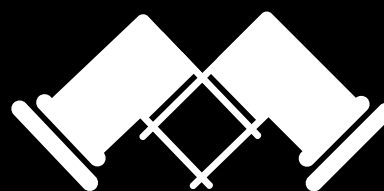


**Ductile and
Cast Iron
Flanged
Fittings
2" – 48"**

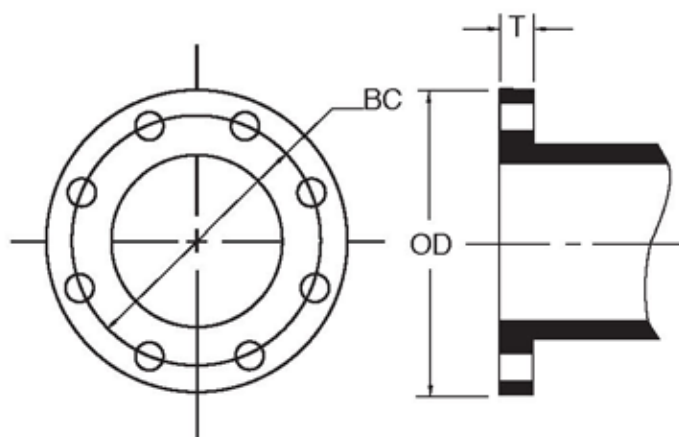


STRONG...SINCE 1899!



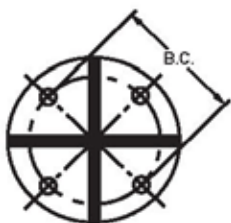
Metalfit

Flanged Joint Dimensions ANSI/AWWA C110/A21.10



Size	OD	BC	T	Hole Dia.	Bolt Size	No. Bolts
2	6.00	4.75	0.62	0.75	5/8 x 2-1/4	4
2-1/2	7.00	5.50	0.69	0.75	5/8 x 2-1/2	4
3	7.50	6.00	0.75	0.75	5/8 x 2-1/2	4
4	9.00	7.50	0.94	0.75	5/8 x 3	8
5	10.00	8.50	0.94	0.88	3/4 x 3	8
6	11.00	9.50	1.00	0.88	3/4 x 3-1/2	8
8	13.50	11.75	1.12	0.88	3/4 x 3-1/2	8
10	16.00	14.25	1.19	1.00	7/8 x 4	12
12	19.00	17.00	1.25	1.00	7/8 x 4	12
14	21.00	18.75	1.38	1.12	1 x 4-1/2	12
16	23.50	21.25	1.44	1.12	1 x 4-1/2	16
18	25.00	22.75	1.56	1.25	1-1/8 x 5	16
20	27.50	25.00	1.69	1.25	1-1/8 x 5	20
24	32.00	29.50	1.88	1.37	1-1/4 x 5-1/2	20
30	38.75	36.00	2.12	1.37	1-1/4 x 6-1/2	28
36	46.00	42.75	2.38	1.62	1-1/2 x 7	32
42	53.00	49.50	2.62	1.62	1-1/2 x 7-1/2	36
48	59.50	56.00	2.75	1.62	1-1/2 x 8	44

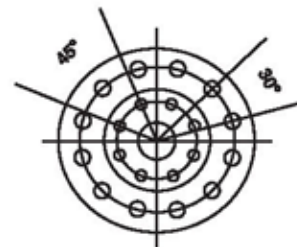
BASE DIMENSIONS



Size	B.C.	Hole Dia.	No. Bolts
3	3.88	0.62	4
4	4.75	0.75	4
6	5.50	0.75	4
8	7.50	0.75	4
10	7.50	0.75	4
12	9.50	0.88	4
14	9.50	0.88	4
16	9.50	0.88	4
18	11.75	0.88	4
20	11.75	0.88	4
24	11.75	0.88	4
30	14.25	1.00	4
36	17.00	1.00	4
42	21.25	1.12	4
48	22.75	1.25	4

INSTALLATION NOTE

Drilling Templates are furnished in multiples of four. Standard flanged reducers, with a different number of holes in each flange, will have only two centerlines which are common to the drilling templates of both flanges.



ANSI/AWWA C110/A21.10

Dimensions in inches.
Weights in pounds.

ENGINEERING SUBMITTAL DATA

Metalfit manufactures Ductile Iron and Gray Cast Iron Flanged Fittings for both Waterworks and Industrial applications and conforms fully to the required industry standards. Flanged Fittings are manufactured in accordance with ANSI/AWWA C110/A21.10 and ANSI B16.1, Class 125. Metalfit 2" through 12" Flanged Fittings are also listed by Underwriters Laboratories for fire protection service. Additionally, **Metalfit hydrostatically tests every fitting** to ensure quality casting integrity. These tests are performed at 1.5 times the rated working pressure.

Mechanical Properties

Cast Iron to ASTM A48

Minimum Tensile Strength 31,000 psi

Ductile Iron to ASTM A 536

Minimum Tensile Strength 70,000 psi

Yield Strength 50,000 psi

Elongation 5%

Water Working Pressure

Gray Cast Iron

2" - 12" CI Fittings rated 250 psi

14" - 42" CI Fittings rated 150 psi

Ductile Iron

All DI Fittings Rated 250 psi

As noted in ANSI/AWWA C111/A21/11, ductile iron flanged joints in the 24" and smaller sizes may be rated to 350 psi with the use of "special" gaskets.

COATINGS & LININGS

Interior Linings

Flanged fittings are furnished cement lined and seal coated per ANSI/AWWA C104/A21.4. Fittings are also available unlined for air service or with other special linings for particular service conditions.

Exterior Coatings

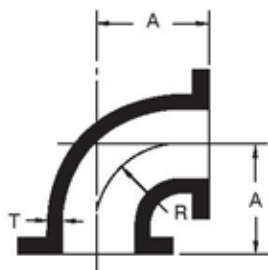
Flanged fittings are furnished standard with a red epoxy primer or tar coated at the customer's discretion. Special primer coatings are also available for particular service conditions.

All standard coatings and linings are provided in full accordance with ANSI/NSF 61.

COMMITMENT TO QUALITY

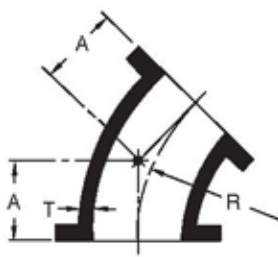
Metalfit takes pride in producing the finest quality Flanged Fittings available in today's market. Our manufacturing standards and a strict adherence to the quality control procedures, developed over many years, make certain that we abide by our commitment to be the best.

