



## Grinnell Grooved Fittings Ductile Iron and Fabricated Steel

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### General Description

Grooved fittings provide an economical and efficient method of changing direction, adding an outlet, reducing, or capping piping systems. Grooved fittings are available in ductile iron or fabricated steel as indicated.

#### NOTICE

The GRINNELL Fittings described herein must be installed and maintained in compliance with this document, in addition to the standards of any other authorities having jurisdiction. Failure to do so may result in serious personal injury or impair the performance of these devices.

Never remove any piping component nor correct or modify any piping deficiencies without first de-pressurizing

and draining the system. Failure to do so may result in serious personal injury, property damage, and/or impaired device performance.

It is the designer's responsibility to select products suitable for the intended service and to ensure that pressure ratings and performance data are not exceeded. Verify material and gasket selection for compatibility with the specific application. Always read and understand the installation instructions.

The owner is responsible for maintaining their mechanical system and devices in proper operating condition. Contact the installing contractor or device manufacturer with any questions.

For parts installed in accordance with Bureau Veritas rules and regulations, a one-time only field-test is required to a maximum working pressure of 1-1/2 times the rated pressure, as per BV NR 467, Pt. C, Ch. 1, Sec. 10, [20.4.2.], where applicable. Tests are to be attended by a local BV Surveyor.

### Technical Data

#### Approvals

UL, FM, ULC, VdS, LPCB, BV\*

\*Bureau Veritas (BV) Approval under certificate number 13377/BO BV applies only to Figures 201, 210, 219, 260, 301, 303, 311, 312, 321, 327, 341, and 350.

#### NOTICE

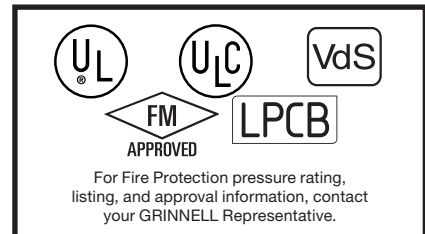
Grooved Fabricated Fittings are UL and ULC Listed and FM Approved when produced in GRINNELL US manufacturing facilities. These fittings can be identified by the agency markings on the fittings. VdS Approval and LPCB Certification are not required for fabricated fittings provided they are manufactured with pipe meeting the agency standards.

#### Maximum Working Pressure

Refer to technical data sheet for coupling pressure rating.

#### Friction Resistance

Refer to Table 31 on Page 64.



For warranty terms and conditions, visit www.grinnell.com

#### Material

##### • Cast

Ductile iron conforming to ASTM A 536, Grade 65-45-12  
Figures: 201, 210, 211, 212, 219, 221, 227, 250, 251, and 260  
Long Radius Elbows: 201LR and 210LR

##### • Fabricated Steel

Carbon Steel conforming to ASTM A 53, ASTM A 135, and ASTM A 795  
Figures: 310, 311, 312, 314, 315, 319, 320, 321, 323, 324, 325, 327, 330, 331, 341, 342, 350, 351, 360, 372, 380, 391, 392, 393, 395, 397, 398, 399

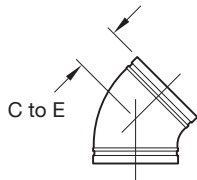
Long Radius Elbows: 301LR and 310LR, 3D, 5D, and 6D

#### Wall Thickness

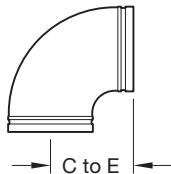
Sizes 1" - 10" Schedule 40  
Sizes 12" - 24" Standard Wall 0.375

#### Protective Coatings

- Non-lead orange paint
- RAL red (optional) non-lead paint
- Hot dipped galvanized conforming to ASTM A 153



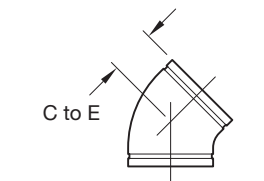
**FIGURE 201  
 CAST 45° ELBOW**



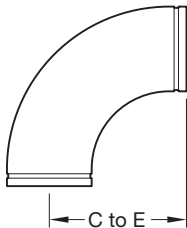
**FIGURE 210  
 CAST 90° ELBOW**

Nominal Pipe Size		Figure 201 Cast 45° Elbow		Figure 210 Cast 90° Elbow	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
1-1/4 32	1.660 42,4	1.75 44,5	0.9 0,4	2.75 69,9	1.0 0,5
1-1/2 40	1.900 48,3	1.75 44,5	0.9 0,4	2.75 69,9	1.3 0,6
2 50	2.375 60,3	2.00 50,8	1.3 0,6	3.25 82,6	1.8 0,8
2-1/2 65	2.874 73,0	2.25 57,2	2.1 1,0	3.75 95,3	3.1 1,4
3 76,1	3.000 76,1	2.25 57,2	2.2 1,0	3.75 95,3	3.2 1,5
4 80	3.500 88,9	2.50 63,5	3.5 1,6	4.25 108,0	4.8 2,2
5 100	4.500 114,3	3.000 76,2	5.5 2,5	5.00 127,0	7.5 3,4
6 139,7	5.500 139,7	3.25 82,6	7.7 3,5	5.50 139,7	11.3 5,1
8 125	5.563 141,3	3.25 82,6	8.1 3,7	5.50 139,7	11.6 5,3
10 165,1	6.500 165,1	3.50 88,9	11.0 5,0	6.50 165,1	16.9 7,7
12 150	6.625 168,3	3.50 88,9	11.2 5,1	6.50 165,1	16.6 7,5
14 200	8.625 219,1	4.25 108,0	19.0 8,6	7.75 196,9	29.6 13,4
16 250	10.750 273,0	4.75 120,7	28.0 12,7	9.00 228,6	48.5 22,0
18 300	12.750 323,9	5.250 133,4	48.0 22,0	10.00 254,0	66.4 30,1

**TABLE 1  
 FIGURES 201 AND 210 CAST ELBOWS  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 301  
 FABRICATED 45° ELBOW**



**FIGURE 310  
 FABRICATED 90° ELBOW**

Nominal Pipe Size		Figure 301 Fabricated 45° Elbow		Figure 310 Fabricated 90° Elbow	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
14 350	14 355,6	5.75 146,1	101.8 46,17	14 355,6	49.5 22,45
16 400	16 406,4	6.625 168,4	133.1 60,37	16 406,4	62.8 28,48
18 450	18 457,2	7.46 189,5	168.7 76,52	18 457,2	80.2 36,37
20 500	20 508,0	8.28 210,3	208.4 94,52	20 508,0	98.9 44,86
24 600	24 609,6	9.94 252,5	299 135,62	24 609,6	144.6 65,58

**TABLE 2  
 FIGURES 301 AND 310 FABRICATED ELBOWS  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 201LR Cast 45° Elbow		Figure 301LR Fabricated 45° Elbow		Figure 210LR Cast 90° Elbow		Figure 310LR Fabricated 90° Elbow	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
1-1/4 32	1.660 42,4	-	-	2.50 63,5	0.9 0,4	-	-	3.88 98,6	1.1 0,5
1-1/2 40	1.900 48,3	-	-	2.50 63,5	1.0 0,5	-	-	4.25 108,0	1.4 0,6
2 50	2.375 60,3	-	-	2.75 69,9	1.5 0,7	4.38 111,3	2.4 1,1	4.38 111,3	2.1 0,9
2-1/2 65	2.874 73,0	-	-	3.00 76,2	2.6 1,2	5.00 127,0	5.1 2,3	5.75 146,0	3.9 1,8
76,1mm 65	3.000 76,1	-	-	3.00 76,2	3.1 1,4	5.00 127,0	4.4 2,0	5.75 146,0	2.9 1,3
3 80	3.500 88,9	-	-	3.38 85,9	4.6 2,1	5.88 149,4	6.6 3,0	5.88 149,4	6.1 2,8
108,0mm 100	4.252 108,0	-	-	4.00 101,6	3.7 1,7	-	-	7.50 190,5	6.1 2,8
4 100	4.500 114,3	-	-	4.00 101,6	7.5 3,4	7.50 191,0	11.6 5,3	7.50 190,5	11.0 4,9
133,0mm 125	5.250 133,0	-	-	5.00 127,0	6.7 3,0	-	-	9.50 241,3	11.0 4,9
139,7mm 125	5.500 139,7	-	-	5.00 127,5	12.5 5,7	9.50 241,3	19.0 8,6	9.50 241,3	14.3 6,5
5 125	5.563 141,3	-	-	5.00 127,5	12.5 5,7	9.50 241,3	20.0 9,1	9.50 241,3	18.7 8,5
159,0mm 150	6.250 159,0	-	-	5.50 139,7	9.9 4,5	-	-	10.75 273,1	16.7 7,6
165,1mm 150	6.500 165,1	-	-	5.50 139,7	12.0 5,4	10.75 273,1	26.4 12,0	10.75 273,1	19.2 8,7
6 150	6.625 168,3	-	-	5.50 139,7	12.0 5,4	10.75 273,1	29.5 13,4	10.75 273,1	27.3 12,4
216,3mm 200	8.516 216,3	-	-	7.25 184,2	21.8 9,9	-	-	15.00 381,0	38.4 17,4
8 200	8.625 219,1	-	-	7.25 184,2	34.0 15,4	14.25 362,0	62.1 28,2	15.00 381,0	53.8 24,4
267,4mm 250	10.528 267,4	-	-	8.50 215,9	38.5 17,5	-	-	18.00 457,2	67.9 30,8
10 250	10.750 273,0	-	-	8.50 215,9	56.0 25,4	-	-	18.00 457,2	95.4 43,3
318,5mm 300	12.539 318,5	-	-	10.00 254,0	56.1 25,4	-	-	21.00 533,4	99.1 44,9
12 300	12.750 323,9	-	-	10.00 254,0	98.0 44,5	-	-	21.00 533,4	139.5 63,2
14 350	14.000 355,6	8.75 228,3	60.0 27,2	8.75 222,3	97.4 44,1	21.00 533,4	131.0 59,4	21.00 533,4	154.1 69,9
16 400	16.000 406,4	10.00 254,0	97.0 44,0	10.00 254,0	239.2 108,4	24.00 609,6	180.0 81,6	24.00 609,6	201.6 91,4
18 450	18.000 457,2	-	-	11.25 285,8	303.0 137,4	-	-	27.00 685,8	255.5 115,9
20 500	20.000 508,0	-	-	12.50 317,5	414.0 187,8	-	-	30.00 762,0	304.0 137,9
24 600	24.000 609,6	-	-	15.00 381,0	540.0 244,9	-	-	36.00 914,4	453.8 205,8

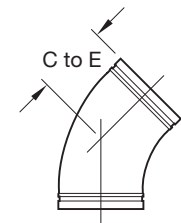


FIGURE 201LR  
CAST 45°  
LONG RADIUS ELBOW

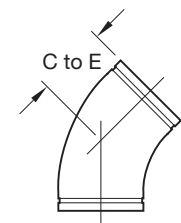


FIGURE 301LR  
FABRICATED 45°  
LONG RADIUS ELBOW

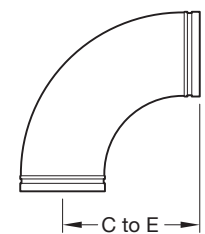


FIGURE 210LR  
CAST 90°  
LONG RADIUS ELBOW

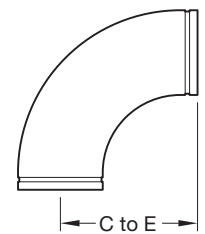
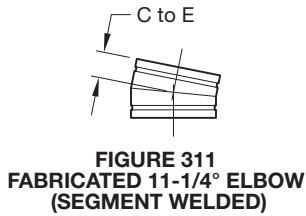
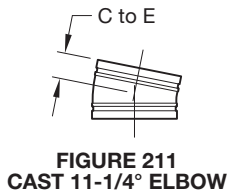


FIGURE 310LR  
FABRICATED 90°  
LONG RADIUS ELBOW

**TABLE 3**  
**FIGURES 201LR, 301LR, 210LR, AND 310LR CAST AND FABRICATED LONG RADIUS ELBOWS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		Figure 211 Cast 11-1/4° Elbow		Figure 311 Fabricated 11-1/4° Elbow	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
1-1/4 32	1.660 42,4	1.38 35,1	0.7 0,3	1.38 35,1	0.5 0,2
1-1/2 40	1.900 48,3	1.38 35,1	0.8 0,4	1.38 35,1	0.5 0,2
2 50	2.375 60,3	1.38 35,1	1.1 0,5	1.38 35,1	0.7 0,3
2-1/2 65	2.874 73,0	1.50 38,1	1.6 0,7	1.50 38,1	1.3 0,6
76,1mm 65	3.000 76,1	1.50 38,1	1.7 0,7	1.50 38,1	0.9 0,4
3 80	3.500 88,9	1.50 38,1	2.2 1,0	1.50 38,1	1.7 0,7
108,0mm 100	4.252 108,0	-	-	1.75 44,5	1.6 0,7
4 100	4.500 114,3	1.75 44,5	3.4 1,5	1.75 44,5	2.8 1,3
133,0mm 125	5.250 159,0	-	-	2.00 50,8	2.5 1,1
139,7mm 125	5.500 139,7	2.00 50,8	5.1 2,3	2.00 50,8	3.3 1,5
5 125	5.563 141,3	2.00 50,8	5.2 2,4	2.00 50,8	4.4 2,0
159,0mm 150	6.250 159,0	-	-	2.00 50,8	3.4 1,5
165,1mm 150	6.500 165,1	2.00 50,8	6.4 2,9	2.00 50,8	4.0 1,8
6 150	6.625 168,3	2.00 50,8	6.5 2,9	2.00 50,8	5.7 2,6
216,3mm 200	8.516 216,3	-	-	2.00 50,8	6.0 2,7
8 200	8.625 219,1	2.00 50,8	9.2 4,2	2.00 50,8	8.6 4,0
267,4mm 250	10.528 267,4	-	-	2.13 54,1	9.2 4,2
10 250	10.750 273,0	-	-	2.13 54,1	13.2 6,0
318,5mm 300	12.539 318,5	-	-	2.25 57,2	12.2 5,5
12 300	12.750 323,9	-	-	2.25 57,2	17.0 7,7
14 350	14.000 355,6	-	-	3.500 88,9	30.1 13,7
16 400	16.000 406,4	-	-	4.00 101,6	39.7 18,0
18 450	18.000 457,2	-	-	4.50 114,3	50.7 23,0
20 500	20.00 508,0	-	-	5.00 127,0	63.0 28,6
24 600	24.000 609,6	-	-	6.00 152,4	91.2 41.4

**TABLE 4**  
**FIGURES 211 AND 311 CAST AND FABRICATED ELBOWS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 212 Cast 22 <sup>1</sup> / <sub>2</sub> ° Elbow		Figure 312 Fabricated 22 <sup>1</sup> / <sub>2</sub> ° Elbow	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
1-1/4 32	1.660 42,4	1.75 44,5	0.8 0,4	1.75 44,5	0.7 0,3
1-1/2 40	1.900 48,3	1.75 44,5	1.0 0,5	1.75 44,5	0.7 0,3
2 50	2.375 60,3	1.88 47,8	1.3 0,6	1.88 47,8	1.1 0,5
2-1/2 65	2.874 73,0	2.00 50,8	1.9 0,9	2.00 50,8	1.8 0,8
76,1mm 65	3.000 76,1	2.00 50,8	2.0 0,9	2.00 50,8	1.3 0,6
3 80	3.500 88,9	2.25 57,2	2.9 1,3	2.25 57,2	2.7 1,2
108,0mm 100	4.252 108,0	-	-	2.63 66,8	2.5 1,1
4 100	4.500 114,3	2.63 66,8	4.7 2,1	2.63 66,8	4.5 2,0
133,0mm 125	5.250 159,0	-	-	2.88 73,2	3.8 1,7
139,7mm 125	5.500 139,7	2.88 73,2	6.9 3,1	2.88 73,2	5.1 2,3
5 125	5.563 141,3	2.88 73,2	6.9 3,1	2.88 73,2	6.7 3,0
159,0mm 150	6.250 159,0	-	-	3.13 79,5	5.9 2,7
165,1mm 150	6.500 165,1	-	-	3.13 79,5	6.6 3,0
6 150	6.625 168,3	3.13 79,5	9.4 4,3	3.13 79,5	9.5 4,3
216,3mm 200	8.516 216,3	-	-	3.88 98,6	12.4 5,6
8 200	8.625 219,1	3.88 98,6	17.0 7,7	3.88 98,6	17.8 8,1
267,4mm 250	10.528 267,4	-	-	4.38 111,3	20.0 9,1
10 250	10.750 273,0	-	-	4.38 111,3	28.7 13,0
318,5mm 300	12.539 318,5	-	-	4.88 124,0	27.8 12,6
12 300	12.750 323,9	-	-	4.88 124,0	39.1 17,7
14 350	14.000 355,6	-	-	5.00 127,0	44.1 20,0
16 400	16.000 406,4	-	-	5.00 127,0	50.6 23
18 450	18.000 457,2	-	-	5.50 139,7	63.0 28,6
20 500	20.000 508,0	-	-	6.00 152,4	76.4 34,7
24 600	24.000 609,6	-	-	7.00 177,8	106.9 48,5

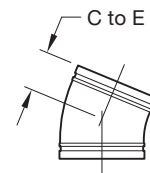


FIGURE 212  
CAST 22-1/2° ELBOW

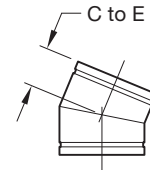
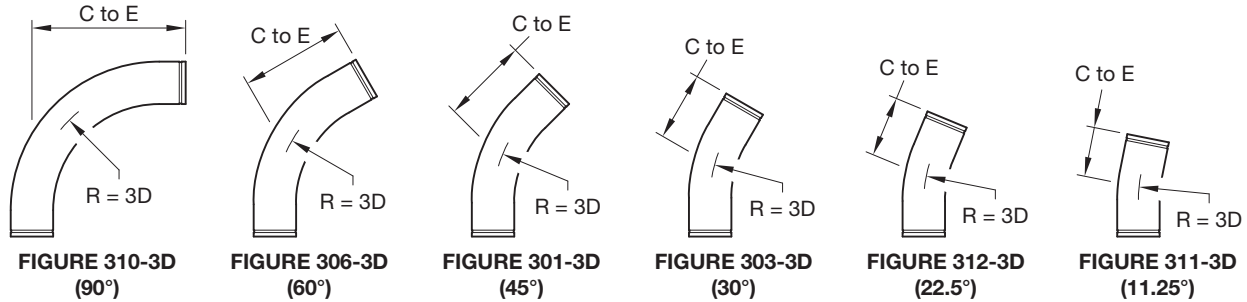


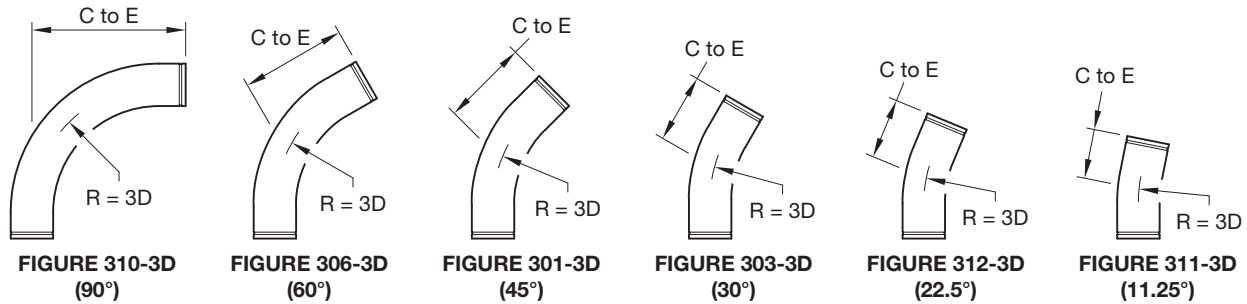
FIGURE 312  
FABRICATED 22-1/2° ELBOW  
(SEGMENT WELDED)

**TABLE 5**  
**FIGURES 212 AND 312 CAST AND FABRICATED ELBOWS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		Figure 310-3D 90° Elbow		Figure 306-3D 60° Elbow		Figure 301-3D 45° Elbow		Figure 303-3D 30° Elbow		Figure 312-3D 22-1/2° Elbow		Figure 311-3D 11-1/4° Elbow	
ANSI Inches DN	OD Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
2 50	2,375 60,3	10.00 254,0	5.3 2,4	7.50 191,0	4.7 2,1	6.50 165,0	4.2 1,9	5.75 146,0	3.8 1,7	5.25 133,0	3.5 1,6	4.50 114,0	2.9 1,3
2-1/2 65	2,874 73,0	11.50 292,0	9.5 4,3	8.25 210,0	8.2 3,7	7.25 184,0	7.6 3,4	6.00 152,0	6.4 2,9	5.50 140,0	5.8 2,6	4.75 121,0	4.9 2,2
76,1mm 65	3,000 76,1	11.50 292,0	9.7 4,4	8.25 210,0	8.6 3,9	7.25 184,0	8.2 3,7	6.00 152,0	6.9 3,1	5.50 140,0	6.2 2,8	4.75 121,0	5.7 2,6
3 80	3,500 88,9	13.00 330,0	14.7 6,7	9.25 235,0	12.6 5,7	7.75 197,0	11.2 5,1	6.50 165,0	9.7 4,4	5.75 146,0	8.5 3,9	5.00 127,0	7.3 3,3
3-1/2 90	4,000 101,6	-	-	10.00 254,0	14.4 6,5	-	-	-	-	-	-	-	-
4 100	4,500 114,3	16.00 406,0	24.1 10,9	11.00 279,0	20.4 9,3	9.00 229,0	17.8 8,1	7.25 184,0	14.8 6,7	6.50 165,0	13.4 6,1	5.25 133,0	10.5 4,8
108,0mm 100	4,252 108,0	16.00 406,0	39.7 18,0	11.00 279,0	19.2 8,7	9.00 229,0	16.9 7,6	7.25 184,0	13.2 6,0	6.50 165,0	12.6 5,7	5.25 133,0	9.7 4,4
5 125	5,563 141,3	20.00 508,0	40.9 18,6	13.75 349,0	34.5 15,7	11.25 286,0	30.1 13,7	9.00 229,0	24.9 11,3	8.00 203,0	22.2 10,1	6.50 165,0	17.6 8,0
133,0mm 125	5,250 133,0	20.00 508,0	39.9 18,1	13.75 349,0	32.4 14,7	11.25 286,0	28.5 12,9	9.00 229,0	22.8 10,3	8.00 203,0	20.5 19,3	6.50 165,0	16.2 7,3
139,7mm 125	5,500 139,7	20.00 508,0	40.1 18,2	13.75 349,0	33.2 15,1	11.25 286,0	29.1 13,2	9.00 229,0	23.6 10,7	8.00 203,0	21.8 9,8	6.50 165,0	16.8 7,6
6 150	6,625 168,3	24.00 610,0	63.7 28,9	16.50 419,0	53.7 24,4	13.50 343,0	46.9 21,3	10.75 273,0	38.6 17,5	9.50 241,0	34.2 15,5	7.75 197,0	27.1 12,3
159,0mm 150	6,250 159,0	24.00 610,0	62.2 28,2	16.50 419,0	49.8 22,6	13.50 343,0	45.8 20,8	10.75 273,0	36.8 16,7	9.50 241,0	32.6 14,8	7.75 197,0	25.7 11,7
165,1mm 150	6,500 165,1	24.00 610,0	62.8 28,5	16.50 419,0	52.5 23,8	13.50 343,0	46.2 21,0	10.75 273,0	37.2 16,9	9.50 241,0	33.8 15,3	7.75 197,0	26.8 12,2
8 200	8,625 219,1	32.00 813,0	128.0 58,1	22.00 559,0	108.0 49,0	18.00 457,0	94.3 42,8	14.50 368,0	78.7 35,7	12.75 324,0	69.3 31,4	10.50 267,0	55.7 25,3
216,3mm 200	8,516 216,3	32.00 813,0	127 57,6	22.00 559,0	107.5 48,8	18.00 457,0	93.1 42,2	14.50 368,0	77.6 35,2	12.75 324,0	68.4 31,0	10.50 267,0	54.9 24,9
10 250	10,750 273,0	40.00 1016,0	226.4 102,7	27.25 692,0	189.4 85,9	22.50 572,0	166.9 75,7	18.00 457,0	138.2 62,7	16.00 406,0	123.2 55,9	13.00 330,0	97.3 44,1
267,4mm 250	10,528 267,4	40.00 1016,0	225 102,1	27.25 692,0	187.2 84,9	22.50 572,0	165.2 74,9	18.00 457,0	137.8 62,5	16.00 406,0	122.7 55,7	13.00 330,0	96.6 43,8
12 300	12,750 323,9	48.00 1219,0	332.9 151,0	32.75 832,0	278.8 126,5	27.00 686,0	245.3 111,3	21.75 552,0	204.7 92,9	19.25 489,0	181.6 82,4	15.51 394,0	141.8 64,3
318,5mm 300	12,539 318,5	48.00 1219,0	330 149,7	32.75 832,0	275.4 124,9	27.00 686,0	243.9 110,6	21.75 552,0	202.8 92,0	19.25 489,0	180.1 81,7	15.50 394,0	139.7 63,4

