



SIP Industries

Quality Manufacturers Since 1960



Flanged Fittings

ANSI/AWWA C110/21.10

V 0524-01

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SIP INDUSTRIES
SERAMPORE
SINCE 1960

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- **All dimensions are in inches unless noted otherwise.**
- **All weights are approximate in pounds unless noted otherwise.**

1. Acceptance. All sales by SIP Industries (Seller) are made pursuant to these Terms and Conditions. Submission of a purchase order to Seller, and/or acceptance of goods delivered by Seller, shall be deemed an acceptance of these Terms and Conditions by Purchaser. Please note that these Terms and Conditions may be modified from time to time; the applicable Terms and Conditions are those posted on SIP's website, www.sipindustries.com, at the time that a purchase order is accepted or an agreement otherwise confirmed. Purchaser's alteration or addition to these Terms and Conditions, as same may be in effect from time to time, is expressly rejected unless accepted in writing by an authorized representative of Seller.

2. Entire Agreement. These Terms and Conditions, together with Seller's price list and Purchaser's purchase order, when accepted by Seller, shall be the entire agreement between Seller and Purchaser. Neither Seller nor Purchaser is relying on any representations, warranties or agreements except as expressly provided in these Terms and Conditions and in an accepted purchase order. To the extent of any conflict between the terms of a purchase order or any other documents submitted by Purchaser, on the one hand, and these Terms and Conditions, on the other, these Terms and Conditions shall govern.

3. Prices. Prices and descriptions of goods stated in Seller's price lists are subject to change without notice. Prices are subject to tariffs, raw material surcharges, labor disputes and shipping surcharges. To submit a purchase order, SIP Industries item numbers and part codes should be included. Seller's quotations are on globally sourced products unless otherwise noted. The ordering party is responsible to specify any required origin as required for end use. Quotations, if provided by Seller, expire sixty (60) days from the date provided unless otherwise agreed in writing.

4. Terms. Invoices are due and payable thirty (30) days from date of shipment, unless otherwise written on the invoice or confirmed in writing by Seller. A five percent (5%) late fee will be charged on all past-due accounts. If it becomes necessary to retain attorneys to collect an account, the Purchaser is liable for Seller's attorney's fees and other costs of collection.

5. FOB point of shipment. All prices are FOB point of shipment, unless otherwise agreed in writing. Seller's responsibility for goods therefore ceases and title passes to the Purchaser at the point of shipment; all claims for damages or losses in transit must be directed to the carrier with copy to Seller within ten (10) days of shipment.

6. Delivery. Seller shall have the right to select the freight carrier unless otherwise agreed. Seller has the right to substitute material with same function and design to accommodate unforeseen delays, shortages or restrictions.

7. Cancellations, Changes and Returns. All cancellations, changes and returns must be accepted in writing by an authorized representative of Seller, otherwise they will not be valid and binding on Seller. Seller will not be responsible for unauthorized returned product. It will be the responsibility of purchaser at their expense to have unauthorized product returned or disposed of. Seller shall not be obligated to accept any cancellation, change or return, but if it does so the following terms shall apply: (i) goods must be returned to Seller's facility, in the same condition in which they were accepted by Purchaser; (ii) a handling charge of thirty-five percent (35%) of the purchase price will be deducted from the credit given to Purchaser; and (iii) shipping charges, if not prepaid by Purchaser, will likewise be deducted from the credit given to Purchaser.

8. Specially Manufactured Goods. Unless otherwise agreed, specially-manufactured goods, including goods designed to the Purchaser's specifications, may not be cancelled or returned once work has begun to design or manufacture the goods unless an agreement is reached and confirmed in writing by Seller, including compensation to Seller for work thus far done with respect to the goods.

9. Delays; Force Majeure. Seller shall not be liable for any expenses, loss or damage resulting from any delay in delivery of goods or other failure of Seller's performance due to fire, floods, acts of god, strikes, labor disputes, labor shortages, riots, accidents, transportation delays or other causes beyond the reasonable control of Seller.

10. Disclaimer regarding weights. All stated weights are approximate and are given for inventory and shipping purposes only.

11. Taxes. Seller's prices do not include sales, excise or other taxes. Purchaser shall pay all such taxes. If Purchaser claims a tax exemption, Purchaser shall provide Seller with the necessary tax-exemption numbers and certificates. If Purchaser aims a tax exemption, Purchaser shall provide Seller with the necessary tax-exemption numbers and certificates. If Seller accepts an exemption but is later required by the taxing authority to pay taxes, Purchaser shall reimburse to Seller the amount of such taxes.

12. Limited Warranty. For a period of one calendar year from the date of shipment, Seller warrants that goods sold and delivered by Seller to Purchaser will conform to the number and type of goods described in the accepted purchase order and that such goods will be free from defects in material and workmanship.

THIS LIMITED WARRANTY IS SELLER'S SOLE AND EXCLUSIVE WARRANTY. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. SELLER DOES NOT WARRANT THAT THE GOODS ARE FIT FOR ANY PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE GOODS ARE MERCHANTABLE.

13. Product Disclaimers. All tooling required to manufacture products are the property of Seller even if tooling costs are incurred by Purchaser. Seller has the right to change product design, engineering, materials, tooling and processes that do not affect the intended use and application of the product. Seller will notify Purchaser if changes are substantial and may affect the application or appearance of the product. Furthermore, references to Buyer's specifications and similar requirements are only to describe the goods and do not give rise to any representation, warranty or other sales term.

Seller manufactures to industry standards and makes every effort to address applications of its products. Please see current technical advisory at Seller's web site, sipindustries.com, for up to date product support and recommendations. All product dimension, designs, technology, tooling, process, software, innovations, and drawings are considered intellectual property and are owned and confidential to Seller. Purchaser has no rights or privileges to SIP industries intellectual property including product applications without Seller's express written consent.

14. Prompt notice required for Limited Warranty claims. Buyer is responsible for promptly inspecting goods on delivery and notifying Seller, within sixty (60) days of delivery to Buyer, of any nonconformity or defect that would be discovered on a reasonable and customary inspection. Provided that such notice is given and that the warranty claim is made within one year, Seller will provide a replacement or price adjustment, in Seller's discretion, not to exceed the net sales price of the defective product. However, this warranty shall be of no force or effect absent such timely notice. Seller shall not in any event be responsible for labor, removal or installation charges incurred in connection with the replacement of defective goods.

15. Conditions to Limited Warranty. Purchaser shall notify Seller immediately upon discovery of a defect so that Seller may inspect the product in its installed condition. Seller shall not be responsible for defects or failures in goods of which it is not so notified; nor shall Seller be responsible for goods manufactured or sold by other parties or losses or impairments caused by such goods; nor shall Seller be responsible for defects or failure of goods due to improper installation, improper usage, normal or abnormal wear and tear, erosion or corrosion, improper storage, use or maintenance, vandalism, vehicular or other accidents, or storms or other forces beyond the control of the parties. Seller also shall not be responsible for goods that have been damaged by misuse, negligence or accident or that have been altered or repaired by any party other than Seller.

16. Limitation on Liability. In the event any remedy hereunder fails of its essential purpose and monetary damages may be imposed, Seller's liability, whether founded in contract or tort (including negligence), arising out of or resulting from (i) the Purchase Order and resulting contract or the performance or breach thereof, or (ii) the design, manufacture, delivery, sale, repair, replacement or use of the goods, shall not exceed the cost of the goods at issue in the claim. NOTWITHSTANDING ANYTHING CONTAINED HEREIN TO THE CONTRARY, SELLER SHALL NOT BE LIABLE TO PURCHASER OR ANY OTHER PERSON FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY, PUNITIVE OR OTHER INDIRECT DAMAGES, INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS, RECALL-RELATED EXPENSES, AND LOSS OF USE OF THE GOODS.

17. Purchaser specifications. If Seller has designed the goods using information provided by Purchaser, Seller shall not be responsible for design errors resulting from inaccurate or incomplete information supplied by Purchaser. If

Purchaser has provided specifications or a model or sample from which a good is designed and manufactured, Seller shall not be responsible for any defect, error or inadequacy provided that the good is designed or manufactured in compliance with Purchaser's specifications, model or sample.

18. Solvency and Security Interest. By submitting a Purchase Order, Buyer represents to Seller that Buyer is solvent and capable of timely fulfilling its payment and other obligations to Seller. Until the goods and any other indebtedness of Buyer have been paid in full, Buyer, its agents any successors: (i) will hold the goods subject to a security interest in favor of Seller allowing for the right or re-possession by Seller to the extent permitted by applicable law, (ii) will not alter, remove, destroy, or damage any identifying mark on the goods or their packaging, and (iii) will keep the goods separate from any other products.

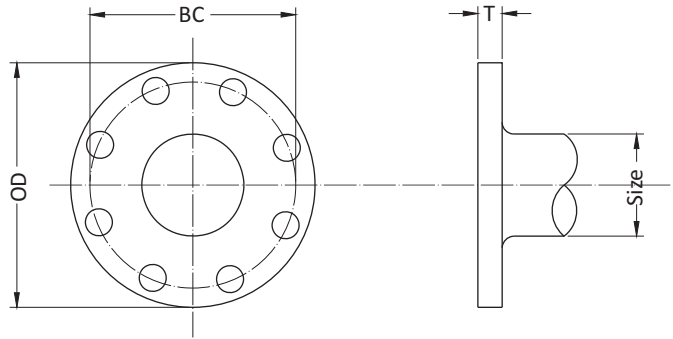
19. Governing law; venue. All sales shall be governed by the law of the state of Texas. In the event that a lawsuit is filed between the parties on any claim arising out of or in connection with such sales, Seller and Purchaser agree that exclusive venue and jurisdiction shall be in the state or federal courts of Harris County, Texas.

20. Attorney's fees and costs. In the event of litigation between the parties with respect to the sale of goods, the prevailing party shall be entitled to recover its reasonable attorney's fees and costs, including expert witness fees.

1" - 64" DUCTILE IRON FLANGED FITTINGS

General Specifications

- Material** : Ductile Iron per ASTM A536
- Pressure** : 250 PSI rating for 1" - 48" sizes and 150 PSI rating for 54" - 64" sizes
- Testing** : In accordance with ANSI/AWWA C110/A21.10 and UL, FM requirements
- Laying Length** : 2" - 48" : In accordance with ANSI/AWWA C110/A21.10 | ANSI B16.1
54" - 64" : In accordance with ANSI/AWWA C153/A21.53
(fittings not listed in ANSI/AWWA have dimensions per SIP design as noted in the catalog)
- Drilling** : In accordance with ANSI/AWWA C110/A21.10 | ANSI/AWWA C153/A21.53 | ANSI B16.1 Class 125 Flanges
- Cement Lining** : In accordance with ANSI/AWWA C104/A21.4
- Coating** : Asphaltic seal coat inside in accordance with ANSI/AWWA C104/A21.4 and prime coat red color outside (other coatings and linings are available on request / specified at time of order)
- Weight** : Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
- Dimensions** : All dimensions are in inches unless noted otherwise.
- Installations** : Per ANSI/AWWA C600 and C111
- Approvals** : 2" - 24" UL Listed | 2" - 24" FM Approved | 2" and higher UL/NSF Standards 61 | 2" and higher NSF/ANSI Standards 61 Approved for Drinking Water. Please consult SIP for detail listing and approvals.



