

2013 EDITION

30"-64"

FLANGED FITTINGS

DUCTILE IRON

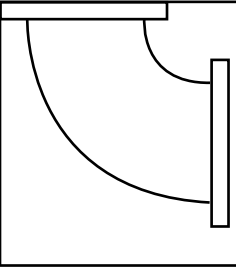


Certified to
ANSI/NSF 61

INDUSTRIAL APPLICATIONS, WATER & WASTEWATER

MORE
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U.S.
PIPE



FLANGED FITTINGS



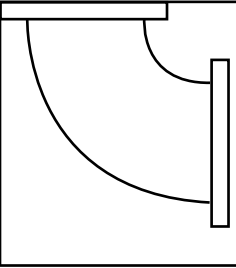
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NOTE: If specifiers and users believe that corrosive soils will be encountered where our products are to be installed, please refer to **ANSI/AWWA C105/A21.5 Polyethylene Encasement for Ductile Iron Pipe Systems** for proper external protection procedures.



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Flanged Fittings for Water and Other Liquids

Flanged fittings are typical components in rigid piping systems. Such systems are particularly suited for above ground installation: water filtration plants, sewage disposal plants, wastewater treatment plants, pumping stations and industrial plants. Our Special Projects Department has the knowledge and experience to assist with the unique design challenges of plant work.

Coating Systems

Unless otherwise specified, flanged fittings will be furnished with a standard thickness cement-mortar lining with asphaltic coating inside and outside. Fittings are furnished coated or uncoated in accordance with the purchasers' requirements.

ANSI/AWWA Standards

ANSI/AWWA C110/A21.10 Ductile-Iron and Gray-Iron Fittings. For Water (3-through 48" sizes).

ANSI/AWWA C153/A21.53 Ductile-Iron Compact Fittings, For Water Service (54" through 64" sizes).

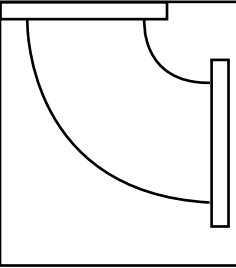
U.S. Pipe's Flanged Fittings are produced of Ductile Iron and conform to the applicable requirements for Ductile Iron fittings specified in ANSI/AWWA C110/A21.10

ANSI/AWWA C104/21.4 Cement-Mortar Lining for Ductile-Iron and Gray-Iron Fittings for Water.

Coating system options include primer base coat and cement-mortar lining with asphaltic coating inside.

ASTM A536 "Standard Specification for Ductile Iron Castings."

The underground use of the flanged joint is generally not recommended due to the rigidity of the joint. Unequal settlement or other stressing of such piping may result in excessive strain on the flanges or the pipe.



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Flanged Fittings for Water and Other Liquids (cont.)

Accessories

The gaskets and bolts to be used with flanged pipe and fittings should be selected by the purchaser with due consideration for the particular service and installation requirements. Flanged joint accessories (bolts, nuts and gaskets) can be furnished by U.S. Pipe if so specified. U.S. Pipe's FULL FACE FLANGE-TYTE™ Gaskets or RING FLANGE-TYTE™ Gaskets (4" through 64" size) are recommended for all flanged joints.

Flange Compatibility and Pressure Ratings

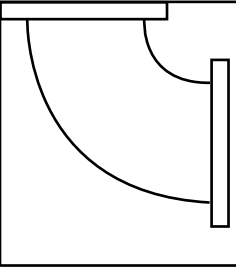
The flanges of **ANSI/AWWA C110/A21.10** and **C153/A21.53** standards conform to the drilling and facing of ANSI B16.1 Class 125 flanges. This B16.1 Class 125 designation leads some to conclude that these AWWA flanges are only rated at 125 psi service which is not correct. **ANSI/AWWA C110/A21.10** flanged fittings are rated for 350 psi operating pressure for 3" through 12" sizes, 250 psi operating pressure for 14" through 48" sizes and **ANSI/AWWA C153/A21.53** fittings are rated for 150 psi operating pressure for 54" through 64" sizes. These ratings are at ambient temperatures with at least a 2:1 factor of safety. Special gaskets such as U.S. Pipe's FULL FACE FLANGE-TYTE™ Gaskets or RING FLANGE-TYTE™ Gaskets are required for operating pressures greater than 250 psi.

(Flanges of Ductile Iron fittings meeting the requirements of **ANSI/AWWA C110/A21.10** cannot be joined with Class 250 ANSI B16.1 flanges.)

Special Service Requirements

When requesting prices for flanged piping other than water service, please furnish complete information regarding the type of material to be conveyed, composition, concentration, pH, pressure and temperature.

NOTE: U.S. Pipe recommends the use of **FULL FACE FLANGE-TYTE®** Gaskets or **RING FLANGE-TYTE®** Gaskets with Ductile Iron flanged joint products supplied by U.S. Pipe. These gaskets were designed specifically for the unique surface of Ductile Iron. Flat rubber gaskets are **NOT** considered equal in performance and may not provide the sealing capability the project requires. In addition, their use could result in unintended damage to the flanges and threads of the fabricated pipe by applying excess torque to the bolts/flanges in order to seal the joint.



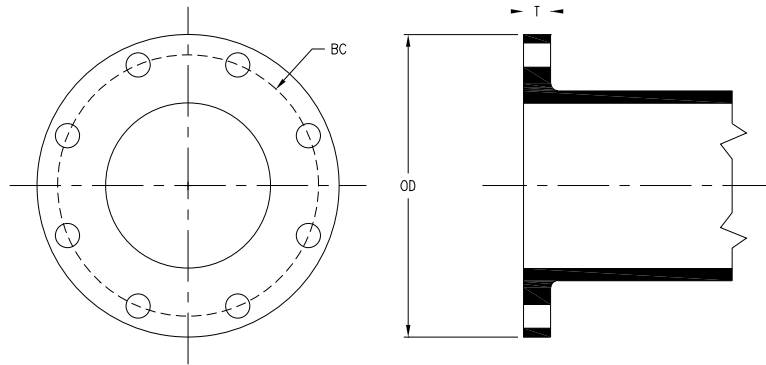
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Flanged Fittings - Flange Details



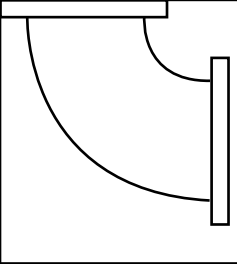
SIZE Inches	DIMENSIONS Inches					
	OD	BC	T	BOLT HOLE Diameter	BOLT Diameter & Length	QTY. OF BOLTS
3	7.50	6.00	.75 ± .12	3/4	5/8 x 2-1/2	4
4	9.00	7.50	.94 ± .12	3/4	5/8 x 3	8
6	11.00	9.50	1.00 ± .12	7/8	3/4 x 3-1/2	8
8	13.50	11.75	1.12 ± .12	7/8	3/4 x 3-1/2	8
10	16.00	14.25	1.19 ± .12	1	7/8 x 4	12
12	19.00	17.00	1.25 ± .12	1	7/8 x 4	12
14	21.00	18.75	1.38 ± .19	1-1/8	1 x 4-1/2	12
16	23.50	21.25	1.44 ± .19	1-1/8	1 x 4-1/2	16
18	25.00	22.75	1.56 ± .19	1-1/4	1-1/8 x 5	16
20	27.50	25.00	1.69 ± .19	1-1/4	1-1/8 x 5	20
24	32.00	29.50	1.88 ± .19	1-3/8	1-1/4 x 5-1/2	20
30	38.75	36.00	2.12 ± .25	1-3/8	1-1/4 x 6-1/2	28
36	46.00	42.75	2.38 ± .25	1-5/8	1-1/2 x 7	32
42	53.00	49.50	2.62 ± .25	1-5/8	1-1/2 x 7-1/2	36
48	59.50	56.00	2.75 ± .25	1-5/8	1-1/2 x 8	44
54	66.25	62.75	3.00 ± .25	2	1-3/4 x 8-1/2	44
60	73.00	69.25	3.12 ± .25	2	1-3/4 x 9	52
64	80.00	76.00	3.38 ± .25	2	1-3/4 x 9	52

LAYING LENGTH DIMENSIONS: Pipe face-to-face dimensions conform to a tolerance of $\pm .12"$ for sizes 3"-64"
 Fittings face-to-face dimensions conform to a tolerance of $\pm .06"$ for sizes 3"-10" and $\pm .12"$ for sizes 12"-64". The largest opening governs
 the tolerance for all openings. Center-to-face tolerances are one half the face-to-face tolerances.