**TABLE 6 (1 OF 2)**  
**3D LONG RADIUS ELBOWS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

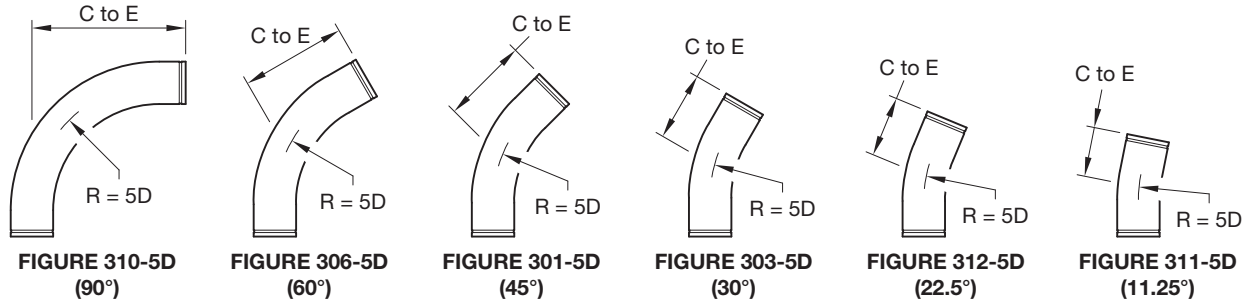


Nominal Pipe Size		Figure 310-3D 90° Elbow		Figure 306-3D 60° Elbow		Figure 301-3D 45° Elbow		Figure 303-3D 30° Elbow		Figure 312-3D 22-1/2° Elbow		Figure 311-3D 11-1/4° Elbow	
ANSI Inches DN	OD Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
14 350	14.000 355,6	56.00 1422,0	427.6 194,0	38.25 972,0	358.5 162,6	31.50 800,0	315.0 142,9	25.25 641,0	261.4 118,6	22.50 572,0	233.7 106,0	18.25 464,0	184.4 83,6
16 400	16.000 406,4	64.00 1626,0	560.3 254,1	43.75 1111,0	470.1 213,2	36.00 914,0	412.8 187,2	29.00 737,0	334.5 151,7	25.50 648,0	303.2 137,5	20.75 527,0	239.9 108,8
18 450	18.000 457,2	72.00 1829,0	710.7 322,4	49.25 1251,0	596.9 270,7	40.50 1029,0	523.7 237,5	32.50 826,0	435.1 197,4	28.75 730,0	385.7 175,0	23.35 593,0	304.5 138,1
20 500	20.000 508,0	80.00 2032,0	879.3 398,8	54.75 1391,0	738.7 335,1	45.00 1143,0	647.8 293,8	36.00 914,0	536.4 243,3	32.00 813,0	478.1 216,9	26.00 660,0	377.7 171,3
24 600	24.000 609,6	96.00 2438,0	1270.3 576,2	65.50 1664,0	1,063.6 482,4	53.75 1365,0	931.0 422,3	43.25 1099,0	775.7 351,9	38.25 972,0	687.2 311,8	31.00 787,0	540.9 245,3

**Notes:**

- Sizes up to and including 4" are provided with 4" (101.6 mm) long integral tangent
- Remaining sizes provided with integral tangents with lengths equal to Nominal Pipe Size
- C to E tolerances: 2" through 6" ± 1/8" (3,2 mm); 8" through 16" ± 1/4" (6,4 mm); 18" through 24" ± 3/8" (9,5 mm)

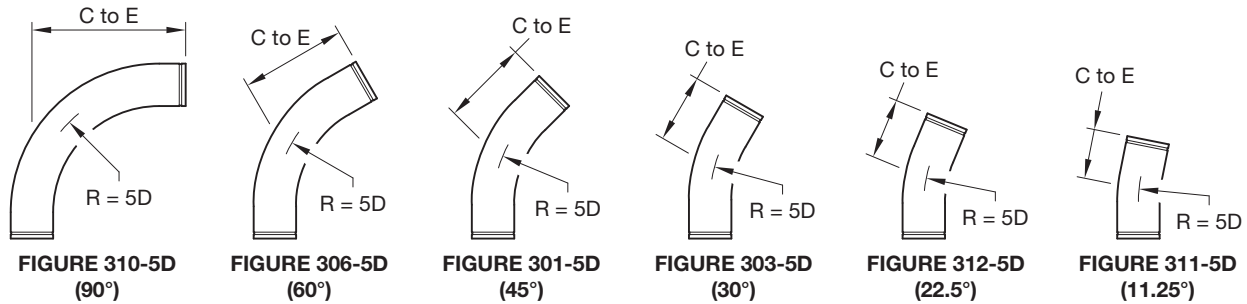
**TABLE 6 (2 OF 2)  
3D LONG RADIUS ELBOWS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		Figure 310-5D 90° Elbow		Figure 306-5D 60° Elbow		Figure 301-5D 45° Elbow		Figure 303-5D 30° Elbow		Figure 312-5D 22-1/2° Elbow		Figure 311-5D 11-1/4° Elbow	
ANSI Inches DN	OD Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
2 50	2,375 60,3	14.00 356,0	7.2 3,3	9.75 248,0	6.1 2,8	8.25 210,0	5.5 2,5	6.75 171,0	4.6 2,1	6.00 152,0	4.1 1,9	5.00 127,0	3.3 1,5
2-1/2 65	2,874 73,0	16.50 419,0	13.3 6,0	11.25 286,0	11.2 5,1	9.25 235,0	9.8 4,4	7.50 191,0	8.3 3,8	6.50 165,0	7.2 3,3	5.25 133,0	5.6 2,5
76,1mm 65	3,000 76,1	16.50 419,0	14.3 6,5	11.25 286,0	11.8 5,4	9.25 235,0	10.2 4,6	7.50 191,0	9.4 4,3	6.50 165,0	7.9 3,6	5.25 133,0	6.6 3,0
3 80	3,500 88,9	19.00 483,0	21.0 9,5	12.75 324,0	17.5 7,9	10.25 260,0	15.1 6,8	8.00 203,0	12.3 5,6	7.00 178,0	10.8 4,9	5.51 140,0	8.3 3,8
3-1/2 90	4,000 101,6	-	-	12.25 311,0	20.0 9,1	-	-	-	-	-	-	-	-
4 100	4,500 114,3	24.00 610,0	35.4 16,1	15.50 394,0	28.9 13,1	12.50 318,0	25.4 11,5	9.50 241,0	20.1 9,1	8.00 203,0	17.1 7,8	6.00 152,0	12.5 5,7
108,0mm 100	4,252 108,0	24.00 610,0	34.6 15,7	15.50 394,0	28.1 12,7	12.50 318,0	24.6 11,2	9.50 241,0	19.8 9,0	8.00 203,0	16.4 7,4	6.00 152,0	11.7 5,3
5 125	5,563 141,3	30.00 762,0	60.0 27,2	19.50 495,0	49.2 22,3	15.50 394,0	42.3 19,2	11.75 298,0	33.7 15,3	10.00 254,0	28.9 13,1	7.51 191,0	21.2 9,6
133,0mm 125	5,250 133,0	30.00 762,0	58.7 26,6	19.50 495,0	48.0 21,7	15.50 394,0	41.1 18,6	11.75 298,0	32.5 14,7	10.00 254,0	27.0 12,2	7.25 191,0	19.8 8,9
139,7mm 125	5,500 139,7	30.00 762,0	59.3 26,9	19.50 495,0	48.5 22,0	15.50 394,0	41.6 18,9	11.75 298,0	33.0 15,0	10.00 254,0	28.2 12,8	7.25 191,0	20.5 9,3
6 150	6,625 168,3	36.00 914,0	93.5 42,4	23.25 591,0	76.1 34,5	18.50 470,0	65.5 29,7	14.00 356,0	52.7 23,9	12.00 305,0	45.0 20,4	9.02 229,0	32.9 14,9
159,0mm 150	6,250 159,0	36.00 914,0	92.0 41,7	23.25 591,0	74.7 33,8	18.50 470,0	64.1 29,1	14.00 356,0	51.4 23,3	12.00 305,0	43.6 19,7	9.00 229,0	31.5 14,3
165,1mm 150	6,500 165,1	36.00 914,0	92.8 42,1	23.25 591,0	75.4 34,2	18.50 470,0	64.8 29,4	14.00 356,0	52.0 23,6	12.00 305,0	44.3 20,1	6.00 229,0	32.2 14,6
8 200	8,625 219,1	48.00 1219,0	187.9 85,2	31.00 787,0	152.9 69,4	24.50 622,0	130.8 59,3	18.75 476,0	105.2 47,7	16.00 406,0	90.5 41,1	12.00 305,0	66.2 30,0
216,3mm 200	8,516 216,3	48.00 1219,0	187.2 84,9	31.00 787,0	152.2 69,0	24.50 622,0	130.1 59,0	18.75 476,0	104.5 47,4	16.00 406,0	89.8 40,7	12.00 305,0	65.5 29,7
10 250	10,750 273,0	60.00 1524,0	332.6 150,9	39.00 991,0	272.5 123,6	30.75 781,0	232.5 105,5	23.50 597,0	186.8 84,7	20.00 508,0	160.3 72,7	15.00 381,0	117.2 53,2
267,4mm 250	10,528 267,4	60.00 1524,0	331.7 150,5	39.00 991,0	271.6 123,2	30.75 781,0	231.6 105,1	23.50 597,0	185.7 84,2	20.00 508,0	159.4 72,3	15.00 381,0	116.3 52,8
12 300	12,750 323,9	72.00 1829,0	488.8 221,7	46.75 1187,0	400.0 181,4	37.00 940,0	342.7 155,4	28.00 711,0	272.3 123,5	24.00 610,0	235.5 106,8	18.00 457,0	172.2 78,1
318,5mm 300	12,539 318,5	72.00 1929,0	487.5 221,1	46.75 1187,0	398.5 180,8	37.00 940,0	340.9 154,6	28.00 711,0	270.1 122,6	24.00 610,0	233.8 106,0	18.00 457,0	170.1 77,2

**TABLE 7 (1 OF 2)**  
**5D LONG RADIUS ELBOWS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**





Nominal Pipe Size		Figure 310-5D 90° Elbow		Figure 306-5D 60° Elbow		Figure 301-5D 45° Elbow		Figure 303-5D 30° Elbow		Figure 312-5D 22-1/2° Elbow		Figure 311-5D 11-1/4° Elbow	
ANSI Inches DN	OD Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
14 350	14.000 355,6	84.00 2134,0	627.7 284,7	54.50 1384,0	513.3 232,8	43.00 1092,0	438.3 198,8	32.75 832,0	350.7 159,1	28.00 711,0	302.5 137,2	21.00 533,0	221.2 100,3
16 400	16.000 406,4	96.00 2436,0	822.5 373,1	62.25 1581,0	672.2 304,9	49.25 1251,0	575.6 261,1	37.50 953,0	460.6 208,9	32.00 813,0	396.4 179,8	24.00 610,0	289.8 131,5
18 450	18.000 457,2	108.00 2743,0	1,043.5 473,3	70.00 1778,0	852.5 386,7	55.25 1403,0	728.2 330,3	42.25 1073,0	585.3 265,5	36.00 914,0	506.9 229,9	27.00 686,0	367.8 166,8
20 500	20.000 508,0	120.00 3048,0	1,290.9 585,5	77.75 1975,0	1,054.2 478,2	61.50 1562,0	902.5 409,4	46.75 1187,0	720.7 326,9	40.00 1016,0	622.1 282,2	30.00 762,0	454.9 206,3
24 600	24.000 609,6	144.00 3658,0	1,864.4 845,7	93.25 2369,0	1,521.8 690,3	73.75 1873,0	1,302.5 590,8	56.25 1429,0	1,044.0 473,6	48.00 1219,0	898.5 407,6	35.75 908,0	651.2 295,4

**Notes:**

- Sizes up to and including 4" are provided with 4" (101,6 mm) long integral tangent
- Remaining sizes provided with integral tangents with lengths equal to Nominal Pipe Size
- C to E tolerances: 2" through 6" ± 1/8" (3,2 mm); 8" through 16" ± 1/4" (6,4 mm); 18" through 24" ± 3/8" (9,5 mm)

**TABLE 7 (2 OF 2)  
5D LONG RADIUS ELBOWS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

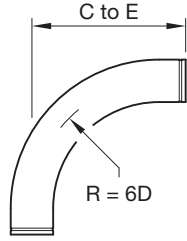


FIGURE 310-6D  
(90°)

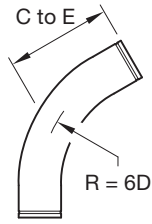


FIGURE 306-6D  
(60°)

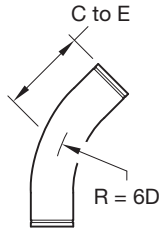


FIGURE 301-6D  
(45°)

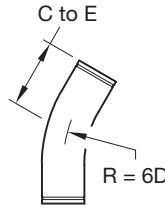


FIGURE 303-6D  
(30°)

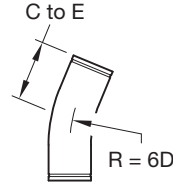


FIGURE 312-6D  
(22.5°)

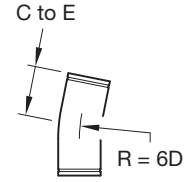
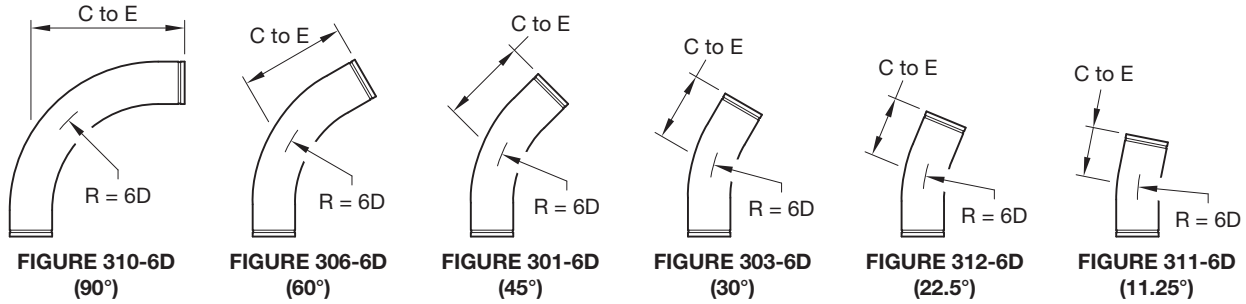


FIGURE 311-6D  
(11.25°)

Nominal Pipe Size		Figure 310-5D 90° Elbow		Figure 306-5D 60° Elbow		Figure 301-5D 45° Elbow		Figure 303-5D 30° Elbow		Figure 312-5D 22-1/2° Elbow		Figure 311-5D 11-1/4° Elbow	
ANSI Inches DN	OD Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
2 50	2,375 60,3	16.00 406,0	8.2 3,7	11.00 279,0	6.9 3,1	9.00 229,0	6.0 2,7	7.25 18,04	5.0 2,3	6.50 165,0	4.5 2,0	5.25 133,0	3.6 1,6
2-1/2 65	2,874 73,0	19.00 483,0	13.0 5,9	12.75 324,0	12.7 5,8	10.25 260,0	11.0 5,0	8.00 203,0	8.9 4,0	7.00 178,0	7.8 3,5	5.51 140,0	6.0 2,7
76,1mm 65	3,000 76,1	19.00 483,0	12.2 5,5	12.75 324,0	19.9 9,0	10.25 260,0	10.2 4,6	8.00 203,0	8.1 3,7	7.00 178,0	7.0 3,2	5.50 140,0	5.3 2,4
3 80	3,500 88,9	22.00 559,0	24.1 10,9	14.50 368,0	19.9 9,0	11.50 292,0	17.1 7,8	8.75 222,0	13.6 6,2	7.50 191,0	11.7 5,3	5.75 146,0	8.7 3,9
3-1/2 90	4,000 101,6	-	-	16.25 413,0	22.8 10,3	-	-	-	-	-	-	-	-
4 100	4,500 114,3	28.00 711,0	41.1 18,6	18.00 457,0	33.6 15,2	14.00 356,0	28.4 12,9	10.50 267,0	22.5 10,2	8.75 222,0	18.9 8,6	6.50 165,0	13.8 6,3
108,0mm 100	4,252 108,0	28.00 711,0	40.0 18,1	18.00 457,0	32.5 14,7	14.00 356,0	27.3 12,4	10.50 267,0	21.4 9,7	8.75 222,0	17.8 8,1	6.50 165,0	12.7 5,8
5 125	5,563 141,3	35.00 889,0	69.6 31,6	22.25 565,0	56.2 25,5	17.50 445,0	48.1 21,8	13.00 330,0	37.7 17,1	11.00 279,0	32.3 14,7	8.00 203,0	22.9 10,4
133,0mm 125	5,250 133,0	35.00 889,0	68.4 31,0	22.25 565,0	55.0 24,9	17.50 445,0	46.9 21,3	13.00 330,0	36.6 16,6	11.00 279,0	31.2 14,2	8.00 203,0	21.7 9,8
139,7mm 125	5,500 139,7	35.00 889,0	69.0 31,3	22.25 565,0	55.6 25,2	17.50 445,0	47.6 21,6	13.00 330,0	37.1 16,8	11.00 279,0	31.7 14,4	8.00 203,0	22.7 10,3
6 150	6,625 168,3	42.00 1067,0	108.4 49,2	26.75 679,0	87.7 39,8	21.00 533,0	74.8 33,9	15.75 400,0	59.3 26,9	13.25 337,0	50.5 22,9	9.50 241,0	35.3 16,0
159,0mm 150	6,250 159,0	42.00 1067,0	105.7 47,9	26.75 679,0	86.0 39,0	21.00 533,0	73.0 33,1	15.75 400,0	57.5 26,1	13.25 337,0	48.5 22,0	9.50 241,0	33.1 15,0
165,1mm 150	6,500 165,1	42.00 1067,0	106.2 48,2	26.75 679,0	86.5 39,2	21.00 533,0	73.5 33,3	15.75 400,0	58.0 26,3	13.25 337,0	49.0 22,2	9.50 241,0	33.7 15,3
8 200	8,625 219,1	56.00 1422,0	217.8 98,8	35.75 908,0	176.7 80,1	28.00 711,0	150.4 68,2	21.00 533,0	119.2 54,1	17.50 445,0	100.4 45,5	12.75 324,0	71.5 32,4
216,3mm 200	8,516 216,3	45.00 1422,0	216.2 98,1	35.75 908,0	175.5 79,6	28.00 711,0	149.2 67,7	21.00 533,0	118.0 53,5	17.50 445,0	98.6 44,7	12.75 324,0	70.2 31,8
10 250	10,750 273,0	70.00 1778,0	385.6 174,9	44.75 1137,0	313.1 142,0	35.00 889,0	266.3 120,8	26.00 660,0	208.9 94,8	22.00 559,0	178.8 81,1	16.00 406,0	127.1 57,7
267,4mm 250	10,528 267,4	70.00 1778,0	384.8 174,5	44.75 1137,0	312.3 141,6	35.00 889,0	265.5 120,4	26.00 660,0	208.1 94,4	22.00 559,0	178.1 80,8	16.00 406,0	126.2 57,2
12 300	12,750 323,9	84.00 2134,0	566.7 257,1	53.50 1359,0	458.5 208,0	41.75 1060,0	388.9 176,4	31.25 794,0	307.5 139,5	26.25 667,0	261.1 118,4	19.00 483,0	184.4 83,6
318,5mm 300	12,539 318,5	84.00 2134,0	565.5 256,5	53.50 1359,0	457.0 207,3	41.75 1060,0	387.4 175,7	31.25 794,0	306.0 138,8	26.25 667,0	259.6 117,8	19.00 483,0	183.0 83,0

TABLE 8 (1 OF 2)  
6D LONG RADIUS ELBOWS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS

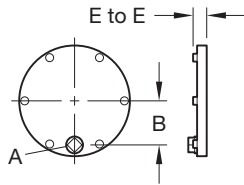


Nominal Pipe Size		Figure 310-5D 90° Elbow		Figure 306-5D 60° Elbow		Figure 301-5D 45° Elbow		Figure 303-5D 30° Elbow		Figure 312-5D 22-1/2° Elbow		Figure 311-5D 11-1/4° Elbow	
ANSI Inches DN	OD Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
14 350	14.000 355,6	98.00 2489,0	727.8 330,1	62.50 1588,0	589.6 267,4	48.75 1238,0	499.9 226,8	36.50 927,0	395.4 179,4	30.75 781,0	336.9 152,8	22.25 565,0	238.0 108,0
16 400	16.000 406,4	112.00 2845,0	953.6 432,5	71.50 1816,0	773.3 350,8	55.75 1416,0	655.5 297,3	41.75 1060,0	518.6 235,2	35.25 895,0	443.0 200,9	25.51 648,0	312.9 141,9
18 450	18.000 457,2	126.00 3200,0	1,209.9 548,8	80.50 2045,0	981.9 445,4	62.75 1594,0	832.7 377,7	47.00 1194,0	658.5 298,7	39.50 1003,0	559.5 253,8	28.75 730,0	398.7 180,8
20 500	20.000 508,0	140.00 3556,0	1,496.6 678,8	89.25 2267,0	1,212.0 549,8	69.75 1772,0	1,029.8 467,1	52.25 1327,0	815.0 369,7	44.00 1118,0	694.1 314,8	31.75 806,0	488.7 221,7
24 600	24.000 609,6	168.00 4267,0	2,161.6 980,5	107.25 2724,0	1,752.9 795,1	83.75 2127,0	1,488.2 675,0	62.50 1588,0	1,173.0 532,1	52.34 1329,0	992.5 450,2	38.25 972,0	709.3 321,7

**Notes:**

- Sizes up to and including 4" are provided with 4" (101.6 mm) long integral tangent
- Remaining sizes provided with integral tangents with lengths equal to Nominal Pipe Size
- C to E tolerances: 2" through 6"  $\pm 1/8"$  (3,2 mm); 8" through 16"  $\pm 1/4"$  (6,4 mm); 18" through 24"  $\pm 3/8"$  (9,5 mm)

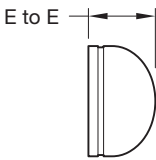
**TABLE 8 (2 OF 2)  
6D LONG RADIUS ELBOWS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



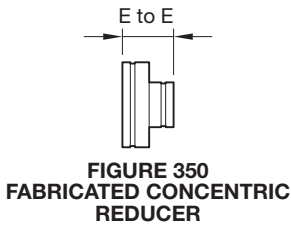
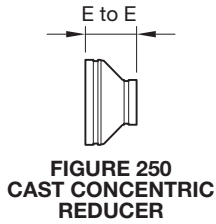
Nominal Pipe Size		E to E Inches mm	A Available NPT Sizes	B Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				
1 25	1.315 33,4	0.83 21,1	-	-	0.2 0,1
1-1/4 32	1.660 42,4	0.83 21,1	1/2"	On C to E	0.3 0,1
1-1/2 40	1.900 48,3	0.83 21,1	1/2"	On C to E	0.4 0,2
2 50	2.375 60,3	0.92 23,4	1/2", 3/4"	0.50 12,7	0.7 0,3
2-1/2 65	2.874 73,0	0.92 23,4	1/2", 3/4"	0.69 17,5	1.0 0,5
76,1mm 65	3.000 76,1	0.86 21,8	1/2", 3/4"	0.69 17,5	1.3 0,6
3 80	3.500 88,9	0.92 23,4	1/2", 3/4", 1"	0.94 23,9	1.4 0,6
4 100	4.500 114,3	1.00 25,4	1/2", 3/4", 1"	1.44 36,6	2.6 1,2
139,7mm 125	5.500 139,7	0.92 23,4	1/2", 3/4", 1"	1.44 36,6	4.7 2,1
5 125	5.563 141,3	1.00 25,4	1/2", 3/4", 1"	1.94 49,3	5.0 2,3
165,1mm 150	6.500 165,1	0.92 23,4	1/2", 3/4", 1"	1.94 49,3	6.4 2,9
6 150	6.625 168,3	1.00 25,4	1/2", 3/4", 1"	2.50 63,5	6.2 2,8
8 200	8.625 219,1	1.06 27,0	1/2", 3/4", 1"	3.44 87,4	7.1 3,2
10 250	10.750 273,0	1.02 25,8	1/2", 3/4", 1"	4.50 114,3	24.5 11,1
12 300	12.750 323,9	1.02 25,8	1/2", 3/4", 1"	5.44 138,2	31.0 14,1

**TABLE 9**  
**FIGURE 260 CAST END CAPS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		E to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
1 25	1.315 33,4	0.83 21,1	-
1-1/4 32	1.660 42,4	1.57 40,0	0.3 0,1
1-1/2 40	1.900 48,3	1.57 40,0	0.3 0,1
2 50	2.375 60,3	1.57 40,0	0.5 0,2
2-1/2 65	2.874 73,0	1.57 40,0	0.8 0,4
76,1mm 65	3.000 76,1	1.57 40,0	0.6 0,3
3 80	3.500 88,9	1.97 50,0	1.3 0,6
4 100	4.500 114,3	2.56 65,0	2.3 1,0
108,0mm 100	4.252 108,0	2.56 65,0	1.2 0,5
5 125	5.563 141,3	3.15 80,0	3.7 1,7
133,0mm 125	5.250 133,0	3.15 80,0	2.2 0,9
139,7mm 125	5.500 139,7	3.15 80,0	2.9 1,3
6 150	6.625 168,3	3.50 89,0	5.4 2,4
159,0mm 150	6.250 159,0	3.50 89,0	3.2 1,5
165,1mm 150	6.500 165,1	3.50 89,0	3.8 1,7
8 200	8.625 219,1	3.94 100,0	9.3 4,2
216,3mm 200	8.516 216,3	3.94 100,0	6.6 3,0
10 250	10.750 273,0	4.92 125,0	16.2 7,3
267,4mm 250	10.528 267,4	4.92 125,0	14.9 6,8
12 300	12.750 323,9	5.90 150,0	-
318,5mm 300	12.539 318,5	5.90 150,0	-
14 350	14.000 355,6	8.50 215,9	36.5 16,6
16 400	16.000 406,4	9.00 228,6	43.5 19,7
18 450	18.000 457,2	10.00 254,0	57.0 25,6
20 500	20.000 508,0	11.00 279,4	75.7 34,3
24 600	24.000 609,6	12.50 317,5	101.0 45,8