ANSI/NSF 61
DRINKING WATER SYSTEM COMPONENTS

Technical Specifications

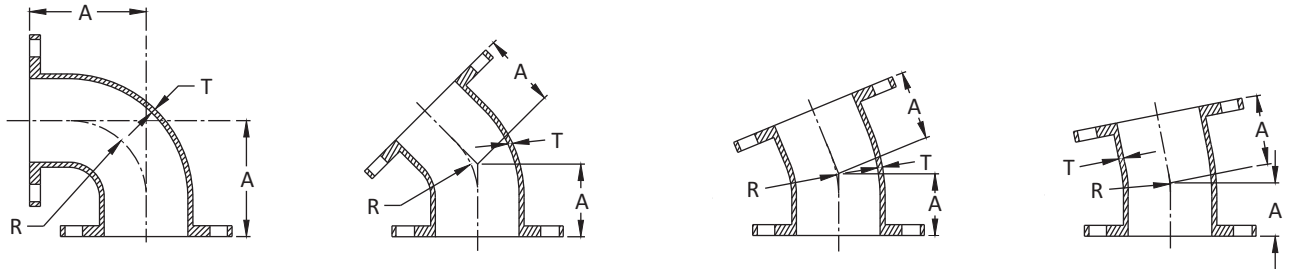
SIZE	O.D.	B.C.	T	B O L T S			
				HOLE DIA.	NO.	SIZE	LENGTH
*1	4.25	3.12	0.44	0.62	4	½	2
*1½	5.00	3.88	0.56	0.62	4	½	2
*2	6.00	4.75	0.62	0.75	4	⅝	2 ¼
*2½	7.00	5.50	0.69	0.75	4	⅝	2 ½
3	7.50	6.00	0.75	0.75	4	⅝	2 ½
4	9.00	7.50	0.94	0.75	8	⅝	3
*5	10.00	8.50	0.94	0.88	8	¾	3
6	11.00	9.50	1.00	0.88	8	¾	3 ½
8	13.50	11.75	1.12	0.88	8	¾	3 ½
10	16.00	14.25	1.19	1.00	12	⅞	4
12	19.00	17.00	1.25	1.00	12	⅞	4
14	21.00	18.75	1.38	1.13	12	1	4 ½
16	23.50	21.25	1.44	1.13	16	1	4 ½
18	25.00	22.75	1.56	1.25	16	1 ⅛	5
20	27.50	25.00	1.69	1.25	20	1 ⅛	5
24	32.00	29.50	1.88	1.38	20	1 ¼	5 ½
30	38.75	36.00	2.12	1.38	28	1 ¼	6 ½
36	46.00	42.75	2.38	1.63	32	1 ½	7
42	53.00	49.50	2.62	1.63	36	1 ½	7 ½
48	59.50	56.00	2.75	1.63	44	1 ½	8
*54	66.25	62.75	3.00	2.00	44	1 ¾	8 ½
*60	73.00	69.25	3.12	2.00	52	1 ¾	9
*64	80.00	76.00	3.38	2.00	52	1 ¾	9

* not included in AWWA C110

All dimensions are in inches unless noted otherwise.

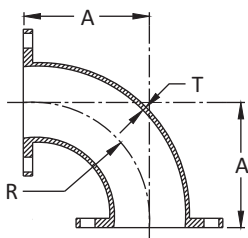
All weights are approximate in pounds unless noted otherwise.

FLANGED BENDS



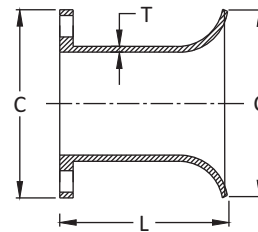
FLANGE		90° BENDS (¼)			45° BENDS (⅛)			22.5° BENDS (⅙)			11.25° BENDS (⅓₂)		
SIZE	T	A	R	WT	A	R	WT	A	R	WT	A	R	WT
*2	0.31	4.50	3.00	15	2.50	2.41	14	2.50	6.04	14	2.50	12.69	14
*2½	0.31	5.00	3.50	23	3.00	3.62	22	---	---	---	---	---	---
3	0.48	5.50	4.00	25	3.00	3.62	20	3.00	7.56	20	3.00	15.25	20
4	0.52	6.50	4.50	45	4.00	4.81	40	4.00	10.06	40	4.00	20.31	40
*5	0.50	7.50	5.50	55	4.50	6.04	50	---	---	---	---	---	---
6	0.55	8.00	6.00	65	5.00	7.25	55	5.00	15.06	55	5.00	30.50	55
8	0.60	9.00	7.00	105	5.50	8.44	90	5.50	17.62	90	5.50	35.50	90
10	0.68	11.00	9.00	165	6.50	10.88	130	6.50	22.62	135	6.50	45.69	135
12	0.75	12.00	10.00	235	7.50	13.25	195	7.50	27.62	205	7.50	55.81	205
14	0.66	14.00	11.50	290	7.50	12.06	220	7.50	25.12	225	7.50	50.75	225
16	0.70	15.00	12.50	370	8.00	13.25	280	8.00	27.62	285	8.00	55.81	285
18	0.75	16.50	14.00	450	8.50	14.50	325	8.50	30.19	335	8.50	60.94	335
20	0.80	18.00	15.50	580	9.50	16.88	430	9.50	35.19	435	9.50	71.06	435
24	0.89	22.00	18.50	900	11.00	18.12	630	11.00	37.69	640	11.00	76.12	645
30	1.03	25.00	21.50	1430	15.00	27.75	1120	15.00	57.81	1135	15.00	116.75	1150
36	1.15	28.00	24.50	2135	18.00	35.00	1755	18.00	72.88	1790	18.00	147.25	1805
42	1.28	31.00	27.50	3055	21.00	42.25	2600	21.00	88.00	2665	21.00	177.69	2680
48	1.42	34.00	30.50	4095	24.00	49.50	3580	24.00	103.06	3665	24.00	208.12	3695
*54	0.90	39.00	35.42	3745	20.50	41.05	2738	14.00	32.42	2262	12.00	30.81	2104
*60	0.94	43.00	36.50	4968	23.50	---	3793	14.00	48.50	2987	10.50	62.41	2668
*64	0.99	48.00	38.80	6747	25.00	---	5107	13.50	---	3998	9.50	---	3587

90° LONG RADIUS BENDS*



SIZE	T	A	R	WT
3	0.48	7.75	6.25	32
4	0.52	9.00	7.00	53
6	0.55	11.50	9.50	81
8	0.60	14.00	12.00	145
10	0.68	16.50	14.50	217
12	0.75	19.00	17.00	328
14	0.66	21.50	19.00	402
16	0.70	24.00	21.50	526
18	0.75	26.50	24.00	751
20	0.80	29.00	26.50	875
24	0.89	34.00	30.50	1254
30	1.03	41.50	38.00	2109
36	1.15	49.00	45.50	3286
42	1.28	56.50	53.00	4868
48	1.42	64.00	60.50	7805
54	0.90	73.50	69.50	6207

STRAIGHT FLANGE X FLARE PIECES*



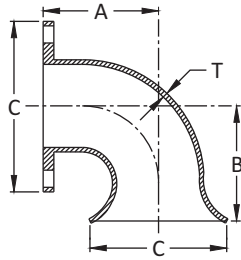
SIZE	T	L	C	WT
3	0.48	8.00	7.50	22
4	0.52	8.00	9.00	31
6	0.55	8.00	11.00	42
8	0.60	10.00	13.50	74
10	0.68	10.00	16.00	98
12	0.75	12.00	19.00	157
14	0.66	12.00	21.00	193
16	0.70	16.00	23.50	334
18	0.75	16.00	25.00	356
20	0.80	18.00	27.50	461
24	0.89	18.00	32.00	635
30	1.03	24.00	38.75	1029
36	1.15	24.00	46.00	1463
42	1.28	30.00	53.00	1906
48	1.42	30.00	59.50	2039
54	0.90	36.00	66.25	2358

* not included in AWWA C110

All dimensions are in inches unless noted otherwise.

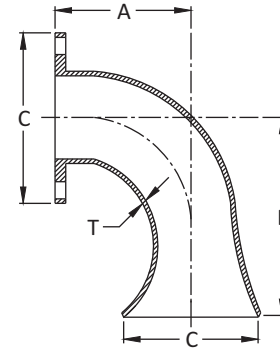
All weights are approximate in pounds unless noted otherwise.

90° FLANGE X FLARE BENDS*



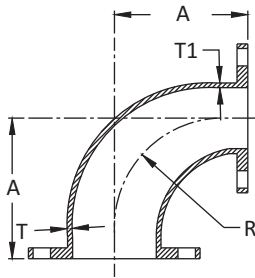
SIZE	T	A	B	C	WT
3	0.48	5.50	11.00	7.50	26
4	0.52	6.50	12.00	9.00	41
6	0.55	8.00	12.00	11.00	73
8	0.60	9.00	14.00	13.50	114
10	0.68	11.00	17.00	16.00	177
12	0.75	12.00	18.00	19.00	247
14	0.66	14.00	20.00	21.00	344
16	0.70	15.00	21.00	23.50	465
18	0.75	16.50	22.50	25.00	563
20	0.80	18.00	24.00	27.50	708
24	0.89	22.00	28.00	32.00	1107
30	1.03	25.00	32.00	38.75	1845
36	1.15	28.00	35.00	46.00	2706
42	1.28	31.00	38.00	53.00	3252
48	1.42	34.00	41.00	59.50	4218
54	0.90	39.00	46.00	66.25	3969
60	0.94	43.00	54.00	73.00	---

LONG RADIUS 90° FLANGE X FLARE BENDS*



SIZE	T	A	B	C	WT
3	0.48	7.75	13.25	7.50	32
4	0.52	9.00	14.50	9.00	53
6	0.55	11.50	15.50	11.00	96
8	0.60	14.00	19.00	13.50	159
10	0.68	16.50	22.50	16.00	252
12	0.75	19.00	25.00	19.00	375
14	0.66	21.50	29.00	21.00	410
16	0.70	24.00	32.00	23.50	550
18	0.75	26.50	35.00	25.00	700
20	0.80	29.00	38.00	27.50	880
24	0.89	34.00	44.00	32.00	1337
30	1.03	41.50	48.50	38.75	2192
36	1.15	49.00	56.00	46.00	3465
42	1.28	56.50	63.50	53.00	5151
48	1.42	64.00	71.00	59.50	6728

