

Mechanical Joint Fittings



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Metalfit



SUBMITTAL

(Current Revisions for All Standards Apply)



C153 Mechanical Joint Compact Fittings

SIZES: 3" through 48"

MATERIAL: Ductile Iron ASTM A536

PRESSURE: 350 PSI rating for 3"-24", 250 PSI rating for 30"-48"

TESTING: In accordance with ANSI/ AWWA C153/A21.53 and UL requirements

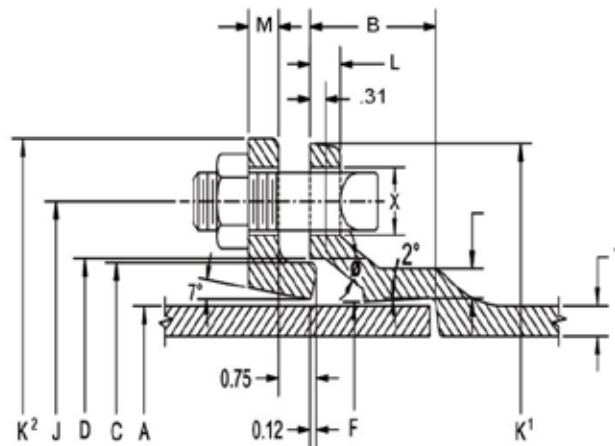
LAYING LENGTH: In accordance with ANSI/ AWWA C153/A21.53

CEMENT LINING: In accordance with ANSI/AWWA C104/A21.4

COATING: In accordance with ANSI/AWWA C104/A21.4 ASPHALTIC SEAL COATED IN & OUT

GASKET: SBR in accordance with ANSI / AWWA C111 / A21.11

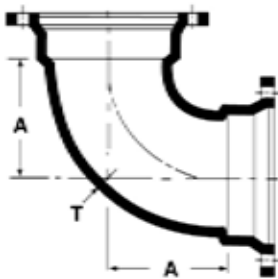
STANDARDS: ANSI / AWWA C153 / A21.53 UL Listed



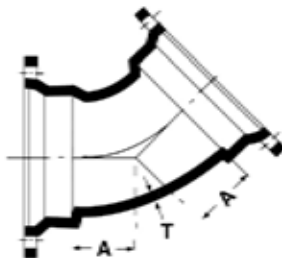
Size	Mechanical Joint Dimensions													Bolts	
	A Dia.	B	C Dia.	D Dia.	F Dia.	J Dia.	K ¹ Dia.	K ² Dia.	L	M	S	T	X	Size	No.
3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	.58	.62	.39	.33	3/4	5/8x3	4
4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	.60	.75	.39	.34	7/8	3/4x3 1/2	4
6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	.63	.88	.43	.36	7/8	3/4x3 1/2	6
8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	.66	1.00	.45	.38	7/8	3/4x4	6
10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	.70	1.00	.47	.40	7/8	3/4x4	8
12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	.73	1.00	.49	.42	7/8	3/4x4	8
14	15.30	3.50	16.40	16.54	15.44	18.75	20.31	20.25	.79	1.25	.55	.47	7/8	3/4x4 1/2	10
16	17.40	3.50	18.50	18.64	17.54	21.00	22.56	22.50	.85	1.31	.58	.50	7/8	3/4x4 1/2	12
18	19.50	3.50	20.60	20.74	19.64	23.25	24.83	24.75	1.00	1.38	.68	.54	7/8	3/4x4 1/2	12
20	21.60	3.50	22.70	22.84	21.74	25.50	27.08	27.00	1.02	1.44	.69	.57	7/8	3/4x4 1/2	14
24	25.80	3.50	26.90	27.04	25.94	30.00	31.58	31.50	1.02	1.56	.75	.61	7/8	3/4x5	16
30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	.82	.66	1 1/8	1x6	20
36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	.74	1 1/8	1x6	24
42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	.82	1 3/8	1 1/4x6 1/2	28
48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	.90	1 3/8	1 1/4x6 1/2	32