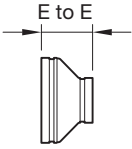
**TABLE 10**  
**FIGURE 360 FABRICATED END CAPS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



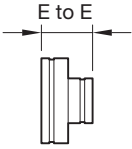
Nominal Pipe Size		Figure 250 Cast Concentric Reducer		Figure 350 Fabricated Concentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
1-1/4 x 1 32 x 25	1.660 x 1.315 42,4 x 33,4	2.50 63,5	0.7 0,3	2.50 63,5	0.4 0,2
1-1/2 x 1 40 x 25	1.900 x 1.315 48,3 x 33,4	-	-	2.50 63,5	0.5 0,2
1-1/2 x 1-1/4 40 x 32	1.900 x 1.660 48,3 x 42,4	2.50 63,5	0.8 0,3	2.50 63,5	0.5 0,2
2 x 1 50 x 25	2.375 x 1.315 60,3 x 33,4	-	-	2.50 63,5	0.6 0,4
2 x 1-1/4 50 x 32	2.375 x 1.660 60,3 x 42,4	-	-	2.50 63,5	0.6 0,4
2 x 1-1/2 50 x 40	2.375 x 1.900 60,3 x 48,3	-	-	2.50 63,5	0.6 0,4
2-1/2 x 1 65 x 25	2.874 x 1.315 73,0 x 33,4	-	-	2.50 63,5	0.6 0,4
2-1/2 x 1-1/4 65 x 32	2.874 x 1.660 73,0 x 42,4	2.50 63,5	1.4 0,6	2.50 63,5	0.7 0,3
2-1/2 x 1-1/2 65 x 40	2.874 x 1.900 73,0 x 48,3	2.50 63,5	1.4 0,6	2.50 63,5	0.7 0,3
2-1/2 x 2 65 x 50	2.874 x 2.375 73,0 x 60,3	2.50 63,5	1.3 0,6	2.50 63,5	0.8 0,4
76,1mm x 1 65 x 25	3.000 x 1.315 76,1 x 33,4	-	-	2.50 63,5	0.9 0,4
76,1mm x 1-1/4 65 x 32	3.000 x 1.660 76,1 x 42,4	2.50 63,5	1.4 0,6	2.50 63,5	0.9 0,4
76,1mm x 1-1/2 65 x 40	3.000 x 1.900 76,1 x 48,3	2.50 63,5	1.4 0,6	2.50 63,5	1.0 0,5
76,1mm x 2 65 x 50	3.000 x 2.375 76,1 x 60,3	2.50 63,5	1.5 0,7	2.50 63,5	1.0 0,5
3 x 1 80 x 25	3.500 x 1.315 88,9 x 33,4	-	-	2.50 63,5	1.3 0,6
3 x 1-1/4 80 x 32	3.500 x 1.660 88,9 x 42,4	-	-	2.50 63,5	1.3 0,6
3 x 1-1/2 80 x 40	3.500 x 1.900 88,9 x 48,3	2.50 63,5	1.8 0,8	2.50 63,5	1.3 0,6
3 x 2 80 x 50	3.500 x 2.375 88,9 x 60,3	2.50 63,5	1.7 0,8	2.50 63,5	1.3 0,6
3 x 2-1/2 80 x 65	3.500 x 2.874 88,9 x 70,3	2.50 63,5	1.7 0,8	2.50 63,5	1.3 0,6
3 x 76,1mm 80 x 65	3.500 x 3.000 88,9 x 76,1	2.50 63,5	2.0 0,9	2.50 63,5	1.4 0,6
108,0mm x 1 100 x 25	4.252 x 1.315 108,0 x 33,4	-	-	3.00 76,2	1.3 0,6
108,0mm x 1-1/4 100 x 32	4.252 x 1.660 108,0 x 42,4	-	-	3.00 76,2	1.4 0,6
108,0mm x 1-1/2 100 x 40	4.252 x 1.900 108,0 x 48,3	-	-	3.00 76,2	1.4 0,6
108,0mm x 2 100 x 50	4.252 x 2.375 108,0 x 60,3	-	-	3.00 76,2	1.4 0,6
108,0mm x 2-1/2 100 x 65	4.252 x 2.874 108,0 x 73,0	-	-	3.00 76,2	1.4 0,6
108,0mm x 76mm 100 x 65	4.252 x 3.000 108,0 x 76,1	-	-	3.00 76,2	1.6 0,7

**TABLE 11 (1 OF 6)**  
**FIGURES 250 AND 350 CAST AND FABRICATED CONCENTRIC REDUCERS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 250 Cast Concentric Reducer		Figure 350 Fabricated Concentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
108,0mm x 3 100 x 80	4.252 x 3.500 108,0 x 88,9	-	-	3.00 76,2	1.7 0,8
108,0mm x 4 100 x 100	4.252 x 4.500 108,0 x 114,3	-	-	3.00 76,2	2.3 1,0
4 x 1 100 x 25	4.500 x 1.315 114,3 x 33,4	-	-	3.00 76,2	2.2 0,9
4 x 1-1/4 100 x 32	4.500 x 1.660 114,3 x 42,4	-	-	3.00 76,2	2.2 0,9
4 x 1-1/2 100 x 40	4.500 x 1.900 114,3 x 48,3	-	-	3.00 76,2	2.2 0,9
4 x 2 100 x 50	4.500 x 2.375 114,3 x 60,3	3.00 76,2	2.4 1,1	3.00 76,2	2.3 1,0
4 x 2-1/2 100 x 65	4.500 x 2.874 114,3 x 73,0	3.00 76,2	2.7 1,2	3.00 76,2	2.2 0,9
4 x 76,1mm 100 x 65	4.500 x 3.000 114,3 x 76,1	3.00 76,2	3.2 1,5	3.00 76,2	2.4 1,0
4 x 3 100 x 80	4.500 x 3.500 114,3 x 88,9	3.00 76,2	2.8 1,3	3.00 76,2	2.5 1,1
133,0mm x 2 125 x 50	5.250 x 2.375 133,0 x 60,3	-	-	3.50 88,9	2.3 1,0
133,0mm x 2-1/2 125 x 65	5.250 x 2.874 133,0 x 73,0	-	-	3.50 88,9	2.3 1,0
133,0mm x 76,1mm 125 x 65	5.250 x 3.000 133,0 x 76,1	-	-	3.50 88,9	2.5 1,1
133,0mm x 3 125 x 80	5.250 x 3.500 133,0 x 88,9	-	-	3.50 88,9	2.7 1,2
133,0mm x 108,0mm 125 x 100	5.250 x 4.252 133,0 x 108,0	-	-	3.50 88,9	2.2 0,9
133,0mm x 4 125 x 100	5.250 x 4.500 133,0 x 114,3	-	-	3.50 88,9	2.9 1,3
139,7mm x 2 125 x 50	5.500 x 2.375 139,7 x 60,3	-	-	3.50 88,9	2.7 1,2
139,7mm x 2-1/2 125 x 65	5.500 x 2.874 139,7 x 73,0	-	-	3.50 88,9	2.7 1,2
139,7mm x 76,1mm 125 x 65	5.500 x 3.000 139,7 x 76,1	-	-	3.50 88,9	2.9 1,3
139,7mm x 3 125 x 80	5.500 x 3.500 139,7 x 88,9	3.50 88,9	4.2 1,9	3.50 88,9	3.0 1,3
139,7mm x 4 125 x 100	5.500 x 4.500 139,7 x 114,3	3.50 88,9	4.4 2,0	3.50 88,9	3.2 1,5
5 x 2 125 x 50	5.563 x 2.375 141,3 x 60,3	-	-	3.50 88,9	3.7 1,7
5 x 2-1/2 125 x 65	5.563 x 2.874 141,3 x 73,0	-	-	3.50 88,9	3.6 1,6
5 x 76,1mm 125 x 65	5.563 x 3.000 141,3 x 76,1	-	-	3.50 88,9	3.8 1,7
5 x 3 125 x 80	5.563 x 3.500 141,3 x 88,9	3.50 88,9	4.2 1,9	3.50 88,9	3.9 1,8
5 x 108,0mm 125 x 100	5.563 x 4.252 141,3 x 108,0	-	-	3.50 88,9	3.3 1,5
5 x 4 125 x 100	5.563 x 4.500 141,3 x 114,3	3.50 88,9	4.4 2,0	3.50 88,9	4.0 1,8

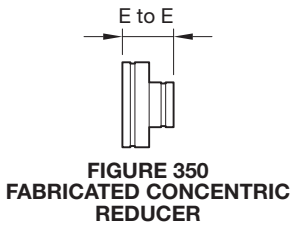
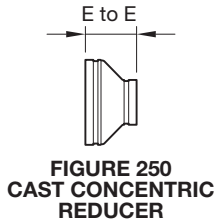


**FIGURE 250  
CAST CONCENTRIC  
REDUCER**



**FIGURE 350  
FABRICATED CONCENTRIC  
REDUCER**

**TABLE 11 (2 OF 6)  
FIGURES 250 AND 350 CAST AND FABRICATED CONCENTRIC REDUCERS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

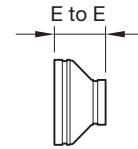


Nominal Pipe Size		Figure 250 Cast Concentric Reducer		Figure 350 Fabricated Concentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
5 x 139,7mm 125 x 125	5.563 x 5.500 141,3 x 139,7	-	-	3.50 88,9	3.4 1,5
159,0mm x 3 150 x 80	6.250 x 3.500 159,0 x 88,9	-	-	4.00 101,6	3.9 1,8
159,0mm x 108,0mm 150 x 108	6.250 x 4.252 159,0 x 108,0	-	-	4.00 101,6	3.4 1,5
159,0mm x 4 150 x 100	6.250 x 4.500 159,0 x 114,3	-	-	4.00 101,6	4.1 1,9
159,0mm x 133,0mm 150 x 125	6.250 x 5.250 159,0 x 133,0	-	-	4.00 101,6	3.4 1,5
159,0mm x 139,7mm 150 x 125	6.250 x 5.500 159,0 x 139,7	-	-	4.00 101,6	3.8 1,7
165,1mm x 3 150 x 80	6.500 x 3.500 165,1 x 88,9	4.00 101,6	5.5 2,5	4.00 101,6	4.4 1,9
165,1mm x 4 150 x 100	6.500 x 4.500 165,1 x 114,3	4.00 101,6	6.0 2,7	4.00 101,6	4.6 2,0
165,1mm x 139,7mm 150 x 125	6.500 x 5.500 165,1 x 139,7	4.00 101,6	5.6 2,5	4.00 101,6	4.2 1,9
165,1mm x 5 150 x 125	6.500 x 5.563 165,1 x 141,3	-	-	4.00 101,6	4.8 2,2
6 x 2 150 x 50	6.625 x 2.375 168,3 x 60,3	4.00 101,6	5.3 2,4	4.00 101,6	5.6 2,5
6 x 2-1/2 150 x 65	6.625 x 2.874 168,3 x 73,0	4.00 101,6	5.7 2,6	4.00 101,6	5.5 2,5
6 x 76,1mm 150 x 65	6.625 x 3.000 168,3 x 76,1	4.00 101,6	6.1 2,7	4.00 101,6	5.7 2,6
6 x 3 150 x 80	6.625 x 3.500 168,3 x 88,9	4.00 101,6	5.8 2,6	4.00 101,6	5.9 2,7
6 x 108,0mm 150 x 100	6.625 x 4.252 168,3 x 108,0	-	-	4.00 101,6	5.2 2,4
6 x 4 150 x 100	6.625 x 4.500 168,3 x 114,3	4.00 101,6	6.0 2,7	4.00 101,6	5.9 2,7
6 x 133,0mm 150 x 125	6.625 x 5.250 168,3 x 133,0	-	-	4.00 101,6	5.0 2,3
6 x 139,7mm 150 x 100	6.625 x 5.500 168,3 x 139,7	4.00 101,6	6.3 2,3	4.00 101,6	5.3 2,4
6 x 5 150 x 125	6.625 x 5.563 168,3 x 141,3	4.00 101,6	6.2 2,8	4.00 101,6	6.0 2,7
216,3mm x 2-1/2 200 x 65	8.516 x 2.874 216,3 x 73,0	-	-	5.00 127,0	7.7 3,5
216,3mm x 3 200 x 80	8.516 x 3.500 216,3 x 88,9	-	-	5.00 127,0	8.2 3,7
216,3mm x 4 200 x 100	8.516 x 4.500 216,3 x 114,3	-	-	5.00 127,0	8.5 3,9
216,3mm x 139,7mm 200 x 125	8.516 x 5.500 216,3 x 139,7	-	-	5.00 127,0	8.0 3,6
216,3mm x 5 200 x 125	8.516 x 5.563 216,3 x 141,3	-	-	5.00 127,0	8.8 3,9
216,3mm x 165,1mm 200 x 165	8.516 x 6.500 216,3 x 165,1	-	-	5.00 127,0	7.9 3,6
216,3mm x 6 200 x 150	8.516 x 6.625 216,3 x 168,3	-	-	5.00 127,0	9.1 4,1

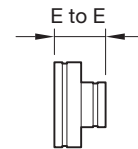
**TABLE 11 (3 OF 6)**  
**FIGURES 250 AND 350 CAST AND FABRICATED CONCENTRIC REDUCERS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		Figure 250 Cast Concentric Reducer		Figure 350 Fabricated Concentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
8 x 2-1/2 200 x 65	8.625 x 2.874 219,1 x 73,0	-	-	5.00 127,0	10.6 4,8
8 x 3 200 x 80	8.625 x 3.500 219,1 x 88,9	5.00 127,0	11.5 5,2	5.00 127,0	11.0 4,9
8 x 4 200 x 100	8.625 x 4.500 219,1 x 114,3	5.00 127,0	10.7 4,9	5.00 127,0	11.2 5,1
8 x 133,0mm 200 x 125	8.625 x 5.250 219,1 x 133,0	-	-	5.00 127,0	10.1 4,6
8 x 139,7mm 200 x 125	8.625 x 5.500 219,1 x 139,7	5.00 127,0	10.0 4,5	5.00 127,0	10.5 4,8
8 x 5 200 x 125	8.625 x 5.563 219,1 x 141,3	5.00 127,0	10.8 4,9	5.00 127,0	11.3 5,1
8 x 159,0mm 200 x 150	8.625 x 6.250 219,1 x 159,0	-	-	5.00 127,0	9.9 4,5
8 x 165,1mm 200 x 150	8.625 x 6.500 219,1 x 165,1	5.00 127,0	11.0 5,0	5.00 127,0	10.1 4,6
8 x 6 200 x 150	8.625 x 6.625 219,1 x 168,3	5.00 127,0	11.3 5,1	5.00 127,0	11.3 5,1
267,4mm x 4 250 x 100	10.528 x 4.500 267,4 x 114,3	-	-	6.00 152,4	14.1 6,4
267,4mm x 5 250 x 125	10.528 x 5.563 267,4 x 141,3	-	-	6.00 152,4	14.5 6,6
267,4mm x 165,1mm 250 x 125	10.528 x 6.500 267,4 x 165,1	-	-	6.00 152,4	13.4 6,1
267,4mm x 6 250 x 150	10.528 x 6.625 267,4 x 168,3	-	-	6.00 152,4	14.9 6,8
267,4mm x 216,3mm 250 x 216	10.528 x 8.516 267,4 x 216,3	-	-	6.00 152,4	13.5 6,1
267,4mm x 8 250 x 200	10.528 x 8.625 267,4 x 219,1	-	-	6.00 152,4	15.6 7,1
10 x 4 250 x 100	10.750 x 4.500 273,0 x 114,3	-	-	6.00 152,4	19.1 8,7
10 x 5 250 x 125	10.750 x 5.563 273,0 x 141,3	-	-	6.00 152,4	19.2 8,7
10 x 159,0mm 250 x 125	10.750 x 6.250 273,0 x 159,0	-	-	6.00 152,4	17.7 8,0
10 x 165,1mm 250 x 150	10.750 x 6.500 273,0 x 165,1	6.00 152,4	17.8 8,0	6.00 152,4	17.9 8,1
10 x 6 250 x 150	10.750 x 6.625 273,0 x 168,3	6.00 152,4	16.3 7,4	6.00 152,4	19.4 8,8
10 x 216,3mm 250 x 200	10.750 x 8.516 273,0 x 216,3	-	-	6.00 152,4	17.3 7,8
10 x 8 250 x 200	10.750 x 8.625 273,0 x 219,1	6.00 152,4	18.3 8,3	6.00 152,4	19.5 8,8
318,5mm x 4 300 x 100	12.539 x 4.500 318,5 x 114,3	-	-	7.00 177,8	20.5 9,3
318,5mm x 6 300 x 150	12.539 x 6.625 318,5 x 168,3	-	-	7.00 177,8	21.6 9,8
318,5mm x 216,3mm 300 x 200	12.539 x 8.516 318,5 x 216,3	-	-	7.00 177,8	20.1 9,1
318,5mm x 8 300 x 200	12.539 x 8.625 318,5 x 219,1	-	-	7.00 177,8	22.6 10,3

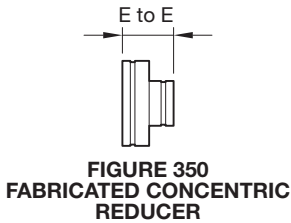
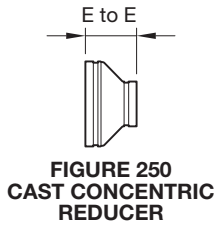


**FIGURE 250  
CAST CONCENTRIC  
REDUCER**



**FIGURE 350  
FABRICATED CONCENTRIC  
REDUCER**

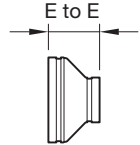
**TABLE 11 (4 OF 6)  
FIGURES 250 AND 350 CAST AND FABRICATED CONCENTRIC REDUCERS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



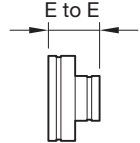
Nominal Pipe Size		Figure 250 Cast Concentric Reducer		Figure 350 Fabricated Concentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
318,5mm x 267,4mm 300 x 250	12.539 x 10.528 318,5 x 267,4	-	-	7.00 177,8	20.3 9,2
318,5mm x 10 300 x 250	12.539 x 10.750 318,5 x 273,0	-	-	7.00 177,8	23.8 10,8
12 x 4 300 x 100	12.750 x 4.500 323,9 x 114,3	7.00 177,8	22.7 10,3	7.00 177,8	27.5 12,5
12 x 6 300 x 150	12.750 x 6.625 323,9 x 168,3	7.00 177,8	24.2 11,0	7.00 177,8	28.1 12,7
12 x 216,3mm 300 x 200	12.750 x 8.516 323,9 x 216,3	-	-	7.00 177,8	26.0 11,8
12 x 8 300 x 200	12.750 x 8.625 323,9 x 219,1	7.00 177,8	25.8 11,7	7.00 177,8	28.5 12,9
12 x 267,4mm 300 x 250	12.750 x 10.528 323,9 x 267,4	-	-	7.00 177,8	25.4 11,5
12 x 10 300 x 250	12.750 x 10.750 323,9 x 273,0	7.00 177,8	28.2 12,8	7.00 177,8	28.8 13,1
14 x 6 350 x 150	14.000 x 6.625 355,6 x 168,3	-	-	13.00 330,2	50.5 23,0
14 x 8 350 x 200	14.000 x 8.625 355,6 x 219,1	-	-	13.00 330,2	53.3 24,2
14 x 267,4mm 350 x 250	14.000 x 10.528 355,6 x 267,4	-	-	13.00 330,2	50.1 22,7
14 x 10 350 x 250	14.000 x 10.750 355,6 x 273,0	-	-	13.00 330,2	56.6 25,7
14 x 318,5mm 350 x 300	14.000 x 12.539 355,6 x 318,5	-	-	13.00 330,2	50.3 22,8
14 x 12 350 x 300	14.000 x 12.750 355,6 x 323,9	-	-	13.00 330,2	57.8 26,2
377,0mm x 6 350 x 150	14.842 x 6.625 377,0 x 168,3	-	-	13.50 342,9	48.7 22,1
377,0mm x 216,3mm 350 x 250	14.842 x 10.528 377,0 x 267,4	-	-	13.50 342,9	47.3 21,4
377,0mm x 8 350 x 200	14.842 x 8.625 377,0 x 219,1	-	-	13.50 342,9	52.1 23,6
377,0mm x 267,4mm 350 x 250	14.842 x 10.528 377,0 x 267,4	-	-	13.50 342,9	49.4 22,4
377,0mm x 10 350 x 250	14.842 x 10.750 377,0 x 273,0	-	-	13.50 342,9	56.1 25,4
377,0mm x 318,5mm 350 x 300	14.842 x 12.539 377,0 x 318,5	-	-	13.50 342,9	50.3 22,8
377,0mm x 12 350 x 300	14.842 x 12.750 377,0 x 323,9	-	-	13.50 342,9	58.1 26,4

**TABLE 11 (5 OF 6)**  
**FIGURES 250 AND 350 CAST AND FABRICATED CONCENTRIC REDUCERS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 250 Cast Concentric Reducer		Figure 350 Fabricated Concentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
16 x 8 400 x 200	16.000 x 8.625 406,4 x 219,1	-	-	14.00 355,6	66 29,9
16 x 267,4mm 400 x 250	16.000 x 10.528 406,4 x 267,4	-	-	14.00 355,6	62.9 28,5
16 x 10 400 x 250	16.000 x 10.750 406,4 x 273,0	-	-	14.00 355,6	69.8 31,7
16 x 318,5mm 400 x 300	16.000 x 12.539 406,4 x 318,5	-	-	14.00 355,6	63.3 28,7
16 x 12 400 x 300	16.000 x 12.750 406,4 x 323,9	-	-	14.00 355,6	71.4 32,4
16 x 14 400 x 350	16.000 x 14.000 406,4 x 355,6	-	-	14.00 355,6	71.7 32,5
18 x 12 450 x 300	18.000 x 12.750 457,2 x 323,9	-	-	15.00 381,0	86.4 39,2
18 x 14 450 x 350	18.000 x 14.000 457,2 x 355,6	-	-	15.00 381,0	86.8 39,2
18 x 16 450 x 400	18.000 x 16.000 457,2 x 406,4	-	-	15.00 381,0	87.0 39,5
20 x 10 500 x 250	20.000 x 10.750 508,0 x 273,0	-	-	20.00 508,0	120.2 54,5
20 x 12 500 x 300	20.000 x 12.750 508,0 x 323,9	-	-	20.00 508,0	124.0 56,2
20 x 14 500 x 350	20.000 x 14.000 508,0 x 355,6	-	-	20.00 508,0	125.5 56,9
20 x 16 500 x 400	20.000 x 16.000 508,0 x 406,4	-	-	20.00 508,0	127.4 57,8
20 x 18 500 x 450	20.000 x 18.000 508,0 x 457,2	-	-	20.00 508,0	128.5 58,3
24 x 10 600 x 250	24.000 x 10.750 609,6 x 273,0	-	-	20.00 508,0	146.8 66,6
24 x 12 600 x 300	24.000 x 12.750 609,6 x 323,9	-	-	20.00 508,0	150.7 68,4
24 x 14 600 x 350	24.000 x 14.000 609,6 x 355,6	-	-	20.00 508,0	152.1 69,0
24 x 16 600 x 400	24.000 x 16.000 609,6 x 406,4	-	-	20.00 508,0	154.0 69,9
24 x 18 600 x 450	24.000 x 18.000 609,6 x 457,2	-	-	20.00 508,0	155.2 70,4
24 x 20 600 x 500	24.000 x 20.000 609,6 x 508,0	-	-	20.00 508,0	155.4 70,5

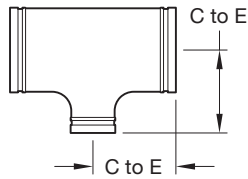


**FIGURE 250  
CAST CONCENTRIC  
REDUCER**

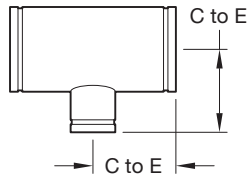


**FIGURE 350  
FABRICATED CONCENTRIC  
REDUCER**

**TABLE 11 (6 OF 6)  
FIGURES 250 AND 350 CAST AND FABRICATED CONCENTRIC REDUCERS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 221  
 CAST REDUCING TEE**



