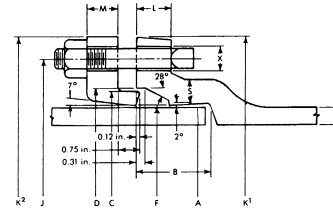


MECHANICAL JOINT COMPACT-DUCTILE IRON CLASS 350 FITTINGS AWWA C153

Sample Specifications

3" Thru 24" Mechanical Joint Ductile Iron Fittings shall be produced in accordance with all applicable terms and provisions of ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11.

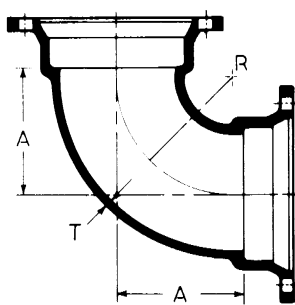
Note: Fittings are cement-lined and seal-coated in accordance with ANSI/AWWA C104/A21.4; also available double cement-lined or bare.



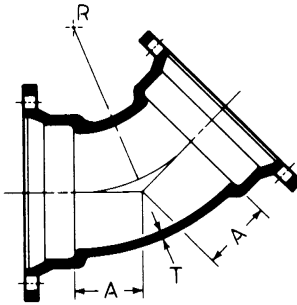
JOINT DIMENSIONS IN INCHES

BOLTS

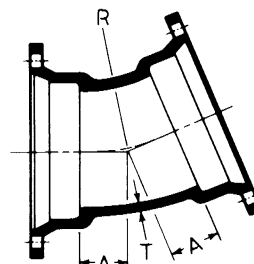
Size	A Dia.	B	C Dia.	D Dia.	F Dia.	J Dia.	K1Dia.	K2Dia.	L	M	S	T	X Dia.	Size	No.
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	.58	.62	.39	.33	3/4	5/8x3	4
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	.60	.75	.39	.34	7/8	3/4x3-1/2	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	.63	.88	.43	.36	7/8	3/4x3-1/2	6
8	9.05	2.50	10.17	10.27	9.15	11.75	12.31	13.37	.66	1.00	.45	.38	7/8	3/4x3-1/2	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	.70	1.00	.47	.40	7/8	3/4x3-1/2	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	.73	1.00	.49	.42	7/8	3/4x3-1/2	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.31	20.25	.79	1.25	.56	.47	7/8	3/4x4	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.56	22.50	.85	1.31	.57	.50	7/8	3/4x4	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	.68	.54	7/8	3/4x4	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.08	1.02	1.44	.69	.57	7/8	3/4x4	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	.75	.61	7/8	3/4x4-1/2	16



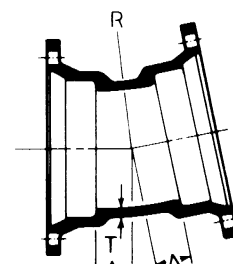
90° Bends (1/4)



45° Bends (1/8)



22-1/2° Bends (1/16)




11-1/4° (1/32)

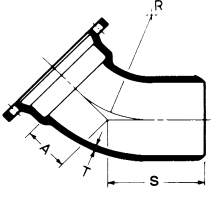
Size	Dimensions				Dimensions			Dimensions			Dimensions		
	T	A	R	Weight	A	R	Weight	A	R	Weight	A	R	Weight
3	.34	4.5	4.0	20	2.00	3.62	16	1.50	4.98	15	1.25	7.62	15
4	.35	5.0	4.5	26	2.49	4.81	21	1.82	6.66	21	1.55	10.70	18
6	.37	6.5	6.0	43	3.50	7.25	36	2.59	10.50	34	1.81	13.26	30
8	.39	7.5	7.0	64	4.00	8.44	55	2.85	11.80	46	2.06	15.80	44
10	.41	9.5	9.0	96	5.01	10.88	74	3.35	14.35	67	2.32	18.36	61
12	.43	10.5	10.0	122	5.98	13.25	111	3.86	16.90	80	2.56	20.90	74
14	.51	12.0	11.5	220	5.50	12.06	164	3.93	17.25	148	2.59	21.25	93
16	.52	13.0	12.5	264	5.98	13.25	202	3.98	17.50	178	2.62	21.50	158
18	.59	15.5	14.0	410	7.50	14.50	289	7.50	30.19	292	7.50	60.94	287
20	.60	17.0	15.5	505	8.00	16.88	348	8.50	35.19	364	8.50	71.07	346
24	.62	20.0	18.5	664	9.00	18.12	475	9.00	37.69	460	9.00	76.12	457