Ductile and Cast Iron Flanged Fittings



BENDS, 1/4 (90 DEG)

Size	Wt.	A	R	T
2	14	4.5	3.0	0.31
2 1/2	22	5.0	3.5	0.31
3	25	5.5	4.0	0.48
4	45	6.5	4.5	0.52
5	52	7.5	5.5	0.52
6	65	8.0	6.0	0.55
8	105	9.0	7.0	0.60
10	165	11.0	9.0	0.68
12	235	12.0	10.0	0.75
14	290	14.0	11.5	0.66
16	370	15.0	12.5	0.70
18	450	16.5	14.0	0.75
20	580	18.0	15.5	0.80
24	900	22.0	18.5	0.89
30	1430	25.0	21.5	1.03
36	2135	28.0	24.5	1.15
42	3055	31.0	27.5	1.28
48	4095	34.0	30.5	1.42



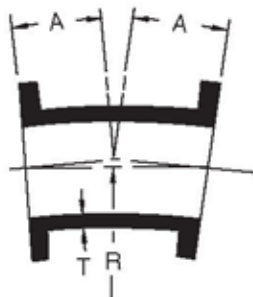
BENDS, 1/8 (45 DEG)

Size	Wt.	A	R	T
2	12	2.5	2.41	0.31
2 1/2	18	3.0	3.02	0.31
3	20	3.0	3.62	0.48
4	40	4.0	4.81	0.52
5	45	4.5	6.04	0.52
6	55	5.0	7.25	0.55
8	90	5.5	8.44	0.60
10	130	6.5	10.88	0.68
12	195	7.5	13.25	0.75
14	220	7.5	12.06	0.66
16	280	8.0	13.25	0.70
18	325	8.5	14.50	0.75
20	430	9.5	16.88	0.80
24	630	11.0	18.12	0.89
30	1120	15.0	27.75	1.03
36	1755	18.0	35.00	1.15
42	2600	21.0	42.25	1.28
48	3580	24.0	49.5	1.42



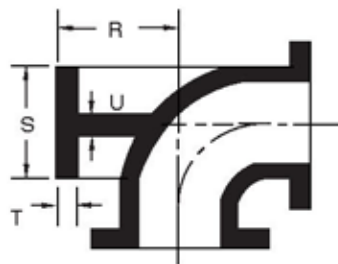
BENDS, 1/16 (22-1/2 DEG)

Size	Wt.	A	R	T
2	12	2.5	6.04	0.31
2 1/2	18	3.0	6.80	0.31
3	20	3.0	7.56	0.48
4	40	4.0	10.06	0.52
5	45	4.5	10.86	0.52
6	55	5.0	15.06	0.55
8	90	5.5	17.62	0.60
10	135	6.5	22.62	0.68
12	205	7.5	27.62	0.75
14	225	7.5	25.12	0.66
16	285	8.0	27.62	0.70
18	335	8.5	30.19	0.75
20	435	9.5	35.19	0.80
24	640	11.0	37.69	0.89
30	1135	15.0	57.81	1.03
36	1790	18.0	72.88	1.15
42	2665	21.0	88.00	1.28
48	3665	24.0	103.06	1.42



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

Size	Wt.	A	R	T
2	12	2.5	12.69	0.31
3	20	3.0	15.25	0.48
4	40	4.0	20.31	0.52
5	45	4.5	22.85	0.52
6	55	5.0	30.50	0.55
8	90	5.5	35.50	0.60
10	135	6.5	45.69	0.68
12	205	7.5	55.81	0.75
14	225	7.5	50.75	0.66
16	285	8.0	55.81	0.70
18	335	8.5	60.94	0.75
20	435	9.5	71.06	0.80
24	645	11.0	76.12	0.89
30	1150	15.0	116.75	1.03
36	1805	18.0	147.25	1.15
42	2680	21.0	177.69	1.28
48	3695	24.0	208.12	1.42



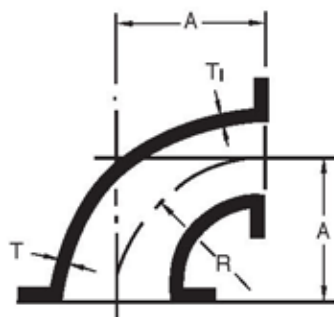
BASE BENDS

Size	Weight		R	S	T	U	BC
	Base Bend	Base Only					
3	35	10	4.88	5.00	0.56	0.50	3.88
4	55	10	5.50	6.00	0.62	0.50	4.75
6	85	20	7.00	7.00	0.69	0.62	5.50
8	145	40	8.38	9.00	0.94	0.88	7.50
10	210	45	9.75	9.00	0.94	0.88	7.50
12	300	65	11.25	11.00	1.00	1.00	9.50
14	360	70	12.50	11.00	1.00	1.00	9.50
16	445	75	13.75	11.00	1.00	1.00	9.50
18	565	115	15.00	13.50	1.12	1.12	11.75
20	700	120	16.00	13.50	1.12	1.12	11.75
24	1030	130	18.50	13.50	1.12	1.12	11.75
30	1625	190	23.00	16.00	1.19	1.15	14.25
36	2385	250	26.00	19.00	1.25	1.15	17.00
42	3465	410	30.00	23.50	1.44	1.28	21.25
48	4610	515	34.00	25.00	1.56	1.42	22.75

ANSI/AWWA C110/A21.10

Dimensions in inches.
Weights in pounds.

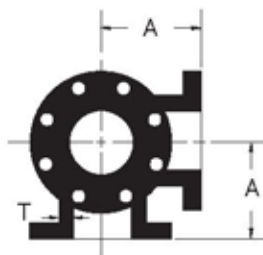
Ductile and Cast Iron Flanged Fittings



REDUCING 90 DEG. BENDS

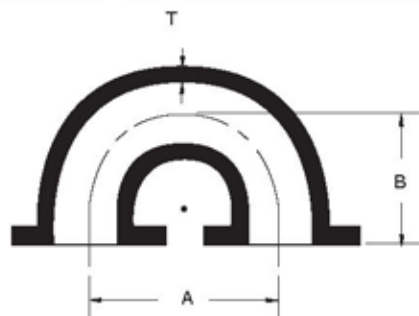
Size	Wt.	A	R	T	T1
2 1/2x2	18	5.0	3.5	0.31	0.31
3x2	22	5.5	4.0	0.48	0.31
3x2 1/2	23	5.5	4.0	0.48	0.31
4x2	27	6.6	4.5	0.52	0.31
4x2 1/2	29	6.6	4.5	0.52	0.31
4x3	29	6.6	4.5	0.52	0.48
5x4	51	7.5	5.5	0.52	0.52
6x3	45	8.0	6.0	0.55	0.48
6x4	55	8.0	6.0	0.55	0.52
6x5	65	8.0	6.0	0.55	0.52
8x4	75	9.0	7.0	0.60	0.52
8x5	80	9.0	7.0	0.60	0.52
8x6	85	9.0	7.0	0.60	0.55
10x4	110	11.0	9.0	0.68	0.52
10x6	135	11.0	9.0	0.68	0.55
10x8	150	11.0	9.0	0.68	0.60
12x4	140	12.0	10.0	0.75	0.52
12x6	160	12.0	10.0	0.75	0.55
12x8	180	12.0	10.0	0.75	0.60
12x10	210	12.0	10.0	0.75	0.68
14x6	144	14.0	11.5	0.66	0.55
14x8	200	14.0	11.5	0.66	0.60
14x10	240	14.0	11.5	0.66	0.68
14x12	270	14.0	11.5	0.66	0.75
16x6	220	15.0	12.5	0.70	0.55
16x8	240	15.0	12.5	0.70	0.60
16x10	280	15.0	12.5	0.70	0.68
16x12	310	15.0	12.5	0.70	0.75
16x14	330	15.0	12.5	0.70	0.66
18x6	260	16.5	14.0	0.75	0.55
18x8	280	16.5	14.0	0.75	0.60
18x10	320	16.5	14.0	0.75	0.68
18x12	350	16.5	14.0	0.75	0.75
18x14	370	16.5	14.0	0.75	0.66
18x16	410	16.5	14.0	0.75	0.70
20x6	320	18.0	15.5	0.80	0.55
20x8	345	18.0	15.5	0.80	0.60