90° REDUCING BENDS*



SIZE	T	T1	A	R	WT
3 X 1 1/2	0.48	0.31	5.50	4.00	19
3 X 2	0.48	0.31	5.50	4.00	21
3 X 2 1/2	0.48	0.31	5.50	4.00	25
4 X 2	0.52	0.31	6.50	4.50	31
4 X 2 1/2	0.52	0.31	6.50	4.50	35
4 X 3	0.52	0.48	6.50	4.50	38
5 X 2	0.50	0.31	7.50	5.50	44
5 X 2 1/2	0.50	0.31	7.50	5.50	49
5 X 3	0.50	0.48	7.50	5.50	50
5 X 4	0.50	0.50	7.50	5.50	52
6 X 2	0.55	0.31	8.00	6.00	44
6 X 2 1/2	0.55	0.31	8.00	6.00	49
6 X 3	0.55	0.48	8.00	6.00	50
6 X 4	0.55	0.52	8.00	6.00	58
6 X 5	0.55	0.50	8.00	6.00	62
8 X 4	0.60	0.52	9.00	7.00	83
8 X 5	0.60	0.50	9.00	7.00	84

SIZE	T	T1	A	R	WT
8 X 6	0.60	0.55	9.00	7.00	95
10 X 4	0.68	0.52	11.00	9.00	107
10 X 6	0.68	0.55	11.00	9.00	128
10 X 8	0.68	0.60	11.00	9.00	153
12 X 4	0.75	0.52	12.00	10.00	146
12 X 6	0.75	0.55	12.00	10.00	165
12 X 8	0.75	0.60	12.00	10.00	191
12 X 10	0.75	0.68	12.00	10.00	223
14 X 6	0.66	0.55	14.00	11.50	148
14 X 8	0.66	0.60	14.00	11.50	208
14 X 10	0.66	0.68	14.00	11.50	262
14 X 12	0.66	0.75	14.00	11.50	274
16 X 6	0.70	0.55	15.00	12.50	225
16 X 8	0.70	0.60	15.00	12.50	242
16 X 10	0.70	0.68	15.00	12.50	347
16 X 12	0.70	0.75	15.00	12.50	378
16 X 14	0.70	0.66	15.00	12.50	331
18 X 6	0.75	0.55	16.50	14.00	260
18 X 8	0.75	0.60	16.50	14.00	281
18 X 10	0.75	0.68	16.50	14.00	322
18 X 12	0.75	0.75	16.50	14.00	368
18 X 14	0.75	0.66	16.50	14.00	373
18 X 16	0.75	0.70	16.50	14.00	411
20 X 6	0.80	0.55	18.00	15.50	322
20 X 8	0.80	0.60	18.00	15.50	348
20 X 10	0.80	0.68	18.00	15.50	387

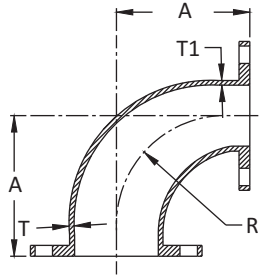
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All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

* not included in AWWA C110

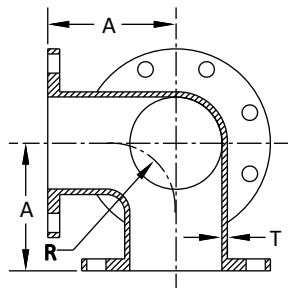
90° REDUCING BENDS (Con't)*



SIZE	T	T1	A	R	WT
20 X 12	0.80	0.75	18.00	15.50	417
20 X 14	0.80	0.66	18.00	15.50	521
20 X 16	0.80	0.70	18.00	15.50	535
20 X 18	0.80	0.75	18.00	15.50	516
24 X 6	0.89	0.55	22.00	18.50	482
24 X 8	0.89	0.60	22.00	18.50	505
24 X 10	0.89	0.68	22.00	18.50	546
24 X 12	0.89	0.75	22.00	18.50	798
24 X 14	0.89	0.66	22.00	18.50	840
24 X 16	0.89	0.70	22.00	18.50	636
24 X 18	0.89	0.75	22.00	18.50	677
24 X 20	0.89	0.80	22.00	18.50	743
30 X 12	1.03	0.75	25.00	21.50	842
30 X 14	1.03	0.66	25.00	21.50	864
30 X 16	1.03	0.70	25.00	21.50	907
30 X 18	1.03	0.75	25.00	21.50	942
30 X 20	1.03	0.80	25.00	21.50	1006
30 X 24	1.03	0.89	25.00	21.50	1205
36 X 12	1.15	0.75	28.00	24.50	1197
36 X 14	1.15	0.66	28.00	24.50	1216
36 X 16	1.15	0.70	28.00	24.50	1255

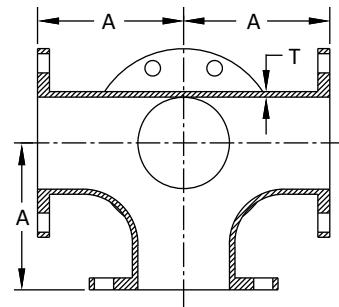
SIZE	T	T1	A	R	WT
36 X 18	1.15	0.75	28.00	24.50	1300
36 X 20	1.15	0.80	28.00	24.50	1316
36 X 24	1.15	0.89	28.00	24.50	1521
36 X 30	1.15	1.03	28.00	24.50	1788
42 X 12	1.28	0.75	31.00	27.50	1656
42 X 14	1.28	0.66	31.00	27.50	1677
42 X 16	1.28	0.70	31.00	27.50	1714
42 X 18	1.28	0.75	31.00	27.50	1758
42 X 20	1.28	0.80	31.00	27.50	1823
42 X 24	1.28	0.89	31.00	27.50	1985
42 X 30	1.28	1.03	31.00	27.50	2247
42 X 36	1.28	1.15	31.00	27.50	2602
48 X 12	1.42	0.75	34.00	30.50	2177
48 X 14	1.42	0.66	34.00	30.50	2199
48 X 16	1.42	0.70	34.00	30.50	2238
48 X 18	1.42	0.75	34.00	30.50	2276
48 X 20	1.42	0.80	34.00	30.50	2343
48 X 24	1.42	0.89	34.00	30.50	2500
48 X 30	1.42	1.03	34.00	30.50	3006
48 X 36	1.42	1.15	34.00	30.50	3117
48 X 42	1.42	1.28	34.00	30.50	3582
54 X 12	0.90	0.75	39.00	35.29	1997
54 X 14	0.90	0.66	39.00	35.29	2018
54 X 16	0.90	0.70	39.00	35.29	2059
54 X 18	0.90	0.75	39.00	35.29	2100
54 X 20	0.90	0.80	39.00	35.29	2165
54 X 24	0.90	0.89	39.00	35.29	2328
54 X 30	0.90	0.90	39.00	35.29	2591
54 X 36	0.90	0.90	39.00	35.29	2984
54 X 42	0.90	0.90	39.00	35.29	3396
54 X 48	0.90	0.90	39.00	35.29	3565

90° FLANGED SIDE OUTLET BENDS*



SIZE	T	A	R	WT
3	0.48	5.50	4.00	37
4	0.52	6.50	4.50	65
6	0.55	8.00	6.00	96
8	0.60	9.00	7.00	148
10	0.68	11.00	9.00	243
12	0.75	12.00	10.00	347
14	0.66	14.00	11.50	450

90° FLANGED SIDE OUTLET TEES*



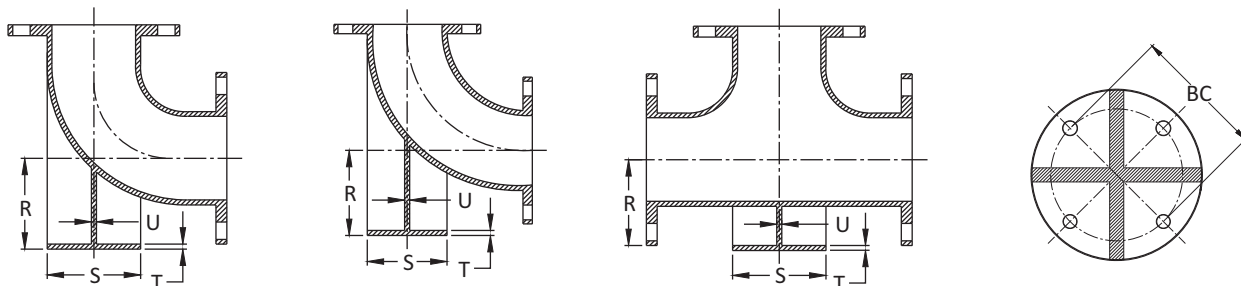
SIZE	T	A	WT
4 X 4	0.52	6.50	85
6 X 6	0.55	8.00	127
8 X 8	0.60	9.00	199
10 X 10	0.80	11.00	321
16 X 16	0.70	15.00	630
20 X 20	0.80	18.00	955
24 X 24	0.89	22.00	1482

* not included in AWWA C110

All dimensions are in inches unless noted otherwise.

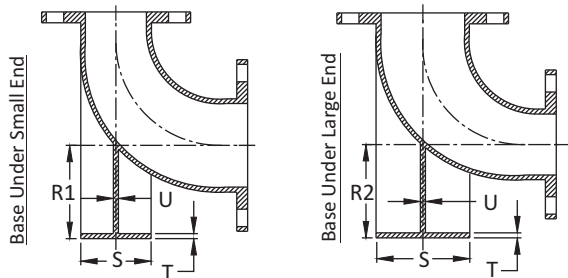
All weights are approximate in pounds unless noted otherwise.