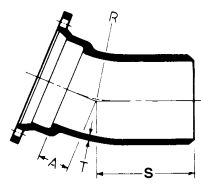
MECHANICAL JOINT COMPACT-DUCTILE IRON CLASS 350 FITTINGS AWWA C153




90° Bend
MJ x PE (1/4)



45° Bend
MJ x PE (1/8)

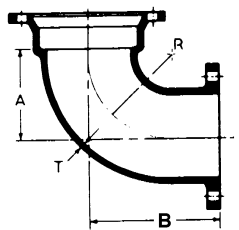


22-1/2° Bend
MJ x PE (1/16)




11-1/4° Bend
MJ x PE (1/32)

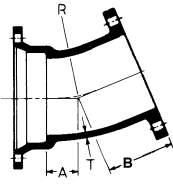
Size	Dimensions				Weight	Dimensions			Weight	Dimensions			Weight	Dimensions			Weight
	T	A	S	R		A	S	R		A	S	R		A	S	R	
3	.34	4.5	10.0	4.0	20	2.0	7.5	3.62	16	1.50	7.00	4.98	16	1.25	6.75	7.62	15
4	.35	5.0	10.5	4.5	25	2.5	8.0	4.81	22	1.82	7.32	6.66	20	1.55	7.05	10.70	19
6	.37	6.5	12.0	6.0	45	3.5	9.0	7.25	34	2.58	8.08	13.50	33	1.80	7.30	13.26	29
8	.39	7.5	13.0	7.0	65	4.0	9.5	8.44	53	2.84	8.34	11.80	46	2.05	7.55	15.80	41
10	.41	9.5	15.0	9.0	109	5.0	10.5	10.88	72	3.35	8.85	14.35	64	2.31	7.81	18.36	55
12	.43	10.5	16.0	10.0	135	6.0	11.5	13.25	98	3.86	9.36	16.90	81	2.56	8.06	20.90	70
14	.51	12.0	20.0	11.5	220	5.5	13.5	12.06	148	3.93	11.93	17.25	133	2.59	10.59	21.25	122
16	.52	13.0	21.0	12.5	254	6.0	14.0	13.25	192	3.98	11.98	17.50	181	2.62	10.62	21.50	148




90° Bend
MJ x Flange (1/4)



45° Bend
MJ x Flange (1/8)

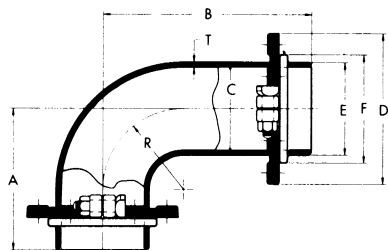


22-1/2° Bend
MJ x Flange (1/16)



11-1/4° Bend
MJ x Flange (1/32)