Size	Wt.	A	R	T	T1
20x10	385	18.0	15.5	0.80	0.68
20x12	415	18.0	15.5	0.80	0.75
20x14	435	18.0	15.5	0.80	0.66
20x16	475	18.0	15.5	0.80	0.70
20x18	515	18.0	15.5	0.80	0.75
24x6	480	22.0	18.5	0.89	0.55
24x8	505	22.0	18.5	0.89	0.60
24x10	545	22.0	18.5	0.89	0.68
24x12	575	22.0	18.5	0.89	0.75
24x14	595	22.0	18.5	0.89	0.66
24x16	635	22.0	18.5	0.89	0.70
24x18	675	22.0	18.5	0.89	0.75
24x20	740	22.0	18.5	0.89	0.80
30x12	840	25.0	21.5	1.03	0.75
30x14	860	25.0	21.5	1.03	0.66
30x16	900	25.0	21.5	1.03	0.70
30x18	940	25.0	21.5	1.03	0.75
30x20	1005	25.0	21.5	1.03	0.80
30x24	1165	25.0	21.5	1.03	0.89
36x12	1195	28.0	24.5	1.15	0.75
36x14	1215	28.0	24.5	1.15	0.66
36x16	1255	28.0	24.5	1.15	0.70
36x18	1295	28.0	24.5	1.15	0.75
36x20	1360	28.0	24.5	1.15	0.80
36x24	1520	28.0	24.5	1.15	0.89
36x30	1785	28.0	24.5	1.15	1.03
42x14	1675	31.0	27.5	1.28	0.66
42x16	1715	31.0	27.5	1.28	0.70
42x18	1755	31.0	27.5	1.28	0.75
42x20	1820	31.0	27.5	1.28	0.80
42x24	1980	31.0	27.5	1.28	0.89
42x30	2245	31.0	27.5	1.28	1.03
42x36	2600	31.0	27.5	1.28	1.15
48x24	3240	34.0	30.5	1.42	0.89
48x30	3600	34.0	30.5	1.42	1.03
48x36	3255	34.0	30.5	1.42	1.15
48x42	4685	34.0	30.5	1.42	1.28



SIDE OUTLET BENDS

Size	Wt.	A	T
3	36	5.5	0.48
4	60	6.5	0.50
6	96	8.0	0.55
8	150	9.0	0.60
10	235	11.0	0.68
12	335	12.0	0.80
14	405	14.0	0.66
16	490	15.0	0.70
18	580	16.5	0.75
20	740	18.0	0.80
24	1145	22.0	0.89



RETURN BENDS

Size	Wt.	A	B	T
4	60	10	6.5	0.52
6	95	12	8.0	0.55
8	165	18	9.0	0.60
10	260	20	11.0	0.68
12	395	24	12.0	0.75

ANSI/AWWA C110/A21.10

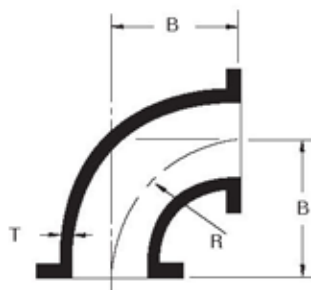
Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings



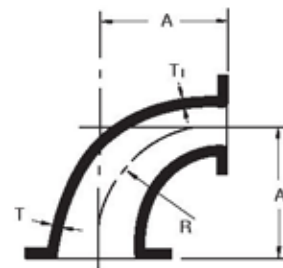
LONG RADIUS BASE BENDS

Size	Weight		R	S	T	U	BC
	Base Bend	Base Only					
3	48	18	4.88	5.0	0.56	0.50	3.88
4	73	23	5.50	6.0	0.62	0.50	4.75
6	120	40	7.00	7.0	0.69	0.62	5.50
8	205	65	8.38	9.0	0.94	0.88	7.50
10	295	80	9.75	9.0	0.94	0.88	7.50
12	435	95	11.25	11.0	1.00	1.00	9.50
14	490	105	12.50	11.0	1.00	1.00	9.50
16	615	110	13.75	11.0	1.00	1.00	9.50
18	800	170	15.00	13.5	1.12	1.12	11.75
20	985	175	16.00	13.5	1.12	1.12	11.75
24	1430	190	18.50	13.5	1.12	1.12	11.75
30	2400	295	23.00	16.0	1.19	1.15	14.25
36	3680	395	26.00	19.0	1.25	1.15	17.00



LONG RADIUS BENDS

Size	Wt.	B	T	R
2	20	6.50	0.31	5.0
2 1/2	22	7.00	0.31	6.0
3	30	7.75	0.48	6.0
4	50	9.00	0.52	7.0
6	80	11.50	0.55	9.5
8	140	14.00	0.60	12.0
10	215	16.50	0.68	14.5
12	325	19.00	0.75	17.0
14	385	21.50	0.66	19.0
16	505	24.00	0.70	21.0
18	630	26.50	0.75	24.0
20	810	29.00	0.80	26.5
24	1240	34.00	0.89	30.5
30	2105	41.50	1.03	38.0
36	3285	49.00	1.15	45.5
45	4865	56.50	1.28	53.0



LONG RADIUS REDUCING BENDS

Size	Wt.	H	J	T	T1
4x3	32	9.0	0.52	0.48	7.0
6x4	61	11.5	0.55	0.52	9.5
8x4	100	14.0	0.60	0.52	12.0
8x6	110	14.0	0.60	0.55	12.0
10x4	195	16.5	0.68	0.52	14.5
10x6	180	16.5	0.68	0.55	14.5
10x8	215	16.5	0.68	0.60	14.5
12x6	235	19.0	0.75	0.55	17.0
12x8	285	19.0	0.75	0.60	17.0
12x10	325	19.0	0.75	0.68	17.0
14x8	285	21.5	0.66	0.60	19.0
14x10	325	21.5	0.66	0.68	19.0
14x12	370	21.5	0.66	0.75	19.0
16x8	395	24.0	0.70	0.60	21.5
16x10	395	24.0	0.70	0.68	21.5
16x12	415	24.0	0.70	0.75	21.5
16x14	460	24.0	0.70	0.66	21.5
18x10	465	26.5	0.75	0.68	24.0
18x12	585	26.5	0.96	0.75	24.0
18x14	535	26.5	0.75	0.66	24.0
18x16	585	26.5	0.75	0.70	24.0
20x10	640	29.0	0.80	0.68	26.5
20x12	630	29.0	0.80	0.75	26.5
20x14	770	29.0	0.80	0.66	26.5
20x16	695	29.0	0.80	0.70	26.5
20x18	905	29.0	0.80	0.75	26.5
24x12	855	34.0	0.89	0.75	30.5
24x14	875	34.0	0.89	0.66	30.5
24x16	940	34.0	0.89	0.70	30.5
24x20	1080	34.0	0.89	0.80	30.5
30x16	1400	41.5	1.03	0.70	38.0
30x20	1575	41.5	1.03	0.80	38.0
30x24	1675	41.5	1.37	1.16	38.0
36x20	2835	49.0	1.15	0.80	45.5
36x24	3140	49.0	1.15	0.89	45.5
36x30	3675	49.0	1.58	1.37	45.5
42x30	4905	56.5	1.28	1.03	53.0
42x36	4270	56.5	1.28	1.15	53.0

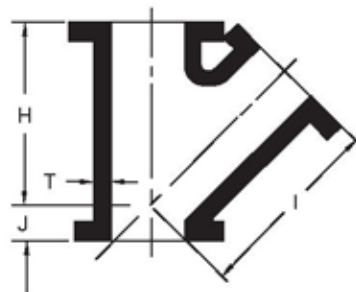
ANSI/AWWA C110/A21.10

Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings

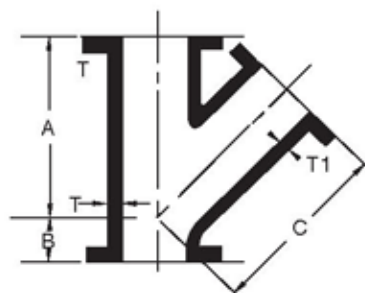
45° LATERAL WYES

Size	Wt	H	J	I	T
3	45	10.0	3.0	10.0	0.48
4	75	12.0	3.0	12.0	0.52
6	120	14.5	3.5	14.5	0.55
8	200	17.5	4.5	17.5	0.60
10	335	20.5	5.0	20.5	0.80
12	515	24.5	5.5	24.5	0.87
14	605	27.0	6.0	27.0	0.66
16	805	30.0	6.5	30.0	0.70
18	980	32.0	7.0	32.0	0.75
20	1265	35.0	8.0	35.0	0.80
24	1905	40.5	9.0	40.5	0.89
30	3225	49.0	10.0	49.0	1.03
36	5740	60.0	19.5	60.0	1.15