Mechanical Joint Bends C153
Class 350 (4"-36")
Class 250 (42"-48")

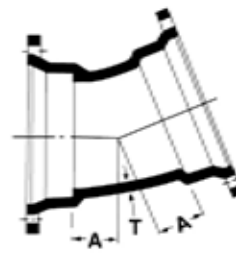
MJ x MJ



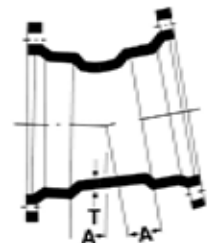
90 ° Bend



45 ° Bend



22 ½ ° Bend



11 ¼ ° Bend

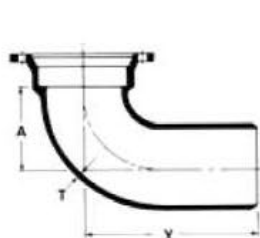
Fitting Size (in.)	T _{nominal}	90°	45 °	22 ½ °	11 ¼ °	90 °	45 °	22 ½ °	11 ¼ °
		"A" Dimension (in.)				Weight (lbs.)			
4"	0.34	4.00	2.00	1.50	1.25	25	22	18	16
6"	0.36	5.00	3.00	2.00	1.50	39	32	31	30
8"	0.38	6.50	3.50	2.50	1.75	57	46	46	42
10"	0.40	7.50	4.50	3.00	2.00	89	70	64	58
12"	0.42	9.00	5.50	3.50	2.25	108	86	80	67
14"	0.47	11.50	5.00	3.75	2.50	210	160	136	93
16"	0.50	12.50	5.50	3.75	2.50	264	202	172	148
18"	0.54	14.00	6.00	4.50	3.00	335	250	255	205
20"	0.57	15.00	7.00	4.50	3.00	400	305	310	245
24"	0.61	16.75	7.50	4.50	3.00	565	405	412	315
30"	0.66	21.50	10.50	6.75	4.75	930	780	665	600
36"	0.74	24.50	11.50	7.75	5.00	1450	1135	960	820
42"	0.82	29.25	14.00	9.00	6.00	2205	1610	1350	1180
48"	0.90	33.25	15.00	10.00	6.50	2990	2090	1760	1475

Weight shown is the approximate weight for fittings with minimum "A" dimension.

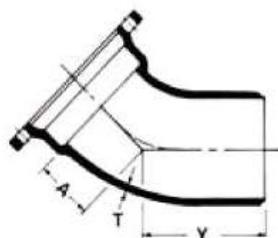
Weight does not include cement lining or accessories.