Size	Dimensions				Weight	Dimensions			Weight	Dimensions			Weight	Dimensions			Weight
	T	A	R	B		A	R	B		A	R	B		A	R	B	
3	.34	4.5	4.0	5.5	21	...	...	...	...	...	...	...	...	...	...	...	...
4	.35	5.0	4.5	6.5	28	2.50	3.56	4.0	27	1.75	3.81	4.0	27	1.50	5.12	4.0	19
6	.37	6.5	6.0	8.0	44	3.25	5.49	5.0	36	2.25	6.35	5.0	41	1.50	5.12	5.0	30
8	.39	7.5	7.0	9.0	66	4.25	7.93	5.5	54	2.50	7.62	.5	50	1.75	7.70	5.5	43
10	.41	9.5	9.0	11.0	115	5.00	9.76	6.5	82	3.00	10.16	6.5	90	2.00	10.25	6.5	75
12	.43	10.5	10.0	12.0	141	6.00	12.19	7.5	112	3.50	12.70	7.5	100	2.25	12.82	7.5	88
14	.51	12.0	11.5	14.0	227	5.50	10.85	8.5	207								
16	.52	13.0	12.5	15.0	280	6.00	12.02	9.5	290								

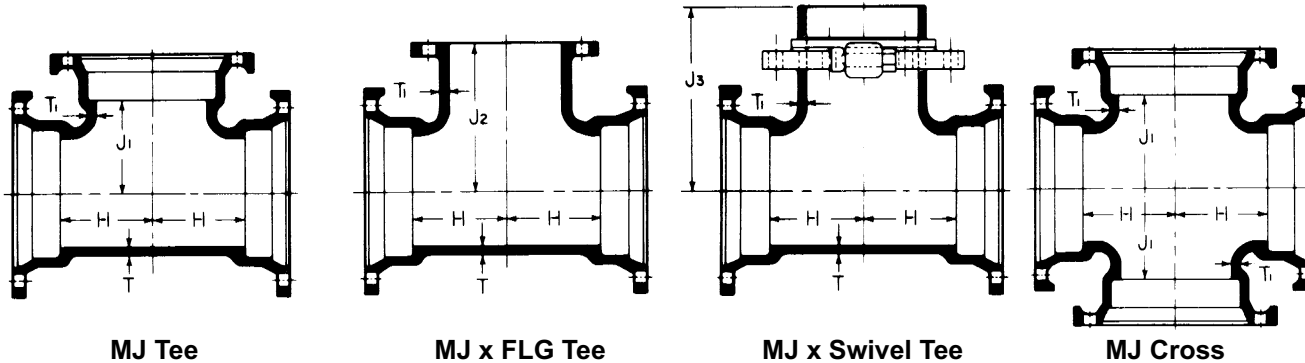


90° Swivel x Swivel Hydrant Ell

Size	Dimensions								*Weight
	T	A	B	C	D	E	F	R	
6	.37	10.5	15.5	7.10	11.2	6.90	8.02	6.0	86

*Weight includes two swivel glands.