**FIGURE 321  
 FABRICATED  
 REDUCING TEE  
 (SEGMENT WELDED)**

Nominal Pipe Size		Figure 221 Cast Reducing Tee		Figure 321 Fabricated Reducing Tee	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
1-1/2 x 1-1/2 x 1-1/4 40 x 40 x 32	1.900 x 1.900 x 1.660 48,3 x 48,3 x 42,4	-	-	2.75 69,9	1.5 0,7
2 x 2 x 1 50 x 50 x 25	2.375 x 2.375 x 1.315 60,3 x 60,3 x 33,4	-	-	3.25 82,6	2.1 0,9
2 x 2 x 1-1/2 50 x 50 x 40	2.375 x 2.375 x 1.900 60,3 x 60,3 x 48,3	3.25 82,6	2.7 1,2	3.25 82,6	2.3 1,0
2-1/2 x 2-1/2 x 1 65 x 65 x 25	2.874 x 2.874 x 1.315 73,0 x 73,0 x 33,4	-	-	3.75 95,3	2.8 1,3
2-1/2 x 2-1/2 x 1-1/4 65 x 65 x 32	2.874 x 2.874 x 1.660 73,0 x 73,0 x 42,4	-	-	3.75 95,3	3.0 1,4
2-1/2 x 2-1/2 x 1-1/2 65 x 65 x 40	2.874 x 2.874 x 1.900 73,0 x 73,0 x 48,3	-	-	3.75 95,3	3.0 1,4
2-1/2 x 2-1/2 x 2 65 x 65 x 50	2.874 x 2.87 x 2.375 73,0 x 73,0 x 60,3	3.75 95,3	4.2 1,9	3.75 95,3	3.1 1,4
76,1mm x 76,1mm x 1 65 x 65 x 25	3.000 x 3.000 x 1.315 76,1 x 76,1 x 33,4	-	-	3.75 95,3	3.6 1,6
76,1mm x 76,1mm x 1-1/4 65 x 65 x 32	3.000 x 3.000 x 1.660 76,1 x 76,1 x 42,4	-	-	3.75 95,3	3.7 1,7
76,1mm x 76,1mm x 1-1/2 65 x 65 x 40	3.000 x 3.000 x 1.900 76,1 x 76,1 x 48,3	3.75 95,3	4.5 2,0	3.75 95,3	3.8 1,7
76,1mm x 76,1mm x 2 65 x 65 x 50	3.000 x 3.000 x 2.375 76,1 x 76,1 x 60,3	3.75 95,3	4.3 2,0	3.75 95,3	4.0 1,8
3 x 3 x 1 80 x 80 x 25	3.500 x 3.500 x 1.315 88,9 x 88,9 x 33,4	4.25 108,0	5.6 2,5	4.25 108,0	5.5 2,5
3 x 3 x 1-1/2 80 x 80 x 40	3.500 x 3.500 x 1.900 88,9 x 88,9 x 48,3	4.25 108,0	5.9 2,7	4.25 108,0	5.6 2,5
3 x 3 x 2 80 x 80 x 50	3.500 x 3.500 x 2.375 88,9 x 88,9 x 60,3	4.25 108,0	6.0 2,7	4.25 108,0	5.8 2,6
3 x 3 x 2-1/2 80 x 80 x 65	3.500 x 3.500 x 2.874 88,9 x 88,9 x 73,0	4.25 108,0	6.2 2,8	4.25 108,0	6.0 2,7
3 x 3 x 76,1mm 80 x 80 x 65	3.500 x 3.500 x 3.000 88,9 x 88,9 x 76,1	4.25 108,0	6.0 2,7	4.25 108,0	6.1 2,8
108,0mm x 108,0mm x 2 100 x 100 x 50	4.252 x 4.252 x 2.375 108,0 x 108,0 x 60,3	-	-	5.00 127,0	5.7 2,6
108,0mm x 108,0mm x 2-1/2 100 x 100 x 65	4.252 x 4.252 x 2.874 108,0 x 108,0 x 73,0	-	-	5.00 127,0	6.0 2,7
108,0mm x 108,0mm x 76,1mm 100 x 100 x 65	4.252 x 4.252 x 3.000 108,0 x 108,0 x 76,1	-	-	5.00 127,0	6.1 2,8
108,0mm x 108,0mm x 3 100 x 100 x 80	4.252 x 4.252 x 3.500 108,0 x 108,0 x 88,9	-	-	5.00 127,0	6.6 2,9
4 x 4 x 1 100 x 100 x 25	4.500 x 4.500 x 1.315 114,3 x 114,3 x 33,4	-	-	5.00 127,0	9.0 4,0
4 x 4 x 1-1/4 100 x 100 x 32	4.500 x 4.500 x 1.660 114,3 x 114,3 x 42,4	-	-	5.00 127,0	9.1 4,1
4 x 4 x 1-1/2 100 x 100 x 40	4.500 x 4.500 x 1.900 114,3 x 114,3 x 48,3	-	-	5.00 127,0	9.2 4,1
4 x 4 x 2 100 x 100 x 50	4.500 x 4.500 x 2.375 114,3 x 114,3 x 60,3	5.00 127,0	9.1 4,1	5.00 127,0	9.3 4,2
4 x 4 x 2-1/2 100 x 100 x 65	4.500 x 4.500 x 2.874 114,3 x 114,3 x 73,0	5.00 127,0	9.5 4,3	5.00 127,0	9.7 4,4
4 x 4 x 76,1mm 125 x 125 x 65	4.500 x 4.500 x 3.000 114,3 x 114,3 x 76,1	5.00 127,0	9.5 4,3	5.00 127,0	9.7 4,4

**TABLE 12 (1 OF 6)  
 FIGURES 221 AND 321 CAST AND FABRICATED REDUCING TEES  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 221 Cast Reducing Tee		Figure 321 Fabricated Reducing Tee	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
4 x 4 x 3 100 x 100 x 80	4.500 x 4.500 x 3.500 114,3 x 114,3 x 88,9	5.00 127,0	9.7 4,4	5.00 127,0	10.1 4,6
133,0mm x 133,0mm x 2 125 x 125 x 50	5.250 x 5.250 x 2.375 133,0 x 133,0 x 60,3	-	-	5.50 139,7	8.2 3,7
133,0mm x 133,0mm x 2-1/2 125 x 125 x 65	5.250 x 5.250 x 2.874 133,0 x 133,0 x 73,0	-	-	5.50 139,7	8.6 3,9
133,0mm x 133,0mm x 76,1mm 125 x 125 x 65	5.250 x 5.250 x 3.000 133,0 x 133,0 x 76,1	-	-	5.50 139,7	8.7 3,9
133,0mm x 133,0mm x 3 125 x 125 x 80	5.250 x 5.250 x 3.500 133,0 x 133,0 x 88,9	-	-	5.50 139,7	9.1 4,1
133,0mm x 133,0mm x 108,0mm 125 x 125 x 100	5.250 x 5.250 x 4.252 133,0 x 133,0 x 108,0	-	-	5.50 139,7	8.5 3,9
133,0mm x 133,0mm x 4 125 x 125 x 100	5.250 x 5.250 x 4.500 133,0 x 133,0 x 114,3	-	-	5.50 139,7	9.8 4,4
139,7mm x 139,7mm x 2 125 x 125 x 50	5.500 x 5.500 x 2.375 139,7 x 139,7 x 60,3	-	-	5.50 139,7	10.1 4,6
139,7mm x 139,7mm x 2-1/2 125 x 125 x 65	5.500 x 5.500 x 2.874 139,7 x 139,7 x 73,0	-	-	5.50 139,7	10.5 4,8
139,7mm x 139,7mm x 76,1mm 125 x 125 x 65	5.500 x 5.500 x 3.000 139,7 x 139,7 x 76,1	-	-	5.50 139,7	10.5 4,8
139,7mm x 139,7mm x 3 125 x 125 x 80	5.500 x 5.500 x 3.500 139,7 x 139,7 x 88,9	5.50 139,7	12.7 5,8	5.50 139,7	11.0 4,9
139,7mm x 139,7mm x 4 125 x 125 x 100	5.500 x 5.500 x 4.500 139,7 x 139,7 x 114,3	5.50 139,7	13.4 6,1	5.50 139,7	11.5 5,2
5 x 5 x 2 125 x 125 x 50	5.563 x 5.563 x 2.375 141,3 x 141,3 x 60,3	-	-	5.50 139,7	13.6 6,2
5 x 5 x 2-1/2 125 x 125 x 65	5.563 x 5.563 x 2.874 141,3 x 141,3 x 73,0	5.50 139,7	18.0 8,2	5.50 139,7	14.0 6,4
5 x 5 x 76,1mm 125 x 125 x 65	5.563 x 5.563 x 3.000 141,3 x 141,3 x 76,1	-	-	5.50 139,7	14.0 6,4
5 x 5 x 3 125 x 125 x 80	5.563 x 5.563 x 3.500 141,3 x 141,3 x 88,9	5.50 139,7	14.0 6,4	5.50 139,7	14.3 6,5
5 x 5 x 4 125 x 125 x 100	5.563 x 5.563 x 4.500 141,3 x 141,3 x 114,3	5.50 139,7	13.9 6,3	5.50 139,7	14.8 6,7
159,0mm x 159,0mm x 2-1/2 150 x 150 x 65	6.250 x 6.250 x 2.874 159,0 x 159,0 x 73,0	-	-	6.50 165,1	13.3 6,0
159,0mm x 159,0mm x 76,1mm 150 x 150 x 65	6.250 x 6.250 x 3.000 159,0 x 159,0 x 76,1	-	-	6.50 165,1	13.4 6,1
159,0mm x 159,0mm x 3 150 x 150 x 80	6.250 x 6.250 x 3.500 159,0 x 159,0 x 88,9	-	-	6.50 165,1	13.9 6,3
159,0mm x 159,0mm x 108,0mm 150 x 150 x 100	6.250 x 6.250 x 4.252 159,0 x 159,0 x 108,0	-	-	6.50 165,1	13.2 6,0
159,0mm x 159,0mm x 4 150 x 150 x 100	6.250 x 6.250 x 4.500 159,0 x 159,0 x 114,3	-	-	6.50 165,1	14.7 6,7
159,0mm x 159,0mm x 133,0mm 150 x 150 x 125	6.250 x 6.250 x 5.250 159,0 x 159,0 x 133,0	-	-	6.50 165,1	13.7 6,2
159,0mm x 159,0mm x 139,7mm 150 x 150 x 125	6.250 x 6.250 x 6.500 159,0 x 159,0 x 139,7	-	-	6.50 165,1	14.5 6,6
159,0mm x 159,0mm x 5 150 x 150 x 125	6.250 x 6.250 x 5.63 159,0 x 159,0 x 141,3	-	-	6.50 165,1	15.7 7,1
165,1mm x 165,1mm x 2-1/2 150 x 150 x 65	6.500 x 6.500 x 2.874 165,1 x 165,1 x 73,0	-	-	6.50 165,1	15.2 6,9

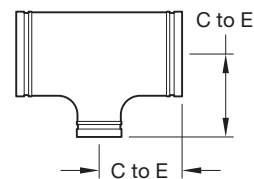


FIGURE 221  
CAST REDUCING TEE

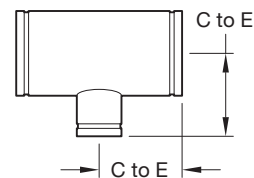
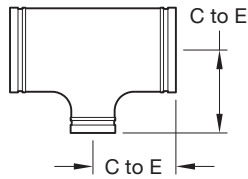
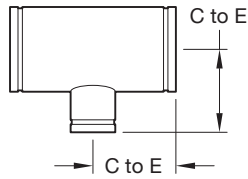


FIGURE 321  
FABRICATED  
REDUCING TEE  
(SEGMENT WELDED)

TABLE 12 (2 OF 6)  
FIGURES 221 AND 321 CAST AND FABRICATED REDUCING TEES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS



**FIGURE 221  
 CAST REDUCING TEE**

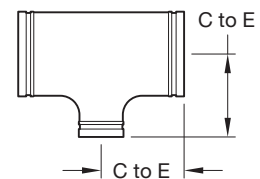


**FIGURE 321  
 FABRICATED  
 REDUCING TEE  
 (SEGMENT WELDED)**

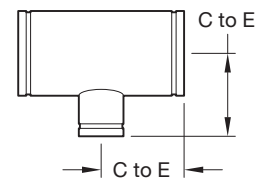
Nominal Pipe Size		Figure 221 Cast Reducing Tee		Figure 321 Fabricated Reducing Tee	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
165,1mm x 165,1mm x 76,1mm 150 x 150 x 65	6.500 x 6.500 x 3.000 165,1 x 165,1 x 76,1	-	-	6.50 165,1	15.2 6,9
165,1mm x 165,1mm x 139,7mm 150 x 150 x 125	6.500 x 6.500 x 5.500 165,1 x 165,1 x 139,7	-	-	6.50 165,1	15.2 6,9
165,1mm x 165,1mm x 3 150 x 150 x 80	6.500 x 6.500 x 3.500 165,1 x 165,1 x 88,9	6.50 165,1	18.0 8,2	6.50 165,1	15.7 7,1
165,1mm x 165,1mm x 4 150 x 150 x 100	6.500 x 6.500 x 4.500 165,1 x 165,1 x 114,3	6.50 165,1	19.5 8,9	6.50 165,1	16.4 7,4
165,1mm x 165,1mm x 5 150 x 150 x 125	6.500 x 6.500 x 5.563 165,1 x 165,1 x 141,3	-	-	6.50 165,1	17.3 7,8
6 x 6 x 2 150 x 150 x 50	6.625 x 6.625 x 2.375 168,3 x 168,3 x 60,3	6.50 165,1	19.4 8,8	6.50 165,1	20.8 9,4
6 x 6 x 2-1/2 150 x 150 x 65	6.625 x 6.625 x 2.874 168,3 x 168,3 x 73,0	6.50 165,1	21.2 9,8	6.50 165,1	21.2 9,6
6 x 6 x 76,1mm 150 x 150 x 65	6.625 x 6.625 x 3.000 168,3 x 168,3 x 76,1	6.50 165,1	21.2 9,8	6.50 165,1	21.2 9,6
6 x 6 x 3 150 x 150 x 80	6.625 x 6.625 x 3.500 168,3 x 168,3 x 88,9	6.50 165,1	21.0 9,5	6.50 165,1	21.6 9,8
6 x 6 x 4 150 x 150 x 100	6.625 x 6.625 x 4.500 168,3 x 168,3 x 114,3	6.50 165,1	21.8 9,9	6.50 165,1	22.2 10,1
6 x 6 x 139,7mm 150 x 150 x 125	6.625 x 6.625 x 5.500 168,3 x 168,3 x 139,7	6.50 165,1	23.0 10,4	6.50 165,1	21.7 9,8
6 x 6 x 5 150 x 150 x 125	6.625 x 6.625 x 5.563 168,3 x 168,3 x 141,3	-	-	6.50 165,1	22.9 10,4
216,3mm x 216,3mm x 2 200 x 200 x 50	8.516 x 8.516 x 2.375 216,3 x 216,3 x 60,3	-	-	7.75 196,9	26.2 11,8
216,3mm x 216,3mm x 2-1/2 200 x 200 x 65	8.516 x 8.516 x 2.874 216,3 x 216,3 x 73,0	-	-	7.75 196,9	26.7 12,1
216,3mm x 216,3mm x 76,1mm 200 x 200 x 65	8.516 x 8.516 x 3.000 216,3 x 216,3 x 76,1	-	-	7.75 196,9	26.7 12,1
216,3mm x 216,3mm x 3 200 x 200 x 80	8.516 x 8.516 x 3.500 216,3 x 216,3 x 88,9	-	-	7.75 196,9	27.2 12,3
216,3mm x 216,3mm x 4 200 x 200 x 100	8.516 x 8.516 x 4.500 216,3 x 216,3 x 114,1	-	-	7.75 196,9	27.8 12,6
216,3mm x 216,3mm x 139,7mm 200 x 200 x 125	8.516 x 8.516 x 5.500 216,3 x 216,3 x 139,7	-	-	7.75 196,9	27.5 12,5
216,3mm x 216,3mm x 5 200 x 200 x 125	8.516 x 8.516 x 5.563 216,3 x 216,3 x 141,3	-	-	7.75 196,9	28.7 13,0
216,3mm x 216,3mm x 165,1mm 200 x 200 x 150	8.516 x 8.516 x 6.500 216,3 x 216,3 x 165,1	-	-	7.75 196,9	28.3 12,8
216,3mm x 216,3mm x 6 200 x 200 x 150	8.516 x 8.516 x 6.625 216,3 x 216,3 x 168,3	-	-	7.75 196,9	29.8 13,5
8 x 8 x 2 200 x 200 x 50	8.625 x 8.625 x 2.375 219,1 x 219,1 x 60,3	-	-	7.75 196,9	36.9 16,7
8 x 8 x 2-1/2 200 x 200 x 65	8.625 x 8.625 x 2.874 219,1 x 219,1 x 73,0	-	-	7.75 196,9	37.3 17,0
8 x 8 x 76,1mm 200 x 200 x 65	8.625 x 8.625 x 3.000 216,1 x 219,1 x 76,1	-	-	7.75 196,9	37.3 17,0
8 x 8 x 3 200 x 200 x 80	8.625 x 8.625 x 3.500 219,1 x 219,1 x 88,9	-	-	7.75 196,9	37.7 17,1
8 x 8 x 4 200 x 200 x 100	8.625 x 8.625 x 4.500 219,1 x 219,1 x 114,1	7.75 196,9	37.2 16,9	7.75 196,9	38.2 17,3

**TABLE 12 (3 OF 6)  
 FIGURES 221 AND 321 CAST AND FABRICATED REDUCING TEES  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 221 Cast Reducing Tee		Figure 321 Fabricated Reducing Tee	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
8 x 8 x 139,7mm 200 x 200 x 125	8.625 x 8.625 x 5.563 219,1 x 219,1 x 139,7	7.75 196,9	37.7 17,1	7.75 196,9	37.7 17,1
8 x 8 x 5 200 x 200 x 125	8.625 x 8.625 x 5.500 219,1 x 219,1 x 141,3	-	-	7.75 196,9	38.8 17,6
8 x 8 x 165,1mm 200 x 200 x 150	8.625 x 8.625 x 6.500 219,1 x 219,1 x 165,1	7.75 196,9	37.7 17,1	7.75 196,9	38.2 17,3
8 x 8 x 6 200 x 200 x 150	8.625 x 8.625 x 6.625 219,1 x 219,1 x 168,3	7.75 196,9	37.4 17,0	7.75 196,9	38.2 17,3
267,4mm x 267,4mm x 4 250 x 250 x 100	10.528 x 10.528 x 4.500 267,4 x 267,4 x 114,3	-	-	9.00 228,6	44.3 20,1
267,4mm x 267,4mm x 139,7mm 250 x 250 x 125	10.528 x 10.528 x 5.500 267,4 x 267,4 x 139,7	-	-	9.00 228,6	43.9 19,9
267,4mm x 267,4mm x 5 250 x 250 x 125	10.528 x 10.528 x 5.563 267,4 x 267,4 x 141,3	-	-	9.00 228,6	45.1 20,4
267,4mm x 267,4mm x 165,1mm 250 x 250 x 150	10.528 x 10.528 x 6.500 267,4 x 267,4 x 165,1	-	-	9.00 228,6	44.6 20,2
267,4mm x 267,4mm x 6 250 x 250 x 150	10.528 x 10.528 x 6.625 267,4 x 267,4 x 168,3	-	-	9.00 228,6	44.6 20,2
267,4mm x 267,4mm x 216,3mm 250 x 250 x 200	10.528 x 10.528 x 8.516 267,4 x 267,4 x 216,3	-	-	9.00 228,6	45.6 20,7
267,4mm x 267,4mm x 8 250 x 250 x 200	10.528 x 10.528 x 8.625 267,4 x 267,4 x 219,1	-	-	9.00 228,6	45.6 20,7
10 x 10 x 2 250 x 250 x 50	10.750 x 10.750 x 2.375 273,0 x 273,0 x 60,3	-	-	9.00 228,6	60.5 20,7
10 x 10 x 3 250 x 250 x 80	10.750 x 10.750 x 3.500 273,0 x 273,0 x 88,9	-	-	9.00 228,6	61.2 27,8
10 x 10 x 4 250 x 250 x 100	10.750 x 10.750 x 4.500 273,0 x 273,0 x 114,3	-	-	9.00 228,6	61.7 27,9
10 x 10 x 139,7mm 250 x 250 x 125	10.750 x 10.750 x 5.500 273,0 x 273,0 x 139,7	-	-	9.00 228,6	61.0 27,6
10 x 10 x 5 250 x 250 x 125	10.750 x 10.750 x 5.563 273,0 x 273,0 x 141,3	-	-	9.00 228,6	62.3 28,3
10 x 10 x 165,1mm 250 x 250 x 150	10.75 x 10.750 x 6.500 273,0 x 273,0 x 165,1	-	-	9.00 228,6	61.5 27,8
10 x 10 x 6 250 x 250 x 150	10.750 x 10.750 x 6.625 273,0 x 273,0 x 168,3	-	-	9.00 228,6	61.4 27,8
10 x 10 x 216,3mm 250 x 250 x 200	10.750 x 10.750 x 8.516 273,0 x 273,0 x 216,3	-	-	9.00 228,6	61.6 27,9
10 x 10 x 8 250 x 250 x 200	10.750 x 10.750 x 8.625 273,0 x 273,0 x 219,1	-	-	9.00 228,6	61.6 27,9
318,5mm x 318,5mm x 4 300 x 300 x 100	12.539 x 12.539 x 4.500 318,5 x 318,5 x 114,3	-	-	10.00 254,0	60.5 27,4
318,5mm x 318,5mm x 139,7mm 300 x 300 x 125	12.539 x 12.539 x 5.500 318,5 x 318,5 x 139,7	-	-	10.00 254,0	60.0 27,2
318,5mm x 318,5mm x 5 300 x 300 x 125	12.539 x 12.539 x 5.563 318,5 x 318,5 x 141,3	-	-	10.00 254,0	61.2 27,8
318,5mm x 318,5mm x 165,1mm 300 x 300 x 150	12.539 x 12.539 x 6.500 318,5 x 318,5 x 165,1	-	-	10.00 254,0	60.7 27,5
318,5mm x 318,5mm x 6 300 x 300 x 150	12.539 x 12.539 x 6.625 318,5 x 318,5 x 168,3	-	-	10.00 254,0	60.7 27,5
318,5mm x 318,5mm x 216,3mm 300 x 300 x 200	12.539 x 12.539 x 8.516 318,5 x 318,5 x 216,3	-	-	10.00 254,0	61.5 27,9

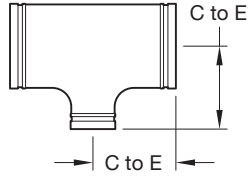


**FIGURE 221  
CAST REDUCING TEE**

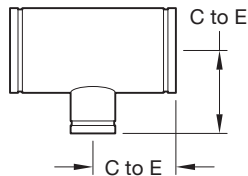


**FIGURE 321  
FABRICATED  
REDUCING TEE  
(SEGMENT WELDED)**

**TABLE 12 (4 OF 6)  
FIGURES 221 AND 321 CAST AND FABRICATED REDUCING TEES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 221  
 CAST REDUCING TEE**



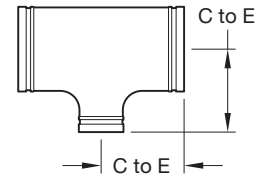
**FIGURE 321  
 FABRICATED  
 REDUCING TEE  
 (SEGMENT WELDED)**

Nominal Pipe Size		Figure 221 Cast Reducing Tee		Figure 321 Fabricated Reducing Tee	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
318,5mm x 318,5mm x 8 300 x 300 x 200	12.539 x 12.539 x 8.625 318,5 x 318,5 x 219,1	-	-	10.00 254,0	61.5 27,9
318,5mm x 318,5mm x 267,4mm 300 x 300 x 250	12.539 x 12.539 x 10.528 318,5 x 318,5 x 267,4	-	-	10.00 254,0	62.2 28,2
318,5mm x 318,5mm x 10 300 x 300 x 250	12.539 x 12.539 x 10.750 318,5 x 318,5 x 273,0	-	-	10.00 254,0	62.2 28,2
12 x 12 x 3 300 x 300 x 80	12.750 x 12.750 x 3.500 323,9 x 323,9 x 88,9	-	-	10.00 254,0	82.7 37,5
12 x 12 x 4 300 x 300 x 100	12.750 x 12.750 x 4.500 323,9 x 323,9 x 114,3	-	-	10.00 254,0	83.1 37,7
12 x 12 x 139,7mm 300 x 300 x 125	12.750 x 12.750 x 5.500 323,9 x 323,9 x 139,7	-	-	10.00 254,0	82.5 37,4
12 x 12 x 5 300 x 300 x 125	12.750 x 12.750 x 5.563 323,9 x 323,9 x 141,3	-	-	10.00 254,0	83.7 37,9
12 x 12 x 165,1mm 300 x 300 x 150	12.750 x 12.750 x 6.500 323,9 x 323,9 x 165,1	-	-	10.00 254,0	82.8 38,0
12 x 12 x 6 300 x 300 x 150	12.750 x 12.750 x 6.625 323,9 x 323,9 x 168,3	-	-	10.00 254,0	82.8 38,0
12 x 12 x 216,3mm 300 x 300 x 200	12.750 x 12.750 x 8.516 323,9 x 323,9 x 216,3	-	-	10.00 254,0	82.8 38,0
12 x 12 x 8 300 x 300 x 200	12.750 x 12.750 x 8.625 323,9 x 323,9 x 219,1	-	-	10.00 254,0	82.8 38,0
12 x 12 x 267,4mm 300 x 300 x 250	12.750 x 12.750 x 10.528 323,9 x 323,9 x 267,4	-	-	10.00 254,0	82.5 37,4
12 x 12 x 10 300 x 300 x 250	12.750 x 12.750 x 10.750 323,9 x 323,9 x 273,0	-	-	10.00 254,0	82.4 37,4
14 x 14 x 6 350 x 350 x 150	14.000 x 14.000 x 6.625 355,6 x 355,6 x 168,3	-	-	11.00 279,4	100.5 45,6
14 x 14 x 8 350 x 350 x 200	14.000 x 14.000 x 8.625 355,6 x 355,6 x 219,1	-	-	11.00 279,4	100.7 45,7
14 x 14 x 10 350 x 350 x 250	14.000 x 14.000 x 10.750 355,6 x 355,6 x 273,0	-	-	11.00 279,4	100.5 45,6
14 x 14 x 12 350 x 350 x 300	14.000 x 14.000 x 12.750 355,6 x 355,6 x 323,9	-	-	11.00 279,4	101.3 45,9
16 x 16 x 4 400 x 400 x 100	16.000 x 16.000 x 4.500 406,4 x 406,4 x 114,3	-	-	12.00 304,8	125.5 56,9

