

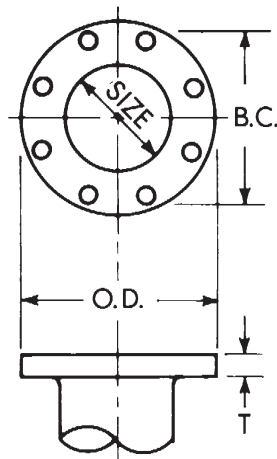


DUCTILE IRON C110 FLANGED FITTINGS

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

SAMPLE SPECIFICATION (Current ANSI/AWWA revisions apply)

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. Flange surfaces 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. Fittings are also available prime coated, bare or epoxy coated. All coated fittings meet requirements of NSF-61, NSF-372, and Annex G. Interiors of fittings shall be lined and seal coated in accordance with ANSI/AWWA C104/A21.4. Cement mortar lining for ductile iron pipe and fittings for potable water unless otherwise specified. Installation of fittings shall be per AWWA C110.



NOTE: No flange joint material furnished.

FLANGE DETAILS

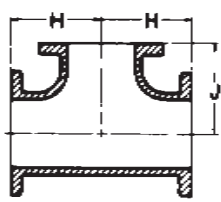
Nominal Pipe Size Inch	Flange O.D.	Dia. of Bolt Circle	Flange Thickness T	Bolt Hole Diameter	Number of Bolts	Bolt Dia. and Lengths
2	6	4.75	.62	.75	4	$\frac{5}{8}$ x 2 $\frac{1}{4}$
3	7.5	6	.75	.75	4	$\frac{5}{8}$ x 2 $\frac{1}{2}$
4	9	7.5	.94	.75	8	$\frac{5}{8}$ x 3
6	11	9.5	1.00	.875	8	$\frac{3}{4}$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

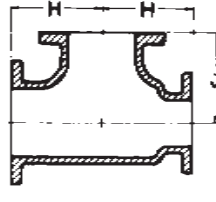


DUCTILE IRON C110 FLANGED FITTINGS

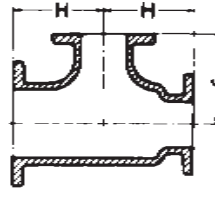
TEES, REDUCING TEES, CROSSES



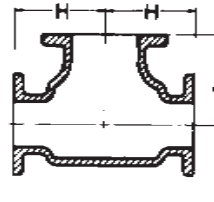
**Straight Tees, Reducing
on Branch Tees**



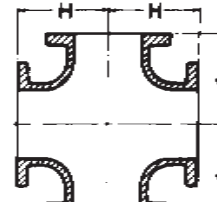
***Reducing
on Run**



***Reducing on
Run and Branch**



***Bullhead
Tees**



**Straight and
Reducing Crosses**

Straight Tees, Reducing on Branch Tees							*Reducing on Run						
Run	Size Run	Branch	Dimensions		Weights		Run	Size Run	Branch	Dimensions		Weights	
			H	J	Tee	Cross				H	J	Tee	Cross
2	2	2	4.5	4.5	20		*12	8	8	12.0	12.0	375	...
3	3	2	5.5	5.5	35	...	*12	8	12	12.0	12.0	420	...
3	3	3	5.5	5.5	42	51	*†12	10	6	14.0	14.0	390	...
4	3	3	6.5	5.5	53	...	12	10	8	12.0	12.0	400	...
*4	4	2	6.5	6.5	55	...	12	10	10	12.0	12.0	420	...
4	4	3	6.5	6.5	54	76	12	10	12	12.0	12.0	440	...
4	4	4	6.5	6.5	60	87	12	12	4	12.0	12.0	322	310
*4	4	6	8.0	8.0	88	...	12	12	6	12.0	12.0	297	326
*6	4	4	8.0	8.0	96	...	12	12	8	12.0	12.0	346	351
*6	4	6	8.0	8.0	100	...	12	12	10	12.0	12.0	394	415
*6	6	2	8.0	8.0	85	...	12	12	12	12.0	12.0	369	438
6	6	3	8.0	8.0	85	96	*14	14	4	14.0	14.0	410	...
6	6	4	8.0	8.0	90	112	14	14	6	14.0	14.0	420	450
6	6	6	8.0	8.0	98	141	14	14	8	14.0	14.0	435	475
6	6	8	9.0	9.0	138	...	14	14	10	14.0	14.0	450	...
*8	6	4	9.0	9.0	130	...	14	14	12	14.0	14.0	470	555
*8	6	6	9.0	9.0	148	...	14	14	14	14.0	14.0	500	595
*8	6	8	9.0	9.0	154	...	*16	16	4	15.0	15.0	525	...
8	8	3	9.0	9.0	128	140	16	16	6	15.0	15.0	573	565
8	8	4	9.0	9.0	155	155	16	16	8	15.0	15.0	555	590
8	8	6	9.0	9.0	148	172	16	16	10	15.0	15.0	565	620
8	8	8	9.0	9.0	179	195	16	16	12	15.0	15.0	590	665
*8	8	10	11.0	11.0	225	...	16	16	14	15.0	15.0	610	...
*8	8	12	12.0	12.0	277	...	16	16	16	15.0	15.0	635	755
*†10	6	6	13.0	13.0	278	...	18	18	6	13.0	15.5	780	...
*†10	6	10	13.0	13.0	308	...	18	18	8	13.0	15.5	609	...
*†10	8	6	13.0	13.0	298	...	18	18	10	13.0	15.5	585	...
*†10	8	8	13.0	13.0	278	...	18	18	12	13.0	15.5	638	706
*†10	8	10	13.0	13.0	325	...	18	18	14	16.5	16.5	808	...
10	10	4	11.0	11.0	239	220	18	18	16	16.5	16.5	760	...
10	10	6	11.0	11.0	215	242	18	18	18	16.5	16.5	865	915
10	10	8	11.0	11.0	254	294	* Not included in AWWA C110 † H and J dimensions are two-inches longer than straight tees.						
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	...							



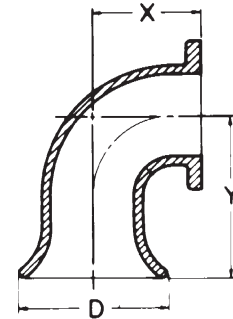
DUCTILE IRON C110 FLANGED FITTINGS

TEES, REDUCING TEES, CROSSES (Con't)

Run	Size		Dimensions		Tee	Weights Cross
	Run	Branch	H	J		
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	6740
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	26.0	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	...

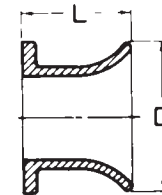
* Not included in AWWA

FLANGE AND FLARE



***Flange and Flare 90° Ell**

Size	Dimensions			Weight
	D	X	Y	
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
30	38.8	25.0	38.0	2070
36	48.0	28.0	38.0	2900



***Flange and Flare Piece**

Size	Dimensions		Weight
	D	L	
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
30	38.75	24	900
36	46.00	24	1200

*Flange by Flare not included
in AWWA C110