45° REDUCING LATERAL WYES

Size	Wt.	A	B	C	T	T1	Size	Wt.	A	B	C	T	T1
4x3	65	12.0	3.0	12.0	0.52	0.48	18x16	935	32.0	7.0	32.0	0.75	0.70
6x4	105	14.5	3.5	14.5	0.55	0.52	20x8	995	35.0	8.0	35.0	0.80	0.60
8x4	165	17.5	4.5	17.5	0.60	0.52	20x10	1025	35.0	8.0	35.0	0.80	0.68
8x6	175	17.5	4.5	17.5	0.60	0.55	20x12	1065	35.0	8.0	35.0	0.80	0.75
10x4	235	20.5	5.0	20.5	0.68	0.52	20x14	1110	35.0	8.0	35.0	0.80	0.66
10x6	250	20.5	5.0	20.5	0.68	0.55	20x16	1155	35.0	8.0	35.0	0.80	0.70
10x8	270	20.5	5.0	20.5	0.68	0.60	20x18	1315	35.0	8.0	35.0	0.80	0.75
12x4	350	24.5	5.5	24.5	0.75	0.52	24x8	1470	40.5	9.0	40.5	0.89	0.60
12x6	365	24.5	5.5	24.5	0.75	0.55	24x10	1505	40.5	9.0	40.5	0.89	0.68
12x8	390	24.5	5.5	24.5	0.75	0.60	24x12	1550	40.5	9.0	40.5	0.89	0.75
12x10	470	24.5	5.5	24.5	0.75	0.68	24x14	1590	40.5	9.0	40.5	0.89	0.66
14x6	475	27.0	6.0	27.0	0.66	0.55	24x16	1640	40.5	9.0	40.5	0.89	0.70
14x8	500	27.0	6.0	27.0	0.66	0.60	24x18	1685	40.5	9.0	40.5	0.89	0.75
14x10	525	27.0	6.0	27.0	0.66	0.68	24x20	1750	40.5	9.0	40.5	0.89	0.80
14x12	570	27.0	6.0	27.0	0.66	0.75	30x12	2795	49.0	10.0	49.0	1.03	0.75
16x6	620	30.0	6.5	30.0	0.70	0.55	30x14	2850	49.0	10.0	49.0	1.03	0.66
16x8	645	30.0	6.5	30.0	0.70	0.60	30x16	2905	49.0	10.0	49.0	1.03	0.70
16x10	675	30.0	6.5	30.0	0.70	0.68	30x18	2960	49.0	10.0	49.0	1.03	0.75
16x12	715	30.0	6.5	30.0	0.70	0.75	30x20	3040	49.0	10.0	49.0	1.03	0.80
16x14	755	30.0	6.5	30.0	0.70	0.66	30x24	3205	49.0	10.0	49.0	1.03	0.89
18x8	780	32.0	7.0	32.0	0.75	0.60	36x16	4455	54.0	15.3	54.0	1.15	0.70
18x10	810	32.0	7.0	32.0	0.75	0.68	36x18	4505	54.0	15.3	54.0	1.15	0.75
18x12	850	32.0	7.0	32.0	0.75	0.75	36x20	4575	54.0	15.3	54.0	1.15	0.80
18x14	885	32.0	7.0	32.0	0.75	0.66	36x24	4725	54.0	15.3	54.0	1.15	0.89



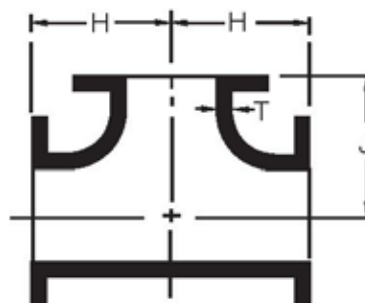
ANSI/AWWA C110/A21.10

Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings

TEES

Size	Wt.	H	J	T
2	20	4.5	4.5	0.31
2½	27	5.0	5.0	0.31
3	40	5.5	5.5	0.48
4	65	6.5	6.5	0.52
5	85	7.5	7.5	0.52
6	95	8.0	8.0	0.55
8	155	9.0	9.0	0.60
10	270	11.0	11.0	0.80
12	385	12.0	12.0	0.87
14	435	14.0	14.0	0.66
16	550	15.0	15.0	0.70
18	665	16.5	16.5	0.75
20	855	18.0	18.0	0.80
24	1330	22.0	22.0	0.89
30	2150	25.0	25.0	1.03
36	3160	28.0	28.0	1.15
42	5580	31.0	31.0	1.78
42 (150 psi)	4470	31.0	31.0	1.28

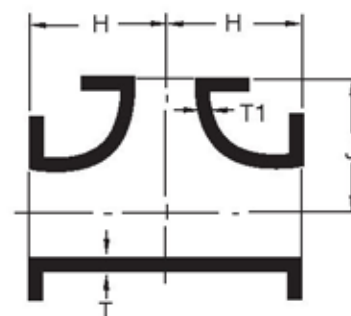


REDUCING TEES

Size	Wt.	H	J	T	T1
3x2	35	5.5	5.5	0.48	0.31
3x2½	37	5.5	5.5	0.48	0.31
4x2	50	6.5	6.5	0.52	0.31
4x2½	55	6.5	6.5	0.52	0.31
4x3	60	6.5	6.5	0.52	0.48
5x4	80	7.5	7.5	0.52	0.52
6x2	85	8.0	8.0	0.55	0.31
6x2½	85	8.0	8.0	0.55	0.31
6x3	85	8.0	8.0	0.55	0.48
6x4	90	8.0	8.0	0.55	0.52
6x5	95	8.0	8.0	0.55	0.52
8x3	135	9.0	9.0	0.60	0.48
8x4	140	9.0	9.0	0.60	0.52
8x6	145	9.0	9.0	0.60	0.55
10x3	200	11.0	11.0	0.68	0.48
10x4	205	11.0	11.0	0.68	0.52
10x6	215	11.0	11.0	0.68	0.55
10x8	225	11.0	11.0	0.68	0.60
12x3	280	12.0	12.0	0.75	0.48
12x4	290	12.0	12.0	0.75	0.52
12x6	295	12.0	12.0	0.75	0.55
12x8	310	12.0	12.0	0.75	0.60
12x10	360	12.0	12.0	0.87	0.80
14x4	365	14.0	14.0	0.66	0.52
14x6	375	14.0	14.0	0.66	0.55
14x8	390	14.0	14.0	0.66	0.60
14x10	400	14.0	14.0	0.66	0.68
14x12	425	14.0	14.0	0.66	0.75
16x4	440	15.0	15.0	0.70	0.52
16x6	465	15.0	15.0	0.70	0.55
16x8	475	15.0	15.0	0.70	0.60
16x10	495	15.0	15.0	0.70	0.68