Mechanical Joint Bends C153 Class 350

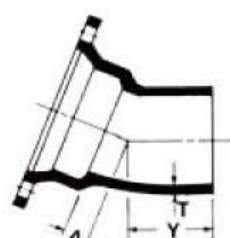
MJ x PE



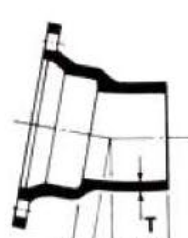
90° Bend



45° Bend



22 1/2° Bend



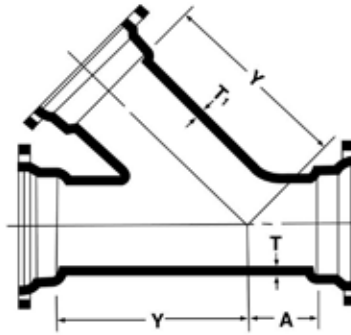
11 1/4° Bend

Size (in.)	T nominal	90°			45 °			22 1/2 °			11 1/4 °		
		A	Y	Wt.	A	Y	Wt.	A	Y	Wt.	A	Y	Wt.
4"	0.34	4.00	9.50	22	2.00	7.50	19	1.50	7.00	18	1.25	6.25	17
6"	0.36	5.00	11.50	41	3.00	8.50	34	2.00	7.50	29	1.50	7.00	27
8"	0.38	6.50	12.50	58	3.50	9.00	49	2.50	8.00	43	1.75	7.25	39
10"	0.40	7.50	13.00	83	4.50	10.00	69	3.00	8.50	61	2.00	7.50	52
12"	0.42	9.00	14.50	114	5.50	11.00	93	3.50	9.00	79	2.25	7.75	69
14"	0.47	11.50	19.50	197	5.00	13.00	146	3.75	11.25	133	2.50	10.50	118
16"	0.50	12.50	20.50	248	5.50	13.50	184	3.75	11.75	166	2.50	10.50	136
18"	0.54	14.00	21.00	325	6.00	13.00	235	6.00	13.00	235	6.00	13.00	235
20"	0.57	15.00	22.50	390	7.00	14.00	290	7.00	14.00	300	7.00	14.00	300
24"	0.61	17.00	25.00	575	7.50	14.50	390	7.50	14.50	395	7.50	14.50	400
30"	0.66	21.50	30.50	865	10.50	19.50	715	6.75	15.75	600	4.75	13.75	535

Weight shown is the approximate weight for fittings with minimum "A" dimension.

Weight does not include cement lining or accessories.

Mechanical Joint Wyes (45° Laterals) Class 350



Fitting Size (in.)		Dimensions (in.)				Minimum Weight (lbs.)
Run	Branch	T _{nominal} (in.)	T _{1 nominal} (in.)	A _{nominal} (in.)	Y _{nominal} (in.)	
4"	4"	0.35	0.35	2.50	8.50	45
6"	4"	0.37	0.35	1.50	11.00	66
6"	4"	0.37	0.37	3.00	13.00	91
8"	4"	0.39	0.35	0.50	13.00	93
8"	6"	0.39	0.37	2.00	14.50	116
8"	8"	0.39	0.39	3.50	16.00	130
10"	4"	0.41	0.35	0.00	15.00	114
10"	6"	0.41	0.37	1.00	16.00	141
10"	8"	0.41	0.39	2.50	17.00	177
10"	10"	0.41	0.41	3.50	19.00	189
12"	4"	0.43	0.35	0.00	16.50	210
12"	6"	0.43	0.37	1.50	18.50	174
12"	8"	0.43	0.39	1.50	18.50	235
12"	10"	0.43	0.41	3.00	20.00	275
12"	12"	0.43	0.43	4.50	19.50	248

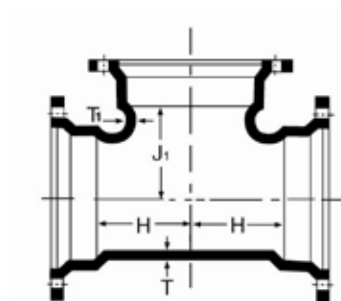
Mechanical Joint Wyes (45° Laterals) Class 350

Fitting Size (in.)		Dimensions (in.)				Minimum Weight (lbs.)
Run	Branch	T _{nominal} (in.)	T _{1 nominal} (in.)	A _{nominal} (in.)	Y _{nominal} (in.)	
14"	14"					474
16"	6"					300
16"	8"					349
16"	12"					453
16"	16"					575
24"	12"					900
24"	18"					1047
24"	24"					1186
30"	24"					1575
36"	36"					2280

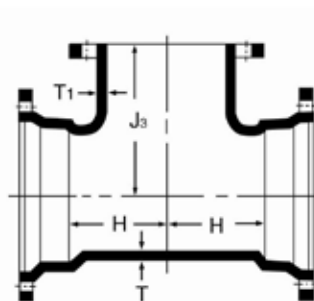
NOTE: All fittings on this page – Call for availability