FLANGES: The bolt circle and bolt holes of these flanges match those of **ANSI/AWWA C115/A21.15** and Class 125 flanges shown in **ANSI B16.1** and can be joined with A21.15 and Class 125 B16.1 flanges. The flanges do not match the Class 250 flanges shown in **ANSI B16.1** and cannot be joined with Class 250 B16.1 flanged fittings and valves. For technical information on Class 250 flanges see U.S. Pipe's Class 250 Flanges submittal document at www.uspipe.com.

FACING: Class 125 flanges are plain faced without projection and are furnished smooth or with shallow serrations.

CERTIFICATION: Complies with **ANSI/AWWA C115/A21.15 Flanged Ductile Iron Pipe**.



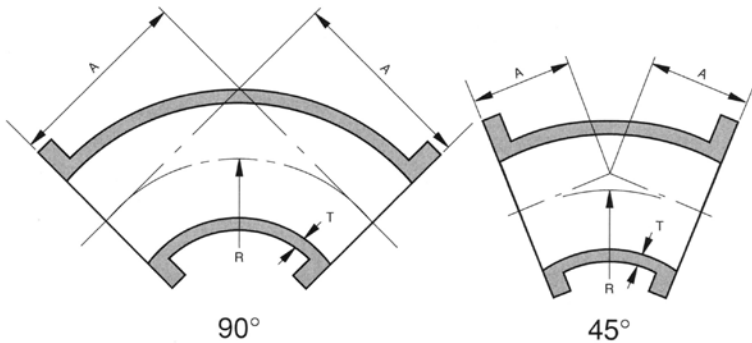
FLANGED FITTINGS



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Flanged Fittings - 90° and 45° Bends



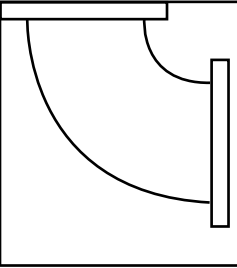
SIZE Inches	PRESSURE RATING psi	T	DIMENSIONS Inches				WEIGHT Pounds	
			90°		45°		90°	45°
			A	R	A	R		
30	250	1.03	25.0	21.5	15.0	27.75	1430	1120
36	250	1.15	28.0	24.5	18.0	35.00	2380	1966
42	250	1.28	31.0	27.5	21.0	42.25	3271	3138
48	250	1.42	34.0	30.5	24.0	49.50	4755	3580
54	150	1.55	39.0	34.5	20.5	42.34	6085	4344
60	150	1.50	43.0	36.5	23.5	44.08	7705	5493
64	150	1.50	48.0	38.8	25.0	45.85	9197	6635

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.

For flange details see page 5.

Sizes 30"-48" conform to **ANSI/AWWA C110/A21.10.**

Sizes 54"-64" conform to **ANSI/AWWA C153/A21.53.**



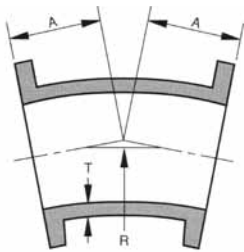
FLANGED FITTINGS



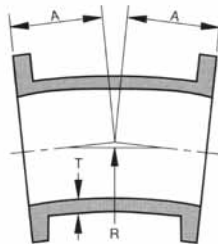
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Flanged Fittings - 22-1/2° and 11-1/4° Bends



22-1/2°



11-1/4°

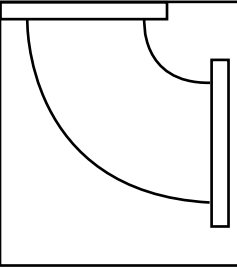
SIZE Inches	PRESSURE RATING psi	T	DIMENSIONS Inches				WEIGHT Pounds	
			22-1/2°		11-1/4°		22-1/2°	11-1/4°
			A	R	A	R		
30	250	1.03	15.0	57.81	15.0	116.75	1135	1150
36	250	1.15	18.0	72.88	18.0	147.25	1790	1805
42	250	1.28	21.0	88.00	21.0	177.69	2665	2680
48	250	1.42	24.0	103.06	24.0	208.12	3665	3695
54	150	1.55	14.0	37.65	12.0	38.07	3502	3217
60	150	1.50	14.0	38.36	10.5	40.61	3966	3467
64	150	1.50	13.5	39.06	9.5	38.07	4987	4379

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.

For flange details see page 5.

Sizes 30"-48" conform to **ANSI/AWWA C110/A21.10.**

Sizes 54"-64" conform to **ANSI/AWWA C153/A21.53.**



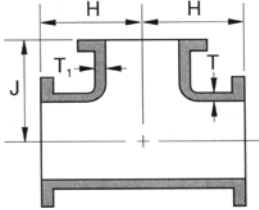
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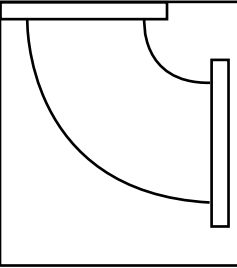
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Flanged Fittings - Tees



SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches				WEIGHT Pounds
RUN	BRANCH		T	T ₁	H	J	
30	06	250	1.03	.55	18.0	23.0	1366
30	08	250	1.03	.60	18.0	23.0	1388
30	10	250	1.03	.68	18.0	23.0	1408
30	12	250	1.03	.75	18.0	23.0	1436
30	14	250	1.03	.66	18.0	23.0	1603
30	16	250	1.03	.70	18.0	23.0	1634
30	18	250	1.03	.75	18.0	23.0	1889
30	20	250	1.03	.80	18.0	23.0	1934
30	24	250	1.03	.89	25.0	25.0	2218
30	30	250	1.03	1.03	25.0	25.0	2451
36	06	250	1.15	.55	20.0	26.0	2330
36	08	250	1.15	.60	20.0	26.0	2351
36	10	250	1.15	.68	20.0	26.0	2370
36	12	250	1.15	.75	20.0	26.0	2395
36	14	250	1.15	.66	20.0	26.0	2436
36	16	250	1.15	.70	20.0	26.0	2465
36	18	250	1.15	.75	20.0	26.0	2493
36	20	250	1.15	.80	20.0	26.0	2533
36	24	250	1.15	.89	20.0	26.0	2618
36	30	250	1.15	1.03	28.0	28.0	2919
36	36	250	1.15	1.15	28.0	28.0	3268

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.



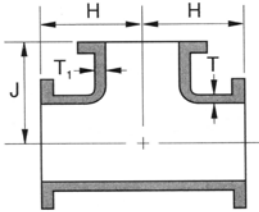
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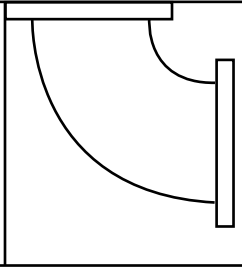
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Flanged Fittings - Tees (cont.)



SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches				WEIGHT Pounds
RUN	BRANCH		T	T ₁	H	J	
42	12	250	1.28	.75	23.0	30.0	3417
42	14	250	1.28	.66	23.0	30.0	3457
42	16	250	1.28	.70	23.0	30.0	3485
42	18	250	1.28	.75	23.0	30.0	3512
42	20	250	1.28	.80	23.0	30.0	3551
42	24	250	1.28	.89	23.0	30.0	3631
42	30	250	1.28	1.03	31.0	31.0	4742
42	36	250	1.78	1.58	31.0	31.0	4980
42	42	250	1.78	1.78	31.0	31.0	5476
48	12	250	1.42	.75	26.0	34.0	5170
48	14	250	1.42	.66	26.0	34.0	5208
48	16	250	1.42	.70	26.0	34.0	5235
48	18	250	1.42	.75	26.0	34.0	5261
48	20	250	1.42	.80	26.0	34.0	5299
48	24	250	1.42	.89	26.0	34.0	5375
48	30	250	1.42	1.03	26.0	34.0	5476
48	36	250	1.42	1.15	34.0	34.0	6575
48	42	250	1.96	1.78	34.0	34.0	6892
48	48	250	1.96	1.96	34.0	34.0	7559
54	30	150	1.55	1.00	31.0	37.0	5918
54	36	150	1.55	1.15	31.0	37.0	6044
54	42	150	1.55	1.28	39.0	39.0	7432
54	48	150	1.55	1.42	39.0	39.0	7661
54	54	150	1.55	1.55	39.0	39.0	8277

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.



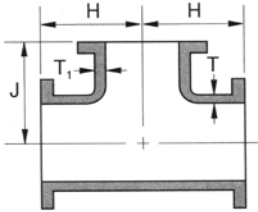
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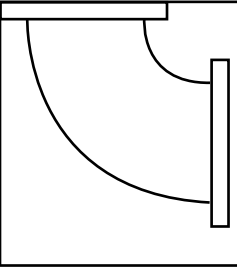
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Flanged Fittings - Tees (cont.)



SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches				WEIGHT Pounds
RUN	BRANCH		T	T ₁	H	J	
60	30	150	1.50	1.00	33.0	42.0	7204
60	36	150	1.50	1.15	33.0	42.0	7357
60	42	150	1.50	1.28	43.0	43.0	9058
60	48	150	1.50	1.42	43.0	43.0	9291
60	54	150	1.50	1.55	43.0	43.0	9678
60	60	150	1.50	1.50	43.0	43.0	10369
64	36	150	1.50	1.15	32.0	44.0	8584
64	42	150	1.50	1.28	48.0	45.0	11322
64	48	150	1.50	1.42	48.0	45.0	11521
64	54	150	1.50	1.55	48.0	46.0	11914
64	60	150	1.50	1.50	48.0	46.0	12368
64	64	150	1.50	1.50	48.0	48.0	13466

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.



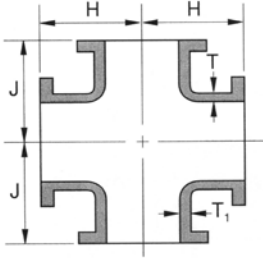
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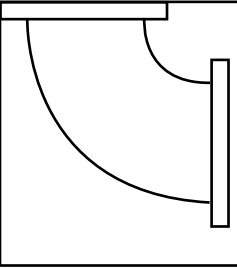
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Flanged Fittings - Crosses



SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches				WEIGHT Pounds
RUN	BRANCH		T	T ₁	H	J	CROSS
30	06	250	1.03	.55	11.0	23.0	1404
30	08	250	1.03	.60	11.0	23.0	1448
30	10	250	1.03	.68	11.0	23.0	1489
30	12	250	1.03	.75	11.0	23.0	1543
30	14	250	1.03	.66	18.0	23.0	1977
30	16	250	1.03	.70	18.0	23.0	2039
30	18	250	1.03	.75	18.0	23.0	2103
30	20	250	1.03	.80	18.0	23.0	2193
30	24	250	1.03	.89	25.0	25.0	2810
30	30	250	1.03	1.03	25.0	25.0	3276
36	06	250	1.15	.55	20.0	26.0	2537
36	08	250	1.15	.60	20.0	26.0	2579
36	10	250	1.15	.68	20.0	26.0	2617
36	12	250	1.15	.75	20.0	26.0	2667
36	14	250	1.15	.66	20.0	26.0	2749
36	16	250	1.15	.70	20.0	26.0	2806
36	18	250	1.15	.75	20.0	26.0	2862
36	20	250	1.15	.80	20.0	26.0	2943
36	24	250	1.15	.89	20.0	26.0	3114
36	30	250	1.15	1.03	28.0	28.0	4020
36	36	250	1.15	1.15	28.0	28.0	4754

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.



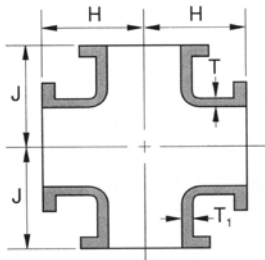
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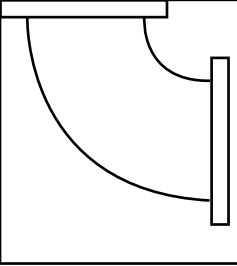
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Flanged Fittings - Crosses (cont.)



SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches				WEIGHT Pounds
RUN	BRANCH		T	T ₁	H	J	CROSS
42	12	250	1.28	.75	23.0	30.0	3786
42	14	250	1.28	.66	23.0	30.0	3865
42	16	250	1.28	.70	23.0	30.0	3921
42	18	250	1.28	.75	23.0	30.0	3975
42	20	250	1.28	.80	23.0	30.0	4053
42	24	250	1.28	.89	23.0	30.0	4214
42	30	250	1.28	1.03	31.0	31.0	5197
42	36	250	1.78	1.58	31.0	31.0	5673
42	42	250	1.78	1.78	31.0	31.0	6663
48	12	250	1.42	.75	26.0	34.0	5275
48	14	250	1.42	.66	26.0	34.0	5351
48	16	250	1.42	.70	26.0	34.0	5405
48	18	250	1.42	.75	26.0	34.0	5457
48	20	250	1.42	.80	26.0	34.0	5532
48	24	250	1.42	.89	26.0	34.0	5685
48	30	250	1.42	1.03	26.0	34.0	5887
48	36	250	1.42	1.15	34.0	34.0	7187
48	42	250	1.96	1.78	34.0	34.0	7820
48	48	250	1.96	1.96	34.0	34.0	9156
54	30	150	1.55	1.00	31.0	37.0	6105
54	36	150	1.55	1.15	31.0	37.0	6358
54	42	150	1.55	1.28	39.0	39.0	8004
54	48	150	1.55	1.42	39.0	39.0	8462
54	54	150	1.55	1.55	39.0	39.0	9694

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.



FLANGED FITTINGS



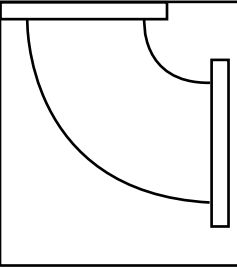
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Flanged Fittings - Crosses (cont.)

SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches				WEIGHT Pounds CROSS
RUN	BRANCH		T	T ₁	H	J	
60	30	150	1.50	1.00	33.0	42.0	7472
60	36	150	1.50	1.15	33.0	42.0	7779
60	42	150	1.50	1.28	43.0	43.0	9718
60	48	150	1.50	1.42	43.0	43.0	10185
60	54	150	1.50	1.55	43.0	43.0	10959
60	60	150	1.50	1.50	43.0	43.0	12341
64	36	150	1.50	1.15	32.0	44.0	8998
64	42	150	1.50	1.28	48.0	45.0	11984
64	48	150	1.50	1.42	48.0	45.0	12382
64	54	150	1.50	1.55	48.0	46.0	13167
64	60	150	1.50	1.50	48.0	46.0	14076
64	64	150	1.50	1.50	48.0	48.0	16272

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.