Size	Wt.	H	J	T	T1
16x12	520	15.0	15.0	0.70	0.75
16x14	530	15.0	15.0	0.70	0.66
18x6	480	13.0	15.5	0.75	0.55
18x8	495	13.0	15.5	0.75	0.60
18x10	510	13.0	15.5	0.75	0.68
18x12	535	13.0	15.5	0.75	0.75
18x14	630	16.5	16.5	0.75	0.66
18x16	650	16.5	16.5	0.75	0.70
20x6	610	14.0	17.0	0.80	0.55
20x8	620	14.0	17.0	0.80	0.60
20x10	635	14.0	17.0	0.80	0.68
20x12	660	14.0	17.0	0.80	0.75
20x14	665	14.0	17.0	0.80	0.66
20x16	810	18.0	18.0	0.80	0.70
20x18	820	18.0	18.0	0.80	0.75
24x6	845	15.0	19.0	0.89	0.55
24x8	860	15.0	19.0	0.89	0.60
24x10	880	15.0	19.0	0.89	0.68
24x12	890	15.0	19.0	0.89	0.75
24x14	900	15.0	19.0	0.89	0.66
24x16	915	15.0	19.0	0.89	0.70
24x18	1220	22.0	22.0	0.89	0.75
24x20	1255	22.0	22.0	0.89	0.80
30x6	1460	18.0	23.0	1.03	0.55
30x8	1470	18.0	23.0	1.03	0.60
30x10	1480	18.0	23.0	1.03	0.68
30x12	1490	18.0	23.0	1.03	0.75
30x14	1490	18.0	23.0	1.03	0.66
30x16	1505	18.0	23.0	1.03	0.70
30x18	1515	18.0	23.0	1.03	0.75
30x20	1540	18.0	23.0	1.03	0.80
30x24	2025	25.0	25.0	1.03	0.89

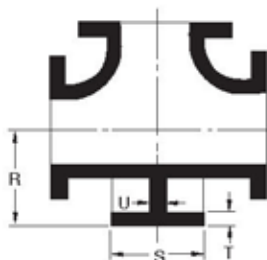
Size	Wt.	H	J	T	T1
36x12	2170	20.0	26.0	1.15	0.75
36x14	2175	20.0	26.0	1.15	0.66
36x16	2185	20.0	26.0	1.15	0.70
36x18	2190	20.0	26.0	1.15	0.75
36x20	2210	20.0	26.0	1.15	0.80
36x24	2255	20.0	26.0	1.15	0.89
36x30	3000	28.0	28.0	1.15	1.03
42x12	3165	23.0	30.0	1.28	0.75
42x14	3170	23.0	30.0	1.28	0.66
42x16	3180	23.0	30.0	1.28	0.70
42x18	3185	23.0	30.0	1.28	0.75
42x20	3205	23.0	30.0	1.28	0.80
42x24	3245	23.0	30.0	1.28	0.89
42x30	4125	31.0	31.0	1.28	1.03
42x36	5360	31.0	31.0	1.78	1.58
48x12	4315	26.0	34.0	1.42	0.75
48x14	4315	26.0	34.0	1.42	0.66
48x16	4330	26.0	34.0	1.42	0.70
48x18	4330	26.0	34.0	1.42	0.75
48x20	4350	26.0	34.0	1.42	0.80
48x24	4385	26.0	34.0	1.42	0.89
48x30	4455	26.0	34.0	1.42	1.03



ANSI/AWWA C110/A21.10

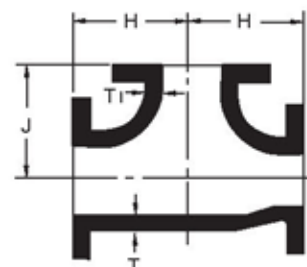
Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings



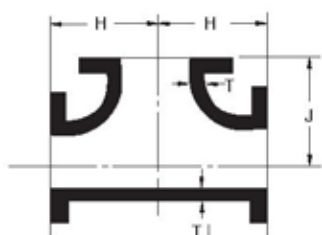
BASE TEES

Size	Weight		R	S	T	U	BC
	Base Tee	Base Only					
3	45	5	4.88	5.00	0.56	0.50	3.88
4	75	10	5.50	6.00	0.62	0.50	4.75
6	110	15	7.00	7.00	0.69	0.62	5.50
8	185	30	8.38	9.00	0.94	0.88	7.50
10	300	30	9.75	9.00	0.94	0.88	7.50
12	430	45	11.25	11.00	1.00	1.00	9.50
14	485	50	12.50	11.00	1.00	1.00	9.50
16	600	50	13.75	11.00	1.00	1.00	9.50
18	740	75	15.00	13.50	1.12	1.12	11.75
20	930	75	16.00	13.50	1.12	1.12	11.75
24	1410	80	18.50	13.50	1.12	1.12	11.75
30	2270	120	23.00	16.00	1.19	1.15	14.25
36	3320	160	26.00	19.00	1.25	1.15	17.00
42	5850	270	30.00	23.50	1.44	1.28	21.25



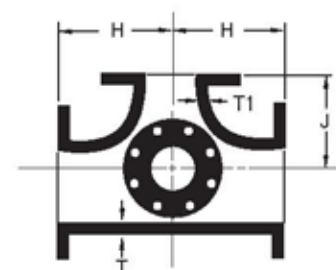
REDUCING TEES ON RUN

Size	Wt.	H	J	T	T ₁
4x2x4	50	6.5	6.5	0.52	0.48
4x3x3	53	6.5	6.5	0.52	0.48
4x3x4	55	6.5	6.5	0.52	0.52
6x3x4	85	8.0	8.0	0.55	0.52
6x3x6	91	8.0	8.0	0.55	0.55
6x4x3	86	8.0	8.0	0.55	0.48
6x4x4	90	8.0	8.0	0.55	0.52
6x4x6	95	8.0	8.0	0.55	0.52
8x4x6	140	9.0	9.0	0.60	0.55
8x4x8	135	9.0	9.0	0.60	0.60
8x6x4	125	9.0	9.0	0.60	0.55
8x6x6	145	9.0	9.0	0.60	0.55
8x6x8	160	9.0	9.0	0.60	0.55
10x6x10	234	11.0	11.0	0.80	0.80
10x8x6	210	11.0	11.0	0.80	0.55
10x8x8	227	11.0	11.0	0.80	0.60
10x8x10	248	11.0	11.0	0.80	0.80
12x6x12	300	12.0	12.0	0.87	0.80
12x8x8	275	12.0	12.0	0.87	0.80
12x8x12	310	12.0	12.0	0.75	0.60
12x10x10	325	12.0	12.0	0.87	0.80
12x10x12	350	12.0	12.0	0.87	0.87
14x10x10	380	14.0	14.0	0.66	0.68
14x10x12	400	14.0	14.0	0.66	0.68
14x10x14	425	14.0	14.0	0.66	0.68
16x10x10	490	15.0	15.0	0.70	0.68
16x12x12	525	14.0	14.0	0.70	0.66
16x12x16	600	15.0	15.0	0.70	0.75
16x14x16	630	14.0	14.0	0.70	0.66
20x12x20	660	18.0	18.0	0.80	0.75
20x14x20	680	18.0	18.0	0.80	0.66
24x16x24	915	22.0	22.0	0.89	0.70
36x24x36	2255	28.0	28.0	1.15	0.89



BULLHEAD TEES

Size	Wt.	H	J	T ₁	T
2 1/2x2 1/2x3	36	5.5	5.5	0.31	0.48
3x3x4	49	6.5	6.5	0.48	0.52
4x4x6	88	8.0	8.0	0.52	0.55
6x6x8	142	9.0	9.0	0.55	0.60
8x8x10	240	11.0	11.0	0.60	0.68
10x10x12	340	12.0	12.0	0.80	0.87
12x12x16	425	15.0	15.0	0.75	0.75
12x12x24	845	22.0	22.0	0.75	0.89
16x16x24	993	22.0	22.0	0.70	0.89