Mechanical Joint Tees C153

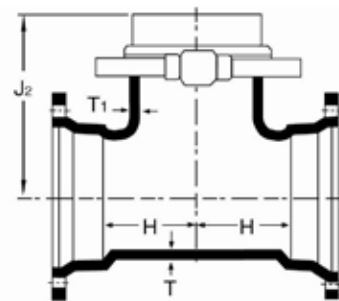
Class 350



MJ x MJ Tee



MJ x FE Tee



MJ x Swivel Tee

Size (in.)	Dimensions (in.)						Weights (lbs.)		
	T	T ₁	H	J ₁	J ₂	J ₃	MJ x MJ	MJ x FE	MJ x SW
4" x 4"	0.34	0.34	4	4			32		
6" x 4"	0.36	0.34	4	5			46		
6" x 6"	0.36	0.36	5	5	10	8	56	67	68
8" x 4"	0.38	0.34	4	6 ½			60		
8" x 6"	0.38	0.36	5	6 ½	11	9	72	86	92
8" x 8"	0.38	0.38	6 ½	6 ½			86		
10" x 4"	0.40	0.34	4	7 ½			78		
10" x 6"	0.40	0.36	5	7 ½	12 ½	11	90	106	109
10" x 8"	0.40	0.38	6 ½	7 ½			105		
10" x 10"	0.40	0.40	7 ½	7 ½			120		
12" x 4"	0.42	0.34	4	8 ¾			94		
12" x 6"	0.42	0.36	5	8 ¾	13 ½	12	110	117	113
12" x 8"	0.42	0.38	6 ½	8 ¾			125		
12" x 10"	0.42	0.40	7 ½	8 ¾			140		
12" x 12"	0.42	0.42	8 ¾	8 ¾			160		
14" x 4"	0.47	0.34	5 ½	10 ½			172		
14" x 6"	0.47	0.36	6 ½	10 ½	12 ½	14	182	205	183
14" x 8"	0.47	0.38	7 ½	10 ½			206		
14" x 10"	0.47	0.40	8 ½	10 ½			228		
14" x 12"	0.47	0.42	9 ½	10 ½			234		
14" x 14"	0.47	0.47	10 ½	10 ½			280		
16" x 6"	0.50	0.36	6 ½	11 ½	13 ½	15	228	224	233
16" x 8"	0.50	0.38	7 ½	11 ½			248		
16" x 10"	0.50	0.40	8 ½	11 ½			264		
16" x 12"	0.50	0.42	9 ½	11 ½			280		
16" x 14"	0.50	0.47	10 ½	11 ½			316		
16" x 16"	0.50	0.50	11 ½	11 ½			322		
18" x 6"	0.54	0.36	6 ½	12 ½	14 ½	16	275	224	233
18" x 8"	0.54	0.38	7 ½	12 ½			295		
18" x 10"	0.54	0.40	8 ½	12 ½			315		
18" x 12"	0.54	0.42	9 ½	12 ½			335		
18" x 14"	0.54	0.47	10 ½	12 ½			380		
18" x 16"	0.54	0.50	11 ½	12 ½			405		
18" x 18"	0.54	0.54	12 ½	12 ½			435		

