 VALU-PAK Parts Not Assembled
Note: A "BOX" is one top and one bottom		

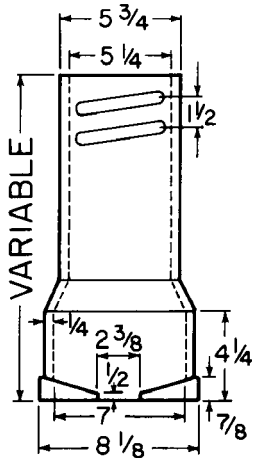
Level Two Top



LEVEL ONE
Boxes Assembled/Less Base and Lid



Box Assembled



Level Two Bottom

LEVEL ONE: BOXES ASSEMBLED LESS BASES AND LIDS

Box (Components)	Extension Height	UPCode 670610	Weight
AA (10T + 12B)	27-37	(Not Offered Assembled	
A (10T + 18B)	33-42	(Not Offered Assembled	
B (16T + 24B)	39-49	145936	69
C (l 6T + 30B)	45-54	145943	73
CC (l 6T + 36B)	51-60	145950	75
D (26T + 30B)	45-66	145967	88
DD (26T + 36B)	51-72	145974	90
E (16T + 24B + #60 Ext)	63-72	(Not Offered Assembled)	
F (26T + 24B + #60 Ext)	63-84	(Not Offered Assembled)	
G (26T + 36B + #60 Ext)	74-94	(Not Offered Assembled)	

Lids marked "WATER" will ship unless otherwise specified:
Also available 5 1/4" Drop Lids"
WATER OMA
SEWER
MWW
(PLAIN)
GAS

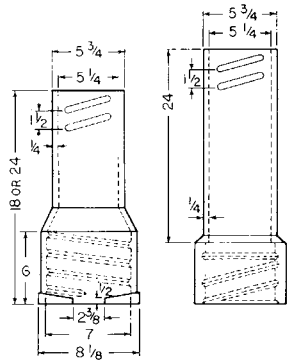
TYLER UNION®

6860 SERIES
CAST IRON THREE-PIECE VALVE BOXES
for 3" through 20" valves, 5 1/4" shaft, screw-type
(Base required, order separately)

LEVEL TWO - Parts Not Assembled/Less Lids

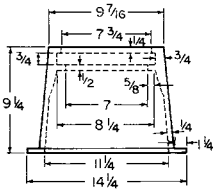
TOPS & BOTTOMS

Box (Components)	Assy Height	Tops (less lids) UPCode 670610	Lgt	Wt	Bottoms UPCode 670610	Lgt	Wt	Extensions UPCode 670610
AA (10T + 12B)	27-31	144939	10T	23	145134	12B	19	
A (10T + 18B)	33-42	144946	10T	36	145141	18B	29	
B (16T + 24B)	39-49	144946	16T	36	145158	24B	33	
C (16T + 30B)	45-54	144946	16T	36	145165	30B	37	
CC (16T - 36B)	51-60	144946	16T	36	145172	36B	39	
D (26T - 30B)	45-66	144953	26T	51	145165	30B	37	
DD (26T + 36B)	51-72	144953	26T	51	145172	36B	39	
E (16T + 24B + #60 Ext)	63-72	144946	26T	36	145158	24B	33	
F (26T + 24B + #60 Ext)	63-84	144953	26T	51	145158	24B	33	145059
G (26T + 36B + #60)	74-94	144953	26T	51	145172	36B	39	145059

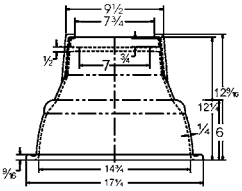


58 and 59 Extension

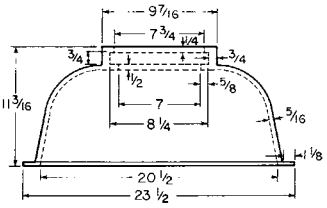
60 Extension



#4 Base



#6 Base (Standard)



#160 Base

EXTENSIONS

Item/Description	UPCode 670610	Height Increase	Wt
#58 Screw-Type	145141	14	29
#59 Screw-Type	145158	18	30
#60 Screw-Type	145059	24	37

LIDS & EXTENSIONS
Lids..... Page 45
Extensions..... Page 40

BASES

Item/Description	UPCode 670610	Wt
#4, 11¼" Wide	145653	34
#6, 14¾" Wide	145660	45
#160, 20½" Wide	145684	68

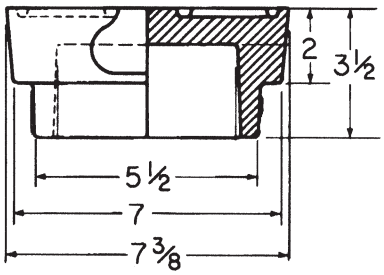
LEVEL THREE - Crates of tops and bottoms, not assembled, less lids. Easy to handle, ships from stock.

TOPS OR BOTTOMS

Box (Components)	Tops (less lids) UPCode 670610	Lgt	Wt	Qty	Bottoms UPCode 670610	Lgt	Wt	Qty
AA (10T + 12 B)	376910	10T	1840	80	377078	12B	1520	80
A (10T + 18B)	376927	16T	2160	60	377085	18B	1740	60
B (16T + 24B)	376927	16T	2160	60	377092	24B	990	30
C (16T + 30B)	376927	16T	2160	60	377108	30B	1110	30
CC (16T + 36B)	376927	16T	2160	60	377115	36B	1170	30
D (26T + 30B)	376934	26T	1530	30	377108	30B	1100	30
DD (26T + 36B)	376934	26T	1530	30	377115	36B	1170	30
E (16T + 24B + #60 Ext)	376927	16T	2160	60	371092	24B	990	30
F (26T + 24B + #60 Ext)	376934	26T	1530	30	377092	24B	990	30
G (26T + 36B + #60 Ext)	376934	26T	1530	30	377115	36B	1170	30
Extensions								
#60 Screw-Type 24" Height Increase	376989		1080	30				

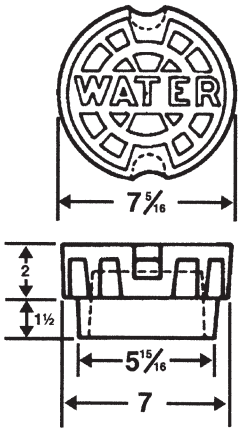
NOTES: To get equal numbers, order two crates of bottoms for each crate of tops for B, C, CC and E only.
Order bases and lids separately, see above.

TYLER UNION®

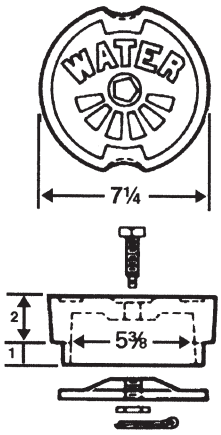


5¼" MWW DROP LID

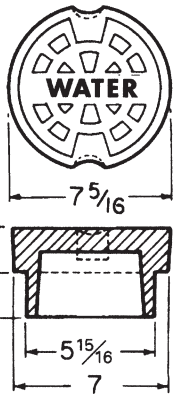
UPCode 670610	Weight
145370	12



Drop Lid



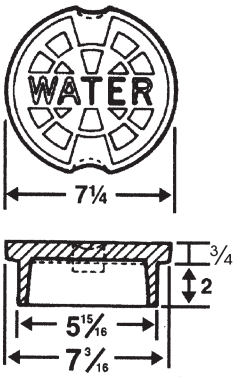
Lock Lid



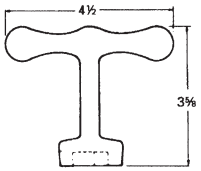
5¼" OMA DROP LID

UPCode 670610	Special Markings	Weight
145301	WATER OMA*	12

*OMA marking is inside lid.



1 1/8" Lid



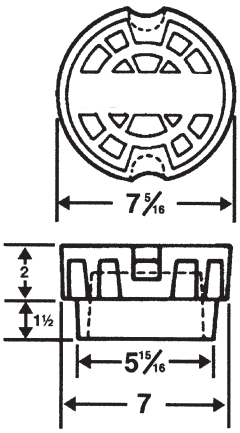
WRENCH
Fits Standard Waterworks Pentagon Head 27/32" Brass Screws

UPCode 670610	Ship Code	Description	Weight
144908	S	Wrench	0.5

LIDS ("WATER")

Item/Description	UPCode 670610	Weight
5¼ Drop Lid	145325	12
5¼ Lock Lid	145462	11
1⅛ Lid*	145509	11

*Use with 1⅛" Riser Only.

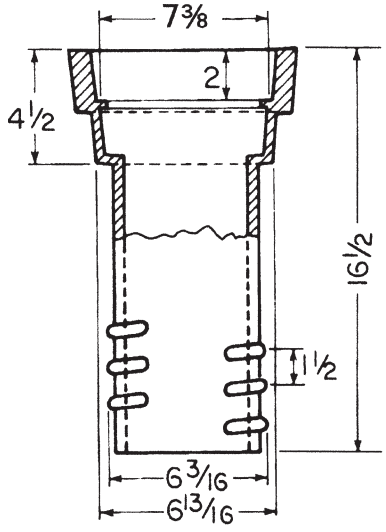


5¼" DROP LID W/SPECIAL MARKINGS*

UPCode 670610	Special Mark	Weight
145332	GAS	12
145349	SEWER	12
145356	PLAIN	12

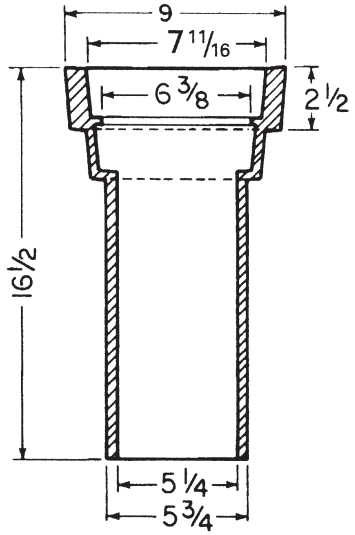
*Lids marked with "WATER" will be shipped unless otherwise specified.

TYLER UNION®



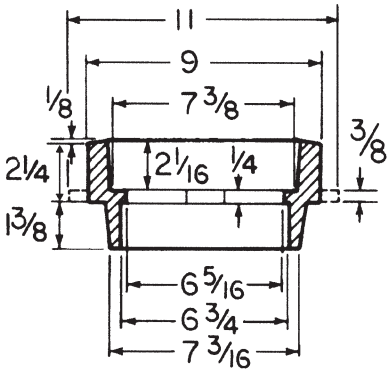
#69 SCREW TYPE ADJUSTABLE RISER FOR 6850/60 SERIES (Uses Standard Drop Lid)

UPCode 670610	Height Increase	Weight
148197	2½" - 9"	29

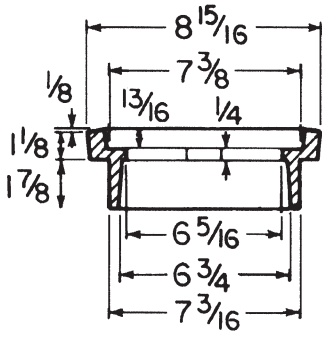


#69-A SLIP TYPE ADJUSTABLE RISER FOR 6855 SERIES (Uses Standard Drop Lid)

UPCode 670610	Height Increase	Weight
148241	2½" - 12"	29



5¼" x 2¼" Riser (Uses Standard 5¼" Drop Lid)



5¼" x 1⅛" Riser (Requires 1⅛" Riser Lid)

RISERS

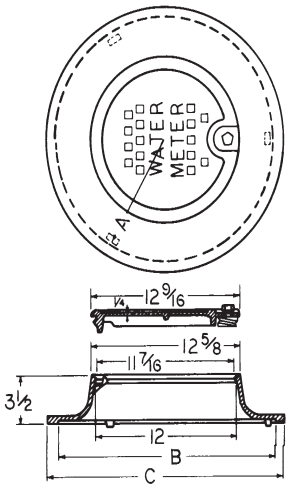
Item/Description	UPCode 670610	Height Increase	Weight
5¼ x 1⅛Slip-In*	145554	1⅛"	8
5¼ x 2¼ Slip-In	145547	2¼"	14

*Use with 1⅛" Lid Only.