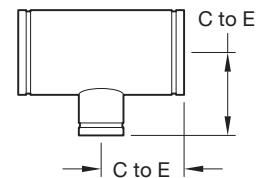
**TABLE 12 (5 OF 6)  
 FIGURES 221 AND 321 CAST AND FABRICATED REDUCING TEES  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		Figure 221 Cast Reducing Tee		Figure 321 Fabricated Reducing Tee	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
16 x 16 x 8 400 x 400 x 200	16.000 x 16.000 x 8.625 406,4 x 406,4 x 219,1	-	-	12.00 304,8	125.6 57,0
16 x 16 x 10 400 x 400 x 250	16.000 x 16.000 x 10.750 406,4 x 406,4 x 273,0	-	-	12.00 304,8	125.7 57,0
16 x 16 x 12 400 x 400 x 300	16.000 x 16.000 x 12.750 406,4 x 406,4 x 323,9	-	-	12.00 304,8	125.8 57,1
16 x 16 x 14 400 x 400 x 350	16.000 x 16.000 x 14.000 406,4 x 406,4 x 355,6	-	-	12.00 304,8	132.3 60,0
18 x 18 x 8 450 x 450 x 200	18.000 x 18.000 x 8.625 457,2 x 457,2 x 219,1	-	-	15.50 393,7	186.7 84,7
18 x 18 x 10 450 x 450 x 250	18.000 x 18.000 x 10.750 457,2 x 457,2 x 273,0	-	-	15.50 393,7	187.7 85,1
18 x 18 x 12 450 x 450 x 300	18.000 x 18.000 x 12.750 457,2 x 457,2 x 323,9	-	-	15.50 393,7	190.2 86,2
18 x 18 x 14 450 x 450 x 350	18.000 x 18.000 x 14.000 457,2 x 457,2 x 355,6	-	-	15.50 393,7	199.8 90,6
18 x 18 x 16 450 x 450 x 400	18.000 x 18.000 x 16.000 457,2 x 457,2 x 406,4	-	-	15.50 393,7	202.1 91,7
20 x 20 x 14 500 x 500 x 350	20.000 x 20.000 x 14.000 508,0 x 508,0 x 355,6	-	-	17.25 450,9	246.0 111,6
20 x 20 x 16 500 x 500 x 400	20.000 x 20.000 x 16.000 508,0 x 508,0 x 406,4	-	-	17.25 450,9	248.5 112,7
20 x 20 x 18 500 x 500 x 450	20.000 x 20.000 x 18.000 508,0 x 508,0 x 457,2	-	-	17.25 450,9	251.0 113,8
24 x 24 x 10 600 x 600 x 250	24.000 x 24.000 x 10.750 609,6 x 609,6 x 273,0	-	-	20.00 508,0	321.3 145,7
24 x 24 x 12 600 x 600 x 300	24.000 x 24.000 x 12.750 609,6 x 609,6 x 323,9	-	-	20.00 508,0	324.6 147,2
24 x 24 x 14 600 x 600 x 350	24.000 x 24.000 x 14.000 609,6 x 609,6 x 355,6	-	-	20.00 508,0	335.8 152,3
24 x 24 x 16 600 x 600 x 400	24.000 x 24.000 x 16.000 609,6 x 609,6 x 406,4	-	-	20.00 508,0	338.3 153,5
24 x 24 x 18 600 x 600 x 450	24.000 x 24.000 x 18.000 609,6 x 609,6 x 457,2	-	-	20.00 508,0	340.7 154,5
24 x 24 x 20 600 x 600 x 500	24.000 x 24.000 x 20.000 609,6 x 609,6 x 508,0	-	-	20.00 508,0	343.1 155,6

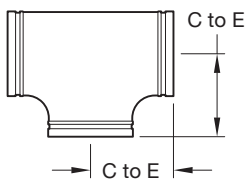


**FIGURE 221  
CAST REDUCING TEE**

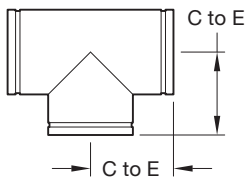


**FIGURE 321  
FABRICATED  
REDUCING TEE  
(SEGMENT WELDED)**

**TABLE 12 (6 OF 6)  
FIGURES 221 AND 321 CAST AND FABRICATED REDUCING TEES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 219  
CAST TEE**

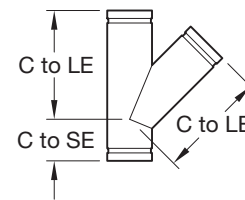


**FIGURE 319  
FABRICATED TEE  
(SEGMENT WELDED)**

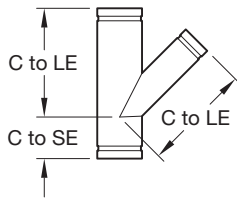
Nominal Pipe Size		Figure 219 Cast Tee		Figure 319 Fabricated Tee	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
1-1/4 32	1.660 42,4	2.75 69,9	1.7 0,8	2.75 69,9	2.2 0,9
1-1/2 40	1.900 48,3	2.75 69,9	2.1 1,0	2.75 69,9	2.6 1,2
2 50	2.375 60,3	3.25 82,6	2.7 1,2	3.25 82,6	3.6 1,6
2-1/2 65	2.874 73,0	3.75 95,3	4.4 2,0	3.75 95,3	5.8 2,6
76,1mm 65	3.000 76,1	3.75 95,3	6.5 2,9	3.75 95,3	4.2 1,9
3 80	3.500 88,9	4.25 108,0	6.5 2,9	4.25 108,0	7.6 3,4
4 100	4.500 114,3	5.00 127,0	10.7 4,8	5.00 127,0	10.7 4,9
139,7mm 125	5.500 139,7	5.50 139,7	15.2 6,9	5.50 139,7	10.6 4,8
5 125	5.563 141,3	5.50 139,7	15.5 7,0	5.50 139,7	13.9 6,3
165,1mm 150	6.500 165,1	6.50 165,1	24.2 11,0	6.50 165,1	13.2 5,9
6 150	6.625 168,3	6.50 165,1	23.0 10,4	6.50 165,1	18.9 8,6
216,3mm 200	8.500 216,3	7.75 196,9	43.0 19,5	7.75 196,9	19.9 9,0
8 200	8.625 219,1	7.75 196,9	43.7 19,8	7.75 196,9	28.3 12,8
267,4mm 250	10.528 267,4	-	-	9.00 228,6	30.8 13,9
10 250	10.750 273,0	9.00 228,6	57.0 25,9	9.00 228,6	44.4 20,1
318,5mm 300	12.539 318,5	-	-	10.00 254,0	45.3 20,5
12 300	12.750 323,9	10.00 254,0	110.0 49,9	10.00 254,0	63.3 28,7
14 350	14.000 355,6	11.00 279,0	135.0 61,2	11.00 279,0	76.0 34,5
16 400	16.000 406,4	12.00 305,0	136.0 61,7	12.00 305,0	94.0 42,6
18 450	18.000 457,2	-	-	15.50 394,0	129.0 58,5
20 500	20.000 508,0	-	-	17.25 438,0	158.0 71,6
24 600	24.000 609,6	-	-	20.00 508,0	216.0 97,9

**TABLE 13  
FIGURES 219 AND 319 CAST AND FABRICATED TEES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		C to LE Inches mm	C to SE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm			
1-1/4 32	1.660 42,4	5.75 146,1	2.50 63,5	1.4 0,6
1-1/2 40	1.900 48,3	6.25 158,8	2.75 69,9	1.7 0,8
2 50	2.375 60,3	7.00 177,8	2.75 69,9	2.5 1,1
2-1/2 65	2.874 73,0	7.75 196,9	3.00 76,2	4.4 2,0
76,1mm 65	3.000 76,1	7.75 196,9	3.00 76,2	4.4 2,0
3 80	3.500 88,9	8.50 215,9	3.25 82,6	6.4 2,9
108,0mm 100	4.252 108,0	10.50 266,7	3.75 95,3	9.7 4,4
4 100	4.500 114,3	10.50 266,7	3.75 95,3	10.5 4,8
133,0mm 125	5.250 133,0	12.50 317,5	4.00 102,0	15.6 7,1
139,7mm 125	5.500 139,7	12.50 317,5	4.00 102,0	30.0 13,6
5 125	5.563 141,3	12.50 317,5	4.00 101,6	15.2 6,9
159,0mm 150	6.250 159,0	14.00 355,6	4.50 114,3	20.6 9,4
165,1mm 150	6.500 165,1	14.00 355,6	4.50 114,3	22.9 10,4
6 150	6.625 168,3	14.00 355,6	4.50 114,3	22.9 10,4
216,3mm 200	8.516 216,3	18.00 457,2	6.00 152,4	38.4 17,4
8 200	8.625 219,1	18.00 457,2	6.00 152,4	41.9 19,0
267,4mm 250	10.528 267,4	20.50 520,7	6.50 165,7	59.1 26,8
10 250	10.750 273,0	20.50 520,7	6.50 165,7	66.2 30,0
318,5mm 300	12.539 318,5	23.00 584,2	7.00 177,8	84.0 38,1
12 300	12.750 323,9	23.00 584,2	7.00 177,8	87.7 39,8
14 350	14.000 355,6	26.50 673,1	7.50 190,5	105.3 47,8
16 400	16.000 406,4	29.00 736,6	8.00 203,2	129.1 58,6
18 450	18.000 457,2	32.00 812,8	8.50 215,9	184.4 83,6
20 500	20.000 508,0	35.00 889,0	9.00 238,6	225.8 102,4
24 600	24.000 609,6	40.00 1016,0	10.00 254,0	308.5 139,9



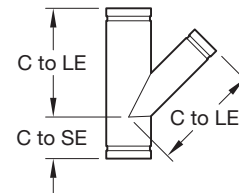
**TABLE 14**  
**FIGURE 314 FABRICATED 45° LATERALS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



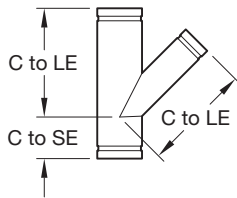
Nominal Pipe Size		C to LE Inches mm	C to SE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm			
3 x 3 x 2 80 x 80 x 50	3.500 x 3.500 x 2.375 88,9 x 88,9 x 60,3	8.50 215,9	3.25 82,6	9.0 4,1
3 x 3 x 2-1/2 80 x 80 x 65	3.500 x 3.500 x 2.874 88,9 x 88,9 x 73,0	8.50 215,9	3.25 82,6	9.9 4,5
3 x 3 x 76,1mm 80 x 80 x 65	3.500 x 3.500 x 3.000 88,9 x 88,9 x 76,1	8.50 216,0	3.25 83,0	9.0 4,1
108,0mm x 108,0mm x 2 100 x 100 x 50	4.252 x 4.252 x 2.375 108,0 x 108,0 x 60,3	10.50 266,7	3.75 95,3	12.3 5,6
108,0mm x 108,0mm x 2-1/2 100 x 100 x 65	4.252 x 4.252 x 2.874 108,0 x 108,0 x 73,0	10.50 266,7	3.75 95,3	13.6 6,2
108,0mm x 108,0mm x 76,1mm 100 x 100 x 65	4.252 x 4.252 x 3.000 108,0 x 108,0 x 76,1	10.50 266,7	3.75 95,3	12.6 5,7
108,0mm x 108,0mm x 3 100 x 100 x 80	4.252 x 4.252 x 3.500 108,0 x 108,0 x 88,9	10.50 266,7	3.75 95,3	14.6 6,6
4 x 4 x 2 100 x 100 x 50	4.500 x 4.500 x 2.375 114,3 x 114,3 x 60,3	10.50 266,7	3.75 95,3	14.5 6,6
4 x 4 x 2-1/2 100 x 100 x 65	4.500 x 4.500 x 2.874 114,3 x 114,3 x 73,0	10.50 266,7	3.75 95,3	15.7 7,1
4 x 4 x 76,1mm 100 x 100 x 65	4.500 x 4.500 x 3.000 114,3 x 114,3 x 76,1	10.50 266,7	3.75 95,3	14.7 6,7
4 x 4 x 3 100 x 100 x 80	4.500 x 4.500 x 3.500 114,3 x 114,3 x 88,9	10.50 266,7	3.75 95,3	16.6 7,5
133,0mm x 133,0mm x 2 125 x 125 x 50	5.250 x 5.250 x 2.375 133,0 x 133,0 x 60,3	12.50 317,5	4.00 102,0	13.8 6,3
133,0mm x 133,0mm x 2-1/2 125 x 125 x 65	5.250 x 5.250 x 2.874 133,0 x 133,0 x 73,0	12.50 317,5	4.00 102,0	15.3 6,9
133,0mm x 133,0mm x 76,1mm 125 x 125 x 65	5.250 x 5.250 x 2.874 133,0 x 133,0 x 76,1	12.50 317,5	4.00 102,0	14.2 6,4
133,0mm x 133,0mm x 3 125 x 125 x 80	5.250 x 5.250 x 3.500 133,0 x 133,0 x 88,9	12.50 317,5	4.00 102,0	16.6 7,5
133,0mm x 133,0mm x 4 125 x 125 x 100	5.250 x 5.250 x 4.500 133,0 x 133,0 x 114,3	12.50 317,5	4.00 102,0	18.9 8,6
139,7mm x 139,7mm x 2 125 x 125 x 50	5.500 x 5.500 x 2.375 139,7 x 139,7 x 60,3	12.50 317,5	4.00 102,0	17.2 7,8
139,7mm x 139,7mm x 2-1/2 125 x 125 x 65	5.250 x 5.250 x 2.874 139,7 x 139,7 x 73,0	12.50 317,5	4.00 102,0	18.7 8,5
133,0mm x 133,0mm x 76,1mm 125 x 125 x 65	5.250 x 5.250 x 2.874 139,7 x 139,7 x 76,1	12.50 317,5	4.00 102,0	17.5 7,9
139,7mm x 139,7mm x 3 125 x 125 x 80	5.500 x 5.500 x 3.500 139,7 x 139,7 x 88,9	12.50 317,5	4.00 102,0	19.8 8,9
139,7mm x 139,7mm x 4 125 x 125 x 100	5.500 x 5.500 x 4.500 139,7 x 139,7 x 114,3	12.50 317,5	4.00 102,0	21.2 9,6
5 x 5 x 2 125 x 125 x 50	5.563 x 5.563 x 2.375 141,3 x 141,3 x 60,3	12.50 317,5	4.00 101,6	21.7 9,8
5 x 5 x 2-1/2 125 x 125 x 65	5.563 x 5.563 x 2.874 141,3 x 141,3 x 73,0	12.50 317,5	4.00 101,6	23.2 10,5
5 x 5 x 76,1mm 125 x 125 x 65	5.563 x 5.563 x 3.000 141,3 x 141,3 x 76,1	12.50 317,5	4.00 101,6	22.0 9,9
5 x 5 x 3 125 x 125 x 80	5.563 x 5.563 x 3.500 141,3 x 141,3 x 88,9	12.50 317,5	4.00 101,6	24.2 11,0
5 x 5 x 4 125 x 125 x 100	5.563 x 5.563 x 4.500 141,3 x 141,3 x 114,3	12.50 317,5	4.00 101,6	26.2 11,8
159,0mm x 159,0mm x 2 150 x 150 x 50	6.250 x 6.250 x 2.375 159,0 x 159,0 x 60,3	14.00 355,6	4.50 114,0	19.8 8,9

**TABLE 15 (1 OF 4)**  
**FIGURE 325 FABRICATED 45° REDUCING LATERALS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		C to LE Inches mm	C to SE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm			
159,0mm x 159,0mm x 76,1mm 150 x 150 x 65	6.250 x 6.250 x 3.000 159,0 x 159,0 x 76,1	14.00 355,6	4.50 114,0	20.2 9,1
159,0mm x 159,0mm x 3 150 x 150 x 80	6.250 x 6.250 x 3.500 159,0 x 159,0 x 88,9	14.00 355,6	4.50 114,0	22.8 10,3
159,0mm x 159,0mm x 4 150 x 150 x 100	6.250 x 6.250 x 4.500 159,0 x 159,0 x 114,3	14.00 355,6	4.50 114,0	25.2 11,4
159,0mm x 159,0mm x 133mm 150 x 150 x 125	6.250 x 6.250 x 5.250 159,0 x 159,0 x 133,0	14.00 355,6	4.50 114,0	23.0 10,4
159,0mm x 159,0mm x 139,7mm 150 x 150 x 125	6.250 x 6.250 x 5.500 159,0 x 159,0 x 139,7	14.00 355,6	4.50 114,0	25.2 11,4
165,1mm x 165,1mm x 2 150 x 150 x 50	6.500 x 6.500 x 2.375 165,1 x 165,1 x 60,3	14.00 355,6	4.50 114,0	22.4 10,2
165,1mm x 165,1mm x 76,1mm 150 x 150 x 65	6.500 x 6.500 x 3.000 165,1 x 165,1 x 76,1	14.00 355,6	4.50 114,0	22.8 10,3
165,1mm x 165,1mm x 3 150 x 150 x 80	6.500 x 6.500 x 3.500 165,1 x 165,1 x 88,9	14.00 355,6	4.50 114,0	25.3 11,5
165,1mm x 165,1mm x 4 150 x 150 x 100	6.500 x 6.500 x 4.500 165,1 x 165,1 x 114,3	14.00 355,6	4.50 114,0	27.6 12,5
165,1mm x 165,1mm x 133,0mm 150 x 150 x 125	6.50 x 6.500 x 5.250 165,1 x 165,1 x 133,0	14.00 355,6	4.50 114,0	25.3 11,5
165,1mm x 165,1mm x 139,7mm 150 x 150 x 125	6.500 x 6.500 x 5.500 165,1 x 165,1 x 139,7	14.00 355,6	4.50 114,0	27.5 12,5
6 x 6 x 2 150 x 150 x 50	6.625 x 6.625 x 2.375 168,3 x 168,3 x 60,3	14.00 355,6	4.50 114,3	31.0 14,1
6 x 6 x 2-1/2 150 x 150 x 65	6.625 x 6.625 x 2.874 168,3 x 168,3 x 73,0	14.00 355,6	4.50 114,3	32.5 14,7
6 x 6 x 76,1mm 150 x 150 x 65	6.625 x 6.625 x 3.000 168,3 x 168,3 x 76,1	14.00 355,6	4.50 114,3	31.2 14,2
6 x 6 x 3 150 x 150 x 80	6.625 x 6.625 x 3.500 168,3 x 168,3 x 88,9	14.00 355,6	4.50 114,3	33.6 15,2
6 x 6 x 4 150 x 150 x 100	6.625 x 6.625 x 4.500 168,3 x 168,3 x 114,3	14.00 355,6	4.50 114,3	35.7 16,2
6 x 6 x 139,7mm 150 x 150 x 125	6.625 x 6.625 x 5.500 168,3 x 168,3 x 139,7	14.00 356,0	4.50 114,0	35.2 15,9
6 x 6 x 5 150 x 150 x 125	6.625 x 6.625 x 5.563 168,3 x 168,3 x 141,3	14.00 355,6	4.50 114,3	38.2 17,3
216,3mm x 216,3mm x 4 200 x 200 x 100	8.516 x 8.516 x 4.500 216,3 x 216,3 x 114,3	18.00 457,2	6.00 152,4	49.2 22,3
216,3mm x 216,3mm x 139,7mm 200 x 200 x 125	8.516 x 8.516 x 5.500 216,3 x 216,3 x 139,7	18.00 457,2	6.00 152,4	49.0 22,2
216,3mm x 216,3mm x 5 200 x 200 x 125	8.516 x 8.516 x 5.563 216,3 x 216,3 x 141,3	18.00 457,2	6.00 152,4	52.7 23,9
216,3mm x 216,3mm x 165,1mm 200 x 200 x 150	8.516 x 8.516 x 6.500 216,3 x 216,3 x 165,1	18.00 457,2	6.00 152,4	50.6 22,9
216,3mm x 216,3mm x 6 200 x 200 x 150	8.516 x 8.516 x 6.625 216,3 x 216,3 x 168,3	18.00 457,2	6.00 152,4	56.8 25,7
8 x 8 x 4 200 x 200 x 100	8.625 x 8.625 x 4.50 219,1 x 219,1 x 114,1	18.00 457,2	6.00 152,4	65.1 29,5
8 x 8 x 139,7mm 200 x 200 x 125	8.625 x 8.625 x 5.500 219,1 x 219,1 x 139,7	18.00 457,0	6.00 152,0	64.6 29,3
8 x 8 x 5 200 x 200 x 125	8.625 x 8.625 x 6.500 219,1 x 219,1 x 165,1	18.00 457,2	6.00 152,4	68.3 30,9
8 x 8 x 165,1mm 200 x 200 x 150	8.625 x 8.625 x 6.625 219,1 x 219,1 x 168,3	18.00 457,2	6.00 152,4	65.8 29,8



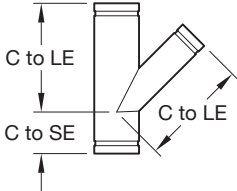
**TABLE 15 (2 OF 4)  
FIGURE 325 FABRICATED 45° REDUCING LATERALS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



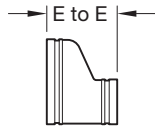
Nominal Pipe Size		C to LE Inches mm	C to SE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm			
8 x 8 x 6 200 x 200 x 150	8.625 x 8.625 x 6.625 219,1 x 219,1 x 168,3	18.00 457,2	6.00 152,4	72.0 32,6
267,4mm x 267,4mm x 4 250 x 250 x 100	10.528 x 10.528 x 4.500 267,4 x 267,4 x 114,3	20.50 520,7	6.50 165,1	73.3 33,2
267,4mm x 267,4mm x 139,7mm 250 x 250 x 125	10.528 x 10.528 x 5.500 267,4 x 267,4 x 139,7	20.50 520,7	6.50 165,1	73.0 33,1
267,4mm x 267,4mm x 5 250 x 250 x 125	10.528 x 10.528 x 5.563 267,4 x 267,4 x 141,3	20.50 520,7	6.50 165,1	77.0 34,9
267,4mm x 267,4mm x 165,1mm 250 x 250 x 150	10.528 x 10.528 x 6.500 267,4 x 267,4 x 165,1	20.50 520,7	6.50 165,1	74.6 33,8
267,4mm x 267,4mm x 6 250 x 250 x 150	10.528 x 10.528 x 6.625 267,4 x 267,4 x 168,3	20.50 520,7	6.50 165,1	81.2 36,8
267,4mm x 267,4mm x 216,3mm 250 x 250 x 200	10.528 x 10.528 x 8.516 267,4 x 267,4 x 216,3	20.50 520,7	6.50 165,1	80.8 36,6
267,4mm x 267,4mm x 8 250 x 250 x 200	10.528 x 10.528 x 8.625 267,4 x 267,4 x 219,1	20.50 520,7	6.50 165,1	91.0 41,3
10 x 10 x 4 250 x 250 x 100	10.750 x 10.750 x 4.500 273,0 x 273,0 x 114,3	20.50 520,7	6.50 165,1	99.2 45,0
10 x 10 x 139,7mm 250 x 250 x 125	10.750 x 10.750 x 5.500 273,0 x 273,0 x 139,7	20.50 521,0	6.50 165,0	98.5 44,7
10 x 10 x 5 250 x 250 x 125	10.750 x 10.750 x 5.563 273,0 x 273,0 x 141,3	20.50 520,7	6.50 165,1	102.4 46,4
10 x 10 x 165,1mm 250 x 250 x 150	10.750 x 10.750 x 6.500 273,0 x 273,0 x 165,1	20.50 520,7	6.50 165,1	99.7 45,2
10 x 10 x 6 250 x 250 x 150	10.750 x 10.750 x 6.625 273,0 x 273,0 x 168,3	20.50 520,7	6.50 165,1	106.2 48,2
10 x 10 x 216,3mm 250 x 250 x 200	10.750 x 10.750 x 8.516 273,0 x 273,0 x 216,3	20.50 520,7	6.50 165,1	104.7 47,5
10 x 10 x 8 250 x 250 x 200	10.750 x 10.750 x 8.625 273,0 x 273,0 x 219,1	20.50 520,7	6.50 165,1	114.7 52,0
318,5mm x 318,5mm x 4 300 x 300 x 100	12.539 x 12.539 x 4.500 318,5 x 318,5 x 114,3	23.00 584,2	7.00 177,8	98.7 44,8
318,5mm x 318,5mm x 165,1mm 300 x 300 x 150	12.539 x 12.539 x 6.500 318,5 x 318,5 x 165,1	23.00 584,2	7.00 177,8	100.1 45,4
318,5mm x 318,5mm x 6 300 x 300 x 150	12.539 x 12.539 x 6.625 318,5 x 318,5 x 168,3	23.00 584,2	7.00 177,8	107.3 48,7
318,5mm x 318,5mm x 216,3mm 300 x 300 x 200	12.539 x 12.539 x 8.516 318,5 x 318,5 x 2196,3	23.00 584,2	7.00 177,8	106.6 48,4
318,5mm x 318,5mm x 8 300 x 300 x 200	12.539 x 12.539 x 8.625 318,5 x 318,5 x 219,1	23.00 584,2	7.00 177,8	117.3 53,2
318,5mm x 318,5mm x 267,4mm 300 x 300 x 250	12.539 x 12.539 x 10.528 318,5 x 318,5 x 267,4	23.00 584,2	7.00 177,8	115.0 52,2
318,5mm x 318,5mm x 10 300 x 300 x 250	12.539 x 12.539 x 10.750 318,5 x 318,5 x 273,0	23.00 584,2	7.00 177,8	131.0 59,4
12 x 12 x 4 300 x 300 x 100	12.750 x 12.750 x 4.500 323,9 x 323,9 x 114,3	23.00 584,2	7.00 177,8	132.4 60,1
12 x 12 x 165,1mm 300 x 300 x 150	12.750 x 12.750 x 6.500 323,9 x 323,9 x 165,1	23.00 584,2	7.00 177,8	133.0 60,3
12 x 12 x 6 300 x 300 x 150	12.750 x 12.750 x 6.625 323,9 x 323,9 x 168,3	23.00 584,2	7.00 177,8	140.0 63,5
12 x 12 x 216,3mm 300 x 300 x 200	12.750 x 12.750 x 8.516 323,9 x 323,9 x 216,3	23.00 584,2	7.00 177,8	138.0 62,6