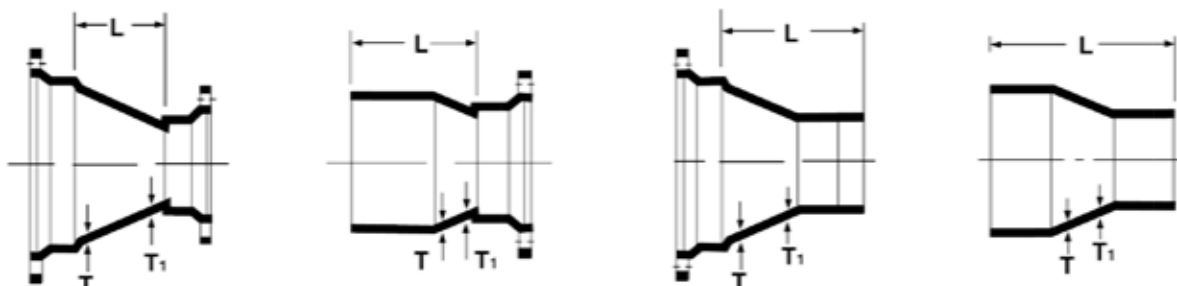
Mechanical Joint Tees C153

Class 350

Size (in.)	Dimensions (in.)						Weights (lbs.)		
	T	T ₁	H	J ₁	J ₂	J ₃	MJ x MJ	MJ x FE	MJ x SW
20" x 6"	0.57	0.36	6½	14	16	17½	315	340	360
20" x 8"	0.57	0.38	8	14			345		
20" x 10"	0.57	0.40	9	14			370		
20" x 12"	0.57	0.42	10	14			395		
20" x 14"	0.57	0.47	11	14			440		
20" x 16"	0.57	0.50	12	14			465		
20" x 18"	0.57	0.54	13	14			505		
20" x 20"	0.57	0.57	14	14			535		
24" x 6"	0.61	0.36	7	16	21½	19	415	460	458
24" x 8"	0.61	0.38	8	16			445		
24" x 10"	0.61	0.40	9	16			470		
24" x 12"	0.61	0.42	10	16			500		
24" x 14"	0.61	0.47	11	16			550		
24" x 16"	0.61	0.50	12	16			580		
24" x 18"	0.61	0.54	13	16			625		
24" x 20"	0.61	0.57	14	16			660		
24" x 24"	0.61	0.61	16	16			720		
30" x 20"	0.72	0.61	16½	20			995		
30" x 24"	0.72	0.72	22	20			1060		
30" x 30"	0.72	0.72	22	20			1323		
36" x 24"	0.77	0.72	16	23½			1498		
36" x 30"	0.77	0.72	20	23½			1555		
36" x 36"	0.77	0.77	23½	23½			1900		
42" x 24"	0.82	0.61	20	25½			2270		
42" x 36"	0.82	0.74	30	30			3000		
42" x 42"	0.82	0.82	30	30			3175		
48" x 16"	0.90	0.61	23	32			2650		
48" x 24"	0.90	0.61	23	32			2870		
48" x 30"	0.90	0.66	23	32			3050		
48" x 36"	0.90	0.74	33½	32¼			3900		
48" x 48"	0.90	0.90	33½	33½			4250		

NOTE: All fittings on this page – Call for availability

Mechanical Joint Reducers C153 Class 350



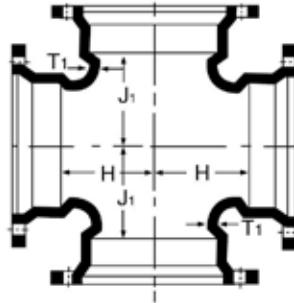
Fitting Size (in.)	Nominal Thickness		Dimensions							
	T	T ₁	MJ x MJ		MJ LEB		MJ SEB		PE x PE	
			L min.	Wt.	L min.	Wt.	L min.	Wt.	L min.	Wt.
6" x 4"	0.36	0.34	4	24	9.5	26	9.5	26	15	22
8" x 4"	0.38	0.34	5	32	10.5	34	10.5	30	16	30
8" x 6"	0.38	0.36	4	36	9.5	32	9.5	35	15	30
10" x 4"	0.40	0.34	7	46	12.5	43	12.5	43	18	46
10" x 6"	0.40	0.36	5	47	10.5	42	10.5	46	16	46
10" x 8"	0.40	0.38	4	50	9.5	50	9.5	42	15	47
12" x 4"	0.42	0.34	9	58	14.5	60	14.50	60	20	58
12" x 6"	0.42	0.36	7	58	12.5	58	12.50	58	18	57
12" x 8"	0.42	0.38	5	57	10.5	55	10.50	54	16	54
12" x 10"	0.42	0.40	4	61	9.5	59	9.5	59	15	54
14" x 6"	0.47	0.36	9	100	14.5	104	16.90	100	22.30	93
14" x 8"	0.47	0.38	7	100	12.4	98	14.9	98	20.30	94
14" x 10"	0.47	0.40	5	100	10.4	92	12.90	94	18.30	90
14" x 12"	0.47	0.42	4	100	9.4	92	11.90	90	17.30	88
16" x 6"	0.50	0.36	11	124	16.5	136	18.9	125	24.3	124
16" x 8"	0.50	0.38	9	124	14.4	128	16.9	124	22.3	119
16" x 10"	0.50	0.40	7	124	12.5	123	15.0	124	20.5	119
16" x 12"	0.50	0.42	5	112	10.5	119	12.9	122	18.3	113
16" x 14"	0.50	0.47	4	140	12.0	132	12.0	133	19.7	129
18" x 8"	0.54	0.38	13	190	19.5	195	20.2	170	27.4	170
18" x 10"	0.54	0.40	10	195	17.4	185	18.0	165	25.5	160
18" x 12"	0.54	0.42	7	180	14.0	175	15.5	150	19.5	150
18" x 14"	0.54	0.47	6	190	15.0	190	15.0	175	23.0	160
18" x 16"	0.54	0.50	5	195	12.5	190	12.5	170	18.0	145
20" x 10"	0.57	0.40	14	220	19.0	210	22.0	200	27.5	180
20" x 12"	0.57	0.42	12	205	16.0	205	17.5	170	21.5	190
20" x 14"	0.57	0.47	10	200	17.9	205	18.0	190	26.0	195
20" x 16"	0.57	0.50	7	200	13.5	200	13.5	185	19.0	170
20" x 18"	0.57	0.54	4	225	12.0	215	12.0	200	20.0	190
24" x 12"	0.61	0.42	16	305	21.0	290	21.5	275	22.5	240
24" x 14"	0.61	0.47	14	310	21.9	330	22.0	310	25.0	295
24" x 16"	0.61	0.50	12	320	17.5	285	17.5	285	23.0	285