90° LONG RADIUS BASE BENDS & BASE TEES



90° LONG RADIUS BASE BENDS & TEES					W E I G H T			BASE DRILLING DETAILS			BASE WEIGHT	
SIZE	R	S	T	U	BASE BENDS	LONG RADIUS BASE BENDS*	BASE TEES	B.C.	BOLT HOLE DIA.	NO. OF BOLTS	BENDS	TEES
*2	4.12	4.62	0.50	0.50	17	---	23	3.50	0.63	4	---	---
*2½	4.50	4.62	0.50	0.50	25	---	34	3.50	0.63	4	---	---
3	4.88	5.00	0.56	0.50	35	42	45	3.88	0.63	4	10	5
4	5.50	6.00	0.62	0.50	55	65	75	4.75	0.75	4	10	10
5	6.25	7.00	0.69	0.62	70	87	95	5.50	0.75	4	---	---
6	7.00	7.00	0.69	0.62	85	106	110	5.50	0.75	4	20	15
8	8.38	9.00	0.94	0.88	145	183	185	7.50	0.75	4	40	30
10	9.75	9.00	0.94	0.88	210	265	300	7.50	0.75	4	45	30
12	11.25	11.00	1.00	1.00	300	392	430	9.50	0.88	4	65	45
14	12.50	11.00	1.00	1.00	360	497	485	9.50	0.88	4	70	50
16	13.75	11.00	1.00	1.00	445	610	600	9.50	0.88	4	75	50
18	15.00	13.50	1.12	1.12	565	792	740	11.75	0.88	4	115	75
20	16.00	13.50	1.12	1.12	700	1208	930	11.75	0.88	4	120	75
24	18.50	13.50	1.12	1.12	1030	1775	1410	11.75	0.88	4	130	80
30	23.00	16.00	1.19	1.15	1625	2312	2270	14.25	1.00	4	190	120
36	26.00	19.00	1.25	1.15	2385	3538	3320	17.00	1.00	4	250	160
42	30.00	23.50	1.44	1.28	3465	5276	5850	21.25	1.13	4	410	270
48	34.00	25.00	1.56	1.42	4610	7305	7720	22.75	1.25	4	515	335
*54	38.00	27.50	1.69	1.55	4415	6888	6465	25.00	1.25	4	---	---

90° REDUCING BASE BENDS*



• See Base Drilling Details on the above

SIZE	R1	R2	S	T	U	WT
4 x 3	5.50	4.88	6.00	0.62	0.50	46
5 x 4	6.25	5.50	7.00	0.69	0.62	71
6 x 3	7.00	4.88	7.00	0.69	0.62	68
6 x 4	7.00	5.50	7.00	0.69	0.62	77
6 x 5	7.00	6.25	7.00	0.69	0.62	83
8 x 4	8.38	5.50	9.00	0.94	0.88	124
8 x 6	8.38	7.00	9.00	0.94	0.88	135
10 x 6	9.75	7.00	9.00	0.94	0.88	172
10 x 8	9.75	8.38	9.00	0.94	0.88	200
12 x 6	11.25	7.00	11.00	1.00	1.00	236
12 x 8	11.25	8.38	11.00	1.00	1.00	255
12 x 10	11.25	9.75	11.00	1.00	1.00	287
14 x 6	12.50	7.00	11.00	1.00	1.00	219
14 x 8	12.50	8.38	11.00	1.00	1.00	273

SIZE	R1	R2	S	T	U	WT
14 x 10	12.50	9.75	11.00	1.00	1.00	312
14 x 12	12.50	11.25	11.00	1.00	1.00	342
16 x 6	13.75	7.00	11.00	1.00	1.00	297
16 x 8	13.75	8.38	11.00	1.00	1.00	316
16 x 10	13.75	9.75	11.00	1.00	1.00	355
16 x 12	13.75	11.25	11.00	1.00	1.00	387
16 x 14	13.75	12.50	11.00	1.00	1.00	408
18 x 6	15.00	7.00	13.50	1.12	1.12	379
18 x 8	15.00	8.38	13.50	1.12	1.12	400
18 x 10	15.00	9.75	13.50	1.12	1.12	436
18 x 12	15.00	11.25	13.50	1.12	1.12	465
18 x 14	15.00	12.50	13.50	1.12	1.12	487
18 x 16	15.00	13.75	13.50	1.12	1.12	528
20 x 6	16.00	7.00	13.50	1.12	1.12	442
20 x 8	16.00	8.38	13.50	1.12	1.12	466
20 x 10	16.00	9.75	13.50	1.12	1.12	505
20 x 12	16.00	11.25	13.50	1.12	1.12	538
20 x 14	16.00	12.50	13.50	1.12	1.12	557
20 x 16	16.00	13.75	13.50	1.12	1.12	596
20 x 18	16.00	15.00	13.50	1.12	1.12	638
24 x 6	18.50	7.00	13.50	1.12	1.12	615
24 x 8	18.50	8.38	13.50	1.12	1.12	636
24 x 10	18.50	9.75	13.50	1.12	1.12	678

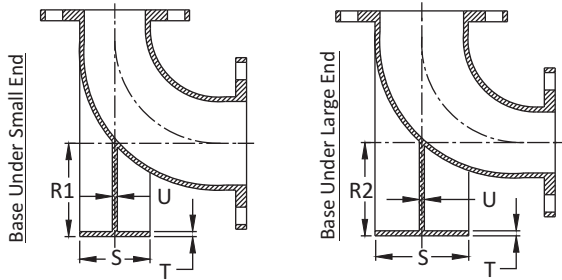
All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

* not included in AWWA C110

Con't

90° REDUCING BASE BENDS (Con't)*

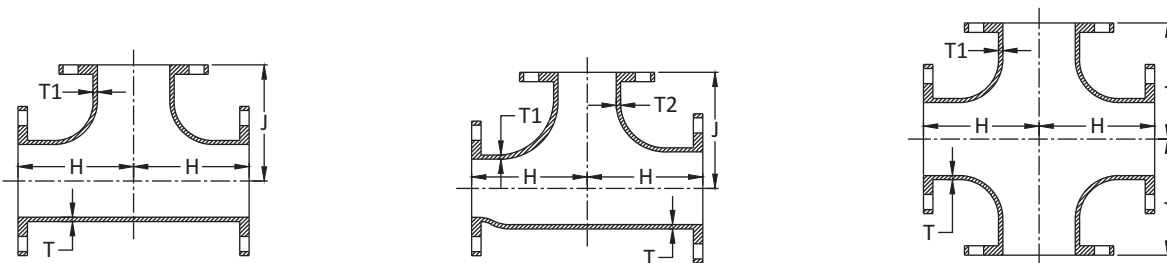


• See Base Drilling Details on the above

SIZE	R1	R2	S	T	U	WT
24 x 12	18.50	11.25	13.50	1.12	1.12	706
24 x 14	18.50	12.50	13.50	1.12	1.12	728
24 x 16	18.50	13.75	13.50	1.12	1.12	770
24 x 18	18.50	15.00	13.50	1.12	1.12	808
24 x 20	18.50	16.00	13.50	1.12	1.12	872
30 x 12	23.00	11.25	16.00	1.19	1.15	1034
30 x 14	23.00	12.50	16.00	1.19	1.15	1053
30 x 16	23.00	13.75	16.00	1.19	1.15	1095
30 x 18	23.00	15.00	16.00	1.19	1.15	1131
30 x 20	23.00	16.00	16.00	1.19	1.15	1195
30 x 24	23.00	18.50	16.00	1.19	1.15	1357
36 x 12	26.00	11.25	19.00	1.25	1.15	1448
36 x 14	26.00	12.50	19.00	1.25	1.15	1464
36 x 16	26.00	13.75	19.00	1.25	1.15	1509
36 x 18	26.00	15.00	19.00	1.25	1.15	1546
36 x 20	26.00	16.00	19.00	1.25	1.15	1612
36 x 24	26.00	18.50	19.00	1.25	1.15	1771
36 x 30	26.00	23.00	19.00	1.25	1.15	2040

SIZE	R1	R2	S	T	U	WT
42 x 12	30.00	11.25	23.50	1.44	1.28	2067
42 x 14	30.00	12.50	23.50	1.44	1.28	2085
42 x 16	30.00	13.75	23.50	1.44	1.28	2132
42 x 18	30.00	15.00	23.50	1.44	1.28	2168
42 x 20	30.00	16.00	23.50	1.44	1.28	2234
42 x 24	30.00	18.50	23.50	1.44	1.28	2393
42 x 30	30.00	23.00	23.50	1.44	1.28	2659
42 x 36	30.00	26.00	23.50	1.44	1.28	3011
48 x 12	34.00	11.25	25.00	1.56	1.42	2692
48 x 14	34.00	12.50	25.00	1.56	1.42	2713
48 x 16	34.00	13.75	25.00	1.56	1.42	2754
48 x 18	34.00	15.00	25.00	1.56	1.42	2793
48 x 20	34.00	16.00	25.00	1.56	1.42	2857
48 x 24	34.00	18.50	25.00	1.56	1.42	3018
48 x 30	34.00	23.00	25.00	1.56	1.42	3282
48 x 36	34.00	26.00	25.00	1.56	1.42	3635
48 x 42	34.00	30.00	25.00	1.56	1.42	4098
54 x 12	38.00	11.25	27.50	1.69	1.55	2665
54 x 14	38.00	12.50	27.50	1.69	1.55	2692
54 x 16	38.00	13.75	27.50	1.69	1.55	2733
54 x 18	38.00	15.00	27.50	1.69	1.55	2775
54 x 20	38.00	16.00	27.50	1.69	1.55	2840
54 x 24	38.00	18.50	27.50	1.69	1.55	3000
54 x 30	38.00	23.00	27.50	1.69	1.55	3266
54 x 36	38.00	26.00	27.50	1.69	1.55	3618
54 x 42	38.00	30.00	27.50	1.69	1.55	4074
54 x 48	38.00	34.00	27.50	1.69	1.55	4243

FLANGED TEES & CROSSES



FLANGED TEES AND CROSSES						WEIGHT	
SIZE	T	T1	T2	H	J	TEE	CROSS
*1½ X 1½ X 2	0.31	0.31	0.31	4.50	4.50	16	---
*2 X 1½ X 1½	0.31	0.31	0.31	4.50	4.50	18	---
*2 X 2	0.31	0.31	---	4.50	4.50	21	---
*2½ X 2 X 2	0.31	0.31	0.31	5.00	5.00	29	---
*2½ X 2 X 2½	0.31	0.31	0.31	5.00	5.00	30	---
*2½ X 1	0.31	0.31	---	5.00	5.00	26	---
*2½ X 1½	0.31	0.31	---	5.00	5.00	28	---
*2½ X 2½	0.31	0.31	---	5.00	5.00	32	---
*3 X 1	0.48	0.31	---	5.50	5.50	33	---
*3 X 1½	0.48	0.31	---	5.50	5.50	35	---
*3 X 2	0.48	0.31	---	5.50	5.50	38	47

FLANGED TEES AND CROSSES						WEIGHT	
SIZE	T	T1	T2	H	J	TEE	CROSS
*3 X 2½	0.48	0.31	---	5.50	5.50	39	---
3 X 3	0.48	0.48	---	5.50	5.50	40	50
*4 X 3 X 3	0.52	0.48	0.48	6.50	6.50	57	---
*4 X 2	0.52	0.31	---	6.50	6.50	53	63
*4 X 2 X 4	0.52	0.31	0.52	6.50	6.50	54	---
*4 X 2½	0.52	0.31	---	6.50	6.50	57	66
*4 X 2½ X 4	0.52	0.31	0.52	6.50	6.50	58	---
4 X 3	0.52	0.48	---	6.50	6.50	60	70
4 X 4	0.52	0.52	---	6.50	6.50	65	80
*4 X 4 X 5	0.50	0.50	0.50	7.50	7.50	76	---
*4 X 4 X 6	0.52	0.52	0.55	8.00	8.00	94	---