**MECHANICAL JOINT COMPACT-DUCTILE IRON CLASS 350 FITTINGS
AWWA C153
TEES**



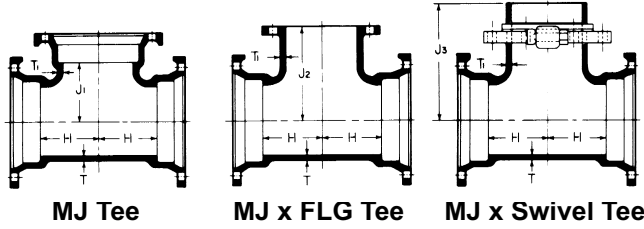
Size	Dimensions						Weights			
	T	T1	H	J1	J2	J3	MJ	MJxFLG	MJxS†	Cross
3	.34	.34	3.5	3.50	5.5	...	26	28	...	33
4x3	.35	.34	3.5	4.00	6.5	...	32	34	...	38
4	.35	.35	4.0	4.00	6.5	...	35	38	...	42
6x3	.37	.34	3.5	5.00	8.0	...	47	51	...	...
6x4	.37	.35	4.0	5.00	8.0	...	51	54	...	62
6	.37	.37	5.0	5.00	8.0	10.50	60	62	70	80
8x3	.39	.34	4.0	6.50	9.0	...	68	...	...	...
8x4	.39	.35	4.5	6.50	9.0	...	71	72	...	84
8x6	.39	.37	5.5	6.50	9.0	11.50	80	83	88	105
8	.39	.39	6.5	6.50	9.0	11.50	90	93	105	111
10x3	.41	.34	4.0	7.50	11.0	...	83	...	...	...
10x4	.41	.35	4.5	7.50	11.0	...	83	89	...	98
10x6	.41	.37	5.5	7.50	11.0	13.00	93	107	107	110
10x8	.41	.39	6.5	7.50	11.0	13.00	111	115	129	138
10	.41	.41	7.5	7.50	11.0	...	120	130	...	155
12x3	.43	.34	4.0	8.75	12.0	...	100	...	...	...
12x4	.43	.35	4.5	8.75	12.0	...	105	115	...	115
12x6	.43	.37	5.5	8.75	12.0	14.25	115	120	128	129
12x8	.43	.39	6.5	8.75	12.0	14.25	123	146	149	258
12x10	.43	.41	7.5	8.75	12.0	...	153	161	...	180
12	.43	.43	8.75	8.75	12.0	...	165	187	...	212
14x6	.51	.44	6.5	10.50	14.0	16.00	183	205	182	210
14x8	.51	.45	7.5	10.50	14.0	...	206	...	...	231
14x10	.51	.46	8.5	10.50	14.0	...	229	226	...	255
14x12	.51	.47	9.5	10.50	14.0	...	235	238	...	269
14	.51	.51	10.5	10.50	14.0	...	281	285	...	299
16x6	.52	.45	6.5	11.50	15.0	17.00	229	213	234	250
16x8	.52	.46	7.5	11.50	15.0	...	248	249	...	264
16x10	.52	.47	8.5	11.50	15.0	...	265	287	...	287
16x12	.52	.48	9.5	11.50	13.5	...	281	312	...	310
16x14	.52	.51	10.5	11.50	15.0	...	317	348	...	...
16x16	.52	.52	11.5	11.50	15.0	...	323	324	...	410

†Weights include swivel gland.



MECHANICAL JOINT COMPACT-DUCTILE IRON CLASS 350 FITTINGS AWWA C153

TEES (Continued)



Size	Dimensions						Weights		
	T	T1	H	J1	J2	J3	MJ	MJxFLG	†MJxS
18x6	.59	.44	6.5	12.5	14.5	18.0	275	261	278
18x8	.59	.45	7.5	12.5	14.5	...	280	351	...
18x10	.59	.47	8.5	12.5	...	...	286	...	...
18x12	.59	.49	9.5	12.5	...	...	370	...	...
18x14	.59	.56	10.5	12.5	...	...	415	...	...
18x16	.59	.57	11.5	12.5	...	...	445	...	...
18	.59	.59	12.5	12.5	...	...	490	...	...
20x6	.60	.44	7.0	14.0	17.0	19.5	335	341	358
20x8	.60	.45	8.0	14.0	...	...	383	...	...
20x10	.60	.47	9.0	14.0	...	...	410	...	...
20x12	.60	.49	10.0	14.0	...	...	432	...	...
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	16.0	19.0	21.5	454	460	458
24x8	.62	.45	8.0	16.0	...	...	475	...	...
24x10	.62	.47	9.0	16.0	...	...	505	...	...
24x12	.62	.49	10.0	16.0	18	...	545	580	...
24x14	.62	.56	11.0	16.0	...	...	585	...	...
24x16	.62	.57	12.0	16.0	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	...	...	830	...	...

†Weights include swivel gland.