**TABLE 15 (3 OF 4)**  
**FIGURE 325 FABRICATED 45° REDUCING LATERALS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

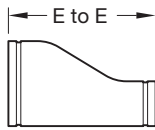
Nominal Pipe Size		C to LE Inches mm	C to SE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm			
12 x 12 x 8 300 x 300 x 200	12.750 x 12.750 x 8.625 323,9 x 323,9 x 219,1	23.00 584,2	7.00 177,8	150.0 68.0
12 x 12 x 267,4mm 300 x 300 x 250	12.750 x 12.750 x 10.528 323,9 x 323,9 x 267,4	23.00 584,2	7.00 177,8	145.3 65,9
12 x 12 x 10 300 x 300 x 250	12.750 x 12.750 x 10.750 323,9 x 323,9 x 273,0	23.00 584,2	7.00 177,8	161.0 73,0
14 x 14 x 4 350 x 350 x 100	14.000 x 14.000 x 4.500 355,6 x 355,6 x 114,3	26.50 673,1	7.50 190,5	165.0 74,8
14 x 14 x 6 350 x 350 x 150	14.000 x 14.000 x 6.625 355,6 x 355,6 x 168,3	26.50 673,1	7.50 190,5	174.5 79,2
14 x 14 x 8 350 x 350 x 200	14.000 x 14.000 x 8.625 355,6 x 355,6 x 219,1	26.50 673,1	7.50 190,5	185.6 84,2
14 x 14 x 267,4mm 350 x 350 x 250	14.000 x 14.000 x 10.528 355,6 x 355,6 x 267,4	26.50 673,1	7.50 190,5	182.0 82,5
14 x 14 x 10 350 x 350 x 250	14.000 x 14.000 x 10.750 355,6 x 355,6 x 273,0	26.50 673,1	7.50 190,5	200.0 90,7
14 x 14 x 318,5mm 350 x 350 x 300	14.000 x 14.000 x 12.539 355,6 x 355,6 x 318,5	26.50 673,1	7.50 190,5	188.0 85,3
14 x 14 x 12 350 x 350 x 300	14.000 x 14.000 x 12.750 355,6 x 355,6 x 323,9	26.50 673,1	7.50 190,5	210.0 95,3
16 x 16 x 6 400 x 400 x 150	16.000 x 16.000 x 6.625 406,4 x 406,4 x 168,3	29.00 736,6	8.00 203,0	214.1 97,1
16 x 16 x 8 400 x 400 x 200	16.000 x 16.000 x 8.625 406,4 x 406,4 x 219,1	29.00 736,6	8.00 203,0	225.9 102,5
16 x 16 x 10 400 x 400 x 250	16.000 x 16.000 x 10.750 406,4 x 406,4 x 273,0	29.00 736,6	8.00 203,0	241.0 109,3
16 x 16 x 12 400 x 400 x 300	16.000 x 16.000 x 12.750 406,4 x 406,4 x 323,9	29.00 736,6	8.00 203,0	251.8 114,2
16 x 16 x 14 400 x 400 x 350	16.000 x 16.000 x 14.000 406,4 x 406,4 x 355,6	29.00 736,6	8.00 203,0	257.5 116,8
18 x 18 x 6 450 x 450 x 150	18.000 x 18.000 x 6.625 457,2 x 457,2 x 168,3	32.00 812,8	8.50 215,9	261.4 118,5
18 x 18 x 8 450 x 450 x 200	18.000 x 18.000 x 8.625 457,2 x 457,2 x 219,1	32.00 812,8	8.50 215,9	274.4 124,5
18 x 18 x 10 450 x 450 x 250	18.000 x 18.000 x 10.750 457,2 x 457,2 x 273,0	32.00 812,8	8.50 215,9	290.8 131,9
18 x 18 x 12 450 x 450 x 300	18.000 x 18.000 x 12.750 457,2 x 457,2 x 323,9	32.00 812,8	8.50 215,9	302.5 137,2
18 x 18 x 14 450 x 450 x 350	18.000 x 18.000 x 14.000 457,2 x 457,2 x 355,6	32.00 812,8	8.50 215,9	308.6 140,0
18 x 18 x 16 450 x 450 x 400	18.000 x 18.000 x 16.000 457,2 x 457,2 x 406,4	32.00 812,8	8.50 215,9	318.5 144,4
20 x 20 x 12 500 x 500 x 300	20.000 x 20.000 x 12.750 508,0 x 508,0 x 323,9	35.00 889,0	9.00 228,6	358.0 162,3
20 x 20 x 14 500 x 500 x 350	20.000 x 20.000 x 14.000 508,0 x 508,0 x 355,6	35.00 889,0	9.00 228,6	364.6 165,4
20 x 20 x 16 500 x 500 x 400	20.000 x 20.000 x 16.000 508,0 x 508,0 x 406,4	35.00 889,0	9.00 228,6	375.1 170,1
24 x 24 x 16 600 x 600 x 400	24.000 x 24.000 x 16.000 609,6 x 609,6 x 406,4	40.00 1016,0	10.00 254,0	489.0 221,8
24 x 24 x 20 600 x 600 x 500	24.000 x 24.000 x 20.000 609,6 x 609,6 x 508,0	40.00 1016,0	10.00 254,0	511.5 232,0



**TABLE 15 (4 OF 4)**  
**FIGURE 325 FABRICATED 45° REDUCING LATERALS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 251  
 CAST ECCENTRIC REDUCER**



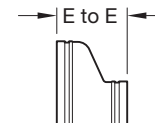
**FIGURE 351  
 FABRICATED  
 ECCENTRIC REDUCER  
 (SEGMENT WELDED)**

Nominal Pipe Size		Figure 251 Cast Eccentric Reducer		Figure 351 Fabricated Eccentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
1-1/4 x 1 32 x 25	1.660 x 1.315 42,4 x 33,7	-	-	8.50 215,9	1.7 0,8
1-1/2 x 3/4 40 x 20	1.900 x 1.050 48,3 x 26,7	-	-	8.50 215,9	1.8 0,8
1-1/2 x 1 40 x 25	1.900 x 1.315 48,3 x 33,4	-	-	8.50 215,9	1.9 0,9
1-1/2 x 1-1/4 40 x 32	1.900 x 1.660 48,3 x 42,4	-	-	8.50 215,9	2.2 1,0
2 x 3/4 50 x 20	2.375 x 1.050 60,3 x 26,7	-	-	9.00 228,6	2.1 0,9
2 x 1 50 x 25	2.375 x 1.315 60,3 x 33,4	-	-	9.00 228,6	2.2 1,0
2 x 1-1/4 50 x 32	2.375 x 1.660 60,3 x 42,4	-	-	9.00 228,6	2.4 1,1
2 x 1-1/2 50 x 40	2.375 x 1.900 60,3 x 48,3	-	-	9.00 228,6	2.5 1,1
2-1/2 x 1 65 x 25	2.874 x 1.315 73,0 x 33,4	-	-	9.50 241,3	3.2 1,5
2-1/2 x 1-1/4 65 x 32	2.874 x 1.660 73,0 x 42,4	-	-	9.50 241,3	3.4 1,5
2-1/2 x 1-1/2 65 x 40	2.874 x 1.900 73,0 x 48,3	-	-	9.50 241,3	3.6 1,6
2-1/2 x 2 65 x 50	2.874 x 2.375 73,0 x 60,3	-	-	9.50 241,3	4.0 1,8
76,1mm x 1 65 x 25	3.000 x 1.315 73, 0 x 33,4	-	-	9.50 241,3	3.7 1,7
76,1mm x 1-1/4 65 x 32	3.000 x 1.660 73, 0 x 42,4	-	-	9.50 241,3	3.9 1,8
76,1mm x 1-1/2 65 x 40	3.000 x 1.900 73,0 x 48,3	-	-	9.50 241,3	4.2 1,9
76,1mm x 2 65 x 50	3.000 x 2.375 73,0 x 60,3	-	-	9.50 241,3	4.5 2,0
3 x 1 80 x 25	3.500 x 1.315 88,9 x 33,4	-	-	9.50 241,3	4.0 1,8
3 x 1-1/4 80 x 32	3.500 x 1.660 88,9 x 42,4	-	-	9.50 241,3	4.3 2,0
3 x 1-1/2 80 x 40	3.500 x 1.900 88,9 x 48,3	-	-	9.50 241,3	4.5 2,0
3 x 2 80 x 50	3.500 x 2.375 88,9 x 60,3	3.50 88,9	2.0 0,9	9.50 241,3	4.8 2,1
3 x 2-1/2 80 x 65	3.500 x 2.874 88,9 x 73,0	3.50 88,9	2.2 1,0	9.50 241,3	5.5 2,5
3 x 76,1mm 80 x 65	3.500 x 3.000 88,9 x 76,1	-	-	9.50 241,3	5.8 2,6
108,0mm x 1 100 x 25	4.252 x 1.315 108,0 x 33,4	-	-	10.00 254,0	5.9 2,7
108,0mm x 1-1/4 100 x 32	4.252 x 1.660 108,0 x 42,4	-	-	10.00 254,0	6.2 2,8
108,0mm x 1-1/2 100 x 40	4.252 x 1.900 108,0 x 48,3	-	-	10.00 254,0	6.5 2,9
108,0mm x 2 100 x 50	4.252 x 2.375 108,0 x 60,3	-	-	10.00 254,0	6.7 3,0
108,mm x 2-1/2 100 x 65	4.252 x 2.874 108,0 x 73,0	-	-	10.00 254,0	7.4 3,4

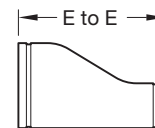
**TABLE 16 (1 OF 6)  
 FIGURES 251 AND 351 CAST AND FABRICATED ECCENTRIC REDUCERS  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		Figure 251 Cast Eccentric Reducer		Figure 351 Fabricated Eccentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
108,0mm x 76,1mm 100 x 65	4.252 x 3.000 108,0 x 76,1	-	-	10.00 254,0	7.8 3,5
4 x 1 100 x 25	4.500 x 1.315 114,3 x 33,4	-	-	10.00 254,0	5.9 2,7
4 x 1-1/4 100 x 32	4.500 x 1.660 114,3 x 42,4	-	-	10.00 254,0	6.3 2,9
4 x 1-1/2 100 x 40	4.500 x 1.900 114,3 x 48,3	-	-	10.00 254,0	6.4 2,9
4 x 2 100 x 50	4.500 x 2.375 114,3 x 60,3	4.00 101,6	3.0 1,4	10.00 254,0	6.9 3,1
4 x 2-1/2 100 x 65	4.500 x 2.874 114,3 x 73,0	4.00 101,6	3.0 1,4	10.00 254,0	7.5 3,4
4 x 76,1mm 100 x 65	4.500 x 3.000 114,3 x 76,1	-	-	10.00 254,0	7.7 3,5
4 x 3 100 x 80	4.500 x 3.500 114,3 x 88,9	4.00 101,6	3.3 1,5	10.00 254,0	7.9 3,6
133,0mm x 2 125 x 50	5.250 x 2.375 133,0 x 60,3	-	-	11.00 279,4	8.5 3,9
133,0mm x 2-1/2 125 x 65	5.250 x 2.874 133,0 x 73,0	-	-	11.00 279,4	9.0 4,1
133,0mm x 76,1mm 125 x 65	5.250 x 3.000 133,0 x 76,1	-	-	11.00 279,4	9.3 4,2
133,0mm x 3 125 x 80	5.250 x 3.500 133,0 x 88,9	-	-	11.00 279,4	10.4 4,7
133,0mm x 108,0mm 125 x 100	5.250 x 4.252 133,0 x 108,0	-	-	11.00 279,4	11.0 5,0
139,7mm x 2 125 x 50	5.500 x 2.375 139,7 x 60,3	-	-	11.00 279,4	9.0 4,1
139,7mm x 2-1/2 125 x 65	5.500 x 2.874 139,7 x 73,0	-	-	11.00 279,4	9.5 4,3
139,7mm x 76,1mm 125 x 65	5.500 x 3.000 139,7 x 76,1	-	-	11.00 279,4	9.8 4,4
139,7mm x 3 125 x 80	5.500 x 3.500 139,7 x 88,9	-	-	11.00 279,4	10.8 4,9
139,7mm x 108,0mm 125 x 100	5.500 x 4.252 139,7 x 108,0	-	-	11.00 279,4	10.6 4,8
5 x 2 125 x 50	5.563 x 2.375 141,3 x 60,3	-	-	11.00 279,4	9.3 4,2
5 x 2-1/2 125 x 65	5.563 x 2.874 141,3 x 73,0	-	-	11.00 279,4	9.9 4,5
5 x 76,1mm 125 x 65	5.563 x 3.000 141,3 x 76,1	-	-	11.00 279,4	10.2 4,6
5 x 3 125 x 80	5.563 x 3.500 141,3 x 88,9	-	-	11.00 279,4	10.7 4,9
5 x 108,0mm 125 x 100	5.563 x 4.252 141,3 x 108,0	-	-	11.00 279,4	11.5 5,2
5 x 4 125 x 100	5.563 x 4.500 141,3 x 114,3	5.00 127,5	5.7 2,6	11.00 279,4	11.9 5,4
159,0mm x 2 150 x 50	6.250 x 2.375 159,0 x 60,3	-	-	11.50 292,1	11.5 5,2
159,0mm x 2-1/2 150 x 65	6.250 x 2.874 159,0 x 73,0	-	-	11.50 292,1	12.0 5,4
159,0mm x 76,1mm 150 x 65	6.250 x 3.000 159,0 x 76,1	-	-	11.50 292,1	12.3 5,6

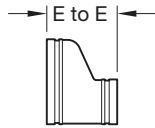


**FIGURE 251  
CAST ECCENTRIC REDUCER**

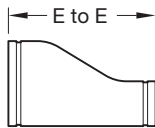


**FIGURE 351  
FABRICATED  
ECCENTRIC REDUCER  
(SEGMENT WELDED)**

**TABLE 16 (2 OF 6)  
FIGURES 251 AND 351 CAST AND FABRICATED ECCENTRIC REDUCERS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 251  
 CAST ECCENTRIC REDUCER**

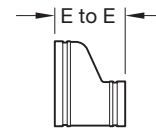


**FIGURE 351  
 FABRICATED  
 ECCENTRIC REDUCER  
 (SEGMENT WELDED)**

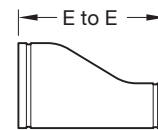
Nominal Pipe Size		Figure 251 Cast Eccentric Reducer		Figure 351 Fabricated Eccentric Reducer	
ANSI Inches <i>DN</i>	O.D. Inches <i>mm</i>	E to E Inches <i>mm</i>	Weight Lbs. <i>kg</i>	E to E Inches <i>mm</i>	Weight Lbs. <i>kg</i>
159,0mm x 3 <i>150 x 80</i>	6.250 x 3.500 <i>159,0 x 88,9</i>	-	-	11.50 <i>292,1</i>	13.0 <i>5,9</i>
159,0mm x 108,0mm <i>150 x 100</i>	6.250 x 4.252 <i>159,0 x 108,0</i>	-	-	11.50 <i>292,1</i>	13.5 <i>6,1</i>
159,0mm x 4 <i>150 x 100</i>	6.250 x 4.500 <i>159,0 x 114,3</i>	-	-	11.50 <i>292,1</i>	13.8 <i>6,3</i>
159,0mm x 133,0mm <i>150 x 125</i>	6.250 x 5.250 <i>159,0 x 133,0</i>	-	-	11.50 <i>292,1</i>	14.2 <i>6,4</i>
159,0mm x 139,7mm <i>150 x 125</i>	6.250 x 5.500 <i>159,0 x 139,7</i>	-	-	11.50 <i>292,1</i>	14.8 <i>6,7</i>
165,1mm x 2 <i>150 x 50</i>	6.500 x 2.375 <i>165,1 x 60,3</i>	-	-	11.50 <i>292,1</i>	11.8 <i>5,4</i>
165,1mm x 2-1/2 <i>150 x 65</i>	6.500 x 2.874 <i>165,1 x 73,0</i>	-	-	11.50 <i>292,1</i>	12.4 <i>5,6</i>
165,1mm x 76,1mm <i>150 x 65</i>	6.500 x 3.000 <i>165,1 x 76,1</i>	-	-	11.50 <i>292,1</i>	12.7 <i>5,8</i>
165,1mm x 3 <i>150 x 80</i>	6.500 x 3.500 <i>165,1 x 88,9</i>	-	-	11.50 <i>292,1</i>	13.3 <i>6,0</i>
165,1mm x 108,0mm <i>150 x 100</i>	6.500 x 4.252 <i>165,1 x 108,0</i>	-	-	11.50 <i>292,1</i>	13.8 <i>6,3</i>
165,1mm x 4 <i>150 x 100</i>	6.500 x 4.500 <i>165,1 x 114,3</i>	-	-	11.50 <i>292,1</i>	14.1 <i>6,4</i>
165,1mm x 133,0mm <i>150 x 125</i>	6.500 x 5.250 <i>165,1 x 133,0</i>	-	-	11.50 <i>292,1</i>	14.6 <i>6,6</i>
165,1mm x 139,7mm <i>150 x 125</i>	6.500 x 5.500 <i>165,1 x 139,7</i>	-	-	11.50 <i>292,1</i>	15.0 <i>6,8</i>
165,1mm x 5 <i>150 x 125</i>	6.500 x 5.563 <i>165,1 x 141,3</i>	-	-	11.50 <i>292,1</i>	15.8 <i>7,2</i>
6 x 2 <i>150 x 50</i>	6.625 x 2.375 <i>168,3 x 60,3</i>	-	-	11.50 <i>292,1</i>	12.2 <i>5,5</i>
6 x 2-1/2 <i>150 x 65</i>	6.625 x 2.874 <i>168,3 x 73,0</i>	-	-	11.50 <i>292,1</i>	12.8 <i>5,8</i>
6 x 76,1mm <i>150 x 65</i>	6.625 x 3.000 <i>168,3 x 76,1</i>	-	-	11.50 <i>292,1</i>	13.0 <i>5,9</i>
6 x 3 <i>150 x 80</i>	6.625 x 3.500 <i>168,3 x 88,9</i>	5.50 <i>139,7</i>	7.4 <i>3,4</i>	11.50 <i>292,1</i>	13.5 <i>6,1</i>
6 x 108,0mm <i>150 x 100</i>	6.625 x 4.252 <i>168,3 x 108,0</i>	-	-	11.50 <i>292,1</i>	14.1 <i>6,4</i>
6 x 4 <i>150 x 100</i>	6.625 x 4.500 <i>168,3 x 114,3</i>	5.50 <i>139,7</i>	7.5 <i>3,4</i>	11.50 <i>292,1</i>	14.8 <i>6,7</i>
6 x 133,0mm <i>150 x 125</i>	6.625 x 5.250 <i>168,3 x 133,0</i>	-	-	11.50 <i>292,1</i>	15.2 <i>6,9</i>
6 x 139,7mm <i>150 x 125</i>	6.625 x 5.500 <i>168,3 x 139,7</i>	-	-	11.50 <i>292,1</i>	15.7 <i>7,1</i>
6 x 5 <i>150 x 125</i>	6.625 x 5.563 <i>168,3 x 141,3</i>	5.50 <i>139,7</i>	8.1 <i>3,7</i>	11.50 <i>292,1</i>	16.0 <i>7,3</i>
216,3mm x 3 <i>200 x 80</i>	8.516 x 3.500 <i>216,3 x 88,9</i>	-	-	12.00 <i>304,8</i>	17.2 <i>7,8</i>
216,3mm x 108,0mm <i>200 x 100</i>	8.516 x 4.252 <i>216,3 x 108,0</i>	-	-	12.00 <i>304,8</i>	18.0 <i>8,2</i>
216,3mm x 4 <i>200 x 100</i>	8.516 x 4.500 <i>216,3 x 114,3</i>	-	-	12.00 <i>304,8</i>	18.7 <i>8,5</i>
216,3mm x 133,0mm <i>200 x 125</i>	8.516 x 5.250 <i>216,3 x 133,0</i>	-	-	12.00 <i>304,8</i>	19.2 <i>8,7</i>

**TABLE 16 (3 OF 6)  
 FIGURES 251 AND 351 CAST AND FABRICATED ECCENTRIC REDUCERS  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 251 Cast Eccentric Reducer		Figure 351 Fabricated Eccentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
216,3mm x 139,7mm 200 x 125	8.516 x 5.500 216,3 x 139,7	-	-	12.00 304,8	20.1 9,1
216,3mm x 5 200 x 125	8.516 x 5.563 216,3 x 141,3	-	-	12.00 304,8	20.8 9,4
216,3mm x 159,0mm 200 x 150	8.516 x 6.250 216,3 x 159,0	-	-	12.00 304,8	21.2 9,6
216,3mm x 165,1mm 200 x 150	8.516 x 6.500 216,3 x 165,1	-	-	12.00 304,8	22.6 10,3
216,3mm x 6 200 x 150	8.516 x 6.625 216,3 x 168,3	-	-	12.00 304,8	23.0 10,4
8 x 3 200 x 80	8.625 x 3.500 219,1 x 88,9	-	-	12.00 304,8	17.9 8,1
8 x 108,0mm 200 x 100	8.625 x 4.252 219,1 x 108,0	-	-	12.00 304,8	18.7 8,5
8 x 4 200 x 100	8.625 x 4.500 219,1 x 114,3	-	-	12.00 304,8	19.4 8,8
8 x 133,0mm 200 x 125	8.625 x 5.250 219,1 x 133,0	-	-	12.00 304,8	19.8 8,9
8 x 139,7mm 200 x 125	8.625 x 5.500 219,1 x 139,7	-	-	12.00 304,8	21.0 9,5
8 x 5 200 x 125	8.625 x 5.563 219,1 x 141,3	-	-	12.00 304,8	21.4 9,7
8 x 159,0mm 200 x 150	8.625 x 6.250 219,1 x 159,0	-	-	12.00 304,8	21.8 9,8
8 x 165,1mm 200 x 150	8.625 x 6.500 219,1 x 165,1	-	-	12.00 304,8	22.8 10,3
8 x 6 200 x 150	8.625 x 6.625 219,1 x 168,3	-	-	12.00 304,8	23.2 10,5
267,4mm x 4 250 x 100	10.528 x 4.500 267,4 x 114,3	-	-	13.00 330,2	27.4 12,4
267,4mm x 133,0mm 250 x 125	10.528 x 5.250 267,4 x 133,0	-	-	13.00 330,2	28.6 12,9
267,4mm x 139,7mm 250 x 125	10.528 x 5.500 267,4 x 139,7	-	-	13.00 330,2	30.2 13,7
267,4mm x 5 250 x 125	10.528 x 5.563 267,4 x 141,3	-	-	13.00 330,2	31.0 14,1
267,4mm x 159,0mm 250 x 150	10.528 x 6.250 267,4 x 159,0	-	-	13.00 330,2	32.1 14,6
267,4mm x 165,1mm 250 x 150	10.528 x 6.500 267,4 x 165,1	-	-	13.00 330,2	33.0 14,9
267,4mm x 6 250 x 150	10.528 x 6.625 267,4 x 168,3	-	-	13.00 330,2	33.5 15,2
267,4mm x 8 250 x 200	10.528 x 8.625 267,4 x 219,1	-	-	13.00 300,2	34.0 15,4
10 x 4 250 x 100	10.750 x 4.500 273,0 x 114,3	-	-	13.00 330,2	29.7 13,5
10 x 133,0mm 250 x 125	10.750 x 5.250 273,0 x 133,0	-	-	13.00 330,2	30.0 13,6
10 x 139,7mm 250 x 125	10.750 x 5.500 273,0 x 139,7	-	-	13.00 330,2	30.8 13,9
10 x 5 250 x 125	10.750 x 5.563 273,0 x 141,3	-	-	13.00 330,2	31.7 14,4
10 x 159,0mm 250 x 150	10.750 x 6.250 273,0 x 159,0	-	-	13.00 330,2	32.7 14,8

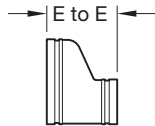


**FIGURE 251  
CAST ECCENTRIC REDUCER**

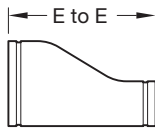


**FIGURE 351  
FABRICATED  
ECCENTRIC REDUCER  
(SEGMENT WELDED)**

**TABLE 16 (4 OF 6)  
FIGURES 251 AND 351 CAST AND FABRICATED ECCENTRIC REDUCERS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 251  
 CAST ECCENTRIC REDUCER**