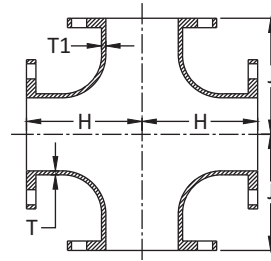
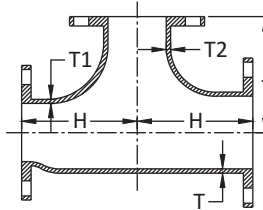
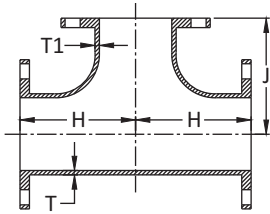
* not included in AWWA C110

Con't

All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

FLANGED TEES & CROSSES (Con't)



FLANGED TEES AND CROSSES						WEIGHT	
SIZE	T	T1	T2	H	J	TEE	CROSS
*5 X 2½	0.50	0.31	---	7.50	7.50	76	---
*5 X 4	0.50	0.50	---	7.50	7.50	79	95
*5 X 5	0.50	0.50	---	7.50	7.50	82	---
*5 X 5 X 6	0.50	0.50	0.55	8.00	8.00	91	---
*6 X 3 X 3	0.55	0.48	0.48	8.00	8.00	77	---
*6 X 3 X 5	0.55	0.48	0.50	8.00	8.00	85	---
*6 X 4 X 4	0.55	0.52	0.52	8.00	8.00	88	---
*6 X 4 X 5	0.55	0.50	0.50	8.00	8.00	89	---
*6 X 4 X 6	0.55	0.52	0.55	8.00	8.00	94	---
*6 X 5 X 2½	0.55	0.50	0.31	8.00	8.00	76	---
*6 X 5 X 3	0.55	0.50	0.48	8.00	8.00	84	---
*6 X 5 X 5	0.55	0.50	0.50	8.00	8.00	89	---
*6 X 2	0.55	0.31	---	8.00	8.00	83	92
*6 X 2½	0.55	0.31	---	8.00	8.00	84	94
6 X 3	0.55	0.48	---	8.00	8.00	85	95
6 X 4	0.55	0.52	---	8.00	8.00	90	110
6 X 5	0.55	0.50	---	8.00	8.00	91	115
6 X 6	0.55	0.55	---	8.00	8.00	95	120
*6 X 6 X 8	0.55	0.55	0.60	9.00	9.00	144	---
*8 X 4 X 8	0.60	0.52	0.60	9.00	9.00	141	---
*8 X 5 X 4	0.60	0.50	0.50	9.00	9.00	129	---
*8 X 6 X 4	0.60	0.55	0.52	9.00	9.00	134	---
*8 X 6 X 6	0.60	0.55	0.55	9.00	9.00	138	---
*8 X 6 X 8	0.60	0.55	0.60	9.00	9.00	147	---
*8 X 2½	0.60	0.31	---	9.00	9.00	132	---
*8 X 3	0.60	0.48	---	9.00	9.00	134	144
8 X 4	0.60	0.52	---	9.00	9.00	140	155
*8 X 5	0.60	0.50	---	9.00	9.00	146	163
8 X 6	0.60	0.55	---	9.00	9.00	148	167
8 X 8	0.60	0.60	---	9.00	9.00	157	198
*8 X 8 X 10	0.60	0.60	0.68	11.00	11.00	265	---
*8 X 8 X 12	0.60	0.60	0.75	12.00	12.00	310	---
*10 X 4 X 10	0.68	0.52	0.68	11.00	11.00	250	---
*10 X 6 X 4	0.68	0.55	0.52	11.00	11.00	195	---
*10 X 6 X 6	0.68	0.55	0.55	11.00	11.00	206	---
*10 X 6 X 10	0.68	0.55	0.68	11.00	11.00	257	---
*10 X 8 X 6	0.68	0.60	0.55	11.00	11.00	214	---
*10 X 8 X 8	0.68	0.60	0.60	11.00	11.00	222	---
*10 X 8 X 10	0.68	0.60	0.68	11.00	11.00	268	---
*10 X 2	0.68	0.31	---	11.00	11.00	201	---
*10 X 3	0.68	0.48	---	11.00	11.00	203	---
10 X 4	0.68	0.52	---	11.00	11.00	205	220
*10 X 5	0.68	0.50	---	11.00	11.00	213	233
10 X 6	0.68	0.55	---	11.00	11.00	215	240

FLANGED TEES AND CROSSES						WEIGHT	
SIZE	T	T1	T2	H	J	TEE	CROSS
10 X 8	0.68	0.60	---	11.00	11.00	225	265
10 X 10	0.80	0.80	---	11.00	11.00	270	330
*10 X 10 X 12	0.68	0.68	0.75	12.00	12.00	357	---
*10 X 10 X 14	0.68	0.68	0.66	14.00	14.00	375	---
*12 X 6 X 6	0.75	0.55	0.55	12.00	12.00	328	---
*12 X 6 X 8	0.75	0.55	0.60	12.00	12.00	346	---
*12 X 8 X 6	0.75	0.60	0.55	12.00	12.00	344	---
*12 X 8 X 8	0.75	0.60	0.60	12.00	12.00	292	---
*12 X 8 X 12	0.75	0.60	0.75	12.00	12.00	366	---
*12 X 10 X 6	0.75	0.68	0.55	12.00	12.00	380	---
*12 X 10 X 8	0.75	0.68	0.60	12.00	12.00	384	---
*12 X 10 X 10	0.75	0.68	0.68	12.00	12.00	349	---
*12 X 10 X 12	0.75	0.68	0.75	12.00	12.00	375	---
12 X 4	0.75	0.52	---	12.00	12.00	290	310
*12 X 5	0.75	0.50	---	12.00	12.00	292	316
12 X 6	0.75	0.55	---	12.00	12.00	295	320
12 X 8	0.75	0.60	---	12.00	12.00	310	345
12 X 10	0.87	0.80	---	12.00	12.00	360	415
12 X 12	0.87	0.87	---	12.00	12.00	385	460
*14 X 4	0.66	0.52	---	14.00	14.00	373	---
14 X 6	0.66	0.55	---	14.00	14.00	375	400
14 X 8	0.66	0.60	---	14.00	14.00	390	425
14 X 10	0.66	0.68	---	14.00	14.00	400	460
14 X 12	0.66	0.75	---	14.00	14.00	425	505
14 X 14	0.66	0.66	---	14.00	14.00	435	530
*16 X 4	0.70	0.52	---	15.00	15.00	462	---
16 X 6	0.70	0.55	---	15.00	15.00	465	490
16 X 8	0.70	0.60	---	15.00	15.00	475	520
16 X 10	0.70	0.68	---	15.00	15.00	495	555
16 X 12	0.70	0.75	---	15.00	15.00	520	605
16 X 14	0.70	0.66	---	15.00	15.00	530	620
16 X 16	0.70	0.70	---	15.00	15.00	550	665
18 X 6	0.75	0.55	---	13.00	15.50	480	505
18 X 8	0.75	0.60	---	13.00	15.50	495	535
18 X 10	0.75	0.68	---	13.00	15.50	510	560
18 X 12	0.75	0.75	---	13.00	15.50	535	610
18 X 14	0.75	0.66	---	16.50	16.50	630	720
18 X 16	0.75	0.70	---	16.50	16.50	650	765
18 X 18	0.75	0.75	---	16.50	16.50	665	795
20 X 6	0.80	0.55	---	14.00	17.00	610	635
20 X 8	0.80	0.60	---	14.00	17.00	620	665
20 X 10	0.80	0.68	---	14.00	17.00	635	685
20 X 12	0.80	0.75	---	14.00	17.00	660	735
20 X 14	0.80	0.66	---	14.00	17.00	665	745

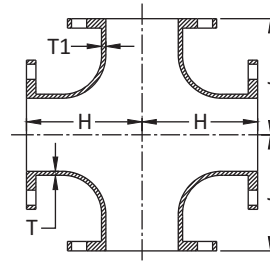
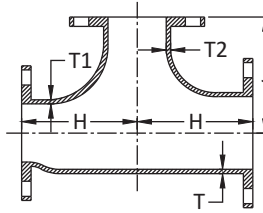
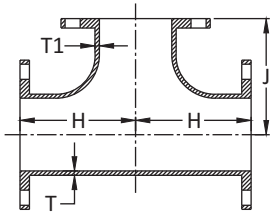
Con't

* not included in AWWA C110

All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

FLANGED TEES & CROSSES (Con't)



FLANGED TEES AND CROSSES						WEIGHT	
SIZE	T	T1	T2	H	J	TEE	CROSS
20 X 16	0.80	0.70	---	18.00	18.00	810	915
20 X 18	0.80	0.75	---	18.00	18.00	820	945
20 X 20	0.80	0.80	---	18.00	18.00	855	1015
24 X 6	0.89	0.55	---	15.00	19.00	845	875
24 X 8	0.89	0.60	---	15.00	19.00	860	895
24 X 10	0.89	0.68	---	15.00	19.00	880	930
24 X 12	0.89	0.75	---	15.00	19.00	890	960
24 X 14	0.89	0.66	---	15.00	19.00	900	975
24 X 16	0.89	0.70	---	15.00	19.00	915	1010
24 X 18	0.89	0.75	---	22.00	22.00	1220	1365
24 X 20	0.89	0.80	---	22.00	22.00	1255	1430
24 X 24	0.89	0.89	---	22.00	22.00	1330	1570
*30 X 6	1.03	0.55	---	18.00	23.00	1731	---
*30 X 8	1.03	0.60	---	18.00	23.00	1465	---
*30 X 10	1.03	0.68	---	18.00	23.00	1474	---
30 X 12	1.03	0.75	---	18.00	23.00	1490	1565
30 X 14	1.03	0.66	---	18.00	23.00	1490	1570
30 X 16	1.03	0.70	---	18.00	23.00	1505	1605
30 X 18	1.03	0.75	---	18.00	23.00	1515	1615
30 X 20	1.03	0.80	---	18.00	23.00	1540	1670
30 X 24	1.03	0.89	---	25.00	25.00	2025	2245
30 X 30	1.03	1.03	---	25.00	25.00	2150	2500
*36 X 8	1.15	0.60	---	20.00	26.00	1980	---
*36 X 10	1.15	0.68	---	20.00	26.00	2159	---
36 X 12	1.15	0.75	---	20.00	26.00	2170	2240
36 X 14	1.15	0.66	---	20.00	26.00	2175	2240
36 X 16	1.15	0.70	---	20.00	26.00	2185	2270
36 X 18	1.15	0.75	---	20.00	26.00	2190	2280
36 X 20	1.15	0.80	---	20.00	26.00	2210	2325
36 X 24	1.15	0.89	---	20.00	26.00	2255	2405
*36 X 24 X 24	1.15	0.89	0.89	28.00	28.00	2674	---
36 X 30	1.15	1.03	---	28.00	28.00	3000	3300
36 X 36	1.15	1.15	---	28.00	28.00	3160	3620
*36 X 30 X 30	1.15	1.03	1.03	28.00	28.00	2888	---
*36 X 36 X 48	1.15	1.15	1.42	34.00	34.00	4358	---
42 X 12	1.28	0.75	---	23.00	30.00	3165	3240