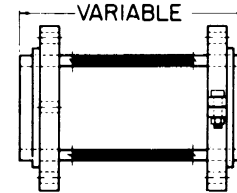
MJ Glands



Glands

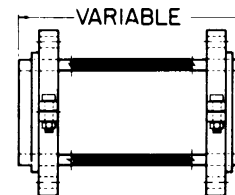
Size	Weight	Size	Weight
3	3	14	16
4	4	16	20
6	6	18	25
8	8	20	31
10	10	24	39
12	12	—	—

Swivel Glands, page 46
Retainer Glands, page 27



Swivel x Solid Adapter with Swivel Gland

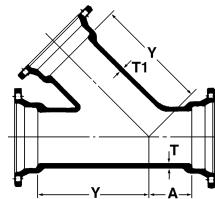
Size by Laying Length	Wall Thickness	Weight
6x13	.37	33
6x18	.37	56
6x24	.37	60
8x12	.39	52



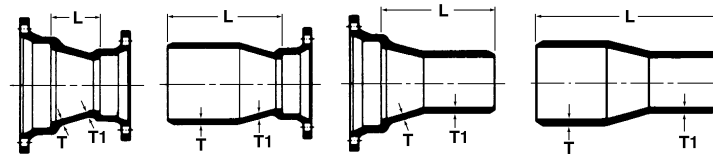
Size by Laying Length	Wall Thickness	Weight
6x13	.37	28
6x18	.37	49
6x24	.37	52

MECHANICAL JOINT COMPACT-DUCTILE IRON CLASS 350 FITTINGS AWWA C153

Wyes*



Reducers



MJ x MJ MJSEBxPE MJLEBxPE PE x PE

Size	Dimensions				Weights
	A	Y	T	T1	
3	2.0	8.5	.34	.34	30
4x3	1.0	9.0	.35	.34	40
4	2.5	9.5	.35	.35	45
6x4	1.5	11.0	.37	.35	58
6	3.0	13.0	.37	.37	82
8x4	0.5	13.0	.39	.35	77
8x6	2.0	14.5	.39	.37	111
8	3.5	16.0	.39	.39	117
10x4	0.0	15.0	.41	.35	111
10x6	1.0	16.0	.41	.37	126
10x8	2.5	17.0	.41	.39	160
10	3.5	19.0	.41	.41	184
12x4	0.0	16.5	.43	.35	150
12x6	1.5	18.5	.43	.37	178
12x8	1.5	18.5	.43	.39	188
12x10	3.0	20.0	.43	.41	223
12	4.5	22.5	.43	.43	249
14	6.0	25.0	.51	.51	465
16x6	0.0	21.0	.52	.45	300
16x8	0.5	22.5	.52	.46	327
16x12	3.5	25.0	.52	.48	447
16	6.5	28.0	.52	.52	575

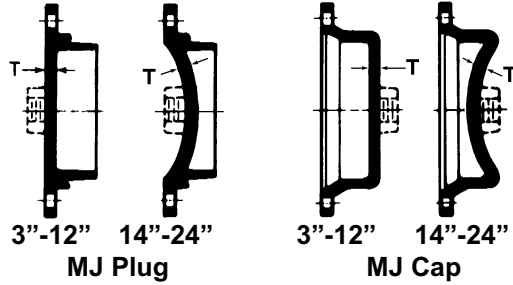
*Not included in AWWA C153.