TYLER UNION®

6150 & 6150TR METER COVERS, CAST IRON

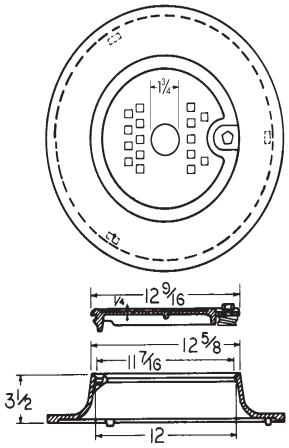
Description	A	B	C
18-in. 6150 Series	8¾	18	20
20-in. 6150	9¾	20	22



6150 Meter Box Cover

UPCode 670610	Ship Code	Description	Weight
148449	S	6150-18 Ring & Lid B/L*	39
148456	S	6150-18 Ring & Lid B/S	39
148647	S	6150-18 Ring Only	27
148494	S	6150-18/20 Lid With Lock B/L*	13
148593	S	61 50-L-1 8/20 Lid Less Lock	14
148500	S	6150-18/20 Lid With Lock B/S*	13
148463	S	6150-20 Ring & Lid B/L*	41
148470	S	6150-20 Ring & Lid B/S*	41
148630	S	6150-R-20 Ring Only	29

*B/L = Large Bolts (1-1/32"); B/S = Small Bolts (27/32" Standard)

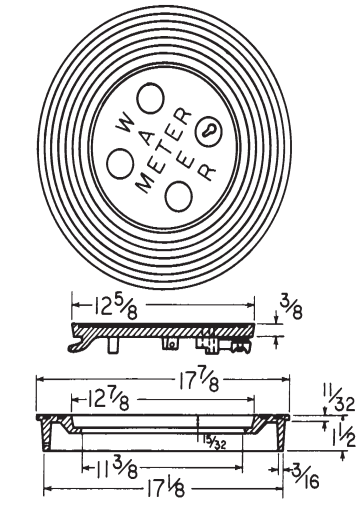


6150TR Meter Cover

6150TR (TOUCH-READER) METER COVERS CAST IRON

UPCode 670610	Ship Code	Description	Weight
148531	S	6150-18 TR Ring & Lid B/L"	39
148524	S	6150-18 TR Ring & Lid B/S*	39
148579	S	6150-18/20 TR Lid With Lock B/L*	13
148562	S	6150-18/20 TR Lid With Lock B/S*	13
148586	S	6150-18/20 TR Lid Less Lock	12
148555	S	6150-20 TR Ring & Lid B/L*	41
148548	S	6150-20 TR Ring & Lid B/S*	41

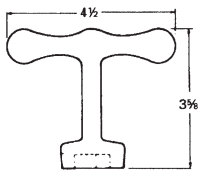
*B/L = Large Bolts (1-1/32"); B/S = Small Bolts (27/32")
NOTE: 6150TR - Same dimensions as 6150, plus a 1-27/32" access hole in lid.



6200 Meter Cover

6200 METER COVER, CAST IRON

UPCode 670610	Ship Code	Description	Weight
148708	S	6200 Ring & Lid Less Lock	28
148760	S	6200-R Ring Only	18
148739	S	6200-L Lid Less Lock	13
148722	S	6200-L Lid With Lock	11



WRENCH
Fits Standard Waterworks Pentagon Head 27/32" Brass Screws

UPCode 670610	Ship Code	Description	Weight
144908	S	Wrench	0.5

TERMS AND CONDITIONS OF SALE - McWane, Inc.

1. ENTIRE AGREEMENT. McWane, Inc., agrees to sell the goods covered herein (the "Goods") to Buyer on the following terms and conditions of sale (the "Terms and Conditions") which supersede any other or inconsistent terms of Buyer. This contract constitutes the entire agreement between parties with respect to the Goods, and this Agreement may not be modified, amended or waived in any way except in writing signed by an authorized representative of Seller. No representation, promise or term not set forth herein has been nor may be relied upon by Buyer. All references by Seller to Buyer's specifications and similar requirements are only to describe the products and work covered hereby and no warranties or other terms therein shall have any force or effect.

2. QUOTATIONS. Where this form is used by Seller to place a bid, the quotation stated herein is for prompt acceptance and is subject to change and/or withdrawal without notice. Prompt acceptance of all quotations and adherence to delivery schedules are material terms of the bid and any subsequent agreement. In cases where freight allowance is included in the quotation, Buyer is liable for any rate increase and/or additional expense over the calculated allowance resulting from compliance with Buyer's shipping instructions.

3. ACCEPTANCE. This order shall not be binding upon Seller until accepted by an authorized representative of Seller at its home office. Acceptance of orders, whether oral or written, is based on the express condition that Buyer agrees to all of these Terms and Conditions. Acceptance of delivery by Buyer will constitute Buyer's assent to these Terms and Conditions in their entirety.

4. DELIVERY. All prices are F.O.B. Seller's plant, unless otherwise specified by Seller. All shipping dates are approximate, and any time period indicated for a shipment shall not commence until receipt of Seller's information. Acceptance of shipment by designated shipper, allocation of Goods to Buyer at premises other than Seller's, delivery to Buyer's representative or designee, or mailing of an invoice to Buyer, whichever first occurs, shall constitute tender of delivery. Upon tender of delivery, title shall pass to Buyer, subject to Seller's right of stoppage in transit and to any interest of Seller reserved to secure Buyer's payment or performance, irrespective of any freight allowance or prepayment of freight. Goods held subject to Buyer's instructions, Goods for which Buyer has failed to supply shipping instructions, or in any case where Seller, in its sole discretion, determines any part of the Goods should be held for Buyer's account, Seller may invoice the Goods and Buyer agrees to make payment at the maturity of the invoice rendered. Goods invoiced and held at any location for whatever reason shall be at Buyer's risk and Seller may charge for (but is not obligated to carry) insurance, storage and other expenses incident to such delay at its prevailing rates. Partial deliveries shall be accepted by Buyer and paid for at contract prices and terms. When Buyer has declared or manifested an intention not to accept delivery , no tender shall be necessary but Seller may, at its option, give notice in writing to Buyer that Seller is ready and willing to deliver and such notice shall constitute a valid tender of delivery. In no event shall Buyer be entitled to make any deduction from any payment due hereunder by reason of loss or damage in transit. Upon the written request of Buyer, Seller, at its sole discretion, may agree as a service to Buyer to process Buyer's claim against the carrier for any loss or damage in transit, provided that such claim is received by Seller within five (5) days of the receipt of Goods. Any such claims must be accompanied by a delivery receipt, signed by carrier's agent at time of delivery, on which receipt the loss or damage has been noted. In the absence of directions, goods will be shipped by the method and via carrier Seller believes dependable. Delivery by truck will be made to nearest points reasonably accessible by truck as determined by the driver. Buyer will furnish and pay for necessary labor to unload and store Goods. Buyer shall note loss or damage on truck shipments upon delivery ticket returned to Seller. All materials received from Seller must be counted upon receipt and compared to the Seller's packing list. Any shortage must be noted on the carrier's official freight bill and be confirmed with the signature of the driver representing the delivering carrier. A copy of the freight bill listing the shortage must be forwarded to Seller within three working days to receive credit for any shortage. If the freight bill is signed without exception, the packing list will be deemed correct and no shortage claim will be honored. Contact Seller's sales correspondent immediately if no packing list is present.

5. TERMS OF PAYMENT. Terms to Buyers whose credit has been approved in writing by Seller are specified on the face of the applicable invoice. Seller shall have the right to make partial shipments.. If, at any time or for any reason, Seller shall have cause to question Buyer's ability to perform, Seller may demand such assurances of Buyer's performance as Seller shall deem necessary in its discretion, including payment in advance for all shipments. If Buyer fails within 10 days of Seller's demand to provide Seller with such assurance, Seller shall be entitled to cancel any order then outstanding, receive reimbursement for its reasonable and proper cancellation charges and may proceed to collect, without limitation, any sums due and owing, its reasonable cancellation charges and all damage resulting from Buyer's default. In the event of bankruptcy or insolvency of Buyer, or in the event of any proceeding brought against Buyer, voluntarily or involuntarily, under bankruptcy or any insolvency laws, Seller shall be entitled to cancel any order then outstanding at any time and shall receive reimbursement for its reasonable and proper cancellation charges. If Buyer fails to make payment for the Goods when due, Buyer's account shall be deemed delinquent and Buyer shall be liable to Seller for a service charge of eighteen percent (18%) per annum or the maximum allowed by law, whichever is greater, on any unpaid amount. Buyer shall be liable to Seller for all costs and expenses of collection, including court costs and reasonable attorney's fees.

6. CANCELLATION, CHANGES AND RETURNS. This order is not subject to cancellation, change or return unless agreed to in writing by an authorized representative of Seller. At Seller's option, Buyer may be charged for any costs incurred by Seller prior to or as a result of such cancellation, change or return. In this event, the seller shall be entitled to revise its prices and delivery dates to reflect such change. When Seller's agreement is obtained, Seller will accept returned material for credit if, in its sole discretion, it finds such material to be standard stock and in good condition. Such credit shall be the invoice price less 25% on acceptable goods, and less all shipping and handling charges. In all other cases, the credit in Seller's sole discretion shall be the scrap value of the Goods, less shipping and handling charges.

7. DELAY IN OR PREVENTION OF PERFORMANCE. Seller shall not be liable for any expense, loss or damage resulting from delay in delivery or prevention of performance caused by fires, floods, acts of God, strikes, labor disputes, labor shortages, lack of or inability to obtain materials, fuels, supplies or equipment, riots, accidents, transportation delays, acts or failures to act of any government or of Buyer, or any other cause whatsoever, provided that such cause is beyond the reasonable control of Seller; and Seller shall have such additional time for performance as may be reasonably necessary under the circumstances and may adjust the price to reflect increases occasioned by such delay. Acceptance by Buyer of any Goods shall constitute a waiver by Buyer of any claim for damages on account of any delay in delivery of such Goods. If delivery is delayed or interrupted for any such cause, Seller may store the Goods at Buyer's expense and risk, and Seller may charge Buyer therefor a reasonable storage rate. If Seller is delayed in proceeding with production or otherwise because it is awaiting Buyer's approval or acceptance of designs, drawings, prints, engineering or technical data, or is awaiting Buyer's approval or acceptance of the Goods, Seller shall be entitled to an adjustment in price commensurate with any increase in Seller's cost of production and any other losses and expenses incurred by Seller attributable to such delays.