Mechanical Joint Fittings

Fitting Size (in.)	Nominal Thickness		Dimensions							
	T	T ₁	MJ x MJ		MJ LEB		MJ SEB		PE x PE	
			L _{min.}	Wt.	L _{min.}	Wt.	L _{min.}	Wt.	L _{min.}	Wt.
24" x 18"	0.61	0.54	10	305	18.0	310	18.0	300	21.0	290
24" x 20"	0.61	0.57	7	300	13.5	275	13.5	270	14.0	240
30" x 20"	0.72	0.72	24	628	33.0	603	33.0	560	42.0	535
30" x 24"	0.72	0.72	10	478	24.5	526	24.5	495	33.5	458
36" x 24"	0.77	0.77	19	770	33.0	810	33.0	746	42.0	709
36" x 30"	0.77	0.77	15.5	650	24.5	758	24.5	725	33.5	657
42" x 24"	0.82	0.61	40	1356						
42" x 36"	0.82	0.66	15½	1114			24½	1023		
48" x 24"	0.90	0.66	40	1850						
48" x 30"	0.90	0.66	40	1779						
48" x 36"	0.90	0.74	28	1641						

NOTE: All fittings on this page – Call for availability

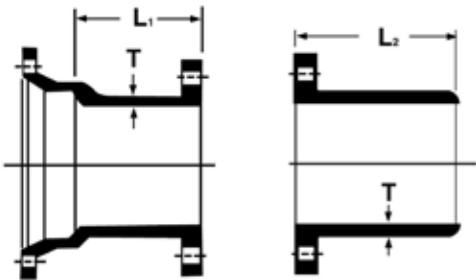
Mechanical Joint Crosses C153 Class 350



Size (in.)	Dimensions (in.)				Weights (lbs.)
	T	T ₁	H	J	MJ x MJ
4" x 4"	0.35	0.35	4	4	57
6" x 4"	0.37	0.35	5¼	5	68
6" x 6"	0.37	0.37	6¼	5	88
8" x 4"	0.39	0.35	5¼	6	99
8" x 6"	0.39	0.37	6	6	100
8" x 8"	0.39	0.39	7¼	6	130
10" x 4"	0.41	0.35	4	7	120
10" x 6"	0.41	0.37	5	7	125
10" x 8"	0.41	0.39	6½	7	130
10" x 10"	0.41	0.41	7½	7	210
12" x 4"	0.43	0.35	4	8½	150
12" x 6"	0.43	0.37	5	8½	159
12" x 8"	0.43	0.39	6½	8½	165
12" x 10"	0.43	0.41	7½	8½	190
12" x 12"	0.43	0.43	8¾	8½	280
14" x 8"	0.51	0.45	7½	10½	259
14" x 14"	0.51	0.51	10½	10½	413
16" x 6"	0.52	0.45	6½	11½	250
16" x 8"	0.52	0.46	8½	11½	289
16" x 10"	0.52	0.47	8½	11½	345
16" x 12"	0.52	0.48	9½	11½	397
16" x 16"	0.52	0.51	11½	11½	578
18" x 12"	0.54				437
18" x 18"	0.54				657
20" x 8"	0.57				440
20" x 12"	0.57				558
20" x 18"	0.57				698
20" x 20"	0.57				798
24" x 8"	0.61				500
24" x 12"	0.61				620
24" x 16"	0.61				720
24" x 18"	0.61				868
24" x 20"	0.61				1014
24" x 24"	0.61				1038
30" x 30"	0.66		22.00	22.00	1840