Size	Dimensions						Weights			
	T	T1	MJ L	SEB L	LEB L	PE L	MJ	SEB	LEB	PE
4x3	.35	.34	4.0	9.5	9.5	15.0	18	17	18	17
6x3	.37	.34	5.0	10.5	10.5	16.0	26	25	27	20
6x4	.37	.35	4.0	9.5	9.5	15.0	27	26	26	22
8x4	.39	.35	5.0	10.5	10.5	16.0	36	33	36	32
8x6	.39	.37	4.0	9.5	9.5	15.0	38	36	36	33
10x4	.41	.35	7.0	12.5	12.5	18.0	47	44	43	...
10x6	.41	.37	5.0	10.5	10.5	16.0	47	48	52	46
10x8	.41	.39	4.0	9.5	9.5	15.0	54	49	51	47
12x4	.43	.35	9.0	14.5	14.5	20.0	65	61	68	58
12x6	.43	.37	7.0	12.5	12.5	18.0	60	58	60	58
12x8	.43	.39	5.0	10.5	10.5	16.0	60	61	62	58
12x10	.43	.41	4.0	9.5	9.5	15.0	64	61	64	59
14x6	.51	.44	9.0	17.0	14.5	22.5	108	107	112	...
14x8	.51	.45	7.0	15.0	12.5	20.5	104	99	108	...
14x10	.51	.46	5.0	13.0	10.5	18.5	100	96	100	...
14x12	.51	.47	4.0	12.0	9.5	17.5	100	94	100	92
16x6	.52	.45	11.0	19.0	16.5	24.5	132	126	144	124
16x8	.52	.46	9.0	17.0	14.5	22.5	128	124	136	132
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	125	122	119	113
16x14	.52	.51	4.0	12.0	12.0	20.0	140	133	138	133
18x8	.59	.45	14.0	22.0	19.5	27.5	194	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	185	170	190	...
18x14	.59	.56	8.0	16.0	16.0	24.0	190	181	200	...
18x16	.59	.57	7.0	15.0	15.0	23.0	196	180	190	...
20x10	.60	.47	14.0	22.0	19.0	27.5	225	210	210	...
20x12	.60	.49	12.0	20.0	17.5	25.5	210	200	210	...
20x14	.60	.56	10.0	18.0	18.0	26.0	208	198	205	...
20x16	.60	.57	8.0	16.0	16.0	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	21.5	29.5	310	300	310	...
24x14	.62	.56	14.0	22.0	22.0	30.0	315	325	335	...
24x16	.62	.57	12.0	20.0	20.0	28.0	325	319	310	...
24x18	.62	.59	10.0	18.0	18.0	26.0	312	310	...	...
24x20	.62	.60	8.0	16.0	16.0	24.0	315	305	...	...



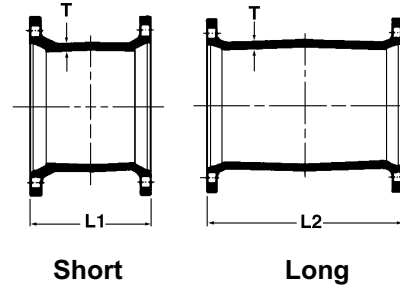
MECHANICAL JOINT COMPACT-DUCTILE IRON CLASS 350 FITTINGS AWWA C153

SOLID & TAPPED PLUGS & CAPS



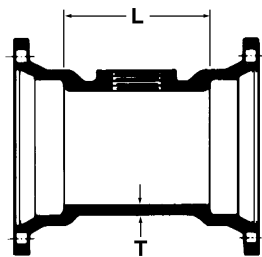
Size	Dimensions T	Max. Tap inches	Weights	
			Plugs	Caps
3	.46	2	8	7
4	.46	2	10	10
6	.46	2	18	17
8	.46	2	26	25
10	.56	2	36	35
12	.56	2	46	44
14	.62	2	79	69
16	.62	2	100	92
18	.65	2	130	122
20	.66	2	153	148
24	.68	2	202	202

SOLID SLEEVE



Size	Dimensions			Weights	
	T	L1	L2	Short	Long
3	.34	7.5	12	13	19
4	.35	7.5	12	17	25
6	.37	7.5	12	28	36
8	.39	7.5	12	38	52
10	.41	7.5	12	49	64
12	.43	7.5	12	56	82
14	.56	9.5	15	111	141
16	.57	9.5	15	137	170
18	.68	9.0	15	160	200
20	.69	9.0	15	212	269
24	.75	9.0	15	272	368

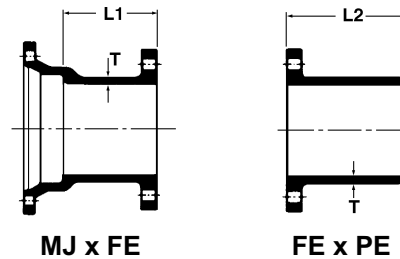
TAPPED TEE



MJ Tapped Tee (2" Tap)