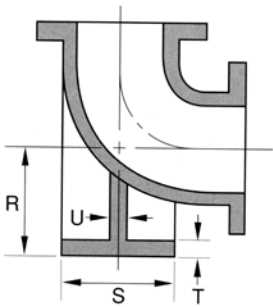
FLANGED FITTINGS



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Flanged Fittings - 90° Base Bends



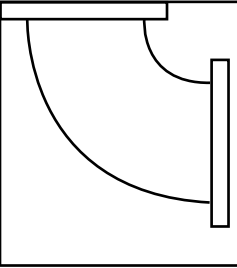
SIZE Inches	PRESSURE RATING psi	DIMENSIONS Inches				WEIGHT Pounds	
		R	S DIAMETER	T	U	BASE BEND	BASE ONLY
30	250	23.00	16.00	1.19	1.15	1620	190
36	250	26.00	19.00	1.25	1.15	2385	250
42	250	30.00	23.50	1.44	1.28	3465	410
48	250	34.00	25.00	1.56	1.42	4610	515
54*	250	38.00	27.50	1.69	1.55	6841	1050
60*	250	42.00	32.00	1.88	1.75	8851	1500
64*	250	44.00	38.75	2.12	1.75	11731	2250

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.

For flange detail see page 5.

Dimension "R" is a finished dimension; unfinished bases will be 1/8" longer. For base drilling details see page 18.

*Not included in AWWA C110 or C153



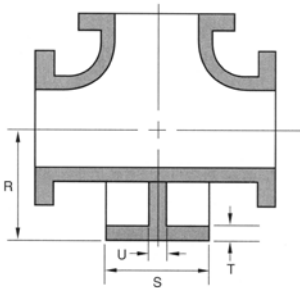
FLANGED FITTINGS



2013 EDITION

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Flanged Fittings - Base Tees



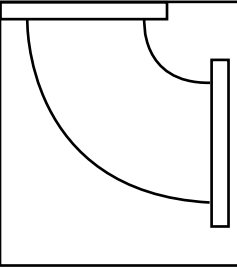
SIZE Inches		PRESSURE RATING psi	DIAMETER Inches				WEIGHT Pounds	
RUN	BRANCH		R	S DIAMETER	T	U	BASE BEND	BASE ONLY
30	6	250	23.00	16.00	1.19	1.15	1486	120
30	8	250	23.00	16.00	1.19	1.15	1508	120
30	10	250	23.00	16.00	1.19	1.15	1528	120
30	12	250	23.00	16.00	1.19	1.15	1556	120
30	14	250	23.00	16.00	1.19	1.15	1723	120
30	16	250	23.00	16.00	1.19	1.15	1754	120
30	18	250	23.00	16.00	1.19	1.15	2009	120
30	20	250	23.00	16.00	1.19	1.15	2054	120
30	24	250	23.00	16.00	1.19	1.15	2338	120
30	30	250	23.00	16.00	1.19	1.15	2571	120
36	6	250	26.00	19.00	1.25	1.15	2490	160
36	8	250	26.00	19.00	1.25	1.15	2511	160
36	10	250	26.00	19.00	1.25	1.15	2530	160
36	12	250	26.00	19.00	1.25	1.15	2555	160
36	14	250	26.00	19.00	1.25	1.15	2596	160
36	16	250	26.00	19.00	1.25	1.15	2625	160
36	18	250	26.00	19.00	1.25	1.15	2653	160
36	20	250	26.00	19.00	1.25	1.15	2693	160
36	24	250	26.00	19.00	1.25	1.15	2778	160
36	30	250	26.00	19.00	1.25	1.15	3079	160
36	36	250	26.00	19.00	1.25	1.15	3428	160

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.

For flange detail see page 5.

Dimension "R" is a finished dimension; unfinished bases will be 1/8" longer. For base drilling details see page 18.

*Not included in AWWA C110 or C153



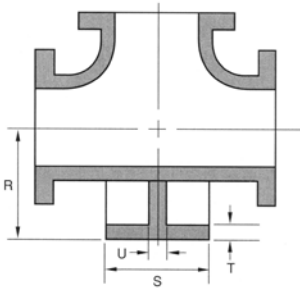
FLANGED FITTINGS



2013 EDITION

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Flanged Fittings - Base Tees (cont.)



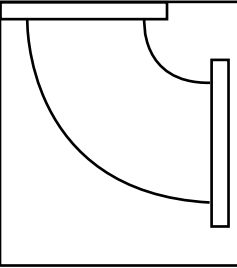
SIZE Inches		PRESSURE RATING psi	DIAMETER Inches				WEIGHT Pounds	
RUN	BRANCH		R	S DIAMETER	T	U	BASE BEND	BASE ONLY
42	12	250	30.00	23.50	1.44	1.28	3687	270
42	14	250	30.00	23.50	1.44	1.28	3727	270
42	16	250	30.00	23.50	1.44	1.28	3755	270
42	18	250	30.00	23.50	1.44	1.28	3782	270
42	20	250	30.00	23.50	1.44	1.28	3821	270
42	24	250	30.00	23.50	1.44	1.28	3901	270
42	30	250	30.00	23.50	1.44	1.28	5012	270
42	36	250	30.00	23.50	1.44	1.28	5250	270
42	42	250	30.00	23.50	1.44	1.28	5746	270
48	12	250	34.00	25.00	1.56	1.42	5505	335
48	14	250	34.00	25.00	1.56	1.42	5543	335
48	16	250	34.00	25.00	1.56	1.42	5570	335
48	18	250	34.00	25.00	1.56	1.42	5596	335
48	20	250	34.00	25.00	1.56	1.42	5634	335
48	24	250	34.00	25.00	1.56	1.42	5710	335
48	30	250	34.00	25.00	1.56	1.42	5811	335
48	36	250	34.00	25.00	1.56	1.42	6910	335
48	42	250	34.00	25.00	1.56	1.42	7227	335
48	48	250	34.00	25.00	1.56	1.42	7894	335

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.

For flange detail see page 5.

Dimension "R" is a finished dimension; unfinished bases will be 1/8" longer. For base drilling details see page 18.

*Not included in AWWA C110 or C153



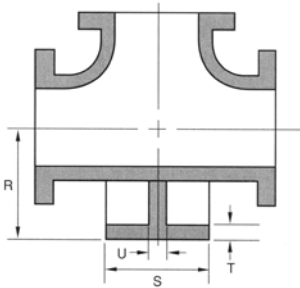
FLANGED FITTINGS



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Flanged Fittings - Base Tees (cont.)



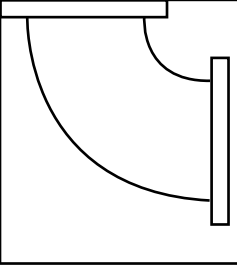
SIZE Inches		PRESSURE RATING psi	DIAMETER Inches				WEIGHT Pounds	
RUN	BRANCH		R	S DIAMETER	T	U	BASE BEND	BASE ONLY
54	30	250	38.00	27.50	1.69	1.55	6483	565
54	36	250	38.00	27.50	1.69	1.55	6609	565
54	42	250	38.00	27.50	1.69	1.55	7997	565
54	48	250	38.00	27.50	1.69	1.55	8226	565
54	54	250	38.00	27.50	1.69	1.55	8842	565
60	36	250	42.00	32.00	1.88	1.75	8212	855
60	42	250	42.00	32.00	1.88	1.75	9913	855
60	48	250	42.00	32.00	1.88	1.75	10146	855
60	54	250	42.00	32.00	1.88	1.75	10533	855
60	60	250	42.00	32.00	1.88	1.75	11224	855
64	36	250	44.00	38.75	2.12	1.75	9859	1275
64	42	250	44.00	38.75	2.12	1.75	12597	1275
64	48	250	44.00	38.75	2.12	1.75	12796	1275
64	54	250	44.00	38.75	2.12	1.75	13189	1275
64	60	250	44.00	38.75	2.12	1.75	13643	1275
64	64	250	44.00	38.75	2.12	1.75	14741	1275

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.

For flange detail see page 5.

Dimension "R" is a finished dimension; unfinished bases will be 1/8" longer. For base drilling details see page 18.