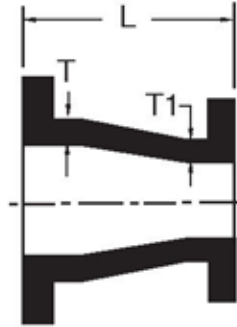
SIDE OUTLET TEES

Size	Wt.	H	J	T ₁	T
4	82	6.5	6.5	0.52	0.52
6	135	8.0	8.0	0.55	0.55
8	210	9.0	9.0	0.60	0.60
10	330	11.0	11.0	0.68	0.80
12	470	12.0	12.0	0.75	0.87
14	650	14.0	14.0	0.66	0.66
16	850	15.0	15.0	0.70	0.70
18	1040	16.5	16.5	0.75	0.75
20	1330	18.0	18.0	0.80	0.80
24	2080	22.0	22.0	0.89	0.89

ANSI/AWWA C110/A21.10

Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings



CONCENTRIC REDUCERS

Size	Wt.	L	T	T ₁
2½x2	14	5.5	0.31	0.31
3x2	16	6.0	0.48	0.31
3x2½	20	6.0	0.48	0.31
4x2	25	7.0	0.52	0.31
4x2½	28	7.0	0.52	0.31
4x3	30	7.0	0.52	0.48
5x3	38	8.0	0.52	0.48
5x4	40	8.0	0.52	0.52
6x2	35	9.0	0.55	0.31
6x2½	38	9.0	0.55	0.31
6x3	40	9.0	0.55	0.48
6x4	45	9.0	0.55	0.52
6x5	50	9.0	0.55	0.52
8x3	60	11.0	0.60	0.48
8x4	65	11.0	0.60	0.52
8x5	70	11.0	0.60	0.52
8x6	75	11.0	0.60	0.55
10x4	85	12.0	0.68	0.52
10x5	88	12.0	0.68	0.52
10x6	90	12.0	0.68	0.55
10x8	110	12.0	0.68	0.60
12x4	120	14.0	0.75	0.52
12x6	130	14.0	0.75	0.55
12x8	145	14.0	0.75	0.60
12x10	170	14.0	0.75	0.68
14x4	150	16.0	0.66	0.52
14x6	155	16.0	0.66	0.55
14x8	175	16.0	0.66	0.60
14x10	190	16.0	0.66	0.68
14x12	220	16.0	0.66	0.75
16x4	180	18.0	0.70	0.52
16x6	190	18.0	0.70	0.55
16x8	210	18.0	0.70	0.60
16x10	235	18.0	0.70	0.68

Size	Wt.	L	T	T ₁
16x12	265	18.0	0.70	0.75
16x14	280	18.0	0.70	0.66
18x6	230	19.0	0.75	0.55
18x8	240	19.0	0.75	0.60
18x10	265	19.0	0.75	0.68
18x12	295	19.0	0.75	0.75
18x14	310	19.0	0.75	0.66
18x16	340	19.0	0.75	0.70
20x6	300	20.0	0.80	0.55
20x8	305	20.0	0.80	0.60
20x10	310	20.0	0.80	0.68
20x12	345	20.0	0.80	0.75
20x14	355	20.0	0.80	0.66
20x16	390	20.0	0.80	0.70
20x18	410	20.0	0.80	0.75
24x8	460	24.0	0.89	0.60
24x10	470	24.0	0.89	0.68
24x12	480	24.0	0.89	0.75
24x14	490	24.0	0.89	0.66
24x16	525	24.0	0.89	0.70
24x18	550	24.0	0.89	0.75
24x20	590	24.0	0.89	0.80
30x18	810	30.0	1.03	0.75
30x20	870	30.0	1.03	0.80
30x24	970	30.0	1.03	0.89
36x20	1230	36.0	1.15	0.80
36x24	1345	36.0	1.15	0.89
36x30	1555	36.0	1.15	1.03
42x24	1820	42.0	1.28	0.89
42x30	2060	42.0	1.28	1.03
42x36	2345	42.0	1.28	1.15
48x30	2625	48.0	1.42	1.03
48x36	2950	48.0	1.42	1.15
48x42	3320	48.0	1.42	1.28

ANSI/AWWA C110/A21.10

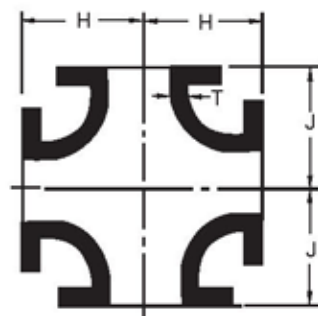
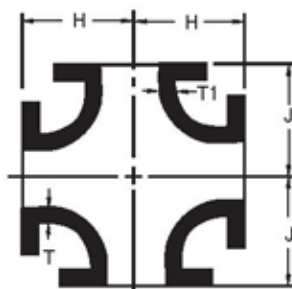
Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings

REDUCING CROSSES

Size	Wt.	H	J	T	T ₁
3x2	45	5.5	5.5	0.48	0.31
4x2	60	6.5	6.5	0.52	0.31
4x2½	65	6.5	6.5	0.52	0.31
4x3	70	6.5	6.5	0.52	0.48
6x2	90	8.0	8.0	0.55	0.31
6x3	95	8.0	8.0	0.55	0.48
6x4	110	8.0	8.0	0.55	0.52
8x4	155	9.0	9.0	0.60	0.52
8x6	165	9.0	9.0	0.60	0.55
10x4	220	11.0	11.0	0.68	0.52
10x6	240	11.0	11.0	0.68	0.55
10x8	265	11.0	11.0	0.68	0.60
12x4	310	12.0	12.0	0.75	0.52
12x6	320	12.0	12.0	0.75	0.55
12x8	345	12.0	12.0	0.75	0.60
12x10	415	12.0	12.0	0.87	0.80
14x6	400	14.0	14.0	0.66	0.55
14x8	425	14.0	14.0	0.66	0.60
14x10	460	14.0	14.0	0.66	0.68
14x12	505	14.0	14.0	0.66	0.75
16x6	490	15.0	15.0	0.70	0.55
16x8	520	15.0	15.0	0.70	0.60
16x10	555	15.0	15.0	0.70	0.68
16x12	605	15.0	15.0	0.70	0.75
16x14	620	15.0	15.0	0.70	0.66
18x6	505	13.0	15.5	0.75	0.55
18x8	535	13.0	15.5	0.75	0.60
18x10	560	13.0	15.5	0.75	0.68
18x12	610	13.0	15.5	0.75	0.75
18x14	720	16.5	16.5	0.75	0.66
18x16	765	16.5	16.5	0.75	0.70
20x6	635	14.0	17.0	0.80	0.55
20x8	665	14.0	17.0	0.80	0.60
20x10	685	14.0	17.0	0.80	0.68
20x12	735	14.0	17.0	0.80	0.75
20x14	745	14.0	17.0	0.80	0.66
20x16	915	18.0	18.0	0.80	0.70
20x18	945	18.0	18.0	0.80	0.75
24x6	875	15.0	19.0	0.89	0.55
24x8	895	15.0	19.0	0.89	0.60
24x10	930	15.0	19.0	0.89	0.68
24x12	960	15.0	19.0	0.89	0.75
24x14	975	15.0	19.0	0.89	0.66
24x16	1010	15.0	19.0	0.89	0.70
24x18	1365	22.0	22.0	0.89	0.75
24x20	1430	22.0	22.0	0.89	0.80
30x12	1565	18.0	23.0	1.03	0.75
30x14	1570	18.0	23.0	1.03	0.66
30x16	1605	18.0	23.0	1.03	0.70
30x18	1615	18.0	23.0	1.03	0.75
30x20	1670	18.0	23.0	1.03	0.80
30x24	2245	25.0	25.0	1.03	0.89
36x12	2240	20.0	26.0	1.15	0.75
36x14	2240	20.0	26.0	1.15	0.66
36x16	2270	20.0	26.0	1.15	0.70
36x18	2280	20.0	26.0	1.15	0.75
36x20	2325	20.0	26.0	1.15	0.80
36x24	2405	20.0	26.0	1.15	0.89
36x30	3300	28.0	28.0	1.15	1.03
42x12	3240	23.0	30.0	1.28	0.75
42x16	3270	23.0	30.0	1.28	0.70
42x18	3275	23.0	30.0	1.28	0.75
42x20	3320	23.0	30.0	1.28	0.80