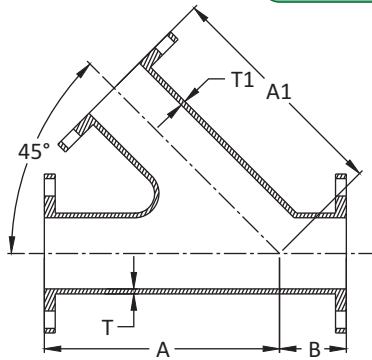
FLANGED TEES AND CROSSES						WEIGHT	
SIZE	T	T1	T2	H	J	TEE	CROSS
42 X 14	1.28	0.66	---	23.00	30.00	3170	3240
42 X 16	1.28	0.70	---	23.00	30.00	3180	3270
42 X 18	1.28	0.75	---	23.00	30.00	3185	3275
42 X 20	1.28	0.80	---	23.00	30.00	3205	3320
42 X 24	1.28	0.89	---	23.00	30.00	3245	3395
42 X 30	1.28	1.03	---	31.00	31.00	4125	4375
42 X 36	1.78	1.58	---	31.00	31.00	5360	5720
42 X 42	1.78	1.78	---	31.00	31.00	5580	6155
48 X 12	1.42	0.75	---	26.00	34.00	4315	4390
48 X 14	1.42	0.66	---	26.00	34.00	4315	4385
48 X 16	1.42	0.70	---	26.00	34.00	4330	4415
48 X 18	1.42	0.75	---	26.00	34.00	4330	4420
48 X 20	1.42	0.80	---	26.00	34.00	4350	4460
48 X 24	1.42	0.89	---	26.00	34.00	4385	4535
48 X 30	1.42	1.03	---	26.00	34.00	4455	4670
48 X 36	1.42	1.15	---	34.00	34.00	5555	5880
48 X 42	1.96	1.78	---	34.00	34.00	7195	7630
48 X 48	1.96	1.96	---	34.00	34.00	7385	8005
*54 X 12	1.05	0.75	---	29.00	37.00	4435	4576
*54 X 14	1.05	0.66	---	29.00	37.00	4435	4578
*54 X 16	1.05	0.70	---	29.00	37.00	4450	4606
*54 X 18	1.05	0.75	---	29.00	37.00	4460	4627
*54 X 20	1.05	0.80	---	29.00	37.00	4480	4669
*54 X 24	1.05	0.89	---	29.00	37.00	4515	4704
*54 X 30	1.05	0.72	---	31.00	37.00	4615	4803
*54 X 36	1.05	0.77	---	31.00	37.00	4695	4956
*54 X 42	1.05	0.88	---	39.00	39.00	5461	6211
*54 X 48	1.05	0.94	---	39.00	39.00	5850	6426
*54 X 54	1.05	1.05	---	39.00	39.00	6025	6782
*60 X 24	1.10	0.89	---	29.00	42.00	4990	6285
*60 X 36	1.10	0.77	---	33.00	42.00	6015	6338
*60 X 48	1.10	0.94	---	43.00	43.00	6923	7532
*60 X 60	1.10	1.10	---	43.00	43.00	7334	8351
*64 X 42	1.16	0.88	---	48.00	45.00	9610	10090
*64 X 64	1.16	1.16	---	48.00	48.00	10995	12863

* not included in AWWA C110

All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

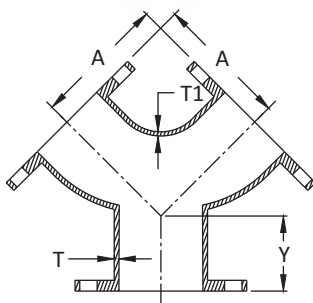
FLANGED LATERAL WYES (Con't)*



SIZE	T	T1	A	A1	B	WT
3 X 3	0.48	0.48	10.00	10.00	3.00	47
4 X 3	0.52	0.48	12.00	12.00	3.00	66
4 X 4	0.52	0.52	12.00	12.00	3.00	78
6 X 4	0.55	0.52	14.50	14.50	3.50	108
6 X 6	0.55	0.55	14.50	14.50	3.50	122
8 X 4	0.60	0.52	17.50	17.50	4.50	165
8 X 6	0.60	0.55	17.50	17.50	4.50	177
8 X 8	0.60	0.60	17.50	17.50	4.50	203
10 X 4	0.68	0.52	20.50	20.50	5.00	244
10 X 6	0.68	0.55	20.50	20.50	5.00	252
10 X 8	0.68	0.60	20.50	20.50	5.00	337
10 X 10	0.68	0.68	20.50	20.50	5.00	337
12 X 4	0.75	0.52	24.50	24.50	5.50	352
12 X 6	0.75	0.55	24.50	24.50	5.50	430
12 X 8	0.75	0.60	24.50	24.50	5.50	456
12 X 10	0.75	0.68	24.50	24.50	5.50	425
12 X 12	0.75	0.75	24.50	24.50	5.50	521
14 X 6	0.66	0.55	27.00	27.00	6.00	479
14 X 8	0.66	0.60	27.00	27.00	6.00	506
14 X 10	0.66	0.68	27.00	27.00	6.00	527
14 X 12	0.66	0.75	27.00	27.00	6.00	571
14 X 14	0.66	0.66	27.00	27.00	6.00	605
16 X 6	0.70	0.55	30.00	30.00	6.50	624
16 X 8	0.70	0.60	30.00	30.00	6.50	646
16 X 10	0.70	0.68	30.00	30.00	6.50	738
16 X 12	0.70	0.75	30.00	30.00	6.50	792
16 X 14	0.70	0.66	30.00	30.00	6.50	757
16 X 16	0.70	0.70	30.00	30.00	6.50	806
18 X 8	0.75	0.60	32.00	32.00	7.00	784
18 X 10	0.75	0.68	32.00	32.00	7.00	813
18 X 12	0.75	0.75	32.00	32.00	7.00	853
18 X 14	0.75	0.66	32.00	32.00	7.00	887
18 X 16	0.75	0.70	32.00	32.00	7.00	938
18 X 18	0.75	0.75	32.00	32.00	7.00	982

SIZE	T	T1	A	A1	B	WT
20 X 10	0.80	0.68	35.00	35.00	8.00	1027
20 X 12	0.80	0.75	35.00	35.00	8.00	1068
20 X 14	0.80	0.66	35.00	35.00	8.00	1114
20 X 16	0.80	0.70	35.00	35.00	8.00	1159
20 X 20	0.80	0.80	35.00	35.00	8.00	1268
24 X 8	0.89	0.60	40.50	40.50	9.00	1427
24 X 10	0.89	0.68	40.50	40.50	9.00	1460
24 X 12	0.89	0.75	40.50	40.50	9.00	1553
24 X 14	0.89	0.66	40.50	40.50	9.00	1561
24 X 16	0.89	0.70	40.50	40.50	9.00	1619
24 X 18	0.89	0.75	40.50	40.50	9.00	1682
24 X 20	0.89	0.80	40.50	40.50	9.00	1754
24 X 24	0.89	0.89	40.50	40.50	9.00	1905
30 X 12	1.37	0.75	49.00	49.00	10.00	2547
30 X 14	1.37	0.66	49.00	49.00	10.00	2593
30 X 16	1.37	0.70	49.00	49.00	10.00	2646
30 X 18	1.37	0.96	49.00	49.00	10.00	2690
30 X 20	1.37	1.03	49.00	49.00	10.00	2764
30 X 24	1.37	1.16	49.00	49.00	10.00	2918
30 X 30	1.37	1.37	52.50	52.50	18.25	4131
36 X 12	1.58	0.75	60.00	60.00	19.50	4494
36 X 14	1.58	0.66	60.00	60.00	19.50	4547
36 X 16	1.58	0.89	60.00	60.00	19.50	4008
36 X 18	1.58	0.96	60.00	60.00	19.50	4675
36 X 20	1.58	1.03	60.00	60.00	19.50	4754
36 X 24	1.58	1.16	60.00	60.00	19.50	4926
36 X 30	1.58	1.37	56.00	56.00	15.25	5255
36 X 36	1.58	1.58	60.00	60.00	19.50	5742
42 X 20	1.78	1.03	60.00	60.00	11.75	6683
42 X 24	1.78	1.16	60.00	60.00	11.75	6851
42 X 30	1.78	1.37	63.00	63.00	11.75	7189
42 X 36	1.78	1.58	66.00	66.00	12.00	7671
42 X 42	1.78	1.78	71.00	71.00	15.00	9186
48 X 18	1.96	0.96	65.00	65.00	9.00	7006
48 X 24	1.96	1.16	58.00	64.00	5.00	8700
48 X 30	1.96	1.37	63.00	68.00	9.00	5581
48 X 36	1.96	1.58	72.00	72.00	7.00	9517
48 X 42	1.96	1.78	77.00	77.00	12.00	11032
48 X 48	1.96	1.96	77.00	77.00	16.00	12117
54 X 24	1.55	0.89	67.00	67.00	5.00	6228
54 X 30	1.55	1.03	72.00	74.00	9.00	7484
54 X 36	1.55	1.15	76.00	76.00	9.00	7606
54 X 42	1.55	1.28	81.00	81.00	14.00	8938
54 X 48	1.55	1.42	86.00	86.00	18.00	9489
54 X 54	1.55	1.55	90.00	90.00	20.00	11782
60 X 30	1.67	1.03	76.00	79.00	5.00	9048
64 X 36	1.96	1.58	80.00	86.00	5.00	12635

FLANGED TRUE WYES*



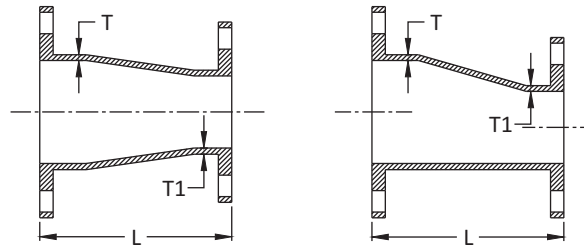
SIZE	T	T1	A	Y	WT
3 X 3 X 3	0.48	0.48	5.50	2.50	34
4 X 4 X 4	0.52	0.52	6.50	3.00	53
6 X 4 X 4	0.55	0.52	8.00	3.50	77
6 X 6 X 6	0.55	0.55	8.00	3.50	81
8 X 6 X 6	0.60	0.55	9.00	4.50	122
8 X 8 X 8	0.60	0.60	9.00	4.50	126
10 X 8 X 8	0.68	0.60	11.00	5.00	158
12 X 12 X 12	0.75	0.75	12.00	5.50	303
16 X 16 X 16	0.70	0.70	15.00	6.50	458