36" x 36"	0.74		26.00	26.00	2655

NOTE: All fittings on this page – Call for availability

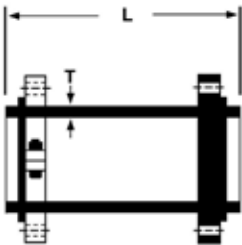
Mechanical Joint Adapters C153
Class 250



MJ x FE

MJ x PE

Fitting Size (in.)	Dimensions (in.)			Minimum Weight (lbs.)	
	T _{nominal} (in.)	L _{1 nominal} (in.)	L _{2 nominal} (in.)	MJ x FE	FE x PE
4"	0.35	6	12	24	24
6"	0.37	6	12	36	33
8"	0.39	6	12	52	52
10"	0.41	6	12	67	69
12"	0.43	6	12	80	88
14"	0.51	6	12	126	127
16"	0.52	6	12	166	149



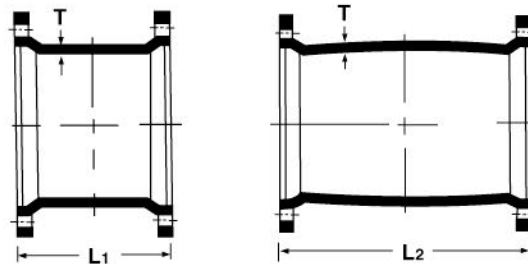
Swivel x Solid (anchor coupling)

Fitting Size (in.)	Dimensions (in.)		Minimum Weight (lbs.)
	T _(in.)	L _(in.)	
6"	0.55	13	75
8"	0.55	36	129

Mechanical Joint Sleeves C153

Class 350

42" and 48" = Class 250



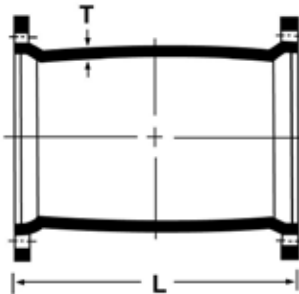
Fitting Size (In.)	Dimensions (in.)			Short Sleeve Minimum Weight (lbs.)	Long Sleeve Minimum Weight (lbs.)
	T nominal	L 1 nominal	L 2 nominal		
4"	0.34	7.5	12.0	17	20
6"	0.36	7.5	12.0	28	33
8"	0.38	7.5	12.0	38	46
10"	0.40	7.5	12.0	49	62
12"	0.42	7.5	12.0	56	76
14"	0.47	9.5	15.0	111	140
16"	0.50	9.5	15.0	123	170
18"	0.54	9.0	15.0	160	200
20"	0.57	9.0	15.0	195	255
24"	0.61	9.0	15.0	255	335
30"	0.72	15.0	24.0	500	640
36"	0.77	15.0	24.0	725	925

Mechanical Joint Duo-Sleeves C153

(Dual-Purpose Sleeve) Class 350

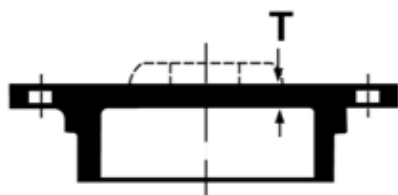
Many older pipelines that are still in service were constructed with cast (gray) iron pipe. Prior to the introduction of centrifugal casting, and the adoption of standardized dimensions in the waterworks industry, pipe were produced by “pit casting” methods. Pit cast pipe had a larger diameter (OD) than currently manufactured ductile iron pipe. While the older type of pipe is no longer manufactured, it is sometimes necessary to connect a new ductile iron pipe or fitting to the older lines.