8. DEFERRED DELIVERY. Any deferred delivery request by Buyer shall be subject to Seller's written approval. If such approval is given, Seller shall have the right to charge Buyer for the completed portion of the order and to warehouse all completed Goods at Buyer's expense and risk of loss. Seller also reserves the right, at its option, as to any uncompleted portion of the order to cancel said uncompleted portion in accordance with Paragraph 6 above, or to revise its prices and delivery schedules on the portion not completed to reflect its increased costs and expenses attributable to the delay.

TERMS AND CONDITIONS OF SALE - McWane, Inc.

9. WARRANTY AND LIMITATION OF LIABILITIES AND BUYER'S REMEDIES. Seller warrants that the Goods delivered hereunder will be of the kind described in the within agreement and shall be free from defects in material and workmanship under conditions of normal use. Seller reserves the right to make any modifications required by production conditions to the information set forth in Seller's catalogues and advertising literature. Seller shall not be liable or responsible, however, for (A) any defects attributed to normal wear and tear, erosion or corrosion or improper storage, use or maintenance, or (B) defects in any portion or part of the Goods manufactured by others. If (B) above is applicable, Seller will, as an accommodation to Buyer, assign to Buyer any warranties given to it by any such other manufacturers. Any claim by Buyer with reference to the Goods for any cause shall be deemed waived by Buyer unless submitted to Seller in writing within ten (10) days from the date Buyer discovered, or should have discovered, any claimed breach. Buyer shall give Seller an opportunity to investigate.

Provided that Seller is furnished prompt notice by Buyer of any defect and an opportunity to inspect the alleged defect as provided herein, Seller shall, at its option and in its sole discretion either: (I) repair the defective or non-conforming Goods, (ii) replace the nonconforming Goods, or part thereof, which are sent to Seller by Buyer within sixty days after receipt of the Goods at Buyer's plant or storage facilities, or (iii) if Seller is unable or chooses not to repair or replace, return the purchase price that has been paid and cancel any obligation to pay unpaid portions of the purchase price of nonconforming Goods. In no event shall any obligation to pay or refund exceed the purchase price actually paid. Repair and/or replacement as provided above shall be at Seller's plant and shipped FOB Plant unless otherwise agreed to by Seller. Transportation charges for the return of the Goods or part thereof to Seller shall be prepaid by Buyer unless otherwise agreed to by the Seller in writing. Seller shall, in no event, be responsible for any labor, removal or installation charges that may result from the above-described repair and/or replacement of any Goods. The foregoing warranty does not cover failure of any part or parts manufactured by others, the failure of any part or parts from external forces, including but not limited to earthquake, installation, vandalism, vehicular or other impact, application of excessive torque to the operating mechanism or frost heave. The exclusive remedy of Buyer and the sole liability of Seller, for any loss, damage, injury or expense of any kind arising from the manufacture, delivery, sale, installation, use or shipment of the Goods and whether based on contract, warranty, tort or any other basis of recovery whatsoever, shall be, at the election of Seller, the remedies described above. The foregoing is intended as a complete allocation of the risks between the parties and Buyer understands that it will not be able to recover consequential damages even though it may suffer such damages in substantial amounts. Because this Agreement and the price paid reflect such allocation, this limitation will not have failed of its essential purpose even if it operates to bar recovery for such consequential damages.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED BY LAW. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE) OR STRICT LIABILITY, SHALL SELLER BE LIABLE FOR ANY PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFIT, LOSS OF USE OF THE GOODS OR OTHER PROPERTY EQUIPMENT, DAMAGE TO OTHER PROPERTY, COST OF CAPITAL , COST OF SUBSTITUTE GOODS, DOWNTIME, OR THE CLAIMS OF BUYER'S CUSTOMERS FOR ANY OF THE AFORESAID DAMAGES. SELLER SHALL NOT BE LIABLE FOR AND BUYER AGREES TO INDEMNIFY SELLER FOR ALL PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LIABILITY RESULTING IN WHOLE OR IN PART FROM THE NEGLIGENCE OF BUYER.

In any contract by Buyer for resale of goods, buyer shall effectively disclaim, as against Seller, any implied warranty of merchantability and all liability for property damage or personal injury resulting from the handling, possession or use of the Goods, and shall exclude, as against Seller, any liability for special or consequential damages.

10. PATENTS. If any claim is made against Buyer based on a claim that any of the Goods constitute an infringement of any U.S. Letter Patent, Buyer shall notify Seller immediately. Seller shall have the right, with Buyer's assistance, if required, but at Seller's expense, to conduct settlement negotiations of any litigation. If any of the Goods are held to infringe any U.S. Letter Patent, and their use is enjoined or, if as a result of a settlement, Seller deems their continued use unadvisable and provided that Buyer has given Seller the immediate notice provided for above and has used the Goods only in accordance with the provisions of this order and shall not have altered or changed them in any material way, Seller shall, at its option and expense, procure for Buyer the right to continue using the Goods, modify the Goods so that they become non-infringing, replace the Goods with non-infringing Goods of substantially equal quality, or replace the Goods and refund the purchase price, less reasonable depreciation. The foregoing states Seller's entire liability for patent infringement.

11. CONTROLLING LAW. This Agreement and all rights and obligations hereunder shall be governed by the laws of the State of Alabama. or Texas Any claim by Buyer arising hereunder shall be tried in the courts of Alabama or Texas to which jurisdiction Buyer hereby submits.

12. ARBITRATION; DISPUTE RESOLUTION; PRESERVATION OF FORECLOSURE REMEDIES. At the option or election of Seller, any dispute, claim or controversy ("Dispute") between Seller or Buyer relating to the transactions contemplated by this agreement, including without limitation any claim based on or arising from an alleged tort, shall be resolved by binding arbitration in accordance with Title 9 of the U.S. Code and the Commercial Arbitration Rules of the American Arbitration Association (the "AAA"). Defenses based on statutes of limitation and similar doctrines shall be applicable in any such proceeding, and the commencement of an arbitration proceeding under this Agreement shall be deemed the commencement of an action for such purposes. The arbitrator shall be selected in accordance with the Commercial Arbitration Rules of the AAA. The AAA shall designate a panel of ten (10) potential arbitrators knowledgeable in the subject matter of the Dispute. Each Seller and Buyer shall designate, within thirty (30) days of the receipt of the list of potential arbitrators, one of the potential arbitrators to serve, and the two arbitrators so designated shall select a third arbitrator from the eight remaining candidates.

13. WAIVER. No delay or failure by Seller to exercise any right or remedy under these Terms and Conditions shall be construed to be a waiver thereof. Waiver by Seller of any breach shall be limited to the specific breach so waived and shall not be construed as a waiver of any subsequent breach of this order or any rights hereunder without the prior written consent of Seller. This Agreement, and the Terms and Conditions contained herein, are enforceable, however, against the successors and assigns of Buyer.

14. ASSIGNMENT. Buyer may not assign this order or any rights hereunder without the prior written consent of seller. This agreement and the Terms and Conditions contained herein, are enforceable, however, against the successors and assigns of Buyer.

15. TAXES. Seller's prices do not include sales, use, excise or other similar taxes. Consequently, in addition to the price specified herein, the amount of any present or future such tax shall be paid by Buyer, or in lieu thereof, Buyer shall provide Seller with all tax-exemption certificates required by the taxing authorities, at the time of sale.

16. CUMULATIVE NATURE OF REMEDIES. All remedies of Seller set forth herein shall be cumulative and shall be in addition to any other remedies available to Seller, whether at law, equity or otherwise.

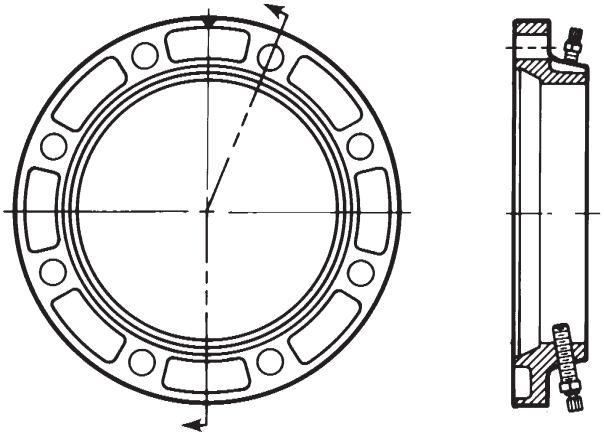
TYLER UNION®

ADAPTER FLANGE

UL LISTED

FM APPROVED

Wall Thickness Note: Recommended for ductile iron pipe Class 53 thru Class 56.



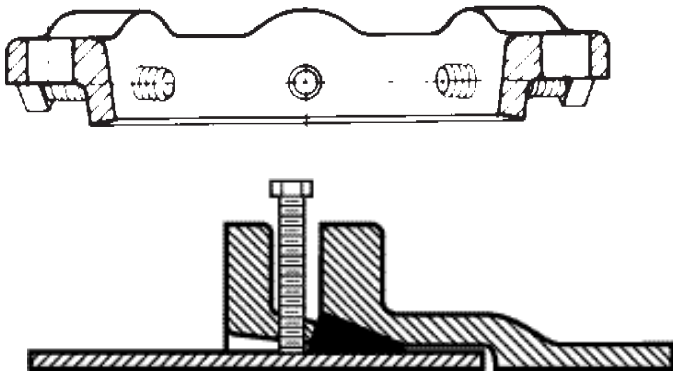
1. Place adapter flange and MJ gasket over the plain end of the pipe with the small side of the MJ gasket facing the flange side of the adapter flange.
2. Place the pipe end against flange to be joined and slip the MJ gasket into position against the flange. Make sure the gasket is evenly seated against the flange.
3. Slide adapter flange into position against the small (tapered) side of the MJ gasket and align the bolt holes. Insert the bolts and finger tighten the nuts to maintain position and alignment.
4. Snug up all nuts evenly. Alternating @ 180°, tighten the nuts to a torque of: 3" - 60 foot pounds; 4" thru 12" - 90 foot pounds.
5. Snug up all set screws evenly around the pipe. Tighten the Torque Head Set Screws evenly, alternating at 180 degrees.

NOTE: THE TORQUE HEAD TOP WILL BREAK OFF AT THE RECOMMENDED SETTING OF 80-90 FT. LBS.
MAXIMUM DEFLECTION OF JOINT (2°)

RETAINER GLAND

UL LISTED

Pipe Wall Thickness: Sizes 3"-12" are recommended for ductile iron pipe class 50 thru 56. Sizes 14" thru 24" are recommended for ductile iron pipe class 53 thru 56.



1. Wash bell and plain end with soapy water, then slip gland and gasket over plain end with the small side of the gasket and ring side of of the gland facing the bell.
2. Slip plain end into bell. Brush soapy water on gasket. This lubricates the gasket and allows it to slip easily into place. Push gasket into bell making sure it is evenly in the bell gasket landing.
3. Slide the gland into position against the back of the gasket. Align bolt holes, insert T-bolts and tighten nuts to finger tight.
4. Snug up all T-bolt nuts evenly. Alternating at 180°, tighten the T-bolt nuts to a torque of:

   3" - 60 foot pounds 4" thru 24" - 90 foot pounds.
5. Snug up all set screws evenly. Using a torque wrench, tighten the set screws alternating at 180° to the recommended torque value of 75 foot pounds. If required double check set screws immediately.