All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

* not included in AWWA C110

FLANGED REDUCERS



SIZE	T	T1	L	WT
*2 X 1½	0.31	0.31	5.50	11
*2½ X 2	0.31	0.31	5.50	15
*3 X 2	0.48	0.31	6.00	18
*3 X 2½	0.48	0.31	6.00	23
*4 X 2	0.52	0.31	7.00	27
*4 X 2½	0.52	0.31	7.00	29
4 X 3	0.52	0.48	7.00	30
*5 X 2	0.50	0.31	8.00	34
*5 X 2½	0.50	0.31	8.00	36
*5 X 3	0.50	0.48	8.00	39
*5 X 4	0.50	0.50	8.00	42
*6 X 1½	0.55	0.31	9.00	35
*6 X 2	0.55	0.31	9.00	38
*6 X 2½	0.55	0.31	9.00	41
*6 X 3	0.55	0.48	9.00	43
6 X 4	0.55	0.52	9.00	45
*6 X 5	0.55	0.52	9.00	55
*8 X 3	0.60	0.48	11.00	63
8 X 4	0.60	0.52	11.00	65
*8 X 5	0.60	0.52	11.00	72
8 X 6	0.60	0.55	11.00	75
10 X 3	0.68	0.48	12.00	81
10 X 4	0.68	0.52	12.00	85
10 X 6	0.68	0.55	12.00	90
10 X 8	0.68	0.60	12.00	110
12 X 4	0.75	0.52	14.00	120
*12 X 5	0.75	0.50	14.00	125
12 X 6	0.75	0.55	14.00	130
12 X 8	0.75	0.60	14.00	145
12 X 10	0.75	0.68	14.00	170
14 X 6	0.66	0.55	16.00	155
14 X 8	0.66	0.60	16.00	175
14 X 10	0.66	0.68	16.00	190
14 X 12	0.66	0.75	16.00	220
16 X 6	0.70	0.55	18.00	190
16 X 8	0.70	0.60	18.00	210
16 X 10	0.70	0.68	18.00	235
16 X 12	0.70	0.75	18.00	265
16 X 14	0.70	0.66	18.00	280
18 X 8	0.75	0.60	19.00	240

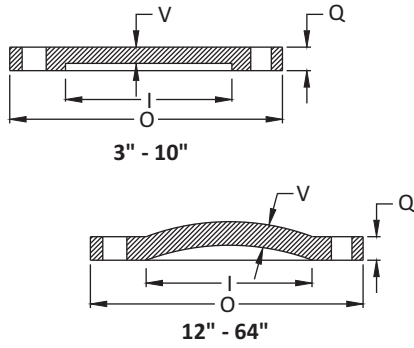
SIZE	T	T1	L	WT
18 X 10	0.75	0.68	19.00	265
18 X 12	0.75	0.75	19.00	295
18 X 14	0.75	0.66	19.00	310
18 X 16	0.75	0.70	19.00	340
*20 X 8	0.80	0.60	20.00	293
20 X 10	0.80	0.68	20.00	310
20 X 12	0.80	0.75	20.00	345
20 X 14	0.80	0.66	20.00	355
20 X 16	0.80	0.70	20.00	390
20 X 18	0.80	0.75	20.00	410
*24 X 10	0.89	0.68	24.00	454
24 X 12	0.89	0.75	24.00	480
24 X 14	0.89	0.66	24.00	490
24 X 16	0.89	0.70	24.00	525
24 X 18	0.89	0.75	24.00	550
24 X 20	0.89	0.80	24.00	590
*30 X 8	1.03	0.60	30.00	706
*30 X 12	1.03	0.75	30.00	734
*30 X 14	1.03	0.66	30.00	758
*30 X 16	1.03	0.70	30.00	775
30 X 18	1.03	0.75	30.00	810
30 X 20	1.03	0.80	30.00	870
30 X 24	1.03	0.89	30.00	970
*36 X 16	1.15	0.70	36.00	1112
36 X 20	1.15	0.80	36.00	1230
36 X 24	1.15	0.89	36.00	1345
36 X 30	1.15	1.03	36.00	1555
*42 X 20	1.28	0.80	42.00	1719
42 X 24	1.28	0.89	42.00	1820
42 X 30	1.28	1.03	42.00	2060
42 X 36	1.28	1.15	42.00	2345
48 X 30	1.42	1.03	48.00	2625
48 X 36	1.42	1.15	48.00	2950
48 X 42	1.42	1.28	48.00	3320
*54 X 24	0.90	0.89	32.00	1823
*54 X 30	0.90	0.61	32.00	1627
*54 X 36	0.90	0.66	28.00	1681
*54 X 42	0.90	0.76	25.00	1808
*54 X 48	0.90	0.80	18.00	1705
*60 X 54	0.94	0.90	15.00	2059

* not included in AWWA C110

All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

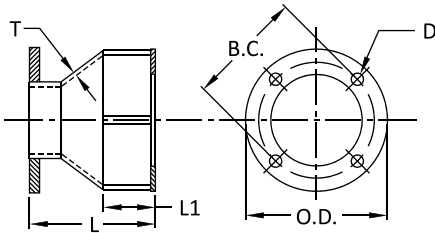
BLIND FLANGES*



SIZE	O	Q	V	I	WT
10	16.00	1.19	1.12	10.00	65
12	19.00	1.25	0.81	12.00	86
14	21.00	1.38	0.88	14.00	123
16	23.50	1.44	1.00	16.00	146
18	25.00	1.56	1.06	18.00	167
20	27.50	1.69	1.12	20.00	249
24	32.00	1.88	1.25	24.00	321
30	38.75	2.12	1.44	30.00	504
36	46.00	2.38	1.62	36.00	962
42	53.00	2.62	1.81	42.00	1305
48	59.50	2.75	2.00	48.00	1742
54	66.25	3.00	2.25	54.00	2233
60	73.00	3.12	2.38	60.00	2847
64	80.00	3.38	2.56	64.00	3746

SIZE	O	Q	V	I	WT
3	7.50	0.75	0.69	3.00	10
4	9.00	0.94	0.88	4.00	18
6	11.00	1.00	0.94	6.00	27
8	13.50	1.12	1.06	8.00	45

SLUDGE SHOE*



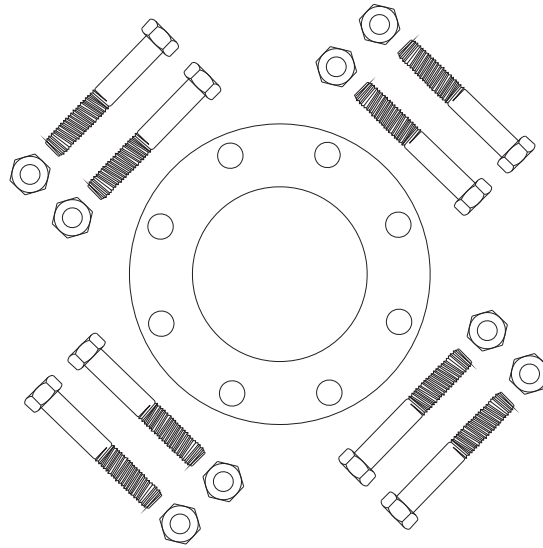
SIZE	T	O.D.	B.C.	L	L1	BOLT HOLE DIA (D)	WT
6	0.55	9.50	7.88	12.00	6.00	0.88	47
8	0.60	11.75	10.12	12.00	6.00	0.88	66

All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

* not included in AWWA C110

FLANGE ACCESSORIES PACK*



- Hex Bolts** : Per ANSI/ASME B18.2.1
Material Per ASTM A307 Grade B, Zinc Plated
- Hex Nuts** : Per ANSI/ASME B18.2.2
Material Per ASTM A563 Grade A or B, Zinc Plated
- Gaskets** : 1/8" Thick Full Face Per ANSI/AWWA C110/A21.10 and ANSI/AWWA C111/A21.11
Material Per ASTM D 1330 Grade II or ASTM D 2000 AA, Color RED (Temperature : 20° F to 170° F)

SIZE	BOLTS	QTY.	WT
1½	½ X 2	4	1.1
2	5/8 X 2 ¼	4	1.6
2½	5/8 X 2 ½	4	1.9
3	5/8 X 2 ½	4	2.5
4	5/8 X 3	8	3.3
5	¾ X 3	8	5.2
6	¾ X 3 ½	8	6
8	¾ X 3 ½	8	7
10	7/8 X 4	12	14
12	7/8 X 4	12	16
14	1 X 4 ½	12	20
16	1 X 4 ½	16	27
18	1 1/8 X 5	16	38
20	1 1/8 X 5	20	46
24	1 ¼ X 5 ½	20	64
30	1 ¼ X 6 ½	28	98
36	1 ½ X 7	32	173
42	1 ½ X 7 ½	36	216
48	1 ½ X 8	44	265
54	1 ¾ X 8 ½	44	393
60	1 ¾ X 9	52	504
64	1 ¾ X 9	52	507

* not included in AWWA C110

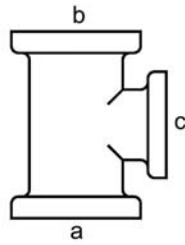
All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.