*Not included in AWWA C110 or C153



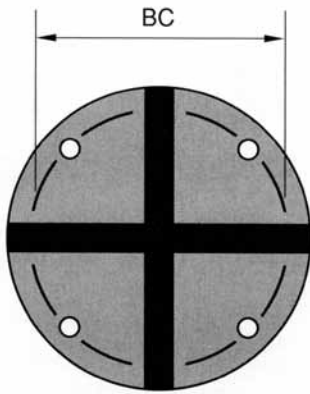
FLANGED FITTINGS



2013 EDITION

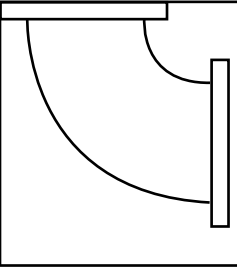
P 18

Flanged Fittings-Base Drilling Details for Base Bends and Base Tees



SIZE FITTING Inches	DIMENSIONS Inches		
	BOLT CIRCLE	BOLT HOLE DIAMETER	NUMBER OF BOLTS
30	14.25	1	4
36	17.00	1	4
42	21.25	1-1/8	4
48	22.75	1-1/4	4
54*	25.00	1-1/4	4
60*	29.50	1-3/8	4
64*	36.00	1-3/8	4

* Not included in AWWA C110 or C153



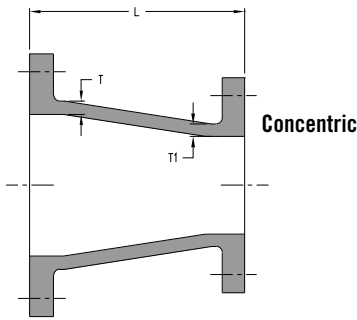
FLANGED FITTINGS



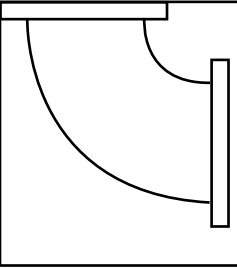
2013 EDITION

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Flanged Fittings - Concentric Reducers



RUN	SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches			WEIGHT Pounds
	BRANCH			T	T ₁	L	
30		12	250	1.03	.75	30	962
30		14	250	1.03	.66	30	1101
30		16	250	1.03	.70	30	1066
30		18	250	1.03	.75	30	1121
30		20	250	1.03	.80	30	1065
30		24	250	1.03	.89	30	1196
36		14	250	1.15	.66	36	1290
36		16	250	1.15	.70	36	1115
36		18	250	1.15	.75	36	1548
36		20	250	1.15	.80	36	1626
36		24	250	1.15	.89	36	1393
36		30	250	1.15	1.03	36	1578
42		20	250	1.28	.80	42	2187
42		24	250	1.28	.89	42	2366
42		30	250	1.28	1.03	42	1848
42		36	250	1.28	1.15	42	2104
48		24	250	1.42	.89	48	3080
48		30	250	1.42	1.03	48	3370
48		36	250	1.42	1.15	48	3237
48		42	250	1.42	1.28	48	3650
54		30	150	.90	1.00	32	2659
54		36	150	.90	1.15	28	2627
54		42	150	.90	1.25	25	2730
54		48	150	.90	1.40	18	2545



FLANGED FITTINGS



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Flanged Fittings - Concentric Reducers (cont.)

SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches			WEIGHT Pounds
RUN	BRANCH		T	T ₁	L	
60	36	150	.94	1.15	32	3315
60	42	150	.94	1.25	26	3315
60	48	150	.94	1.40	20	3141
60	54	150	.94	.90	15	2925
64	36	150	.99	1.15	35	4163
64	42	150	.99	1.25	30	4178
64	48	150	.99	1.40	25	4103
64	54	150	.99	.90	18	3773
64	60	150	.99	.94	17	4100

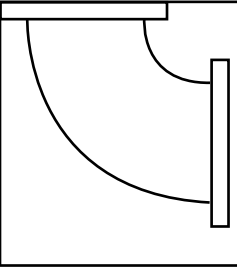
NOTE: Actual weights of fittings, sizes 54"-64" may exceed those shown.

Sizes 3"-48" conform to **ANSI/AWWA C110/A21.10**.

Sizes 54"-64" conform to **ANSI/AWWA C153/A21.53**.

For flange details see page 5.

On reducers of certain end combinations the number of bolt holes on one flange have an odd number in one quadrant and the opposite flange has an even number of holes in the same quadrant so that there are only four positions in which the reducers can be placed to properly assemble with the adjacent piping. Please take particular note that flange reducers have the vertical centerline marked on the edge of the flange. If assembled with the centerline in the vertical plane, the casting will properly assemble.



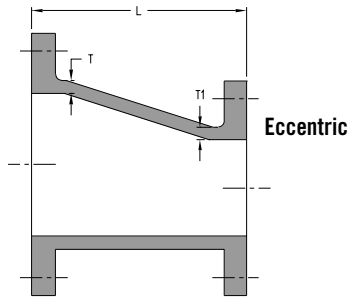
FLANGED FITTINGS



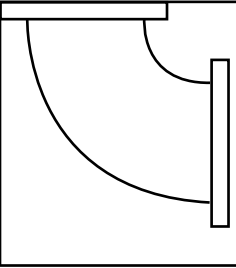
2013 EDITION

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Flanged Fittings - Eccentric Reducers



RUN	SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches			WEIGHT Pounds
	BRANCH			T	T ₁	L	
30		12	250	1.03	.75	30	962
30		14	250	1.03	.66	30	1011
30		16	250	1.03	.70	30	1066
30		18	250	1.03	.75	30	1121
30		20	250	1.03	.80	30	1065
30		24	250	1.03	.89	30	1196
36		14	250	1.15	.66	—	1290
36		16	250	1.15	.70	—	1115
36		18	250	1.15	.75	36	1548
36		20	250	1.15	.80	36	1626
36		24	250	1.15	.89	36	1393
36		30	250	1.15	1.03	36	1578
42		20	250	1.28	.80	42	2187
42		24	250	1.28	.89	42	2366
42		30	250	1.28	1.03	42	1848
42		36	250	1.28	1.15	42	2104
48		24	250	1.42	.89	48	3080
48		30	250	1.42	1.03	48	3370
48		36	250	1.42	1.15	48	3237
48		42	250	1.42	1.28	48	3650
54		30	150	.90	1.00	41	2926
54		36	150	.90	1.15	28	2548
54		42	150	.90	1.25	25	2693
54		48	150	.90	1.40	18	2579



FLANGED FITTINGS



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Flanged Fittings - Eccentric Reducers (cont.)

SIZE Inches		PRESSURE RATING psi	DIMENSIONS Inches			WEIGHT Pounds
RUN	BRANCH		T	T ₁	L	
60	42	150	.94	1.25	29	3663
60	48	150	.94	1.40	23	3429
60	54	150	.94	.90	15	2959
64	42	150	.99	1.25	–	–
64	48	150	.99	1.40	–	–
64	54	150	.99	.90	19.5	3989
64	60	150	.99	.94	17	4075

NOTE: Actual weights of fittings, sizes 54"-64" may exceed those shown.

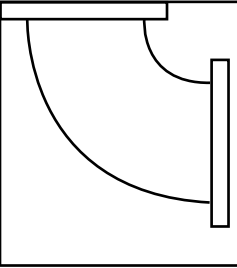
Sizes 3"-48" conform to **ANSI/AWWA C110/A21.10**.

Sizes 54"-64" conform to **ANSI/AWWA C153/A21.53**.

For flange details see page 5.

On reducers of certain end combinations the number of bolt holes on one flange have an odd number in one quadrant and the opposite flange has an even number of holes in the same quadrant so that there are only four positions in which the reducers can be placed to properly assemble with the adjacent piping. Please take particular note that flange reducers have the vertical centerline marked on the edge of the flange. If assembled with the centerline in the vertical plane, the casting will properly assemble.