Size	Wt.	H	J	T	T ₁
42x24	3395	23.0	30.0	1.28	0.89
42x30	4375	31.0	31.0	1.28	1.03
42x36	5720	31.0	31.0	1.78	1.58
48x10	4350	34.0	26.0	1.42	0.68
48x12	4390	34.0	26.0	1.42	0.75
48x14	4385	34.0	26.0	1.42	0.66
48x16	4415	34.0	26.0	1.42	0.70
48x18	4420	34.0	26.0	1.42	0.75
48x20	4460	34.0	26.0	1.42	0.80
48x24	4535	34.0	26.0	1.42	0.89
48x30	4670	34.0	26.0	1.42	1.03



CROSSES

Size	Wt.	H	J	T
2	30	4.5	4.5	0.31
2½	41	5.0	5.0	0.31
3	50	5.5	5.5	0.48
4	80	6.5	6.5	0.52
6	120	8.0	8.0	0.55
8	195	9.0	9.0	0.60
10	330	11.0	11.0	0.80
12	460	12.0	12.0	0.87
14	530	14.0	14.0	0.66
16	665	15.0	15.0	0.70
18	795	16.5	16.5	0.75
20	1015	18.0	18.0	0.80
24	1570	22.0	22.0	0.89
30	2500	25.0	25.0	1.03
36	3620	28.0	28.0	1.15
42 (150 psi)	5060	31.0	31.0	1.28

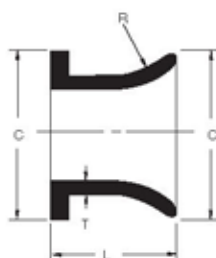
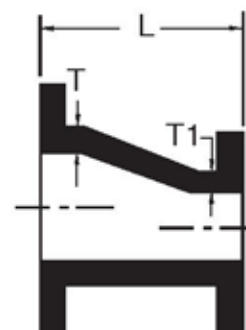
ANSI/AWWA C110/A21.10

Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings

ECCENTRIC REDUCERS

Size	Wt.	L	T	T ₁	Size	Wt.	L	T	T ₁
3x2	16	6	0.48	0.31	18x8	240	19	0.75	0.60
3x2½	20	6	0.48	0.31	18x10	265	19	0.75	0.68
4x2	26	7	0.52	0.31	18x12	295	19	0.75	0.75
4x2½	28	7	0.52	0.31	18x14	310	19	0.75	0.66
4x3	30	7	0.52	0.48	18x16	340	19	0.75	0.70
6x2	35	9	0.55	0.31	20x10	310	20	0.80	0.68
6x2½	38	9	0.55	0.31	20x12	345	20	0.80	0.75
6x3	40	9	0.55	0.48	20x14	355	20	0.80	0.66
6x4	45	9	0.55	0.52	20x16	390	20	0.80	0.70
6x5	50	9	0.55	0.52	20x18	410	20	0.80	0.75
8x4	65	11	0.60	0.52	24x12	480	24	0.89	0.75
8x5	70	11	0.60	0.52	24x14	490	24	0.89	0.66
8x6	75	11	0.60	0.55	24x16	525	24	0.89	0.70
10x4	85	12	0.68	0.52	24x18	550	24	0.89	0.75
10x6	90	12	0.68	0.55	24x20	590	24	0.89	0.80
10x8	110	12	0.68	0.60	30x18	810	30	1.03	0.75
12x4	120	14	0.75	0.52	30x20	870	30	1.03	0.80
12x6	130	14	0.75	0.55	30x24	970	30	1.03	0.89
12x8	145	14	0.75	0.60	36x18	1200	36	1.15	0.75
12x10	170	14	0.75	0.68	36x20	1230	36	1.15	0.80
14x6	155	16	0.66	0.55	36x24	1345	36	1.15	0.89
14x8	175	16	0.66	0.60	36x30	1555	36	1.15	1.03
14x10	190	16	0.66	0.68	42x24	1820	42	1.28	0.89
14x12	220	16	0.66	0.75	42x30	2060	42	1.28	1.03
16x6	190	18	0.70	0.55	42x36	2345	42	1.28	1.15
16x8	210	18	0.70	0.60	48x30	2625	48	1.42	1.03
16x10	235	18	0.70	0.68	48x36	2950	48	1.42	1.15
16x12	265	18	0.70	0.75	48x42	3320	48	1.42	1.28
16x14	280	18	0.70	0.86					



STRAIGHT FLARE PIECES

Size	Wt.	T	C	L	R
3	20	0.40	7.50	8	6
4	30	0.40	9.00	8	6
6	40	0.45	11.00	8	6
8	70	0.53	13.50	10	8
10	95	0.55	16.00	10	10
12	155	0.60	19.00	12	12
14	165	0.65	21.00	12	14
16	240	0.70	23.50	16	16
18	275	0.75	25.00	16	18
20	355	0.80	27.50	18	20
24	480	0.90	32.00	18	24
30	1100	1.07	38.75	24	30
36	1460	1.19	46.00	24	36
42	1900	1.28	53.00	30	42
48	2375	1.42	59.50	18	48



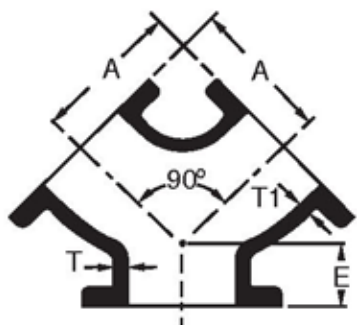
90° FLARE BENDS

Size	Wt.	T	C	A	B
3	25	0.40	7.5	5.5	11
4	40	0.40	9.00	6.5	12
6	70	0.45	11.00	8.0	12
8	110	0.53	13.50	9.0	14
10	175	0.55	16.00	11.0	17
12	245	0.60	19.00	12.0	18
14	340	0.65	21.00	14.0	20
16	460	0.70	23.50	15.0	21
18	560	0.75	25.00	16.5	22.5
20	700	0.80	27.50	18.0	24
24	1100	0.90	32.00	22.0	28
30	1840	1.07	38.75	25.0	32
36	2700	1.19	46.00	28.0	35
42	3250	1.28	53.00	31.0	38
48	4425	1.42	59.50	34.0	41

ANSI/AWWA C110/A21.10

Dimensions in inches.
Weights in pounds.

Ductile and Cast Iron Flanged Fittings



TRUE WYES

Size	Wt.	T	T ₁	A	E
4	55	0.52	0.52	6.5	3.0
6	85	0.55	0.55	8.0	3.5
8	140	0.60	0.60	9.0	4.5
10	205	0.68	0.68	11.0	5.0
12	300	0.75	0.75	12.0	5.5
14	435	0.66	0.66	14.0	6.0



BLIND FLANGES*

Size	Wt.	O	Q	V
3	9	7.50	0.75	0.69
4	16	9.00	0.94	0.88
6	25	11.00	1.00	0.94
8	42	13.50	1.12	1.06
10	63	16.00	1.19	1.12
12	85	19.00	1.25	0.81
14	120	21.00	1.38	0.88
16	145	23.50	1.44	1.00
18	185	25.00	1.56	1.06
20	245	27.50	1.69	1.12
24	370	32.00	1.88	1.25
30	500	38.75	2.12	1.44
36	790	46.00	2.38	1.62
42	1175	53.00	2.62	1.81

* Blind Flanges can be provided tapped according to customer's requirement.