The Griffin Duo-Sleeve is designed with a larger inner diameter for use on older pipelines of cast iron with oversized diameters (O.D.). The Duo-Sleeve allows cutting into and adapting to the older pipelines with newer ductile iron pipe, fittings or valves. The current C153 compact mechanical joint ductile iron sleeves will not adapt to the oversize cast iron pipe. The Duo-Sleeve has larger dimensions in the gasket/gland area and will fit oversize pipe as well as new ductile iron pipe. The Duo-Sleeve requires the use of a special Duo-Gland that is supplied with each Duo-Sleeve. The gasket is the current C111 mechanical joint gasket (gasket not supplied with the fitting).

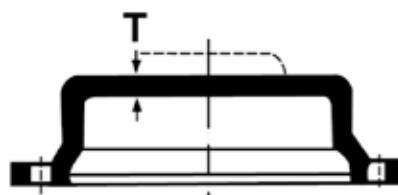


Fitting Size (In.)	Suitable Pipe Sizes (O.D. in.)	Dimensions (in.)			Minimum Weight (lbs.)
		T _{nominal}	L _{nominal}	Inside Diameter, nominal (+.07 /-.03)	
4"	4.80 – 5.00	0.35	12.0	5.12	23
6"	6.90 – 7.10	0.37	12.0	7.22	49
8"	9.05 – 9.30	0.39	12.0	9.42	65
10"	11.10 – 11.40	0.40	12.0	11.52	86
12"	13.20 – 13.50	0.43	12.0	13.62	111

Mechanical Joint Caps and Plugs C153 Class 350



MJ Solid / Tapped Plug

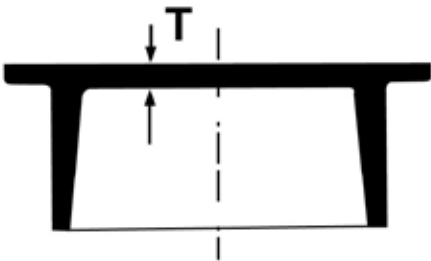


MJ Solid / Tapped Cap

Fitting Size (in.)	Dimensions (in.)		Maximum Tap Size (in.)	Minimum Weight (lbs.)	
	T (in.)			Plug	Cap
	Plug	Cap			
4"	0.34	0.34	3"	10	10
6"	0.36	0.36	4"	21	19
8"	0.38	0.38	4"	29	27
10"	0.40	0.40	4"	42	36
12"	0.42	0.42	4"	57	45
14"	0.47	0.47	4"	87	67
16"	0.50	0.50	4"	104	93
18"	0.54	0.54	4"	164	122
20"	0.57	0.57	4"	153	162
24"	0.61	0.61	4"	202	202
30"	0.66	0.66	4"	495	491
36"	0.74	0.74	4"	858	876

NOTE: Tapping holes larger than 2" in a flat plug or cap can reduce the strength of the fitting.

Push-On Joint Plug C153
Class 350



Fitting Size (in.)	Dimensions (in.)	Maximum Tap Size (in.)	Minimum Weight (lbs.)
	T (in.)		
4"	0.46	3"	8
6"	0.46	3"	17
8"	0.46	4"	25
10"	0.56	4"	34
12"	0.56	4"	48
14"	0.66	4"	110
16"	0.70	4"	99
18"	0.75	4"	180
20"	0.80	4"	220
24"	0.89	4"	315
30"	0.72	4"	460
36"	0.95	4"	777

NOTE: Tapping holes larger than 2" in a flat plug or cap can reduce the strength of the fitting.