Size	Dimensions		Max. Tap inches	Weights
	T	L		
3	.34	6	2.5	19
4	.35	6	2.5	23
6	.37	6	2.5	37
8	.39	6	2.5	53
10	.41	6	2.5	68
12	.43	6	2.5	88
16	.52	6	2.5	164

ADAPTERS

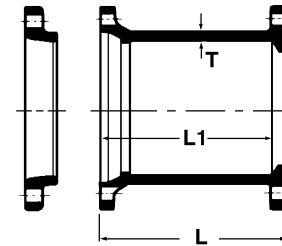


Size	Dimensions			Weights	
	T	L1	L2	MJxFE	FExPE
3	.34	6	12	17	...
4	.35	6	12	24	24
6	.37	6	12	32	33
8	.39	6	12	50	52
10	.41	6	12	60	...
12	.43	6	12	80	...
14	.51	6	12	126	...
16	.52	6	12	159	...
20	.60	6	...	275	...

MECHANICAL JOINT COMPACT-DUCTILE IRON CLASS 350 FITTINGS AWWA C153 DUAL PURPOSE CUTTING-IN SLEEVE

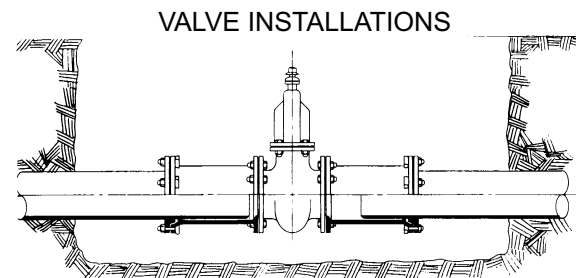
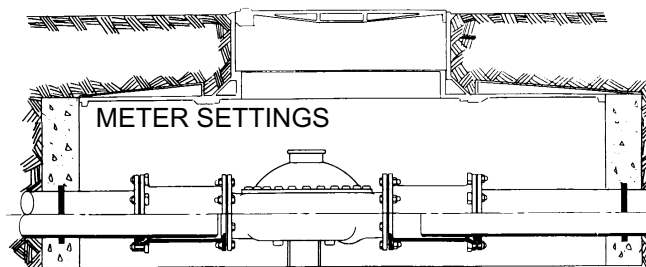
MJ x FLG
Cutting-In Sleeve with Dual Purpose Accessories

Size	For Pipe Size	Dimensions			Shipping Wt. Assembled
		L	L1	T	
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



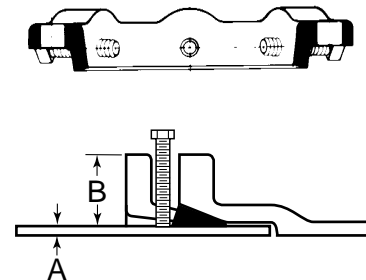
Flanged ends are faced and drilled per ANSI/AWWA C110/A21.10. Mechanical joint ends are designed to receive both standard and oversize gray or ductile iron pipe as shown above.

TYPICAL CUTTING-IN SLEEVE INSTALLATIONS



*RETAINER GLAND ASSEMBLY

Size	Gland O.D. B	Pipe O.D. A	No of Set Screws	Size of Set Screws	Gland Weight	Weight w/ Acces.
3	7.69	3.96	4	5/8x2	4	7
4	9.12	4.80	4	5/8x2	5	13
6	11.12	6.90	6	5/8x2	9	20
8	13.37	9.05	9	5/8x2	13	25
10	15.62	11.10	12	5/8x2	17	33
12	17.88	13.20	16	5/8x2	20	38
14	20.25	15.30	20	5/8x2-1/2	44	55
16	22.50	17.40	24	5/8x2-1/2	46	64
18	24.75	19.50	24	5/8x2-1/2	62	72
20	27.00	21.60	28	5/8x3	76	91
24	31.50	25.80	32	5/8x3	103	118



*Not included in AWWA C110

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 Rockwell "C" 45/53 core 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 AWWA C-111 should be used.