   Maximum recommended deflection of joints:

   3" thru 12"-2°; 14" thru 30" - 1°

Tyler Utilities Division • 11910 CR 492 • Tyler, Texas 75706 • (800) 527-8478
Union Foundry Company • Box 309 • Anniston, Alabama 36202 • (800) 226-7601

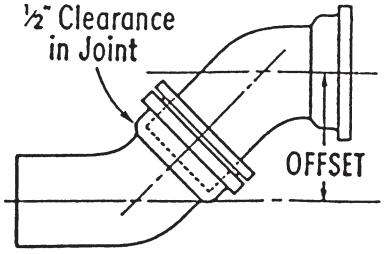
TYLER UNION®

Using Two Bends—Offset in Inches

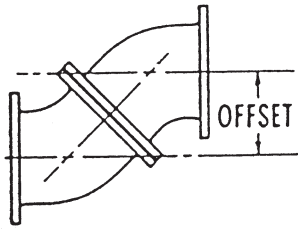
Nominal Diameter Inches	C153 -A21.53 Mechanical Joint 90°	45°	22½°	11¼°
3	14.00	6.36	3.06	1.46
4	15.00	7.07	3.31	1.58
6	18.00	8.48	3.89	1.68
8	20.00	9.19	4.09	1.77
10	24.00	10.61	4.48	1.88
12	26.00	12.02	4.87	1.97
14	31.50	13.08	5.88	2.47
16	33.50	13.79	5.92	2.48
24	41.50	16.40	9.76	4.97
30	N/A	N/A	N/A	N/A

Nominal Diameter Inches	C110 -A21.10 Mechanical Joint 90°	45°	22½°	11¼°
3	19.60	10.25	5.56	2.63
4	21.50	11.69	6.31	3.02
6	24.50	13.06	7.08	3.41
8	26.60	13.76	7.50	3.61
10	30.50	15.19	8.25	4.00
12	32.50	16.62	9.00	4.39
14	36.50	16.62	8.99	4.39
16	38.50	17.32	9.38	4.58
18	41.50	18.03	9.76	4.78
20	44.50	19.45	10.52	5.17
24	52.50	21.57	11.67	5.75
30	58.50	27.23	14.73	7.32

Nominal Diameter Inches	C110 -A21.10 Standard Flange 90°	45°	22½°	11¼°	Long Radius 90°
3	11.00	4.24	2.30	1.17	15.50
4	13.00	5.66	3.06	1.56	18.00
6	16.00	7.07	3.83	1.95	23.00
8	18.00	7.78	4.21	2.15	28.00
10	22.00	9.19	4.98	2.54	33.00
12	24.00	10.61	5.74	2.93	38.00
14	28.00	10.61	6.74	2.93	43.00
16	30.00	11.31	6.12	3.12	48.00
18	33.00	12.02	6.51	3.32	53.00
20	36.00	13.44	7.27	3.71	58.00
24	44.00	15.56	8.42	4.29	68.00
30	50.00	21.22	11.48	5.85	N/A



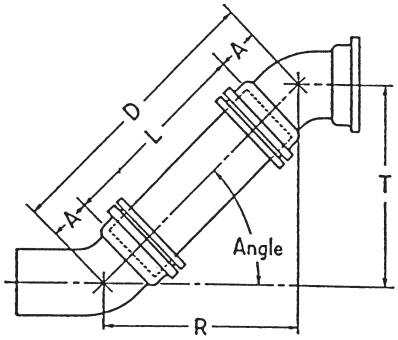
Mechanical Joint



Flanged Joint*

No allowance is made in offset figures for gasket thickness.

DETERMINING LENGTH OF PIPE IN OFFSETS



Mechanical Joint

Angle	D Equals	R Equals	L† Equals
45°	T x 1.414	T x 1.000	D-2A
22½°	T x 2.613	T x 2.414	D-2A
11¼°	T x 5.126	T x 5.027	D-2A

†Cut the Pipe somewhat shorter to allow for clearance in the joints.

Example:
A 14-inch Mechanical Joint line is to be offset 12 feet on an angle of 45-degrees using two C110 full-body Mechanical Joint bends. What is the laying length (L) of pipe required to make the connection between the two bends?

Solution:
D = 12'0" x 1.414 =16.968'
R = 12' x 1.000 = 12.000'
A = 7.5" or .625'
L = 16.968' - 1.250 = 15.718' or approximately 15' 8⅝.

TYLER UNION®

PIPE O.D.'S AND FLANGE DATA

Because many items listed are not made by Tyler Pipe, we cannot be certain that all data is current or accurate. Please check with the product manufacturer for their most recent information.

PIPE O.D. CHART

	GRAY/DI IRON			CAST IRON/DWV			ASBESTOS - CEMENT			PVC	PVC	PVC	STEEL	
	CLASSES		O.D.	SV	NH	XH	CLASS	MACHINED	ROUGH	C-900	C-905	STEEL O.D	TYPE	O.D.
	PIT	SPUN						END O.D.	BARREL O.D.	DI O.D.	DI O.D.	SCH. PIPE		
									MIN. - MAX.		DR 41	40, 80, 120		
											32.5	C 905 IPS		
PIPE											25.18	DIA. 14 - 24		
SIZE														
1-1/2"					1.90±.06							1.90	STD.	1.90
2"			2.50	2.30±.09	2.35±.09	2.38				2.50		2.38	STD.	2.38
2-1/2"												2.88	STD.	2.88
	A		3.80	3.30±.09	3.35±.09	3.50	100	3.74	4.00			3.50	STD.	3.50
3"	B,C,D	50-350	3.96				150	3.84	4.10					
							200	3.84	4.29					
	A	50-350	4.80	4.30±.09	4.38+.09	4.50	100	4.64	4.79-5.14	4.80		4.50	O.D.	4.00
4"	B,C,D		5.00		-.05		150	4.81	4.97-5.27				STD.	4.50
							200	4.81	5.22-5.57					
5"				5.30±.09	5.30+.09	5.50						5.56	STD.	5.56
					-.05									
	A	50-350	6.90	6.30±.09	6.30+.09	6.50	100	6.91	7.05-7.40	6.90		6.63	O.D.	6.00
6"	B,C,D		7.10		-.05		150	6.91	7.07-7.37				STD.	6.63
	E,F		7.22				200	6.91	7.26-7.56					
	A,B	50-300	9.05	8.38±.13	8.38+.13	8.62	100	9.11	9.22-9.57	9.05		8.63	O.D.	8.00
8"	C,D	350	9.30		-.09		150	9.11	9.27-9.57				STD.	8.63
	E,F		9.42				200	9.11	9.39-9.74					
	A,B	50-200	11.10	10.50±.13	10.56±.09	10.75	100	11.24	11.42-11.77	11.10		10.75.	O.D.	10.00
10"	C,D	250-350	11.40				150	11.66	11.82-12.12				STD.	10.75
	E,F		11.60				200	11.66	11.77-12.12					
	A,B	50-200	13.20	12.50±19	12.50±.09	12.75	100	13.44	13.69-14.04	13.20		12.75	O.D.	12.00
12"	C,D	250-350	13.50				150	13.92	14.08-14.38				STD.	12.75
	E,F		13.76				200	13.92	14.03-14.38					
	A,B	50-100	15.30				100	15.07	15.40-15.80		15.30		O.D.	14.00
14"	C,D	150-300	15.65				150	16.22	16.38-16.73					
	E,F		16.98				200	16.22	16.48-16.88					
15"				15.88±.19	15.83±.09	15.88								
	A,B	50-100	17.40				100	17.14	17.54-17.94		17.40		O.D.	16.00
16"	C,D	150-300	17.80				150	18.46	18.62-18.97					
	E,F		18.16				200	18.46	18.79-19.19					
18"	A,B	50-100	19.50				100	19.90	20.44		19.50		STD.	18.00
	C,D	150-250	19.92				150	20.94	21.20					
20"	A,B	50-100	21.60				100	22.12	22.50		21.60		STD.	20.00
	C,D	50-250	22.06				150	23.28	23.54					
24"	A,B	50-100	25.80				100	26.48	27.17		25.80		STD.	24.00
	C,D	150-250	26.32				150	27.96	28.22					

125/150 LB. Flanges And Bolts

Size	Diam of Flange	Bolt Circle	Number of Bolts	Diam Of Bolts	Length Of Bolts
2	6	4¾	4	⅝	2
2½	7	5½	4	⅝	2¼
3	7½	6	4	⅝	2½
3½	8½	7	8	⅝	2½
4	9	7½	8	⅝	2¾
5	10	8½	8	¾	3
6	11	9½	8	¾	3
8	13½	11¾	8	¾	3¼
10	16	14¼	12	⅞	3½
12	19	17	12	⅞	3¾
14	21	18¾	12	1	4¼
16	23½	21¼	16	1	4¼
18	25	22¾	16	1⅛	4¾
20	27½	25	20	1⅛	5
24	32	29½	20	1¼	5½

250/300 L.B. Flanges And Bolts

Pipe Sizes	Diam of Flanges	Diam of Wt Circle	Number of Bolts	Diam of Bolts	Length of Bolts
2	6½	5	8	⅝	2½
2½	7½	5⅞	8	¾	3
3	8¼	6⅝	8	¾	3¼
3½	9	7¼	8	¾	3¼
4	10	7⅞	8	¾	3½
5	11	9¼	8	¾	3¾
6	12½	10⅝	12	¾	3¾
8	15	13	12	⅞	4¼
10	17½	15¼	16	1	5
12	20½	17¾	16	1⅛	5½
14	23	20¼	20	1⅛	5¾
16	25½	22½	20	1¼	6
18	28	24¾	24	1¼	6¼
20	30½	27	24	1¼	6¾
24	36	32	24	1½	7½

TYLER UNION®

Question: From what compound is the standard MJ gasket made and what is the highest water temperature it will allow? Are the TYTON® gaskets made from the same compound?

Answer: The standard MJ gasket is made of vulcanized styrene butadiene rubber (SBR) in accordance with ANSI/AWWA C111/A21.11. The recommended temperature range for SBR gaskets is from 20°F to 180°F. SBR gaskets are suitable for water and wastewater, most moderate chemicals, wet or dry organic acids, alcohols, ketones and aldehydes. The gaskets furnished for the push on fittings are made from the same elastomer. SBR GASKETS ARE NOT RECOMMENDED FOR HYDROCARBON SERVICE.

Question: Does Tyler offer any other gaskets that will withstand temperatures greater than 180°F or special service applications?

Answer: Yes! Tyler offers three other special services gaskets for MJ connections only. Identification, temperature range and applications are listed below:

EPDM (Ethylene Propylene) -10°F to 250°F Ideal for water and wastewater, ozone and strong oxidizing chemicals. May be used on steam within given temperature range and on hot air without hydrocarbons.
NOT RECOMMENDED FOR HYDROCARBON SERVICE.

NEOPRENE (CR) -10°F to 225°F Recommended for moderate chemicals and acids, oil fats, many solvents and air with hydrocarbons. Will not support combustion.

Nitrile (NBR) (Buna - N) (Hycar) -40°F to 250°F Ideally suited for gasoline, petroleum products, hydrocarbons, water and mineral and vegetable oils.

Question: According to AWWA, how much torque should be applied to Mechanical Joint T-Bolts?

Answer: The recommended torque range, as stated in ANSI/AWWA C600 are:

Joint Size		Range of Torque	
in.	(mm)	ft/lb	N/m
3	(76)	45-60	(61-81)
4-24	(102-610)	75-90	(102-122)
30-36	(762-914)	100-120	(136-163)
42-48	(1067-1219)	120-150	(163-203)

Question: What type of Mechanical Joint T-Bolt does Tyler furnish?