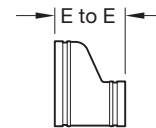


**FIGURE 351  
 FABRICATED  
 ECCENTRIC REDUCER  
 (SEGMENT WELDED)**

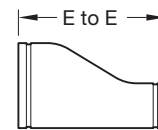
Nominal Pipe Size		Figure 251 Cast Eccentric Reducer		Figure 351 Fabricated Eccentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
10 x 165,1mm 250 x 150	10.750 x 6.500 273,0 x 165,1	-	-	13.00 330,2	33.3 15,1
10 x 6 250 x 150	10.750 x 6.625 273,0 x 168,3	-	-	13.00 330,2	34.0 15,4
10 x 216,3mm 250 x 200	10.750 x 8.516 273,0 x 216,3	-	-	13.00 330,2	34.2 15,5
10 x 8 250 x 200	10.750 x 8.625 273,0 x 219,1	-	-	13.00 330,2	34.4 15,6
318,5mm x 4 300 x 100	12.539 x 4.500 318,5 x 114,3	-	-	14.00 355,6	40.1 18,2
318,5mm x 133,0mm 300 x 125	12.539 x 5.250 318,5 x 133,0	-	-	14.00 355,6	41.7 18,9
318,5mm x 139,7mm 300 x 125	12.539 x 5.500 318,5 x 139,7	-	-	14.00 355,6	42.0 19,1
318,5mm x 5 300 x 125	12.539 x 5.563 318,5 x 141,3	-	-	14.00 355,6	42.7 19,3
318,5mm x 159,0mm 300 x 150	12.539 x 6.250 318,5 x 159,0	-	-	14.00 355,6	43.4 19,6
318,5mm x 165,1mm 300 x 150	12.539 x 6.500 318,5 x 165,1	-	-	14.00 355,6	44.6 20,2
318,5mm x 6 300 x 150	12.539 x 6.625 318,5 x 168,3	-	-	14.00 355,6	45.0 20,4
318,5mm x 216,3mm 300 x 200	12.539 x 8.516 318,5 x 216,3	-	-	14.00 355,6	47.6 21,6
318,5mm x 8 300 x 200	12.539 x 8.625 318,5 x 219,1	-	-	14.00 355,6	48.0 21,7
318,5mm x 267,4mm 300 x 250	12.539 x 10.528 318,5 x 267,4	-	-	14.00 355,6	49.1 22,2
318,5mm x 10 300 x 250	12.539 x 10.750 318,5 x 273,0	-	-	14.00 355,6	50.8 23,0
12 x 4 300 x 100	12.75 x 4.500 323,9 x 114,3	-	-	14.00 355,6	41.9 19,0
12 x 133,0mm 300 x 125	12.750 x 5.250 323,9 x 133,0	-	-	14.00 355,6	42.2 19,1
12 x 139,7mm 300 x 125	12.750 x 5.500 323,9 x 139,7	-	-	14.00 355,6	43.4 19,7
12 x 5 300 x 125	12.750 x 5.563 323,9 x 141,3	-	-	14.00 355,6	44.0 20,0
12 x 159,0mm 300 x 150	12.750 x 6.250 323,9 x 159,0	-	-	14.00 355,6	44.3 20,1
12 x 165,1mm 300 x 150	12.750 x 6.500 323,9 x 165,1	-	-	14.00 355,6	44.7 20,3
12 x 6 300 x 150	12.750 x 6.625 323,9 x 168,3	-	-	14.00 355,6	45.2 20,5
12 x 216,3mm 300 x 200	12.750 x 8.516 323,9 x 216,3	-	-	14.00 355,6	46.3 21,0
12 x 8 300 x 200	12.750 x 8.625 323,9 x 219,1	-	-	14.00 355,6	47.7 21,6
12 x 267,4mm 300 x 250	12.750 x 10.528 323,9 x 267,4	-	-	14.00 355,6	48.9 22,2
12 x 10 300 x 250	12.750 x 10.750 323,9 x 273,0	-	-	14.00 355,6	52.0 23,6
14 x 6 350 x 150	14.000 x 6.625 355,6 x 168,3	-	-	19.00 482,6	78.0 35,4

**TABLE 16 (5 OF 6)  
 FIGURES 251 AND 351 CAST AND FABRICATED ECCENTRIC REDUCERS  
 NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 251 Cast Eccentric Reducer		Figure 351 Fabricated Eccentric Reducer	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
14 x 216,3mm 350 x 200	14.000 x 8.516 355,6 x 216,3	-	-	19,00 482,6	79,1 35,9
14 x 8 350 x 200	14.000 x 8.625 355,6 x 219,1	-	-	19,00 482,6	80,0 36,3
14 x 267,4mm 350 x 250	14.000 x 10.528 355,6 x 267,4	-	-	19,00 482,6	82,5 37,4
14 x 10 350 x 250	14.000 x 10.750 355,6 x 273,0	-	-	19,00 482,6	84,0 38,1
14 x 318,5mm 350 x 300	14.000 x 12.539 355,6 x 318,5	-	-	19,00 482,6	86,3 39,1
14 x 12 350 x 300	14.000 x 12.750 355,6 x 323,9	-	-	19,00 482,6	88,0 39,9
16 x 8 400 x 200	16.000 x 8.625 406,4 x 219,1	-	-	20,00 508,0	91,0 41,3
16 x 267,4mm 400 x 250	16.000 x 10.528 406,4 x 267,4	-	-	20,00 508,0	94,5 42,9
16 x 10 400 x 250	16.000 x 10.750 406,4 x 273,0	-	-	20,00 508,0	96,0 43,5
16 x 318,5mm 400 x 300	16.000 x 12.539 406,4 x 318,5	-	-	20,00 508,0	98,1 44,5
16 x 12 400 x 300	16.000 x 12.750 406,4 x 323,9	-	-	20,00 508,0	99,0 44,9
16 x 14 400 x 350	16.000 x 14.000 406,4 x 355,6	-	-	20,00 508,0	104,0 47,2
18 x 318,5mm 450 x 300	18.000 x 12.539 457,2 x 318,5	-	-	21,00 533,0	110,6 50,2
18 x 12 450 x 300	18.000 x 12.750 457,2 x 323,9	-	-	21,00 533,0	113,0 51,3
18 x 14 450 x 350	18.000 x 14.000 457,2 x 355,6	-	-	21,00 533,0	117,0 53,1
18 x 16 450 x 400	18.000 x 16.000 457,2 x 406,4	-	-	21,00 533,0	121,0 54,9
20 x 10 508 x 254	20.000 x 10.750 508,0 x 273,0	-	-	26,00 660,4	146,2 66,3
20 x 12 500 x 300	20.000 x 12.750 508,0 x 323,9	-	-	26,00 660,4	149,0 67,6
20 x 14 500 x 350	20.000 x 14.000 508,0 x 355,6	-	-	26,00 660,4	152,0 68,9
20 x 16 500 x 400	20.000 x 16.000 508,0 x 406,4	-	-	26,00 660,4	156,0 70,8
20 x 18 500 x 450	20.000 x 18.000 508,0 x 457,2	-	-	26,00 660,4	160,0 72,6
24 x 10 600 x 250	24.000 x 10.750 609,6 x 273,0	-	-	26,00 660,4	147,0 78,9
24 x 12 600 x 300	24.000 x 12.750 609,6 x 323,9	-	-	26,00 660,4	179,0 81,2
24 x 14 600 x 350	24.000 x 14.000 609,6 x 355,6	-	-	26,00 660,4	184,0 83,5
24 x 16 600 x 400	24.000 x 16.000 609,6 x 406,4	-	-	26,00 660,4	189,0 85,7
24 x 18 600 x 450	24.000 x 18.000 609,6 x 457,2	-	-	26,00 660,4	194,0 88,0
24 x 20 600 x 500	24.000 x 20.000 609,6 x 508,0	-	-	26,00 660,4	199,0 90,3

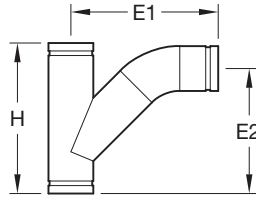


**FIGURE 251  
CAST ECCENTRIC REDUCER**



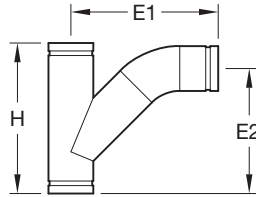
**FIGURE 351  
FABRICATED  
ECCENTRIC REDUCER  
(SEGMENT WELDED)**

**TABLE 16 (6 OF 6)  
FIGURES 251 AND 351 CAST AND FABRICATED ECCENTRIC REDUCERS  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



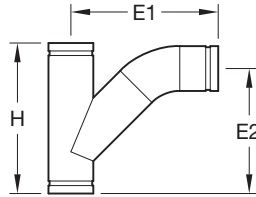
Nominal Pipe Size		H Inches mm	E1 Inches mm	E2 Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				
2 x 2 x 2 50 x 50 x 50	2.375 x 2.375 x 2.375 60,3 x 60,3 x 60,3	9.75 247,7	9.00 228,6	7.37 187,2	5.7 2,6
2-1/2 x 2-1/2 x 2-1/2 65 x 65 x 65	2.874 x 2.874 x 2.874 73,0 x 73,0 x 73,0	10.75 273,1	10.50 266,7	8.88 225,6	10.2 4,6
76,1mm x 76,1mm x 2-1/2 65 x 65 x 65	3.000 x 3.000 x 3.000 76,1 x 76,1 x 76,1	10.75 273,1	10.50 266,7	8.88 225,6	10.8 4,9
3 x 3 x 76,1mm 80 x 80 x 65	3.500 x 3.500 x 3.000 88,9 x 88,9 x 76,1	11.75 298,5	11.50 292,1	9.31 236,5	13.5 6,1
3 x 3 x 3 80 x 80 x 80	3.500 x 3.500 x 3.500 88,9 x 88,9 x 88,9	11.75 298,5	11.50 292,1	9.31 236,5	14.4 6,5
108,0mm x 108,0mm x 76,1mm 100 x 100 x 65	4.252 x 4.252 x 3.000 108,0 x 108,0 x 76,1	14.25 362,0	12.88 327,2	10.19 258,8	19.8 8,9
108,0mm x 108,0mm x 3 100 x 100 x 80	4.252 x 4.252 x 3.500 108,0 x 108,0 x 88,9	14.25 362,0	12.88 327,2	10.19 258,8	20.0 9,1
108,0mm x 108,0mm x 108,0mm 100 x 100 x 100	4.252 x 4.252 x 4.500 108,0 x 108,0 x 108,0	14.25 362,0	13.63 346,2	11.87 301,5	23.6 10,7
4 x 4 x 3 100 x 100 x 80	4.500 x 4.500 x 3.500 114,3 x 114,3 x 88,9	14.25 362,0	12.88 327,2	10.19 258,8	20.5 9,3
4 x 4 x 4 100 x 100 x 100	4.500 x 4.500 x 4.500 114,3 x 114,3 x 114,3	14.25 362,0	13.63 346,2	11.87 301,5	24.6 11,2
133,0mm x 133,0mm x 3 125 x 125 x 80	5.250 x 5.250 x 3.500 133,0 x 133,0 x 88,9	16.50 419,1	14.25 362,0	13.25 336,6	25.8 11,7
133,0mm x 133,0mm x 108,0mm 125 x 125 x 100	5.250 x 5.250 x 4.252 133,0 x 133,0 x 108,0	16.50 419,1	15.13 384,3	13.63 346,1	27.2 12,3
133,0mm x 133,0mm x 4 125 x 125 x 100	5.250 x 5.250 x 4.500 133,0 x 133,0 x 114,3	16.50 419,1	15.13 384,3	13.63 346,1	30.5 13,8
139,7mm x 139,7mm x 3 125 x 125 x 80	5.500 x 5.500 x 3.500 139,7 x 139,7 x 88,9	16.50 419,1	14.25 362,0	13.25 336,6	26.4 11,9
139,7mm x 139,7mm x 108,0mm 125 x 125 x 100	5.500 x 5.500 x 4.252 139,7 x 139,7 x 108,0	16.50 419,1	15.13 384,3	13.63 346,1	31.0 14,1
139,7mm x 139,7mm x 4 125 x 125 x 100	5.500 x 5.500 x 4.500 139,7 x 139,7 x 114,3	16.50 419,1	15.13 384,3	13.63 346,1	32.8 14,8
139,7mm x 139,7mm x 133,0mm 125 x 125 x 125	5.500 x 5.500 x 5.250 139,7 x 139,7 x 133,0	16.50 419,1	16.13 409,7	14.00 355,6	35.5 16,1
139,7mm x 139,7mm x 139,7mm 125 x 125 x 125	5.500 x 5.500 x 5.500 139,7 x 139,7 x 139,7	16.50 419,1	16.13 409,7	14.00 355,6	36.8 16,7
5 x 5 x 3 125 x 125 x 80	5.563 x 5.563 x 3.500 141,3 x 141,3 x 88,9	16.50 419,1	14.25 362,0	13.25 336,6	28.4 12,9
5 x 5 x 4 125 x 125 x 100	5.563 x 5.563 x 4.500 141,3 x 141,3 x 114,3	16.50 418,6	15.13 384,3	13.63 346,1	32.8 14,9
5 x 5 x 139,7mm 125 x 125 x 125	5.563 x 5.563 x 5.500 141,3 x 141,3 x 139,7	16.50 418,6	16.13 409,7	14.00 355,6	37.6 17,0
5 x 5 x 5 125 x 125 x 125	5.563 x 5.563 x 5.563 141,3 x 141,3 x 141,3	16.50 418,6	16.13 409,7	14.00 355,6	38.8 17,6
159,0mm x 159,0mm x 3 150 x 150 x 80	6.250 x 6.250 x 3.500 159,0 x 159,0 x 88,9	18.50 469,9	15.31 388,9	14.81 376,2	38.2 17,3

**TABLE 17 (1 OF 4)**  
**FIGURE 330 FABRICATED TEE WYES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		H Inches mm	E1 Inches mm	E2 Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				
159,0mm x 159,0mm x 108,0mm 150 x 150 x 100	6.250 x 6.250 x 4.252 159,0 x 159,0 x 108,0	18.50 469,9	16.25 412,8	15.25 387,4	39.4 17,8
159,0mm x 159,0mm x 4 150 x 150 x 100	6.250 x 6.250 x 4.500 159,0 x 159,0 x 114,3	18.50 469,9	16.25 412,8	15.25 387,4	41.5 18,8
159,0mm x 159,0mm x 133,0mm 150 x 150 x 125	6.250 x 6.250 x 5.250 159,0 x 159,0 x 133,0	18.50 469,9	17.25 438,2	15.63 396,9	43.2 19,5
159,0mm x 159,0mm x 5 150 x 150 x 125	6.250 x 6.250 x 5.563 159,0 x 159,0 x 141,3	18.50 469,9	17.25 438,2	15.63 396,9	47.3 21,5
159,0mm x 159,0mm x 159,0mm 150 x 150 x 150	6.250 x 6.250 x 6.250 159,0 x 159,0 x 159,0	18.50 469,9	18.25 463,6	16.00 406,4	53.5 24,3
165,1mm x 165,1mm x 3 150 x 150 x 80	6.500 x 6.500 x 3.500 165,1 x 165,1 x 88,9	18.50 469,9	15.31 388,9	14.81 376,2	40.0 18,1
165,1mm x 165,1mm x 4 150 x 150 x 100	6.500 x 6.500 x 4.500 165,1 x 165,1 x 114,3	18.50 469,9	16.25 412,8	15.25 387,4	41.8 18,9
165,1mm x 165,1mm x 139,7mm 150 x 150 x 125	6.500 x 6.500 x 5.500 165,1 x 165,1 x 139,7	18.50 469,9	17.25 438,2	15.63 396,9	42.8 19,4
165,1mm x 165,1mm x 5 150 x 150 x 125	6.500 x 6.500 x 5.563 165,1 x 165,1 x 141,3	18.50 469,9	17.25 438,2	15.63 396,9	43.6 19,7
165,1mm x 165,1mm x 165,1mm 150 x 150 x 150	6.500 x 6.500 x 6.500 165,1 x 165,1 x 165,1	18.50 469,9	18.25 463,6	16.00 406,4	54.2 24,5
6 x 6 x 3 150 x 150 x 80	6.625 x 6.625 x 3.500 168,3 x 168,3 x 88,9	18.50 469,9	15.31 388,9	14.81 376,2	37.9 17,2
6 x 6 x 4 150 x 150 x 100	6.625 x 6.625 x 4.500 168,3 x 168,3 x 114,3	18.50 469,9	16.25 412,8	15.25 387,4	42.5 19,3
6 x 6 x 139,7mm 150 x 150 x 125	6.625 x 6.625 x 5.500 168,3 x 168,3 x 139,7	18.50 469,9	17.25 438,2	15.63 396,9	45.6 20,6
6 x 6 x 5 150 x 150 x 125	6.625 x 6.625 x 5.563 168,3 x 168,3 x 141,3	18.50 469,9	17.25 438,2	15.63 396,9	48.5 22,0
6 x 6 x 165,1mm 150 x 150 x 150	6.625 x 6.625 x 6.500 168,3 x 168,3 x 165,1	18.50 469,9	18.25 463,6	16.00 406,4	52.3 23,7
6 x 6 x 6 150 x 150 x 150	6.625 x 6.625 x 6.625 168,3 x 168,3 x 168,3	18.50 469,9	18.25 463,6	16.00 406,4	56.3 25,5
216,3mm x 216,3mm x 3 200 x 200 x 80	8.516 x 8.516 x 3.500 216,3 x 216,3 x 88,9	24.00 609,6	18.19 462,0	19.19 487,4	67.3 30,5
216,3mm x 216,3mm x 4 200 x 200 x 100	8.516 x 8.516 x 4.500 216,3 x 216,3 x 114,3	24.00 609,6	19.00 482,6	19.50 495,3	72.3 32,8
216,3mm x 216,3mm x 139,7mm 200 x 200 x 125	8.516 x 8.516 x 5.500 216,3 x 216,3 x 139,7	24.00 609,6	20.00 508,0	19.87 504,7	74.2 33,6
216,3mm x 216,3mm x 5 200 x 200 x 125	8.516 x 8.516 x 5.563 216,3 x 216,3 x 141,3	24.00 609,6	20.00 508,0	19.87 504,7	78.8 35,7
216,3mm x 216,3mm x 165,1mm 200 x 200 x 150	8.516 x 8.516 x 6.500 216,3 x 216,3 x 165,1	24.00 609,6	21.13 536,7	20.37 517,4	84.9 38,5
216,3mm x 216,3mm x 6 200 x 200 x 150	8.516 x 8.516 x 6.625 216,3 x 216,3 x 168,3	24.00 609,6	21.13 536,7	20.37 517,4	87.4 39,6
216,3mm x 216,3mm x 216,3mm 200 x 200 x 200	8.516 x 8.516 x 8.516 216,3 x 216,3 x 216,3	24.00 609,6	23.25 590,6	21.25 539,8	102.2 46,4

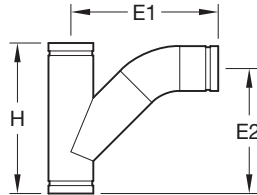
**TABLE 17 (2 OF 4)**  
**FIGURE 330 FABRICATED TEE WYES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		H Inches mm	E1 Inches mm	E2 Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				
8 x 8 x 3 200 x 200 x 80	8.625 x 8.625 x 3.500 219,1 x 219,1 x 88,9	24.00 609,6	18.19 462,0	19.19 487,4	67.3 30,5
8 x 8 x 4 200 x 200 x 100	8.625 x 8.625 x 4.500 219,1 x 219,1 x 114,3	24.00 609,6	19.00 482,6	19.50 495,3	72.3 32,8
8 x 8 x 139,7mm 200 x 200 x 125	8.625 x 8.625 x 5.500 219,1 x 219,1 x 139,7	24.00 609,6	20.00 508,0	19.87 504,7	75.2 34,1
8 x 8 x 5 200 x 200 x 125	8.625 x 8.625 x 5.563 219,1 x 219,1 x 141,3	24.00 609,6	20.00 508,0	19.87 504,7	78.8 35,7
8 x 8 x 165,1mm 200 x 200 x 150	8.625 x 8.625 x 6.500 219,1 x 219,1 x 165,1	24.00 609,6	21.13 536,7	20.37 517,4	85.2 38,6
8 x 8 x 6 200 x 200 x 150	8.625 x 8.625 x 6.625 219,1 x 219,1 x 168,3	24.00 609,6	21.13 536,7	20.37 517,4	87.4 39,6
8 x 8 x 216,3mm 200 x 200 x 200	8.625 x 8.625 x 8.516 219,1 x 219,1 x 216,3	24.00 609,6	23.25 590,6	21.25 539,8	106.7 48,4
8 x 8 x 8 200 x 200 x 200	8.625 x 8.625 x 8.625 219,1 x 219,1 x 219,1	24.00 609,6	23.25 590,6	21.25 539,8	109.0 49,4
267,4mm x 267,4mm x 3 250 x 250 x 80	10.528 x 10.528 x 3.500 267,4 x 267,4 x 88,9	27.00 685,8	19.88 505,0	21.38 543,1	106.7 48,4
267,4mm x 267,4mm x 4 250 x 250 x 100	10.528 x 10.528 x 4.500 267,4 x 267,4 x 114,3	27.00 685,8	20.75 527,1	21.75 552,5	111.8 50,7
267,4mm x 267,4mm x 139,7mm 250 x 250 x 125	10.528 x 10.528 x 5.500 267,4 x 267,4 x 139,7	27.00 685,8	21.88 555,8	22.25 565,2	112.7 51,1
267,4mm x 267,4mm x 5 250 x 250 x 125	10.528 x 10.528 x 5.563 267,4 x 267,4 x 141,3	27.00 685,8	21.88 555,8	22.25 565,2	113.6 51,5
267,4mm x 267,4mm x 165,1mm 250 x 250 x 150	10.528 x 10.528 x 6.500 267,4 x 267,4 x 165,1	27.00 685,8	22.88 581,2	22.63 574,7	147.3 66,8
267,4mm x 267,4mm x 6 250 x 250 x 150	10.528 x 10.528 x 6.625 267,4 x 267,4 x 168,3	27.00 685,8	22.88 581,2	22.63 574,7	151.1 68,5
267,4mm x 267,4mm x 216,3mm 250 x 250 x 200	10.528 x 10.528 x 8.516 267,4 x 267,4 x 216,3	27.00 685,8	27.25 692,2	25.75 654,1	167.8 76,1
267,4mm x 267,4mm x 8 250 x 250 x 200	10.528 x 10.528 x 8.625 267,4 x 267,4 x 219,1	27.00 685,8	27.25 692,2	25.75 654,1	175.1 79,4
267,4mm x 267,4mm x 267,4mm 250 x 250 x 250	10.528 x 10.528 x 10.750 267,4 x 267,4 x 273,0	27.00 685,8	27.25 692,2	24.38 619,1	184.4 83,6
10 x 10 x 3 250 x 250 x 80	10.750 x 10.750 x 3.500 273,0 x 273,0 x 88,9	27.00 685,8	19.88 505,0	21.38 543,1	101.7 46,1
10 x 10 x 4 250 x 250 x 100	10.750 x 10.750 x 4.500 273,0 x 273,0 x 114,3	27.00 685,8	20.75 527,1	21.75 552,5	106.9 48,5
10 x 10 x 139,7mm 250 x 250 x 125	10.750 x 10.750 x 5.500 273,0 x 273,0 x 139,7	27.00 685,8	21.88 555,8	22.25 565,2	108.7 49,3
10 x 10 x 5 250 x 250 x 125	10.750 x 10.750 x 5.563 273,0 x 273,0 x 141,3	27.00 685,8	21.88 555,8	22.25 565,2	113.8 51,6
10 x 10 x 165,1mm 250 x 250 x 150	10.750 x 10.750 x 6.500 273,0 x 273,0 x 165,1	27.00 685,8	22.88 581,2	22.63 574,7	118.7 53,8
10 x 10 x 6 250 x 250 x 150	10.750 x 10.750 x 6.625 273,0 x 273,0 x 168,3	27.00 685,8	22.88 581,2	22.63 574,7	122.1 55,4

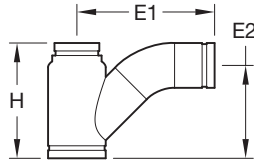
**TABLE 17 (3 OF 4)**  
**FIGURE 330 FABRICATED TEE WYES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**