*Not included in AWWA C110 or C153



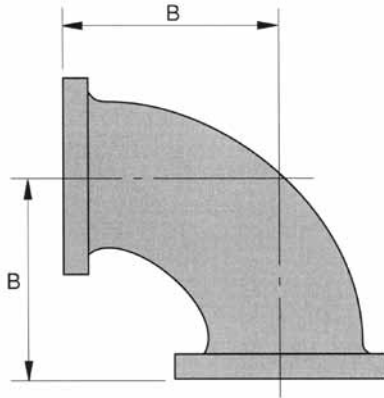
FLANGED FITTINGS



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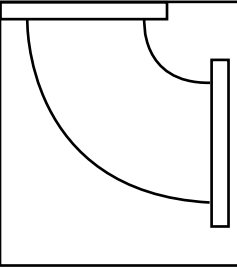
Flanged Fittings – 90° Long Radius Bends



NOMINAL SIZE Inches	PRESSURE RATING psi	WALL THICKNESS Inches	90° BEND LONG RADIUS	
			B Inches	WEIGHTS Pounds
30	250	1.03	41.5	2105
36	250	1.15	49	3285
42	250	1.28	56.5	4865
48	250	1.42	64	6790

NOTE: Thicknesses and Dimensions Conforming to ANSI B16.1

For flange details see page 5.



FLANGED FITTINGS

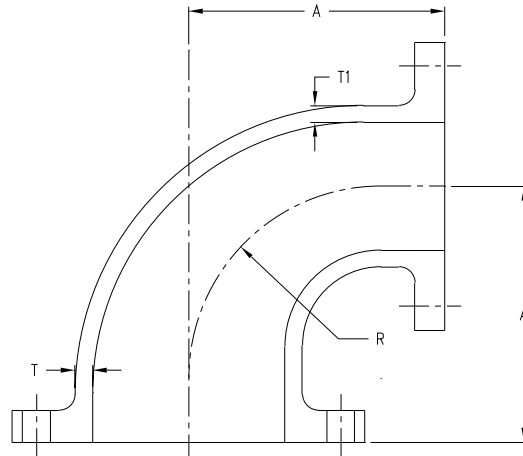


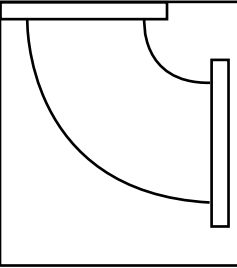
2013 EDITION

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Flanged Fittings – Reducing Bends 90°

Size Inches	A	R	T	T1	Weight Pounds
30 X 12	25.00	21.5	1.03	.75	840
30 X 14	25.00	21.5	1.03	.66	1090
30 X 16	25.00	21.5	1.03	.70	900
30 X 18	25.00	21.5	1.03	.75	980
30 X 20	25.00	21.5	1.03	.80	1070
30 X 24	25.00	21.5	1.03	.89	1205
36 X 12	28.00	24.5	1.15	.75	1195
36 X 14	28.00	24.5	1.15	.66	1215
36 X 16	28.00	24.5	1.15	.70	1255
36 X 18	28.00	24.5	1.15	.75	1295
36 X 20	28.00	24.5	1.15	.80	1360
36 X 24	28.00	24.5	1.15	.89	1520
36 X 30	28.00	24.5	1.15	1.03	1785
42 X 14	31.00	27.5	1.28	.66	1675
42 X 16	31.00	27.5	1.28	.70	1715
42 X 18	31.00	27.5	1.28	.75	1755
42 X 20	31.00	27.5	1.28	.80	1895
42 X 24	31.00	27.5	1.28	.89	1980
42 X 30	31.00	27.5	1.28	1.03	2345
42 X 36	31.00	27.5	1.28	1.15	3390
48 X 12	34.00	30.5	1.42	.75	2175
48 X 14	34.00	30.5	1.42	.66	2195
48 X 16	34.00	30.5	1.42	.70	2235
48 X 18	34.00	30.5	1.42	.75	2275
48 X 20	34.00	30.5	1.42	.80	2340
48 X 24	34.00	30.5	1.42	.89	3240
48 X 30	34.00	30.5	1.42	1.03	3600
48 X 36	34.00	30.5	1.42	1.15	3255
48 X 42	34.00	30.5	1.42	1.28	4685





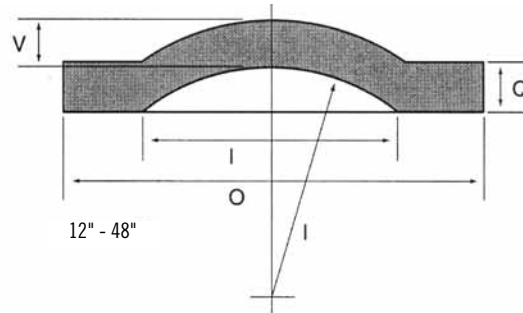
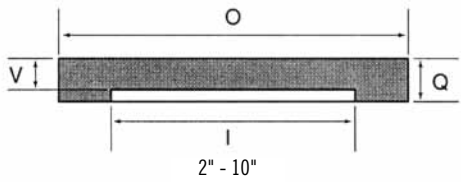
FLANGED FITTINGS



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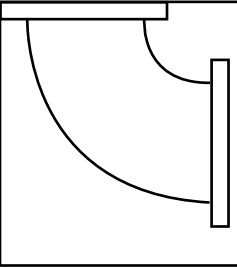
Flanged Fittings – Blind Flanges



SIZE Inches	PRESSURE RATING psi	DIMENSIONS Inches			BLIND FLANGES Pounds
		DIAMETER OF FLANGE O	THICKNESS OF FLANGE Q	WALL THICKNESS V	
30	250	38.75	2.12	1.37	500
36	250	46.00	2.38	1.58	790
42	250	53.00	2.62	1.78	1175
48	250	59.50	2.75	1.96	1585
54	150	66.25	3.00	2.23	2260
60	150	73.00	3.12	2.63	2955
64	150	80.00	3.38	2.81	3855

NOTE: Actual weights of fittings, sizes 54"-64", may exceed those shown.

For bolt hole details see page 5.



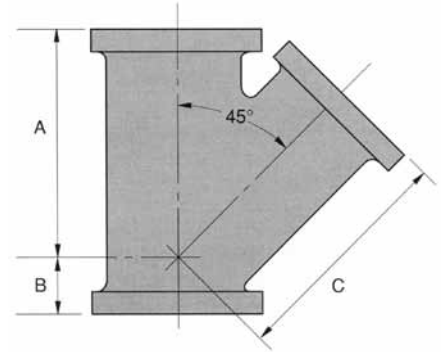
FLANGED FITTINGS



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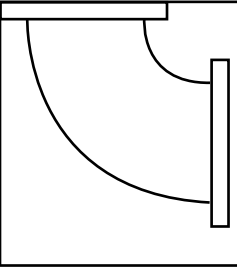
P 26

Flanged Fittings – Wye Branches



SIZE Inches		PRESSURE RATING psi	WALL THICKNESS		DIMENSIONS Inches			WEIGHT Pounds
RUN	BRANCH		RUN	BRANCH	A	B	C	
30	16	250	1.03	.70	49	10	49	3330
30	18	250	1.03	.75	49	10	49	3408
30	20	250	1.03	.80	49	10	49	3502
30	24	250	1.03	.89	49	10	49	3696
30	30	250	1.03	1.03	49	10	49	4056
36	16	250	1.15	.70	60	19.5	60	5368
36	18	250	1.15	.75	60	19.5	60	5469
36	20	250	1.15	.80	60	19.5	60	5592
36	24	250	1.15	.89	60	19.5	60	5818
36	30	250	1.15	1.03	60	19.5	60	6234
36	36	250	1.15	1.15	60	19.5	60	6681
42	24	250	1.78	1.16	69	20	69	8092
42	30	150	1.78	1.37	69	20	69	8544
42	36	150	1.78	1.58	69	20	69	9033
42	42	250	1.78	1.78	69	20	69	9667
48	24	250	1.96	1.16	77.5	21	77.5	11021
48	30	250	1.96	1.37	77.5	21	77.5	11504
48	36	250	1.96	1.58	77.5	21	77.5	12031
48	42	150	1.96	1.78	77.5	21	77.5	12705
48	48	150	1.96	1.96	77.5	21	77.5	13480