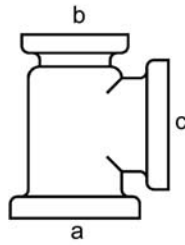
DESIGNATING OUTLETS OF REDUCING FITTINGS

METHOD OF DESIGNATING OUTLETS OF REDUCING FITTINGS FOR SPECIFICATIONS

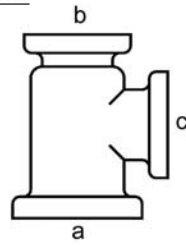
Reducing Tees



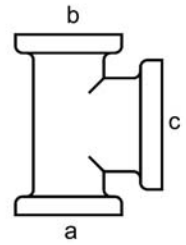
Reducing on Outlet



Reducing on One Run

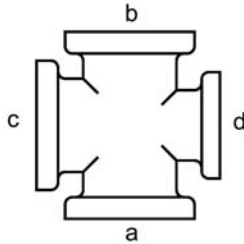


Reducing on One Run and Outlet

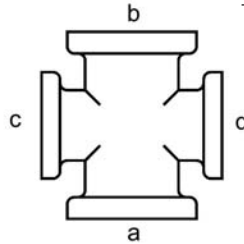


Reducing on Both Runs (Bull Head)

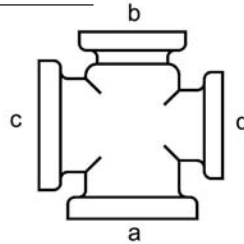
Reducing Crosses



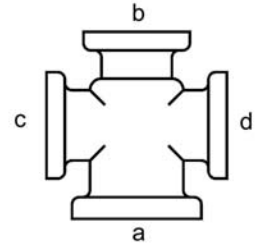
Reducing on One Outlet



Reducing on Both Outlets

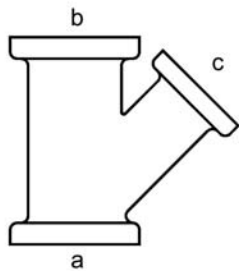


Reducing on One Run and Outlet

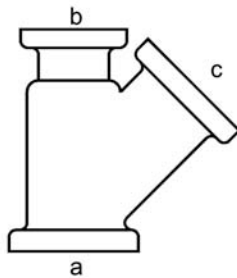


Reducing on One Run and Both Outlets

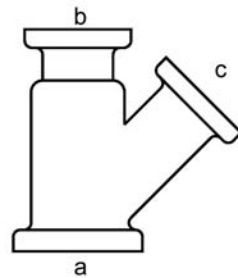
Reducing Laterals



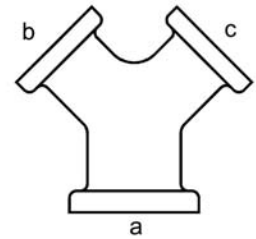
Reducing on Branch



Reducing on One Run

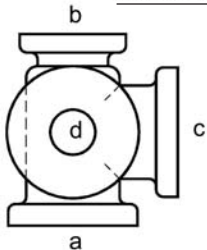


Reducing on One Run and Branch

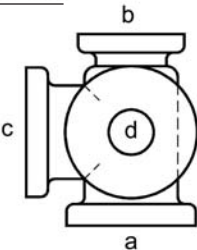


True Y

Side Outlet Tee

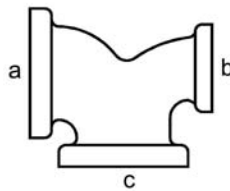


Right Hand

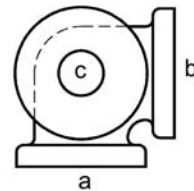


Left Hand

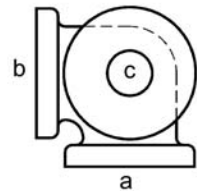
Double Branch Elbow



Side Outlet 90 deg. Elbow



Right Hand

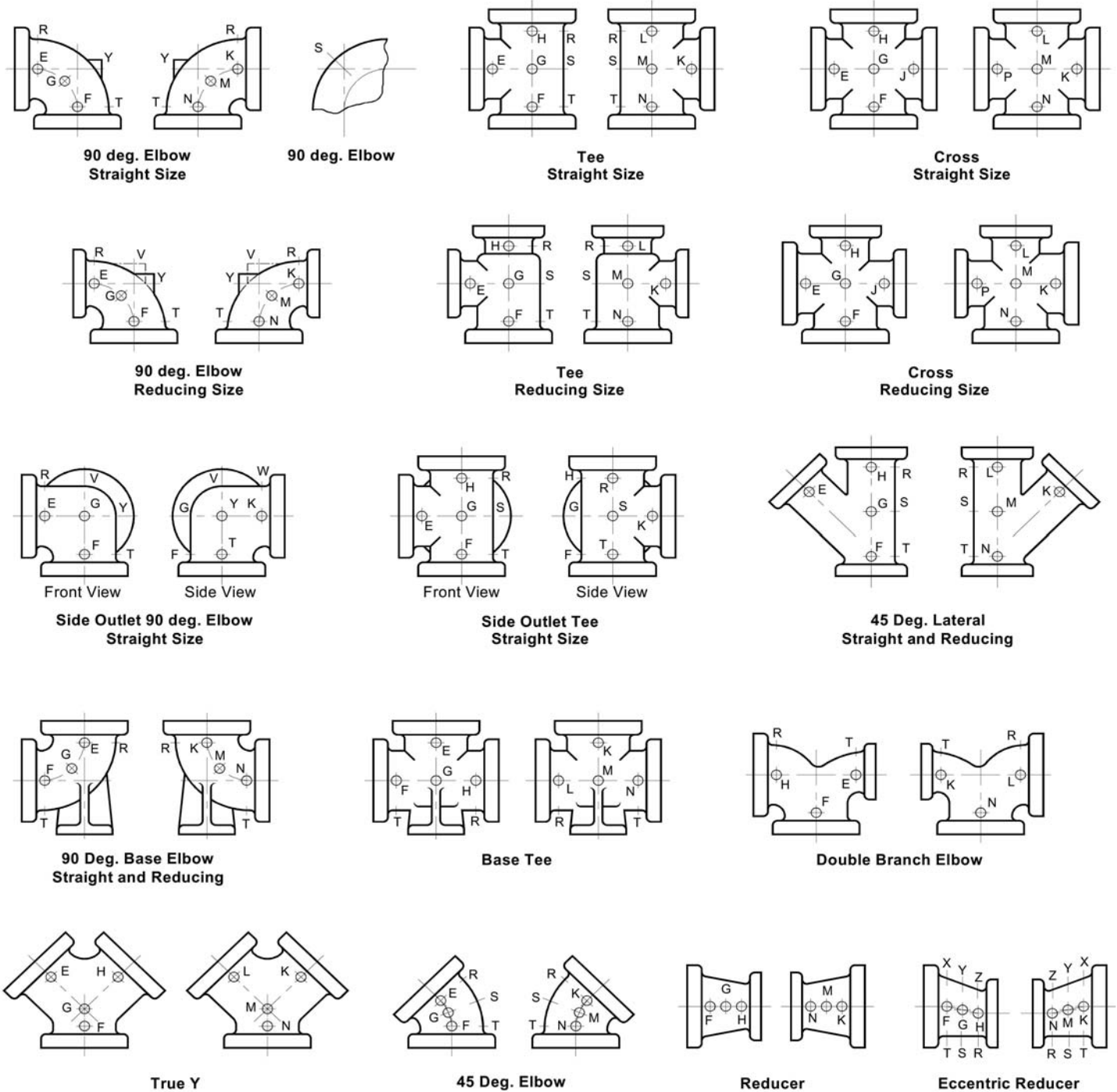


Left Hand

The Largest opening establishes the basic size of a reducing fitting. The largest opening is named first, except for bull head tees which are reducing on both runs and 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.

METHOD OF DESIGNATING LOCATION OF TAPPED HOLES AND/OR BOSSES WHEN SPECIFIED



* not included in AWWA C110

The above illustrations 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).

SIZE	MAX. TAP SIZE WITHOUT BOSS - C110*
3 - 4	3/8"
6 - 8	3/4"
10	1"
12	2"
14	1"
16	1-1/4"
18 - 30	2"
36	2-1/2"
42 - 64	4"

* Excluding Positions "Y" and "V". Those will always require boss. Not all tap locations are possible due to geometric conditions. Please contact SIP for technical assistance of nonstandard applications.

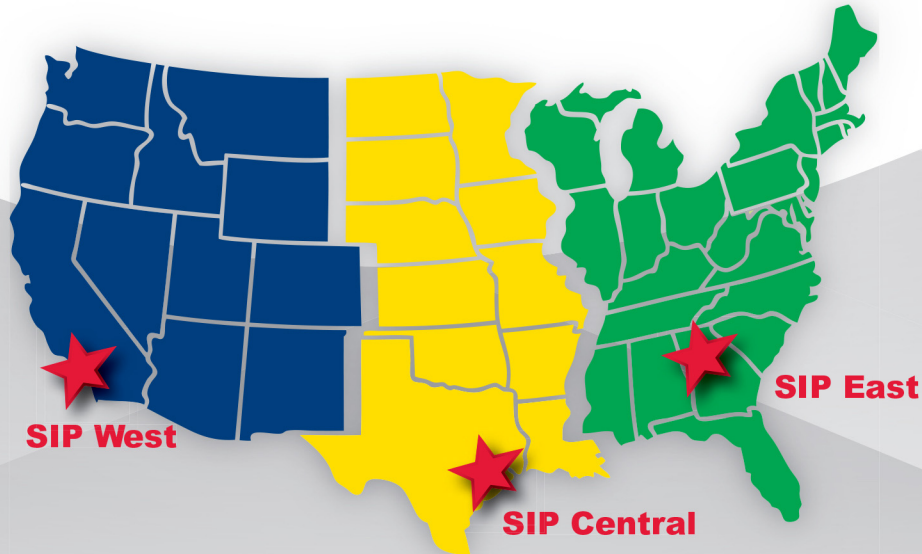
All dimensions are in inches unless noted otherwise.

All weights are approximate in pounds unless noted otherwise.



SIP Industries

Quality Manufacturers Since 1960



PRODUCT LINE

AWWA DI Fittings & Accessories

- C153 Compact MJ Fittings and Acc. 2" - 64"
- C110 Full Body MJ Fittings 2" - 64"
- C153 Trim Tyton® Push-On Fittings 4" - 24"
- C110 Flange Fittings 2" - 64"
- MJ x MJ Adapter for Connecting MJ Bells 3" - 24"
- Stainless Steel & Blue T-Bolts
- Made in India, China & Mexico
- Bare, Cement, Zinc, FBE & Other Linings

Joint Restraint System

- EZD Joint Restraint for DI Pipe 3" - 48"
- EZDTP Joint Restraint Tandem for DI Pipe 3" - 48"
- EZDPTP Joint Restraint for Push-On Joints DI Pipe 3" - 48"
- Ductile Iron Retainer Glands 3" - 30"
- FAR / FAH Flange Adapter for DI Pipe 3" - 48"
- EZFA Restrained Flange Adapter for DI and PVC Pipe 3" - 36"
- EZPVC Joint Restraint for PVC Pipe 3" - 36"
- ULTRA Joint Restraint for PVC Pipe 4" - 12"
- EZPVCPTP Joint Restraint for Push-On Joints PVC Pipe 14" - 36"
- PTPVC Pipe to Pipe Restraint 4" - 48"
- PTPDF Pipe to MJ Fittings Restraint 4" - 48"
- PTPFC Pipe to PVC Fittings Restraint 4" - 12"
- Made in China & USA
- EZ Shield or Shop Coating

Municipal Construction Castings

- Manhole Rings and Cover
- Frames and Grates
- Valve Boxes and Service Boxes
- Water Meter Covers and Boxes
- Cleanout and Monument Boxes
- Detectable Warning Plates
- Extension Rings
- Trench Grates and Tree Grates
- Made in India & USA

Fabrication Products for DI Pipe

- High Hub Flanges Class 150 and 250. 3" - 64"
- Threaded Bell Flanges 3" - 48"
- Anchor Flanges 3" - 60"
- Filler Flanges 4" - 30"

Other Products and Services

- All Thread Rod
- Pipe Lube and Hydraulic Cement
- Socket Clamps and Lugs
- Flange Packs
- OEM Castings



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