Answer: Tyler supplies High-strength, Low-Alloy Steel T-Bolts, in compliance with ANSI/AWWA C111/A21.11, as part of all standard C153 (compact) and C110 (Full Body) accessory packs. Anti-Rotation T-Bolts, Cor-Blue T-Bolts and stainless steel (ANSI 316) T-Bolts are also available for special applications on request.

Question: Of what material are the Standard T-Bolts, Anti-Rotation and Cor-Blue T-Bolts made?

Answer: The Standard T-Bolts and Anti-Rotation T-Bolts and Nuts are manufactured from Corrosion Resistent, High-Strength, Low-Alloy Steel in accordance with ANSI/AWWA C111/A21.11 (Current Revision). Cor-Blue T-Bolts and Nuts are manufactured from the same high quality material as the standard T-Bolts/Nuts but also have a ceramic-filled, baked on fluorocarbon resin developed to handle the needs of highly corrosive conditions. Cor-Blue T-Bolts and Nuts are also in compliance with ANSI/AWWA C111/A21.11 (Current Revision).

Question: How is the torque range for Flanged fittings gaskets determined?

Answer: The range of torque settings for Flanged fittings is not addressed in the ANSI/AWWA C600 Standard. Generally, this torque range is determined by the flanged gasket manufacturer because of various durometers and thicknesses of different gaskets.

Question: What purpose does cement mortar lining serve?

Answer: Cement mortar lining serves to prevent tuberculation while improving flow characteristics.

Question: What is the function of the seal coating?

Answer: In soft water systems, the seal coating serves to prevent the water from becoming hard. The seal coating also helps in the curing process of the cement lining by minimizing the loss of moisture during hydration, which results in controlled curing of the mortar. Tyler Pipe applies a seal coat that is NSF 61 approved for potable water systems on the entire casting. The exterior is seal coated also for aesthetic and corrosion retarding purposes.

Question: Are the fittings furnished by Tyler Pipe UL/FM approved?

Answer: The Tyler Ductile-Iron Watermain Fittings ANSI/AWWA C110/A21.10 for MJ and Flange and ANSI/AWWA C153/A21.53 for MJ and Union-Tite in sizes 3" through 12" are UL listed for Fire Main Equipment. (Listing #EX2111).

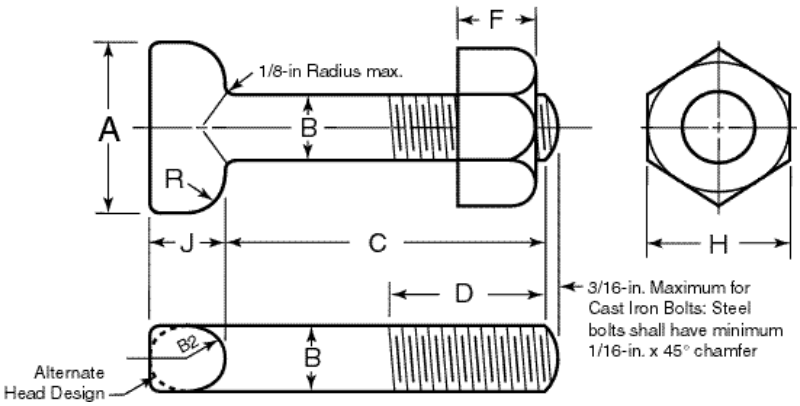
Question: Does Tyler offer fittings with any coatings other than an asphaltic seal coat?

Answer: Yes. For Flanged Full Body and Compact Fittings (C110), Tyler offers an exterior prime coat of Tnemec N140-1211 Pota-Pox Plus that is NSF 61 approved for potable water systems in conjunction with the cement mortar/seal coated lining. Tyler also offers double cement lining with the entire casting seal coated for MJ Full Body (C110) and MJ Compact (C153) fittings. Totally bare castings (for consumer's special coating requirements) are also available in Full Body MJ and Flange fittings as well as MJ Compact fittings. Tyler has also added a full line of fusion bonded epoxy coated fittings for drinking water service applications. The epoxy coating is applied with 6-8 mil thickness inside and out, has a red oxide color and meets or exceeds the ANSI/AWWA C116/A21.16 specifications.

Question: Does Tyler offer any interior coating for wastewater treatment lines?

Answer: No.

NOTES:
1. Dimension "B" is unthreaded shank.
2. Draft, when required to be 6 degree maximum, may be deducted from bolt head dimensions, and radius (B/2) may be changed to suit draft.
3. Gates, if required, may protrude a maximum of 1/8 inch above the top of the bolt head.
4. Chamfer is optional if threads are rolled.

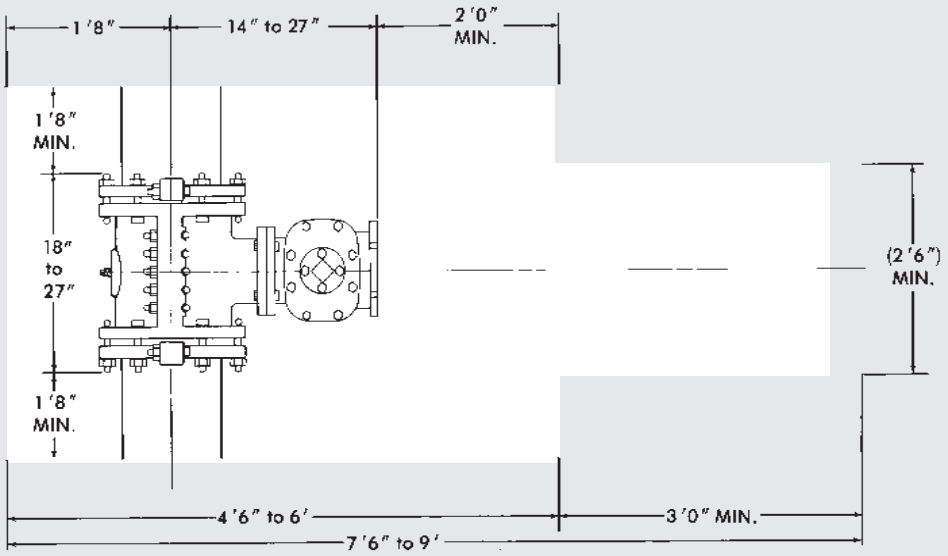


T-Head (Low alloy steel) Bolts and Nuts
Dimensions in Inches

Size Inches	A ± 0.05	B +0.030 -0.074	C +0.25 -0.06	D†	Threads per Inch E ††	F	H	J +0.15 -0.03	R Max.
⅝x 3	1.50	0.625	3.0	2.00	11	0.625±.04	1.062-.04	0.625	0.312
¾x 3½	1.75	0.750	3.5	2.50	10	0.750±.06	1.250-.06	0.750	0.375
¾x4	1.75	0.750	4.0	3.00	10	0.750±.06	1.250-.06	0.750	0.375
¾ x4½	1.75	0.750	4.5	3.00	10	0.750±.06	1.250-.06	0.750	0.375
¾x 5	1.75	0.750	5.0	3.00	10	0.750±.06	1.250-.06	0.750	0.375
1x6	2.25	1.000	6.0	3.00	8	1.000±.08	1.625-.08	1.000	0.500
1¼x6½	2.50	1.250	6.5	3.50	7	1.250±.08	2.000-.08	1.250	0.625

* The tolerance for cast iron bolts is ±0.03 in. If threads are rolled, the body diameter may be reduced to the approximate pitch diameter of the thread.
† Tolerance: +3, — 0 threads.
†† Number of threads per inch - course-thread series (ANSI/ASME B1.1), Class 2A, external fit UNC2A and Class 2B, UNC2B (ANSI/ASME B1.2).

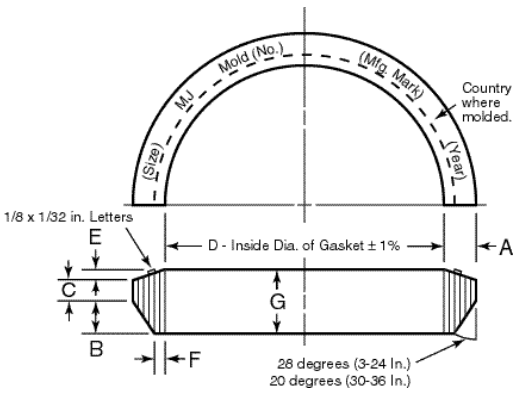
Excavation dimensions - MJ 4" through 12" Tapping Sleeves for Ductile Pipe



TYLER UNION®

MECHANICAL JOINT GASKETS

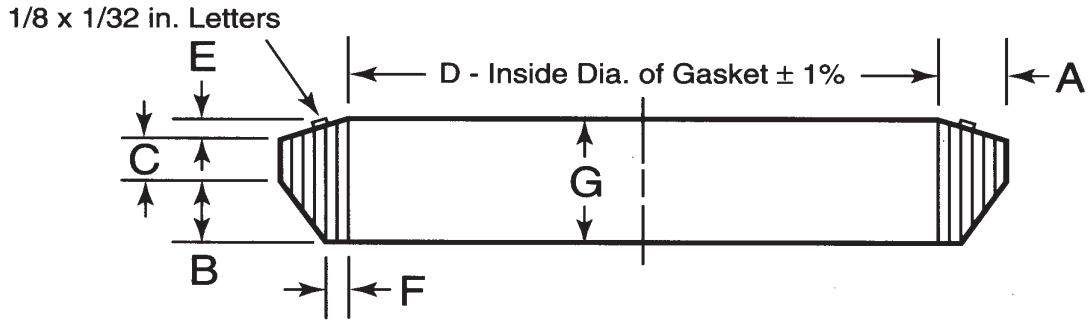
ANSI/AWWA C111/A21.11



Mechanical Joint Gasket Dimensions in Inches

Pipe Size	Pipe OD	A ± 0.01"	B	C	D ±1%	E ± 0.01%	F ± 0.01"	G ± 0.02"
2*	2.50	.48	.62	.31	2.48	.12	.15	1.05
3	3.96	.48	.62	.31	3.86	.12	.15	1.05
4	4.80	.62	.75	.31	4.68	.16	.22	1.22
6	6.90	.62	.75	.31	6.73	.16	.22	1.22
8	9.05	.62	.75	.31	8.85	.16	.22	1.22
10	11.10	.62	.75	.31	10.87	.16	.22	1.22
12	13.20	.62	.75	.31	12.95	.16	.22	1.22
14	15.30	.62	.75	.31	14.99	.16	.22	1.22
16	17.40	.62	.75	.31	17.07	.16	.22	1.22
18	19.50	.62	.75	.31	19.13	.16	.22	1.22
20	21.60	.62	.75	.31	21.20	.16	.22	1.22
24	25.80	.62	.75	.31	25.34	.16	.22	1.22
30	32.00	.73	1.00	.38	31.47	.16	.37	1.54
36	38.30	.73	1.00	.38	37.67	.16	.37	1.54
42	44.50	.73	1.00	.38	43.78	.16	.37	1.54
48	50.80	.73	1.00	.38	49.98	.16	.37	1.54

Not included in AWWA C111. Manufacturer's Standard.