For flange details see page 5



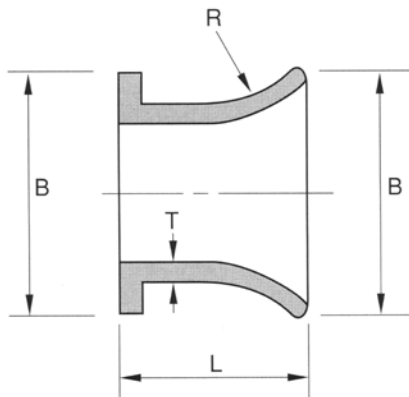
FLANGED FITTINGS



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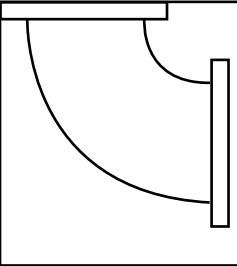
P 27

Flanged Fittings – Straight Flare



SIZE Inches	T	R	B	L	WEIGHT Pounds
30	1.03	30	38.75	24	1100
36	1.15	10	46.00	24	1460
42	1.28	10	53.00	24	1534
48	1.42	10	59.50	24	1865
54	.90	10	25.00	24	2012

For flange details see page 5.



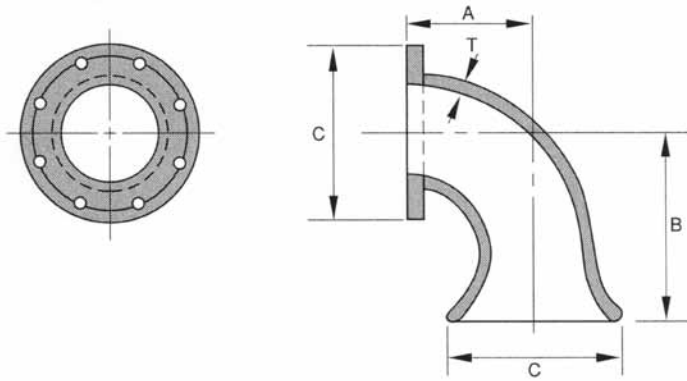
FLANGED FITTINGS



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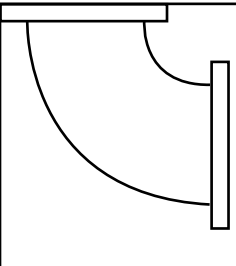
P 28

Flange and Flare 90° Bends Standard and Long Radius Miscellaneous Flanged Fittings



DIMENSIONS Inches					WEIGHT Pounds	DIMENSIONS Inches			WEIGHT Pounds
STANDARD						LONG RADIUS			
SIZE	A	B	C DIAMETER	WALL T	SIZE	A	B		
30	25	36	38.75	1.03	30	41.5	48.5	2190	
36	28	38	46	1.15	36	49	56	3465	
42	31	35	53	1.28	42	65.5	63.5	5150	
48	34	46	59.5	1.42	48	64	64	6750	

For flange details see page 5.



FLANGED FITTINGS

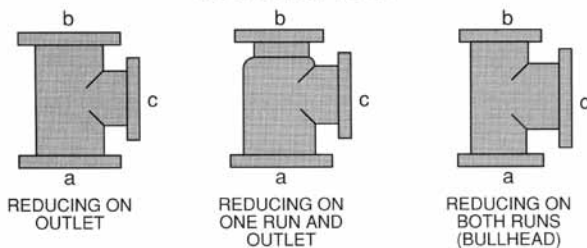


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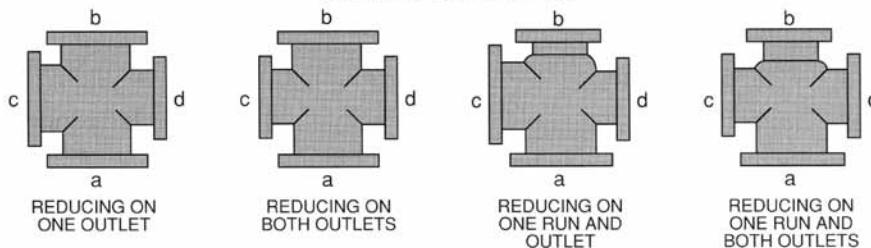
P 29

Method of Designating Outlets of Reducing Fittings in Specifications

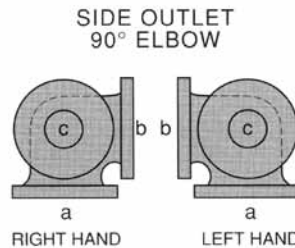
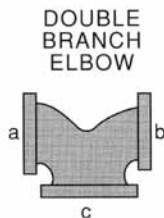
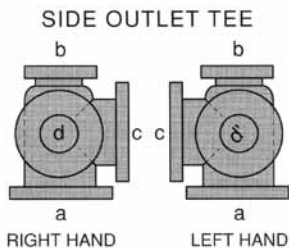
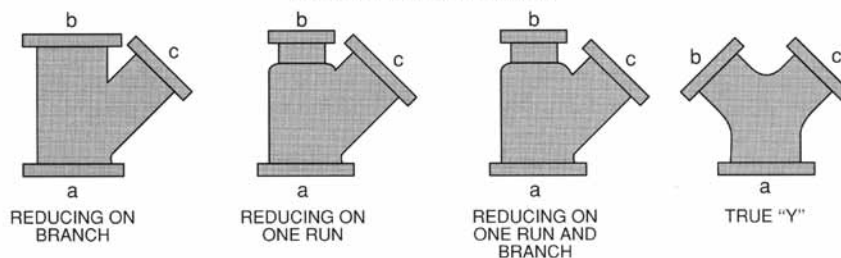
REDUCING TEES



REDUCING CROSSES

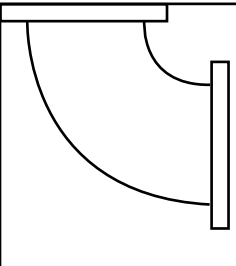


REDUCING LATERALS



NOTE: The largest opening establishes the basic size of a reducing fitting. The largest opening is named first, except for bullhead tees which are reducing on both runs and for double branch elbows where both branches are reducing, the outlet is the largest opening and named last in both cases.