10" and Smaller

FLAT BLIND FLANGES

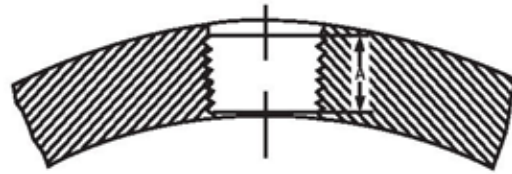
Size	Wt.	O	Q	V
12	85	19.0	1.25	1.25
14	120	21.0	1.38	1.38
16	155	23.5	1.44	1.44
18	190	25.0	1.56	1.56
20	250	27.5	1.69	1.69
24	380	32.0	1.88	1.88

BLIND FLANGES W/2" TAP

Size	Wt	O	Q	V
3	9	7.50	0.75	0.69
4	16	9.00	0.94	0.88
6	25	11.00	1.00	0.94
8	42	13.50	1.12	1.06
10	63	16.00	1.19	1.12
12	85	19.00	1.25	0.81
14	120	21.00	1.38	0.88
16	145	23.50	1.44	1.00
18	185	25.00	1.56	1.06
20	245	27.50	1.69	1.12
24	370	32.00	1.88	1.25
30	500	38.75	2.12	1.44
36	790	46.00	2.38	1.62
42	1175	53.00	2.62	1.81

TAPS AND BOSSES

Flanged Fittings may be drilled and tapped if the fitting wall thickness will provide the effective thread length as shown in the following table.



DRAIN TAPPINGS

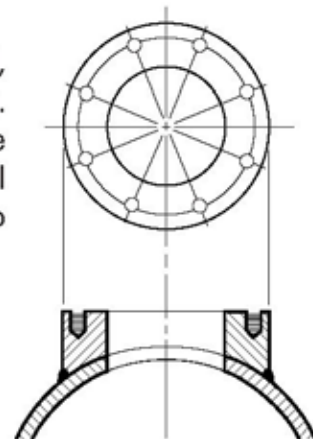
Tap Size	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Length of Thread "A"	0.41"	0.53"	0.55"	0.68"	0.71"	0.72"	0.76"

These lengths are in accordance with the effective thread length as required in ANSI B2.1. If the tap size is too large to be accommodated by the standard fitting wall thickness, an integrally cast boss may be required to provide the necessary thickness for tapping.

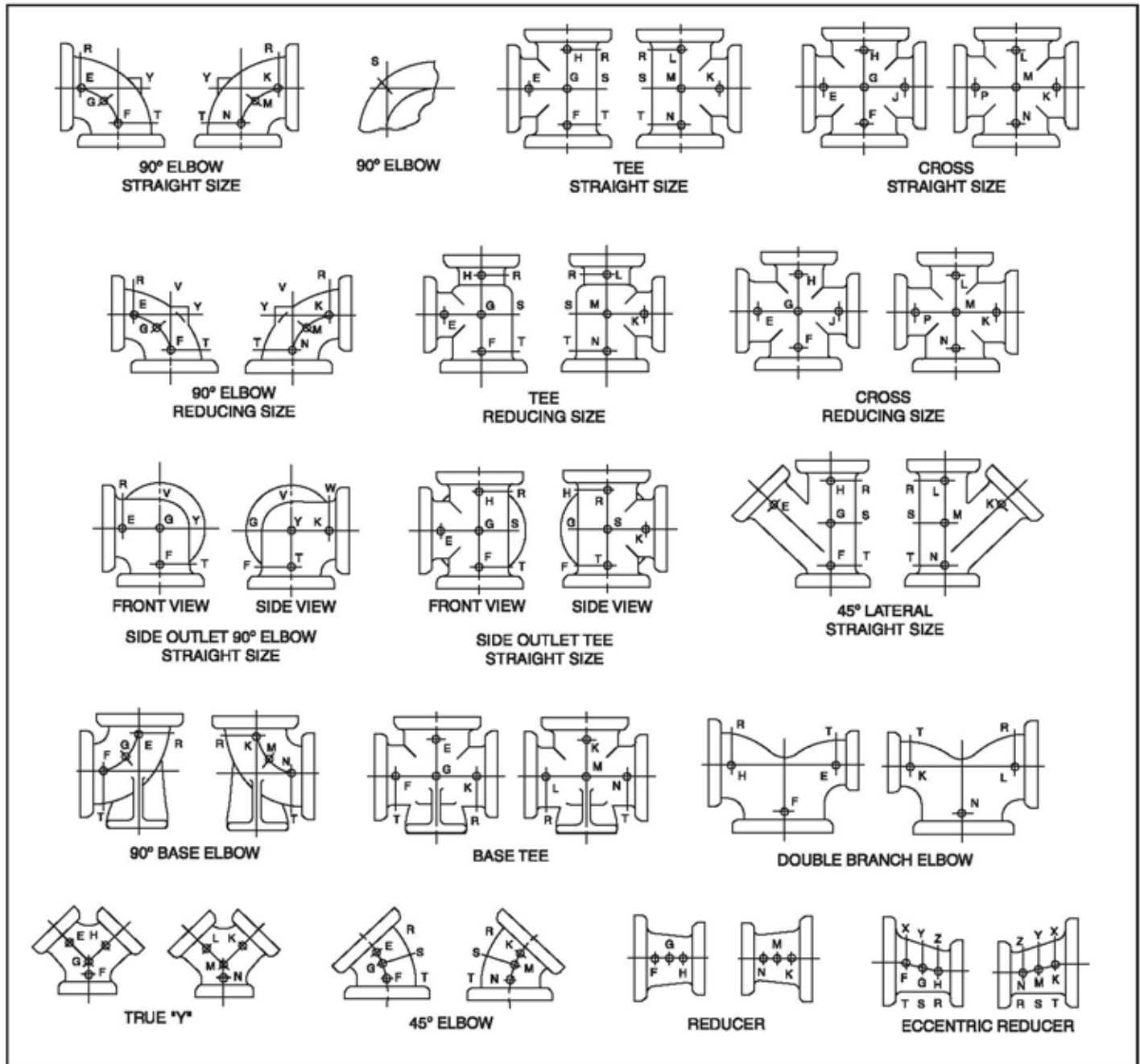
The following will serve as a guideline for maximum tap sizes into standard fitting wall thicknesses for ANSI/AWWA C110/A21.10 Flanged Fittings:

Fitting Size	Maximum Tap Size Without Boss
3"	1/2"
4"-6"	3/4"
8"	1-1/4"
10"-16"	1-1/2"
18"-42"	2"

To accommodate larger size holes that are impractical to thread, it may be necessary to integrally cast a flanged boss to the fitting. In this case, a boss the size of a flange shall be integrally cast. The hole shall be cored or drilled at our option. The flange boss shall be faced and the bolt holes drilled and blind tapped so as not to interfere with the fitting wall thickness.



Methods of Designating Location of Tapped Holes for Drains When Specified





STRONG...SINCE 1899!



Metalfit

**Two Chase Corporate Drive
Suite 200
Birmingham, AL 35244**

866.DIP.PIPE (866.347.7473)

Info@uspipe.com

www.uspipe.com