Mechanical Joint Transition Gasket Dimensions in Inches

Pipe Size	A ± 0.01"	B	C	D ±1%	E	F ± 0.01"	G ± 0.02"
3	.70	.62	.31	3.45	.16	.37	1.11
4	.77	.75	.31	4.43	.16	.37	1.26
6	.76	.75	.31	6.53	.16	.36	1.25
8	.82	.75	.31	8.50	.16	.42	1.27
10	.79	.75	.31	10.59	.16	.39	1.26
12	.84	.75	.31	12.56	.16	.44	1.28

MJ FIELD LOK®

A RESTRAINT REVOLUTION. Spend less time - and money - restraining mechancial joint fittings with the new MJ FIELD LOK® Gasket.

PROVEN JOINT RESTRAINT TECHNOLOGY

NO LEARNING CURVE

FOR DUCTILE IRON AND PVC PIPE

CURRENTLY AVAILABLE:
Ductile Iron — 4" - 24"
PVC — 4" - 12"

- UL Listed and FM approved.
- Proven joint restraint technology.
- No learning curve - installs just like a standard mechanical joint gasket and gland.
- No more need for time-consuming thrust blocks or heavy lug-type restraints.
- No loose wedges or torque-off control nuts to get lost or broken.
- Can be disassembled just like a standard mechanical joint.
- Suitable for potable water and wastewater applications.
- The state-of-the-art MJ FIELD LOK™ Gland is designed for maximum strength and easy product identification.
- MJ FIELD LOK® Gaskets are provided as part of a kit that also includes the MJ FIELD LOK™ Gland, nuts and bolts.

MJ FIELD LOK® Gasket Series DI

- *Can be used on any Pressure Class or Special Thickness Class Ductile Iron pipe up to 350 psi.*
- *Stainless steel locking segments provide proven joint restraint technology.*

MJ FIELD LOK® Gasket *Series PV*

- *Can be used on any thickness class of AWWA C900 PVC pipe.*
- *Pressure rated at a 2:1 safety factor, based on the pressure rating of the pipe on which it is installed.*
- *Ductile iron locking ring provides proven joint restraint technology.*

MJ FIELD LOK® *Gland*

- *Highly engineered to provide the strength and rigidity necessary for restrained joint applications.*
- *Installs just like a standard mechanical joint gland.*
- *All ductile iron components are manufactured to ASTM A536 Grade 70-50-05.*

MJ FIELD LOK® Gasket Series PV

MJ FIELD LOK® Gland

MJ FIELD LOK® Gasket Series DI

Application Notes:

1. MJ FIELD LOK® Gaskets are designed to seal and restrain a centrifugally cast ductile iron or PVC pipe spigot in either a ductile iron pipe or a ductile iron fitting bell.
2. MJ FIELD LOK Gaskets are available to fit mechanical joints conforming to AWWA C110 or AWWA C153 in 4" - 24" sizes.
3. If ductile iron pipe with a lower pressure rating is used, then the lower pressure rating will apply to the MJ FIELD LOK Gasket also.
4. MJ FIELD LOK Gaskets require 90 ft-lb of bolt torque for 4" - 8" gaskets, and 120 ft-lb of bolt torque for 10" - 12" inch gaskets. Most common 1/2" drive air powered impact wrenches are capable of applying these torques.
5. MJ FIELD LOK Gaskets are suitable for either potable water or wastewater applications.
6. MJ FIELD LOK Gaskets are NSF approved, UL Listed and FM Approved.
7. MJ FIELD LOK Gasket Series DI products are not recommended for use with cast iron pipe, plastic pipe, oversize pipe, metric pipe, or for use as a "transition" gasket.
8. MJ FIELD LOK Gasket Series PV products are not recommended for use with cast iron pipe, ductile iron pipe, oversize pipe, metric pipe, or for use as a "transition" gasket.
9. MJ FIELD LOK Gaskets are warranted only when used with MJ FIELD LOK™ Gland.

MJ FIELD LOK® Gasket Series DI

SIZE (Inches)	PIPE OD	ORDER NUMBER	NO. OF SEGMENTS	PRESSURE RATING	APPROX. KIT WEIGHT
4	4.80	DI04	3	350	7.3
6	6.90	DI06	4	350	10.9
8	9.05	DI08	6	350	13.5
10	11.10	DI10	9	350	18.5
12	13.20	DI12	13	350	19.7
14	15.30	DI14	18	350	26.9
16	17.40	DI16	24	350	31.8
18	19.50	DI18	30	250	49.8
20	21.60	DI20	36	250	59.7
24	25.80	DI24	52	250	81.3

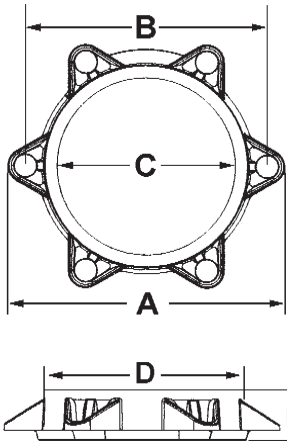
MJ FIELD LOK® Gasket Series PV

SIZE (Inches)	PIPE OD	PRESSURE ORDER NUMBER (psi)	PRESSURE RATING DR-18 (psi)	RATING DR-14	APPROX. KIT WEIGHT
4	4.80	PV04	150	200	7.8
6	6.90	PV06	150	200	11.8
8	9.05	PV08	150	200	14.8
10	11.10	PV10	150	200	20.1
12	13.20	PV12	150	200	21.6

MJ FIELD LOK® Gland (See illustration at right)

SIZE (Inches)	WEIGHT (pounds)	DIMENSION A (Outside Dim)	B (Bolt Hole)	C (Inside Dia.)	D (OD Lip)	E (Gland Height)
4	3.3	8.88	7.50	4.90	5.92	1.75
6	5.0	10.87	9.50	7.00	8.02	2.00
8	7.2	13.13	11.75	9.15	10.17	2.25
10	10.2	15.38	14.00	11.20	12.22	2.25
12	11.0	17.63	16.25	13.30	14.32	2.25
14	17.2	20.13	18.75	15.44	16.40	2.51
16	25.0	22.38	21.00	17.54	18.50	2.75
18	38.0	24.75	23.25	19.64	20.60	3.14
20	46.0	27.00	25.50	21.74	22.70	3.20
24	64.0	31.50	30.00	25.94	26.90	3.57

MJ FIELD LOK™ Gland



Suggested Specifications:

Joint restraint for mechanical joint pipe and fittings shall be the MJ FIELD LOK® Gasket. The restraint system shall be completely integral to the gasket, requiring only standard mechanical joint assembly techniques. The restraining system for ductile iron shall be pressure rated to 350 psi in sizes up to and including 16" ; 18", 20" and 24" are rated for 250 psi. The restraining system for PVC shall be rated at a 2:1 safety factor for the pipe on which it is installed. The restraining system shall be rated in accordance with the performance requirements of ANSI/AWWA C111/A21.11 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

TYLER UNION®
Quality Waterworks Products

20U - Epoxy Coating of Watermain Fittings

Revised 10/09

SUBMITTAL

(Current Revisions for All Standards Apply)

Epoxy Coating

Watermain Fittings 2"-48" shall be coated with 6-8 mil nominal thickness fusion bonded epoxy in accordance with and shall meet all applicable terms and provisions of ANSI/AWWA C116/A21.16-09.

Epoxy coating material used by Tyler/Union are tested to the requirements of and are in compliance with NSF 61.

TYLER UNION®
Quality Waterworks Products

21U - Cement Lining Asphaltic Coating of Watermain Fittings

Revised 10/09

SUBMITTAL

(Current Revisions for All Standards Apply)

Cement Lining and Coating

The Cement Lining and Asphaltic Coating of Watermain Fittings furnished by Tyler/Union is applied and seal coated with a bituminous material as specified by and in accordance with the terms and provisions of standard ANSI/AWWA C104/A21.4-08.

All coating materials used by Tyler/Union are tested to the requirements of and are in compliance with NSF 61.

TYLER UNION®
Quality Waterworks Products

22U - Mechanical Joint
C110/A21.10
Full Body
Revised 10/09

SUBMITTAL
(Current Revisions for All Standards Apply)

SIZES: ..... 2" through 48"

STANDARDS: ..... ANSI/AWWA C110/A21.10-08 and 3"-12" UL Listed (EX2111)
Note: Cast with tested and traceable ASTM A536 Ductile Iron

PRESSURE RATING: 2"- 24" rated @ 350 PSI; 30"- 48" & all fittings with flanged branches rated @ 250 psi
Note: With use of special flange gasket 2"-24" flanged fittings can be rated @ 350 psi

DEFLECTION: ..... Upon completion of installation, mechanical joint fittings 2" - 12" are rated for a maximum of 5° deflection and 14" - 48", a maximum of 3° deflection.

NSF-61: ..... Meets all requirements, UL Registered

BITUMINOUS COATING: ..... ANSI/AWWA C104/A21.4-08

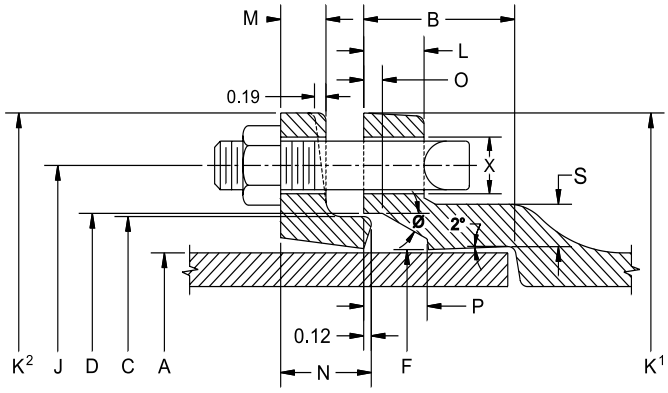
CEMENT LINING: ..... ANSI/AWWA C104.A21.4-08, Double cement lining available

EPOXY COATING: ..... ANSI/AWWA C116/A21.16-09
Note: Epoxy coated fittings are available to the specification(s) required for your application(s)

BARE: ..... Available

BOLTS: ..... ANSI/AWWA C111/A21.11-7

INSTALLATION: ..... AWWA C600-99 using pipe conforming to ANSI/AWWA C151/A21.51-02



JOINT DIMENSIONS IN INCHES

Size	A	B	C	D	F	Ø	X	J	K¹	K²	L	M	N	O	P	S
2	2.50	2.50	3.39	3.50	2.61	28°	¾	4.75	6.25	6.25	.75	.62	-----	.31	.63	.44
3	3.96	2.50	4.84	4.94	4.06	28°	¾	6.19	7.69	7.69	.94	.62	1.37	.31	.63	.52
4	4.80	2.50	5.92	6.02	4.90	28°	⅞	7.50	9.12	9.12	1.00	.75	1.50	.31	.75	.65
6	6.90	2.50	8.02	8.12	7.00	28°	⅞	9.50	11.12	11.12	1.06	.88	1.63	.31	.75	.70
8	9.05	2.50	10.17	10.27	9.15	28°	⅞	11.75	13.37	13.37	1.12	1.00	1.75	.31	.75	.75
10	11.10	2.50	12.22	12.34	11.20	28°	⅞	14.00	15.69	15.62	1.19	1.00	1.75	.31	.75	.80
12	13.20	2.50	14.32	14.44	13.30	28°	⅞	16.25	17.94	17.88	1.25	1.00	1.75	.31	.75	.85
14	15.30	3.50	16.40	16.54	15.44	28°	⅞	18.75	20.31	20.25	1.31	1.25	2.00	.31	.75	.89
16	17.40	3.50	18.50	18.64	17.54	28°	⅞	21.00	22.56	22.50	1.38	1.31	2.06	.31	.75	.97
18	19.50	3.50	20.60	20.74	19.64	28°	⅞	23.25	24.83	24.75	1.44	1.38	2.13	.31	.75	1.05
20	21.60	3.50	22.70	22.84	21.74	28°	⅞	25.50	27.08	27.00	1.50	1.44	2.19	.31	.75	1.12
24	25.80	3.50	26.90	27.04	25.94	28°	⅞	30.00	31.58	31.50	1.62	1.56	2.31	.31	.75	1.22
30	32.00	4.00	33.29	33.46	32.17	20°	1⅛	36.88	39.12	39.12	1.81	2.00	2.75	.38	1.00	1.50
36	38.30	4.00	39.59	39.76	38.47	20°	1⅛	43.75	46.00	46.80	2.00	2.00	2.75	.38	1.00	1.80
42	44.50	4.00	45.79	45.96	44.67	20°	1⅜	50.62	53.12	53.12	2.00	2.00	2.75	.38	1.00	1.95
48	50.80	4.00	52.09	52.26	50.97	20°	1⅜	57.50	60.00	60.00	2.00	2.00	2.75	.38	1.00	2.20