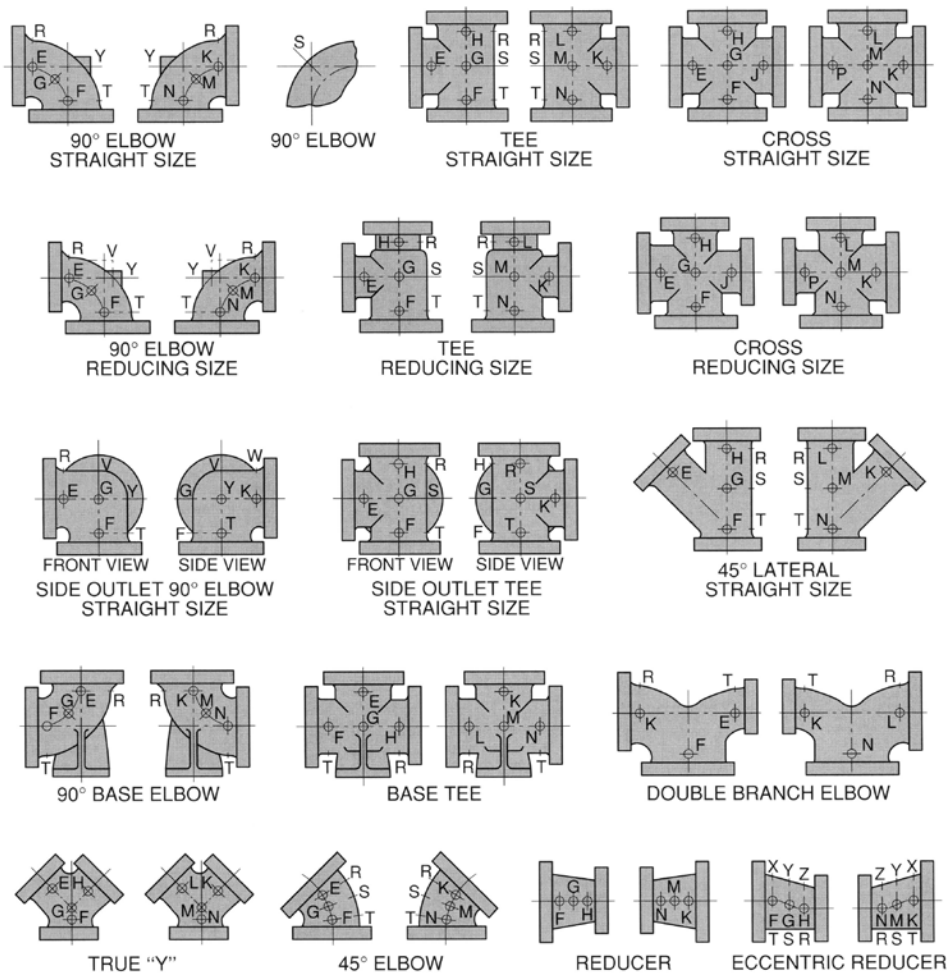
In designating the openings of reducing fittings they should be read in the order indicated by the sequence of the letters a, b, c and d. In designating the outlets of side outlet reducing fittings the side outlet is named last and in the case of the cross which is not shown the side outlet is designated by the letter e. Fittings of the configurations shown on this page that are not covered on pages 6 through 28 may be furnished on special order. Consult your nearest U.S. Pipe Sales Representative.



FLANGED FITTINGS

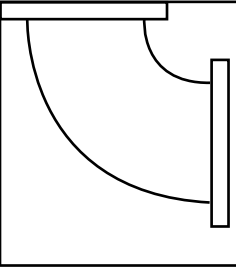


Method of Designating Location of Tapped Holes When Specified



NOTE: The above sketches show two views of the same fitting and represent fittings with symmetrical shapes, with the exception of the side outlet elbow and the side outlet tee (straight sizes).

Fittings of the configurations shown on this page that are not covered on pages 6 through 28 may be furnished on special order. Consult your nearest U.S. Pipe Sales Representative.



FLANGED FITTINGS



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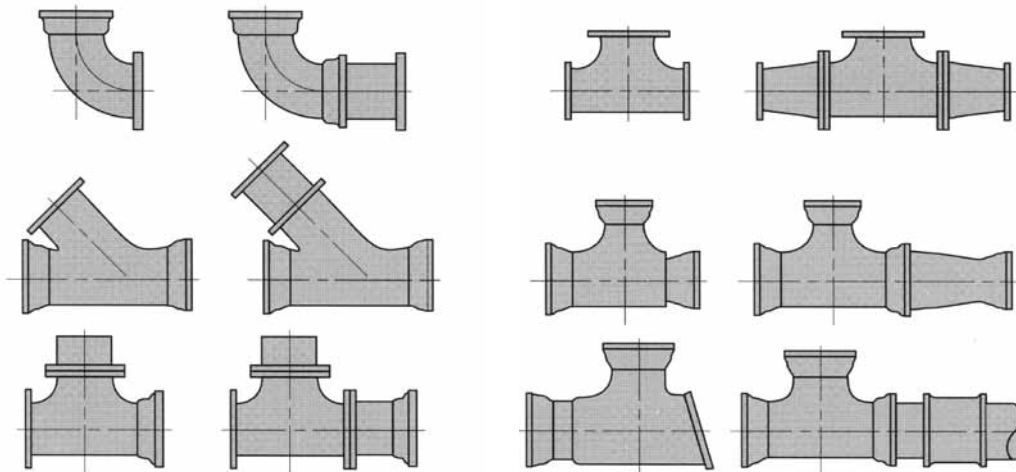
Combination of Standard Fittings That May be Used in Place of Special Fittings

SPECIAL

COMBINATION

SPECIAL

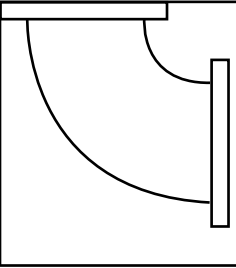
COMBINATION



The illustrations in the "SPECIAL" columns on this page indicate typical fittings that are often required with a combination of bell, plain end, and flange outlets. The laying dimensions of these fittings are not covered by any standard and they are therefore usually named "SPECIAL" inasmuch as they are made to order to suit certain conditions in piping installations.

To the right of each "SPECIAL" fitting is shown a combination of Standard fittings that can be used to obtain the same outlet effects as the Specials. The laying dimensions may not be interchangeable since the dimensions of the Standard fittings are fixed whereas the Special can be made to a variety of desired lengths.

The use of Standard fittings wherever possible is always recommended as the most economical and such fittings can usually be shipped out of stock. In sending inquiries for fittings of dimensions deviating from the Standard, state specifically the type of outlets wanted, reading, sizes, etc., as shown on this page, and give exact dimension from the center line to outlet.



FLANGED FITTINGS



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Products for Water, Wastewater and Fire Protection

Ductile Iron Pipe	SIZE RANGE
TYTON JOINT® Pipe	3"-64" Ductile Iron
Mechanical Joint Pipe	4"-12" Ductile Iron
TR FLEX® Pipe	4"-36" Ductile Iron
HP LOK® Pipe	30"-64" Ductile Iron
Flanged Pipe	3"-64" Ductile Iron
Grooved Pipe	4"-36" Ductile Iron
USIFLEX® Boltless Ball Joint Pipe For Subaqueous Installations	4"-48" Ductile Iron
Restrained Joints	
TR FLEX® Restrained Joint	4"-36" Ductile Iron
HP LOK® Restrained Joint	30"-64" Ductile Iron
MJ FIELD LOK® Gaskets	4"-24"
FIELD LOK 350® Gaskets	4"-24"
FIELD LOK® Gasket	30" & 36"
TR FLEX GRIPPER® Rings	4"-36" Ductile Iron
TR TELE FLEX® Assemblies	4"-24" Ductile Iron
Fittings	
TYTON® Fittings	14"-24" Ductile Iron
TRIM TYTON® Fittings	4"-12" Ductile Iron
TR FLEX® Fittings and TR FLEX® Telescoping Sleeves	4"-36" Ductile Iron
HP LOK® Fittings and HP LOK® Telescoping Sleeves	30"-64" Ductile Iron
Mechanical Joint Fittings	30"-48" Ductile Iron
Flanged Fittings	30"-64" Ductile Iron
XTRA FLEX® Couplings	4"-24" Ductile Iron
Miscellaneous Products	
PROTECTO 401™ Lined Ductile Iron Pipe for Domestic Sewage and Industrial Wastes	4"-64" Ductile Iron
GLASS Lined Ductile Iron Pipe for Wastewater Treatment Plants	4"-30" Ductile Iron
RING FLANGE-TYTE® Gaskets	4"-36"
FULL FACE FLANGE-TYTE® Gaskets	4"-64"
MJ Harness-Lok	4"-48" Ductile Iron
Saddle Outlets	Various Ductile Iron
Welded Outlets	Various Ductile Iron
Polyethylene Encasement	4"-64"

Our products are manufactured in conformance with National Standards so that our customers may be assured of getting the performance and longevity they expect. Use of accessories or other appurtenances that do not comply with recognized standards may jeopardize the performance and longevity of the project.



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