TYLER UNION®
Quality Waterworks Products

23U - Mechanical Joint C153/A21.53 Compact

Revised 10/09

SUBMITTAL

(Current Revisions for All Standards Apply)

SIZES: ..... 2" through 48" (2" Not Referenced in C153/A21.53)

STANDARDS: ..... ANSI/AWWA C153/A21.53-06 and NFPA 3"-12" UL Listed (EX2111)
Note: Cast with tested and traceable ASTM A536 Ductile Iron

PRESSURE RATING: 2"- 24" rated @ 350 PSI; 30"- 48" & all fittings with Flanged branches rated @ 250 PSI
Note: With use of special flange gasket 2"-24" flanged fittings can be rated @ 350 psi
Note: Compact Wyes over 12" are not pressure rated. Contact manufacturer for rating in your application.

DEFLECTION: ..... Upon completion of installation, Mechanical Joint fittings 2"-12" are rated for a maximum of 5° deflection and 14"–48" a maximum of 3° deflection

NSF-61: ..... Meets all requirements, UL Registered (2"-48")

BITUMINOUS COATING: ..... ANSI/AWWA C104/A21.4-08

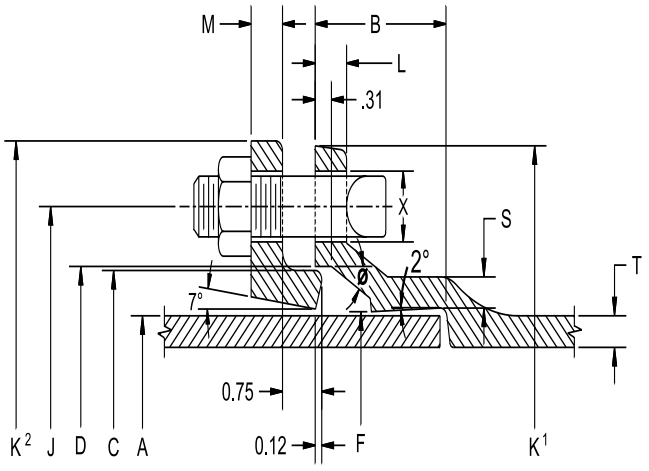
CEMENT LINING: ..... ANSI/AWWA C104.A21.4-08, Double cement lining available

EPOXY COATING: ..... ANSI/AWWA C116/A21.16-09
Note: Epoxy coated fittings are available to the specification required for your application(s)

BARE: ..... Available

BOLTS: ..... ANSI/AWWA C111/A21.11-7

INSTALLATION: ..... Per AWWA C600-99 using pipe conforming to ANSI/AWWA C151/A21.51-02



JOINT DIMENSIONS IN INCHES | **BOLTS**

Size	A Dia.	B	C Dia.	D Dia.	F Dia.	J Dia.	K¹ Dia.	K² Dia.	L	M	S	T	X	Size	No.
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	.58	.62	.39	.33	¾	⅝x3	4
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	.60	.75	.39	.34	⅞	¾x3½	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	.63	.88	.43	.36	⅞	¾x3½	6
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	.66	1.00	.45	.38	⅞	¾x4	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	.70	1.00	.47	.40	⅞	¾x4	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	.73	1.00	.49	.42	⅞	¾x4	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.31	20.25	.79	1.25	.55	.47	⅞	¾x4½	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.56	22.50	.85	1.31	.58	.50	⅞	¾x4½	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	.68	.54	⅞	¾x4½	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	.69	.57	⅞	¾x4½	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	.75	.61	⅞	¾x5	16
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	.82	.66	1⅛	1x6	20
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	.74	1⅛	1x6	24
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	.82	1⅜	1¼x6½	28
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	.90	1⅜	1¼x6½	32

Tyler Pipe Company • 11910 CR 492 • Tyler, Texas 75706 • (800) 527-8478
Union Foundry Company • 1501 W. 17th Street • Anniston, Alabama 36202 • (800) 226-7601
www.tylerunion.com

TYLER UNION®
Quality Waterworks Products

24U-Mechanical Joint Retainer Gland C153/A21.53

Revised 10/09

SUBMITTAL

(Current Revisions for All Standards Apply)

SIZES: ..... 3" through 24"

STANDARDS: ..... ANSI/AWWA C153/A21.53-06 cast with tested and traceable ASTM A586 Ductile Iron.
Sizes 3"-12" are recommended for Class 56 ductile pipe
Sizes 14"-24" are recommended for Class 53 through Class 56 ductile pipe

DEFLECTION: ..... Maximum recommended deflection of joints is 2° for 3" through 12" and 1° for 14" through 24"

BOLTS: ..... ANSI/AWWA C111/A21.11-7, ANSI/AWWA C153/A21.53-06, standard T-Bolts. The set screws are square headed with Type C knurled cup points, 4140 grade alloy steel that is heat treated to a Rockwell "C" 45/53 case hardness and are shipped assembled in the gland

PRESSURE RATING: ..... 3"-24" rated @ 350 psi

NSF-61: ..... Meets all requirements, UL Registered

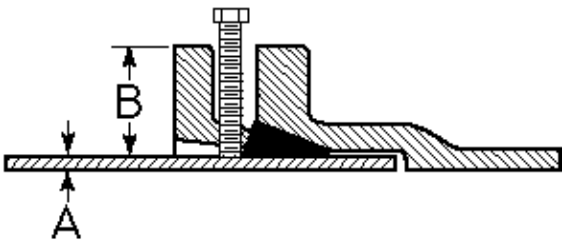
PRIMER COATING: ..... ANSI/AWWA C104/A21.4-08

INSTALLATION: ..... Per Tyler Union instructions below. **Note: Not for use on plain end fittings**

T-BOLTS (to secure gland to hub)
4"-24" Retainer gland T-Bolts torque to 60 ft lbs

SET SCREWS (to secure gland to pipe)
Set screw recommended torque value is 75 ft lbs

1. Wash bell and plain end with soapy water, then slip gland and gasket over plain end with the small side of the gasket and ring side of of the gland facing the bell.
2. Slip plain end into bell. Brush soapy water on gasket. This lubricates the gasket and allows it to slip easily into place. Push gasket into bell making sure it is evenly in the bell gasket landing.
3. Slide the gland into position against the back of the gasket. Align bolt holes, insert T-bolts and tighten nuts to finger tight.
4. Snug up all T-bolt nuts evenly. Alternating at 180°, tighten the T-bolt nuts to a torque of: 3" - 60 foot pounds
   4" thru 24" - 90 foot pounds.
5. Snug up all set screws evenly. Using a torque wrench, tighten the set screws alternating at 180° to the recommended torque value of 75 foot pounds. If required double check set screws immediately.



Size	Pressure Rating, psi	Gland O.D. B	Pipe O.D. O.D. A	D.I. Pipe Wall Class	No of Set Screws	Size of Set Screws	Gland Wt	Wt w/ Acces.
3	350	7.69	3.96	50-56	4	⅝x2	4	8
4	350	9.12	4.80	50-56	4	⅝x2	5	11
6	350	11.12	6.90	50-56	6	⅝x2	9	16
8	250	13.37	9.05	50-56	9	⅝x2	13	21
10	250	15.62	11.10	50-56	12	⅝x2	17	26
12	150	17.88	13.20	50-56	16	⅝x2	20	28
14	250	20.25	15.30	53-56	20	⅝x2½	44	55
16	200	22.50	17.40	53-56	24	⅝x2½	54	64
18	200	24.75	19.50	53-56	24	⅝x2½	62	72
20	200	27.00	21.60	53-56	28	⅝x3	76	91
24	150	31.50	25.80	53-56	32	⅝x3	103	118

* Not included in AWWA C110

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25U-Compact Mechanical Joint Tapping Sleeve For Ductile or Cast Iron Pipe

Revised 10/09

SUBMITTAL

(Current Revisions for All Standards Apply)

SIZES: ..... For 6" to 12" Cast Iron or Ductile pipe with 4" to 12" side flanged outlet with ¾" tap at branch.

STANDARDS: ..... Mechanical and *Flanged joints comply with ANSI/AWWA C153/A21.53-06 cast with tested and traceable ASTM A586 Ductile Iron. Ductile Iron Mechanical Joint Tapping Sleeves are produced in accordance with Tyler Union manufacturer's standard. Outside diameter specification ranges are per the standards provided herein.
Note: Recess dimensions are per Manufacturer's Standardization Society standard practice SP-60.

PRESSURE RATING:. 6"- 12" Assemblies rated @ 250 PSI.

GASKETS: ..... SBR Mechanical Joint and Split gaskets are per ANSI/AWWA C111/A21.11-7, armor tipped with coiled brass wire spring.

NSF-61: ..... Meets all requirements

BITUMINOUS COATING:..... ANSI/AWWA C104/A21.4-08

CEMENT LINING: .... Tapping Sleeves are unlined to ensure they fit over the pipe being tapped.

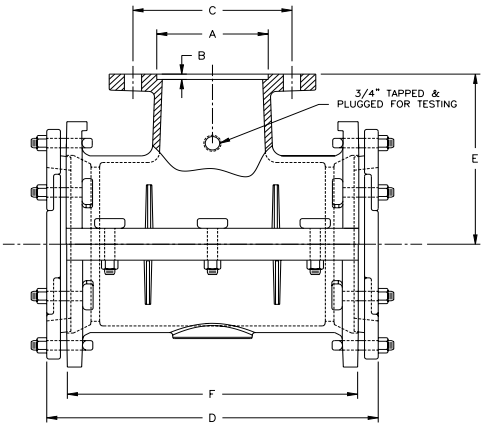
FLANGE:..... ANSI Class 125B

FLANGE THICKNESS: ANSI/AWWA C153/A21.53-06

BOLTS:..... ANSI/AWWA C111/A21.11-7

DEFLECTION:..... Deflection is not recommended

INSTALLATION:..... Per Tyler Union instructions below



1. Clean pipe, insert side gasket into back half of gasket grooves. Make sure ends are flush with or slightly protrude into the end gasket seating area.
2. Bolt sleeve halves together and trim side gaskets as necessary. MAKE SURE SLEEVE WILL ROTATE FREELY ON PIPE.
3. Install end gaskets, locating cut ends 90° from side gasket If pipe is maximum OD, stretch gasket to make certain cut ends match with no gap in between.
4. Install glands and bolts-rotate sleeve to desired position. Be sure pipe is centered inside the sleeve.
5. Tighten gland bolts alternately, using 80 to 90 foot pounds.
6. After assembly, PRESSURE TEST ALL JOINTS BEFORE TAPPING. If additional tightening is required, release pressure and relax tension on gland bolts before tightening side bolts.

Size	Dimensions A	B	C	D	E	F	O.D. Range DI Min.	O.D. Range DI Max.	Weight DI
6x4	5.016	.250	7.50	15.75	8.00	12.75	6.85	7.15	104
6	7.016	.312	9.50	15.75	8.00	12.75	6.85	7.15	108
8x4	5.016	.250	7.50	16.50	9.00	13.375	9.00	9.35	134
8x6	7.016	.312	9.50	16.50	9.00	13.375	9.00	9.35	140
8	9.016	.312	11.75	16.50	9.00	13.375	9.00	9.35	148
10x4	5.016	.250	7.50	24.00	11.00	20.75	11.04	11.45	236
10x6	7.016	.312	9.50	24.00	11.00	20.75	11.04	11.45	240
10x8	9.016	.312	11.75	24.00	11.00	20.75	11.04	11.45	246
10	11.016	.312	14.25	24.00	11.00	20.75	11.04	11.45	257
12x4	5.016	.250	7.50	26.50	12.00	23.25	13.14	13.56	273
12x6	7.016	.312	9.50	26.50	12.00	23.25	13.14	13.56	286
12x8	9.016	.312	11.75	26.50	12.00	23.25	13.14	13.56	292
12x10	11.016	.312	14.25	26.50	12.00	23.25	13.14	13.56	303
12	13.016	.312	17.00	26.50	12.00	23.25	13.14	13.56	320

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26U - Union Tite Tyton Joint - Push On Compact Fittings

Revised 10/09

SUBMITTAL

(Current Revisions for All Standards Apply)

SIZES: ..... 4" through 24"

STANDARDS: ..... ANSI/AWWA C153/A21.53-06 and 3"-12" UL Listed (EX2111)
Note: Cast with tested and traceable ASTM A536 Ductile Iron

PRESSURE RATING: 350 PSI; Except for wyes and flanged branch fittings
Note: Flanged branch **Non-Wye** fittings can be rated @ 350 PSI with the use of special gasket

NSF-61: ..... Meets all requirements, UL Certified

BITUMINOUS COATING:..... ANSI/AWWA C104/A21.4-08

CEMENT LINING: .... ANSI/AWWA C104.A21.4-08

EPOXY COATING:.... ANSI/AWWA C116/A21.16-09
Note: Epoxy coated fittings are available to the specification(s) required for your application(s)

BELL SOCKETS:..... ANSI/AWWA C116/A21.16-09

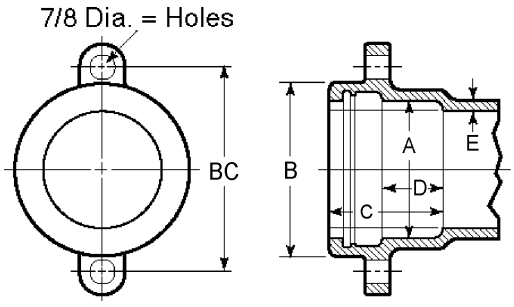
BOLTS:..... ANSI/AWWA C151/A21.51-09 and AWWA C900-97, Table 2

BARE:..... Available

DEFLECTION:..... 5 Degrees Maximum

RESTRAINING LUGS: Provided on 12" and smaller fittings and the lug pattern for all sizes accommodates most gripper-type restraints.
Note: Restraining lugs available for 14"-24" fittings provided sufficient time is available to make pattern adaptations.

INSTALLATION:..... Per AWWA C600-99 using pipe conforming to ANSI/AWWA C151/A21.51-02



BELL DIMENSIONS IN INCHES FOR UNION-TITE FITTINGS

Pipe Size	A	B	B.C.	C	D	E
4	5.04	6.38	7.88	4.16	2.25	.35
6	7.14	8.52	10.50	4.29	2.25	.37
8	9.32	10.90	12.88	4.78	2.25	.39
10	11.37	12.91	14.69	4.98	2.25	.41
12	13.47	15.12	17.19	4.98	2.25	.43
14	15.64	18.12	...	5.40	2.25	.51
16	17.74	20.32	...	5.40	2.25	.52
18	19.83	22.52	...	5.40	2.25	.59
20	21.94	24.29	...	5.40	2.25	.60
24	26.14	29.14	...	5.65	2.50	.62

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28U - Flanged Joint C110/A21.10 Full Body

Revised 10/09

SUBMITTAL

(Current Revisions for All Standards Apply)

SIZES: ..... 2″ through 48″

STANDARDS: ..... ANSI/AWWA C110/A21.10-08
Note: Cast with tested and traceable ASTM A536 Ductile Iron

PRESSURE RATING: ..... 2″-48″ rated @ 250 PSI
Note: With the use of special flange gasket 2″-24″ flanged fittings can be rated @ 350 psi

DEFLECTION: ..... Deflection is not recommended for flanged joint fittings due to the rigidity of the joint upon completion of installation.

NSF-61: ..... Meets all requirements, UL Certified

COATING: ..... ANSI/AWWA C104.A21.4-08 Bituminous and Tnemec 140N-1211

CEMENT LINING: ..... ANSI/AWWA C104.A21.4-08

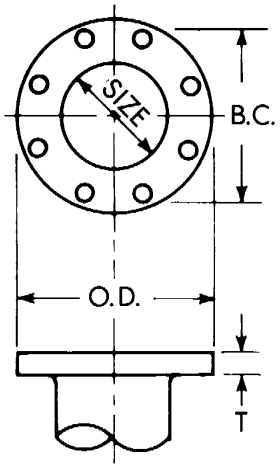
EPOXY COATING: ..... ANSI/AWWA C116/A21.16-09
Note: Epoxy coated fittings are available to the specification(s) required for your application(s)

FLANGES: ..... ANSI Class 125 B16.1
Note: *ANSI Class 250 B16.1 flanged fittings available
Note: *Due to larger bolt sizing and bolt circle class 250 flanges are not compatible with class 125 flanged fittings.

FLANGE THICKNESS: .... ANSI/AWWA C151/A21.51-05; Standard Class 125 template for drilling bolt holes
Note: Drilling templates are in multiplies of 4, so that fittings may be made to face in any quarter. Bolt holes shall straddle the center line.

BOLTS: ..... ANSI/AWWA C111/A21.11-7

INSTALLATION: ..... Per AWWA C600-99 using pipe conforming to ANSI/AWWA C151/A21.51-02



FLANGE DETAILS

Nominal Pipe Size Inch	Flange O.D.	Dia. of Bolt Circle	Flange Thickness T	Bolt Hole Diameter	Number of Holes	Bolt Dia. & Lengths
2	6	4.75	.62	.75	4	⅝x2¼
3	7.5	6	.75	.75	4	⅝x2½
4	9	7.5	.94	.75	8	⅝x3
6	11	9.5	1.00	.875	8	¾x3½
8	13.5	11.75	1.12	.875	8	¾x3½
10	16	14.25	1.19	1.00	12	⅞x4
12	19	17	1.25	1.00	12	⅞x4
14	21	18.75	1.38	1.125	12	1x4½
16	23.5	21.25	1.44	1.125	16	1x4½
18	25	22.75	1.56	1.25	16	⅛x5
20	27.5	25	1.69	1.25	20	⅛x5
24	32	29.5	1.88	1.375	20	¼x5½
30	38.75	36	2.12	1.375	28	1¼x6½
36	46	42.75	2.38	1.675	32	1½x7
42	53	49.50	2.62	1.625	36	1½x7½
48	59.50	56.00	2.75	1.625	44	1½x8

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29U-Cast Iron Service, Valve Boxes & Components

Revised 10/09

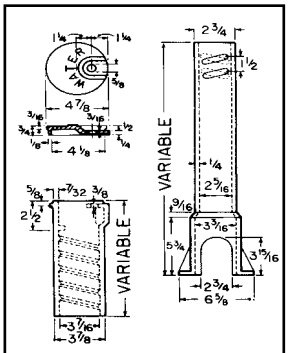
SUBMITTAL

(Current Revisions for All Standards Apply)

SIZES: ..... Adjustable Slip and Screw type with standard assembled lengths ranging from 15" to 72", not including risers and extensions.
Note: See catalog or website for complete listing of components

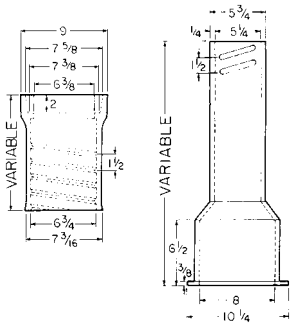
STANDARDS: ..... Produced in accordance with and meet all applicable terms and provisions of ASTM A-48. Cast with 30B or 35B class cast iron. When properly installed will meet American Association of State Highway Officials (AASHO) H2O wheel load rating.

INSTALLATION: ..... Per AWWA M44, Manual of Water Supply Practices



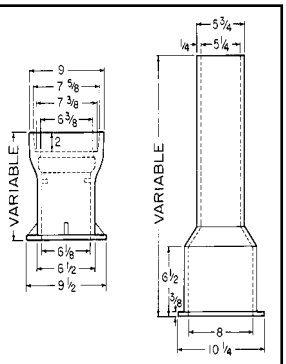
6500 SCREW TYPE

Componets	Extension In Inches
12T & 12B	15-21
12T & 15B	18-24
15T & 15B	21-27
15T & 21B	24-33
15T & 27B	30-39
18T & 27B	30-42
18T & 33B	36-48
24T & 33B	36-54
24T & 39B	42-60
30T & 39B	41-64



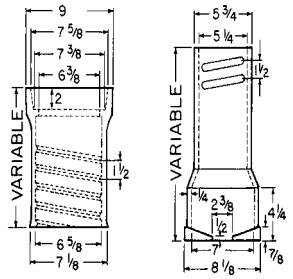
6850 SCREW TYPE

Components	Extension Height
10T + 15B	19-22
10T + 24B	27-32
16T + 24B	27-37
16T + 30B	33-43
16T + 36B	39-50
26T + 30B	36-52
26T + 36B	39-60
26T + 24B + #60 Ext	51-71
26T + 36B + #60 Ext	62-82



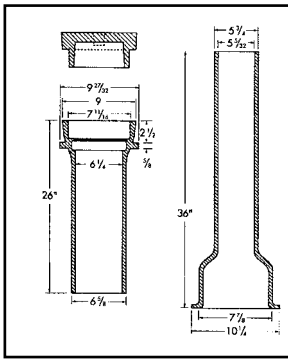
6855 SLIP TYPE

Components	Extension Height
10T + 15B	19-22
10T + 24B	27-32
16T + 24B	27-37
16T + 30B	33-43
16T + 36B	39-50
26T + 30B	36-52
26T + 36B	39-60
26T + 24B + #60 Ext	51-71
26T + 36B + #60 Ext	62-82



6860 SCREW TYPE

Components)	Extension Height
10T + 12B	27-37
16T + 18B	33-42
16T + 24B	39-49
16T + 30B	45-54
16T + 36B	51-60
26T + 30B	45-66
26T + 36B	51-72



7126 SLIP TYPE

Components	Extension Height
26T + 30B	45-66
26T + 36B	51-72
26T + 24B	63-84
26T + 15B	74-94

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