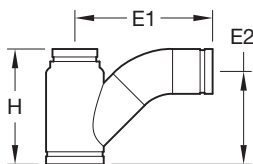
Nominal Pipe Size		H Inches mm	E1 Inches mm	E2 Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				
10 x 10 x 216,3mm 250 x 250 x 200	10.750 x 10.750 x 8.516 273,0 x 273,0 x 216,3	27.00 685,8	27.25 692,2	25.75 654,1	147.6 67,0
10 x 10 x 8 250 x 250 x 200	10.750 x 10.750 x 8.626 273,0 x 273,0 x 219,1	27.00 685,8	27.25 692,2	25.75 654,1	151.1 68,5
10 x 10 x 267,4mm 250 x 250 x 250	10.750 x 10.750 x 10.528 273,0 x 273,0 x 267,4	27.00 685,8	27.25 692,2	24.38 619,1	171.8 77,9
10 x 10 x 10 250 x 250 x 250	10.750 x 10.750 x 10.750 273,0 x 273,0 x 273,0	27.00 685,8	27.25 692,2	24.38 619,1	175.1 79,4
318,5mm x 318,5mm x 3 300 x 300 x 80	12.539 x 12.539 x 3.500 318,5 x 318,5 x 88,9	30.00 762,0	22.75 527,1	20.75 527,1	132.2 60,0
318,5mm x 318,5mm x 4 300 x 300 x 100	12.539 x 12.539 x 4.500 318,5 x 318,5 x 114,3	30.00 762,0	21.50 546,1	23.00 584,2	134.6 61,1
318,5mm x 318,5mm x 165,1mm 300 x 300 x 150	12.539 x 12.539 x 6.500 318,5 x 318,5 x 165,1	30.00 762,0	23.75 603,3	24.00 609,6	150.7 68,4
318,5mm x 318,5mm x 6 300 x 300 x 150	12.539 x 12.539 x 6.625 318,5 x 318,5 x 168,3	30.00 762,0	23.75 603,3	24.00 609,6	152.7 69,3
318,5mm x 318,5mm x 216,3mm 300 x 300 x 200	12.539 x 12.539 x 8.516 318,5 x 318,5 x 216,3	30.00 762,0	26.00 660,4	25.00 635,0	171.6 77,8
318,5mm x 318,5mm x 8 300 x 300 x 200	12.539 x 12.539 x 8.625 318,5 x 318,5 x 219,1	30.00 762,0	26.00 660,4	25.00 635,0	174.1 78,9
318,5mm x 318,5mm x 267,4mm 300 x 300 x 250	12.539 x 12.539 x 10.528 318,5 x 318,5 x 267,4	30.00 762,0	28.00 711,2	25.75 654,1	234.5 106,4
318,5mm x 318,5mm x 10 300 x 300 x 250	12.539 x 12.539 x 10.750 318,5 x 318,5 x 273,0	30.00 762,0	28.00 711,2	25.75 654,1	238.7 108,3
318,5mm x 318,5mm x 318,5mm 300 x 300 x 300	12.539 x 12.539 x 12.539 318,5 x 318,5 x 318,5	30.00 762,0	31.00 787,4	27.50 698,5	232.1 105,3
12 x 12 x 3 300 x 300 x 80	12.750 x 12.750 x 3.500 323,9 x 323,9 x 88,9	30.00 762,0	22.75 527,1	20.75 527,1	134.5 61,0
12 x 12 x 4 300 x 300 x 100	12.750 x 12.750 x 4.500 323,9 x 323,9 x 114,3	30.00 762,0	21.50 546,1	23.00 584,2	139.4 63,2
12 x 12 x 165,1mm 300 x 300 x 150	12.750 x 12.750 x 6.500 323,9 x 323,9 x 165,1	30.00 762,0	23.75 603,3	24.00 609,6	145.7 66,1
12 x 12 x 6 300 x 300 x 150	12.750 x 12.750 x 6.625 323,9 x 323,9 x 168,3	30.00 762,0	23.75 603,3	24.00 609,6	154.5 70,0
12 x 12 x 216,3mm 300 x 300 x 200	12.750 x 12.750 x 8.516 323,9 x 323,9 x 216,3	30.00 762,0	26.00 660,4	25.00 635,0	166.7 75,6
12 x 12 x 8 300 x 300 x 200	12.750 x 12.750 x 8.625 323,9 x 323,9 x 219,1	30.00 762,0	26.00 660,4	25.00 635,0	175.8 79,7
12 x 12 x 267,4mm 300 x 300 x 250	12.750 x 12.750 x 10.528 323,9 x 323,9 x 267,4	30.00 762,0	28.00 711,2	25.75 654,1	184.1 83,5
12 x 12 x 10 300 x 300 x 250	12.750 x 12.750 x 10.750 323,9 x 323,9 x 273,0	30.00 762,0	28.00 711,2	25.75 654,1	205.4 93,2
12 x 12 x 318,5mm 300 x 300 x 300	12.750 x 12.750 x 12.539 323,9 x 323,9 x 318,5	30.00 762,0	31.00 787,4	27.50 698,5	228.7 103,7
12 x 12 x 12 300 x 300 x 300	12.750 x 12.750 x 12.750 323,9 x 323,9 x 323,9	30.00 762,0	31.00 787,4	27.50 698,5	240.1 108,9

**TABLE 17 (4 OF 4)  
FIGURE 330 FABRICATED TEE WYES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



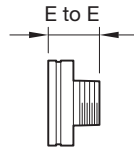
Nominal Pipe Size		H Inches mm	E1 Inches mm	E2 Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				
108,0mm x 3 x 3 100 x 80 x 80	4.252 x 3.500 x 3.500 108,0 x 88,9 x 88,9	9.01 228,9	10.75 273,1	7.25 184,2	13.5 6,1
108,0mm x 3 x 108,0mm 100 x 80 x 100	4.252 x 3.500 x 4.252 108,0 x 88,9 x 108,0	9.01 228,9	10.75 273,1	7.25 184,2	14.0 6,4
4 x 3 x 3 100 x 80 x 80	4.500 x 3.500 x 3.500 114,3 x 88,9 x 88,9	9.00 228,6	10.75 273,1	7.25 143,0	13.7 6,2
4 x 3 x 108,0mm 100 x 80 x 100	4.500 x 3.500 x 4.252 114,3 x 88,9 x 108,0	14.25 362,0	13.63 346,2	11.87 301,5	13.9 6,3
4 x 3 x 4 100 x 80 x 100	4.500 x 3.500 x 4.500 114,3 x 88,9 x 114,3	14.25 362,0	13.63 346,2	11.87 301,5	24.5 11,1
133,0mm x 3 x 3 125 x 80 x 80	5.250 x 3.500 x 3.500 133,0 x 88,9 x 88,9	11.00 279,5	11.50 292,1	7.71 195,8	19.0 8,6
133,0mm x 3 x 133,0mm 125 x 80 x 125	5.250 x 3.500 x 5.250 133,0 x 88,9 x 88,9	16.50 419,1	16.13 409,7	13.95 354,3	19.7 8,9
133,0mm x 4 x 3 125 x 100 x 80	5.250 x 4.500 x 3.500 133,0 x 114,3 x 88,9	11.00 279,4	11.88 301,88	8.71 221,2	19.5 8,8
133,0mm x 108,0mm x 3 125 x 100 x 80	5.250 x 4.252 x 3.500 133,0 x 108,0 x 88,9	11.00 279,4	11.88 301,88	8.71 221,2	19.5 8,8
133,0mm x 4 x 4 125 x 100 x 100	5.250 x 4.500 x 4.500 133,0 x 114,3 x 114,3	11.00 279,4	12.75 323,9	9.00 228,6	23.1 10,5
133,0mm x 108,0mm x 108,0mm 125 x 100 x 100	5.250 x 4.252 x 4.252 133,0 x 108,0 x 108,0	11.00 279,4	12.75 323,9	9.00 228,6	23.0 10,4
133,0mm x 108,0mm x 4 125 x 100 x 100	5.250 x 4.252 x 4.500 133,0 x 108,0 x 114,3	11.00 279,4	12.75 323,9	9.00 228,6	23.3 10,6
133,0mm x 4 x 108,0mm 125 x 100 x 100	5.250 x 4.500 x 4.252 133,0 x 114,3 x 108,0	11.00 279,4	12.75 323,9	9.00 228,6	18.8 8,5
139,7mm x 3 x 3 125 x 80 x 80	5.500 x 3.500 x 3.500 139,7 x 88,9 x 88,9	11.00 279,4	11.50 292,1	7.71 195,8	19.0 8,6
139,7mm x 3 x 139,7mm 125 x 80 x 125	5.500 x 3.500 x 5.500 139,7 x 88,9 x 139,7	16.50 419,1	16.13 409,7	13.95 354,3	19.7 8,9
139,7mm x 4 x 3 125 x 100 x 80	5.500 x 4.500 x 3.500 139,7 x 114,3 x 88,9	11.00 279,4	11.88 301,88	8.71 221,2	19.5 8,8
139,7mm x 4 x 4 125 x 100 x 100	5.500 x 4.500 x 4.500 139,7 x 114,3 x 114,3	11.00 279,4	12.75 323,9	9.00 228,6	23.0 10,4
5 x 3 x 3 125 x 80 x 80	5.563 x 3.500 x 3.500 141,3 x 88,9 x 88,9	11.00 279,4	11.50 292,1	7.71 195,8	19.0 8,6
5 x 3 x 133,0mm 125 x 80 x 125	5.563 x 3.500 x 5.250 141,3 x 88,9 x 133,0	16.50 419,1	16.13 409,7	13.95 254,0	19.7 8,9
5 x 3 x 139,7mm 125 x 80 x 125	5.563 x 3.500 x 5.500 141,3 x 88,9 x 139,7	16.50 419,1	16.13 409,7	13.95 254,0	19.9 9,0
5 x 3 x 5 125 x 80 x 125	5.563 x 3.500 x 5.563 141,3 x 88,9 x 141,3	16.50 419,1	16.13 409,7	13.95 254,0	38.5 17,5
5 x 4 x 3 125 x 100 x 80	5.563 x 4.500 x 3.500 141,3 x 114,3 x 88,9	11.00 279,4	11.88 301,88	8.71 221,2	19.5 8,8
5 x 4 x 4 125 x 100 x 100	5.563 x 4.500 x 4.500 141,3 x 114,3 x 114,3	11.00 279,4	12.75 323,9	9.00 228,6	23.1 10,5
159,0mm x 4 x 159,0mm 150 x 100 x 150	6.250 x 4.500 x 6.250 159,0 x 114,3 x 159,0	18.50 469,9	18.25 463,6	13.75 349,3	54.1 24,5

**TABLE 18 (1 OF 2)**  
**FIGURE 331 FABRICATED REDUCING TEE WYES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		H Inches mm	E1 Inches mm	E2 Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				
159,0mm x 108,0mm x 159,0mm 150 x 100 x 150	6.250 x 4.252 x 6.250 159,0 x 108,0 x 159,0	18.50 469,9	18.25 463,6	13.75 349,3	56.2 25,5
159,0mm x 133,0mm x 108,0mm 150 x 125 x 100	6.250 x 5.250 x 4.252 159,0 x 133,0 x 108,0	12.00 304,9	13.88 352,5	9.63 244,6	55.1 25,0
159,0mm x 5 x 3 150 x 125 x 80	6.250 x 5.563 x 3.500 159,0 x 141,3 x 88,9	12.00 304,9	13.00 330,2	9.25 235,0	45.6 20,7
159,0mm x 5 x 4 150 x 125 x 100	6.250 x 5.563 x 4.500 159,0 x 141,3 x 114,3	12.00 304,9	13.88 352,6	9.62 244,3	55.0 24,9
159,0mm x 5 x 108,0mm 150 x 125 x 100	6.250 x 5.563 x 4.252 159,0 x 141,3 x 108,0	12.00 304,9	13.88 352,6	9.62 244,3	54.0 24,5
165,1mm x 4 x 165,1mm 150 x 100 x 150	6.250 x 4.500 x 6.250 159,0 x 114,3 x 159,0	18.50 469,9	18.25 463,6	13.75 349,3	56.2 25,5
165,1mm x 139,7mm x 3 150 x 1250 x 80	6.250 x 5.500 x 3.500 159,0 x 139,7 x 88,9	12.00 304,9	13.00 330,2	9.25 235,0	45.6 20,7
165,1mm x 139,7mm x 4 150 x 125 x 100	6.250 x 5.500 x 4.500 159,0 x 139,7 x 114,3	12.00 304,9	13.88 352,5	9.63 244,6	54.0 24,5
165,1mm x 5 x 3 150 x 125 x 80	6.500 x 5.563 x 3.500 165,1 x 141,3 x 88,9	12.00 304,9	13.00 330,2	9.25 235,0	45.6 20,7
165,1mm x 5 x 4 150 x 125 x 100	6.500 x 5.563 x 4.500 165,1 x 141,3 x 114,3	12.00 304,9	13.88 352,6	9.62 244,3	54.0 24,5
6 x 4 x 165,1mm 150 x 100 x 150	6.625 x 4.500 x 6.500 168,3 x 114,3 x 165,1	18.50 469,9	18.25 463,6	13.75 349,3	56.2 25,5
6 x 4 x 6 150 x 100 x 150	6.625 x 4.500 x 6.625 168,3 x 114,3 x 168,3	18.50 469,9	18.25 463,6	13.75 349,3	56.2 25,5
6 x 139,7mm x 3 150 x 125 x 80	6.625 x 5.500 x 3.500 168,3 x 139,7 x 88,9	12.00 304,9	13.00 330,2	9.25 235,0	25.0 11,3
6 x 5 x 3 150 x 125 x 80	6.625 x 5.563 x 3.500 168,3 x 141,3 x 88,9	12.00 304,9	13.00 330,2	9.25 235,0	25.6 11,6
6 x 5 x 4 150 x 125 x 100	6.625 x 5.563 x 4.500 168,3 x 141,3 x 114,3	12.00 304,9	13.88 352,6	9.62 244,3	29.3 13,3
216,3mm x 6 x 4 200 x 150 x 100	8.516 x 6.625 x 4.500 216,3 x 168,3 x 114,3	13.00 330,2	14.75 374,7	10.25 260,3	42.1 19,0
216,3mm x 6 x 216,3mm 200 x 150 x 200	8.516 x 6.625 x 8.516 216,3 x 168,3 x 216,3	24.00 609,6	23.25 590,5	21.25 539,7	107.0 48,5
216,3mm x 165,1mm x 4 200 x 150 x 100	8.516 x 4.500 x 4.500 216,3 x 114,3 x 114,3	13.00 330,2	14.75 374,7	10.25 260,3	44.0 20,0
216,3mm x 165,1mm x 216,3mm 200 x 150 x 200	8.516 x 4.500 x 8.516 216,3 x 114,3 x 216,3	24.00 609,6	23.25 590,5	21.25 539,7	107.0 48,5
8 x 6 x 4 200 x 150 x 100	8.625 x 6.625 x 4.500 219,1 x 168,3 x 114,3	13.00 330,2	14.75 374,7	10.25 260,3	40.2 18,2
8 x 6 x 8 200 x 150 x 200	8.625 x 6.625 x 8.625 219,1 x 168,3 x 219,1	24.00 609,6	23.25 590,6	21.25 539,8	108.6 49,3
8 x 165,1mm x 4 200 x 150 x 100	8.625 x 4.500 x 4.500 219,1 x 114,3 x 114,3	13.00 330,2	14.75 374,7	10.25 260,3	44.0 20,0
8 x 165,1mm x 8 200 x 150 x 200	8.625 x 4.500 x 8.625 219,1 x 114,3 x 219,1	24.00 609,6	23.25 590,6	21.25 539,8	106.0 48,0

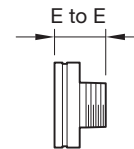
**TABLE 18 (2 OF 2)**  
**FIGURE 331 FABRICATED REDUCING TEE WYES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



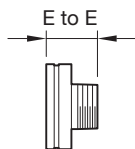
Nominal Pipe Size		E to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
1-1/2 x 1 40 x 25	1.900 x 1.315 48,3 x 33,7	2.50 63,5	0.6 0,3
2 x 3/4 50 x 20	2.375 x 1.050 60,3 x 26,7	2.50 63,5	1.0 0,5
2 x 1 50 x 25	2.375 x 1.315 60,3 x 33,4	2.50 63,5	0.8 0,4
2 x 1-1/4 50 x 32	2.375 x 1.660 60,3 x 42,4	2.50 63,5	0.8 0,4
2 x 1-1/2 50 x 40	2.375 x 1.900 60,3 x 48,3	2.50 63,5	0.8 0,4
2-1/2 x 1-1/4 65 x 32	2.874 x 1.660 73,0 x 42,4	2.50 63,5	1.0 0,5
2-1/2 x 1-1/2 65 x 40	2.874 x 1.900 73,0 x 48,3	2.50 63,5	1.3 0,6
2-1/2 x 2 65 x 50	2.874 x 2.375 73,0 x 60,3	2.50 63,5	1.4 0,6
76,1mm x 1-1/4 65 x 32	3.000 x 1.660 76,1 x 42,4	2.50 63,5	1.0 0,5
76,1mm x 1-1/2 65 x 40	3.000 x 1.900 76,1 x 48,3	2.50 63,5	1.3 0,6
76,1mm x 2 65 x 50	3.000 x 2.375 76,1 x 60,3	2.50 63,5	1.4 0,6
3 x 1 80 x 25	3.500 x 1.315 88,9 x 33,4	2.50 63,5	1.8 0,8
3 x 1-1/4 80 x 32	3.500 x 1.660 88,9 x 42,4	2.5 63,5	1.8 0,8
3 x 1-1/2 80 x 40	3.500 x 1.900 88,9 x 48,3	2.50 63,5	1.9 0,9
3 x 2 80 x 50	3.500 x 2.375 88,9 x 60,3	2.50 63,5	1.9 0,9
3 x 2-1/2 80 x 65	3.500 x 2.874 88,9 x 73,0	2.50 63,5	2.2 0,9
3 x 76,1mm 80 x 65	3.500 x 3.000 88,9 x 76,1	2.50 63,5	2.2 0,9
108,0mm x 1 100 x 25	4.252 x 1.315 108,0 x 33,4	3.00 76,2	2.6 1,2
108,0mm x 1-1/4 100 x 32	4.252 x 1.660 108,0 x 42,4	3.00 76,2	2.6 1,2
108,0mm x 1-1/2 100 x 40	4.252 x 1.900 108,0 x 48,3	3.00 76,2	2.6 1,2
108,0mm x 2 100 x 50	4.252 x 2.375 108,0 x 60,3	3.00 76,2	2.7 1,2
108,0mm x 2-1/2 100 x 65	4.252 x 2.874 108,0 x 73,0	3.00 76,2	2.7 1,2
108,0mm x 76,1mm 100 x 65	4.252 x 3.500 108,0 x 76,1	3.00 76,2	2.7 1,2
108,0mm x 3 100 x 80	4.252 x 3.500 108,0 x 88,9	3.00 76,2	2.8 1,3
4 x 1 100 x 25	4.500 x 1.315 114,3 x 33,4	3.00 76,2	2.9 1,3
4 x 1-1/4 100 x 32	4.500 x 1.660 114,3 x 42,4	3.00 76,2	2.9 1,3
4 x 1-1/2 100 x 40	4.500 x 1.900 114,3 x 48,3	3.00 76,2	2.9 1,3

**TABLE 19 (1 OF 3)**  
**FIGURE 372 FABRICATED CONCENTRIC REDUCER GROOVE X MALE THREAD**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		E to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
4 x 2 100 x 50	4.500 x 2.375 114,3 x 60,3	3.00 76,2	2.9 1,3
4 x 2-1/2 100 x 65	4.500 x 2.874 114,3 x 73,0	3.00 76,2	3.0 1,4
4 x 76,1mm 100 x 65	4.500 x 3.000 114,3 x 76,1	3.00 76,2	3.0 1,4
4 x 3 100 x 80	4.500 x 3.500 114,3 x 88,9	3.00 76,2	3.2 1,5
133,0mm x 76,1mm 125 x 65	5.250 x 3.000 133,0 x 76,1	3.50 88,9	4.3 1,9
133,0mm x 3 125 x 80	5.250 x 3.500 133,0 x 88,9	3.50 88,9	4.3 1,9
133,0mm x 4 125 x 100	5.250 x 4.500 133,0 x 114,3	3.50 88,9	4.4 2,0
139,7mm x 76,1mm 125 x 65	5.500 x 3.000 139,7 x 76,1	3.50 88,9	4.4 2,0
139,7mm x 3 125 x 80	5.500 x 3.500 139,7 x 88,9	3.50 88,9	4.4 2,0
139,7mm x 4 125 x 100	5.500 x 4.500 139,7 x 114,3	3.50 88,9	4.5 2,0
5 x 76,1mm 125 x 65	5.563 x 3.000 141,3 x 76,1	3.50 88,9	4.3 1,9
5 x 3 125 x 80	5.563 x 3.500 141,3 x 88,9	3.50 88,9	4.4 2,0
5 x 4 125 x 100	5.563 x 4.500 141,3 x 114,3	3.50 88,9	4.5 2,0
159,0mm x 1 150 x 25	6.250 x 1.315 159,0 x 33,4	4.00 101,6	5.2 2,4
159,0mm x 2 150 x 50	6.250 x 2.375 159,0 x 60,3	4.00 101,6	5.6 2,5
159,0mm x 76,1mm 150 x 65	6.250 x 3.000 159,0 x 76,1	4.00 101,6	5.6 2,5
159,0mm x 3 150 x 80	6.250 x 3.500 159,0 x 88,9	4.00 101,6	5.8 2,6
159,0mm x 4 150 x 100	6.250 x 4.500 159,0 x 114,3	4.00 101,6	6.0 2,7
159,0mm x 5 150 x 125	6.250 x 5.563 159,0 x 141,3	4.00 101,6	6.2 2,8
165,1mm x 1 150 x 25	6.500 x 1.315 165,1 x 33,4	4.00 101,6	5.6 2,5
165,1mm x 2 150 x 50	6.500 x 2.375 165,1 x 60,3	4.00 101,6	5.8 2,6
165,1mm x 76,1mm 150 x 65	6.500 x 3.000 165,1 x 76,1	4.00 101,6	6.0 2,7
165,1mm x 3 150 x 80	6.500 x 3.500 165,1 x 88,9	4.00 101,6	6.0 2,7
165,1mm x 4 150 x 100	6.500 x 4.500 165,1 x 114,3	4.00 101,6	6.3 2,8
165,1mm x 5 150 x 125	6.500 x 5.563 165,1 x 141,3	4.00 101,6	6.5 2,9
6 x 1 150 x 25	6.625 x 1.315 168,3 x 33,4	4.00 101,6	5.2 2,4
6 x 2 150 x 50	6.625 x 2.375 168,3 x 60,3	4.00 101,6	6.0 2,7

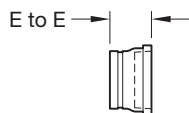


**TABLE 19 (2 OF 3)**  
**FIGURE 372 FABRICATED CONCENTRIC REDUCER GROOVE X MALE THREAD**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		E to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
6 x 76,1mm 150 x 65	6.625 x 3.000 168,3 x 76,1	4.00 101,6	6.0 2,7
6 x 3 150 x 80	6.625 x 3.500 168,3 x 88,9	4.00 101,6	6.0 2,7
6 x 4 150 x 100	6.625 x 4.500 168,3 x 114,3	4.00 101,6	6.3 2,8
6 x 5 150 x 125	6.625 x 5.563 168,3 x 141,3	4.00 101,6	6.5 2,9

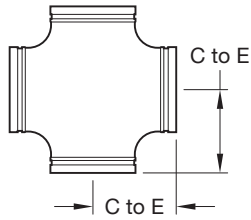
**TABLE 19 (3 OF 3)**  
**FIGURE 372 FABRICATED CONCENTRIC REDUCER GROOVE X MALE THREAD**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



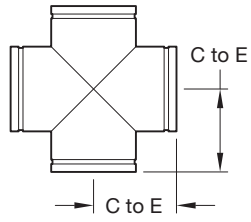
Nominal Pipe Size		E to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
1 25	1.315 33,4	2.06 52,4	0.7 0,3
1-1/4 32	1.660 42,4	2.3 58,7	1.4 0,6
1-1/2 40	1.900 48,3	2.3 58,7	1.5 0,7
2 50	2.375 60,3	2.50 63,5	1.6 0,7
2-1/2 65	2.874 73,0	2.75 69,8	1.9 0,9
76,1mm 65	3.000 76,1	2.50 63,5	2.0 0,9
3 80	3.500 88,9	2.75 69,9	2.5 1,1
108,0mm 100	4.252 108,0	3.25 82,5	4.2 1,9
4 100	4.500 114,3	3.25 82,5	4.5 2,0

**TABLE 20**  
**FIGURE 380 FABRICATED ADAPTER NIPPLE GROOVE X FEMALE THREAD**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		Figure 227 Cast Cross		Figure 327 Fabricated Cross	
ANSI Inches DN	O.D. Inches mm	C to E Inches mm	Weight Lbs. kg	C to E Inches mm	Weight Lbs. kg
1-1/4 32	1.660 42,4	2.75 69,9	2.2 1,0	2.75 69,9	2.2 1,0
1-1/2 40	1.900 48,3	2.75 69,9	2.5 1,1	2.75 69,9	2.5 1,1
2 50	2.375 60,3	3.25 82,6	3.7 1,7	3.25 82,6	3.7 1,7
2-1/2 65	2.874 73,0	3.75 95,3	5.8 2,6	3.75 95,3	5.8 2,6
76,1mm 65	3.000 76,1	3.75 95,3	6.0 2,7	3.75 95,3	6.0 2,7
3 80	3.500 88,9	4.252 108,0	8.6 3,9	4.25 108,0	8.6 3,9
108,0mm 100	4.252 108,0	-	-	5.00 127,0	
4 100	4.500 114,3	5.00 127,0	20.7 9,4	5.00 127,0	20.7 9,4
133,0mm 125	5.250 133,0	-	-	5.50 139,7	18.2 8,3
139,7mm 125	5.500 139,7	-	-	5.50 139,7	18.4 8,3
5 125	5.563 141,3	5.50 139,7	18.5 8,4	5.50 139,7	18.5 8,4
159,0mm 150	6.250 159,0	-	-	6.50 165,1	
165,1mm 150	6.500 165,1	6.50 165,1	18.5 8,4	6.50 165,1	18.5 8,4
6 150	6.625 168,3	6.50 165,1	27.3 12,4	6.50 165,1	27.3 12,4
216,3mm 200	8.516 216,3	-	-	7.75 196,9	47.6 21,6
8 200	8.625 219,1	7.75 196,9	48.0 21,7	7.75 196,9	48.0 21,7
267,4mm 250	10.528 267,4	-	-	9.00 228,6	74.1 33,6
10 250	10.750 273,0	9.00 228,6	75.0 34,0	9.00 228,6	75.0 34,0
318,5mm 300	12.539 318,5	-	-	10.00 254,0	94.8 43,0
12 300	12.750 323,9	10.00 254,0	95.8 43,4	10.00 254,0	95.8 43,4
14 350	14.000 355,6	-	-	11.00 279,4	136.8 62,0
16 400	16.000 406,4	-	-	12.00 304,8	167.3 75,9
18 450	18.000 457,2	-	-	15.50 393,7	259.5 117,7
20 500	20.000 508,0	-	-	17.25 438,2	321.7 145,9
24 600	24.000 609,6	-	-	20.00 508,0	442.7 200,8

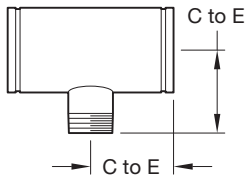


**FIGURE 227  
CAST CROSS**



**FIGURE 327  
FABRICATED CROSS**

**TABLE 21  
FIGURES 227 AND 327  
CAST AND FABRICATED CROSSES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



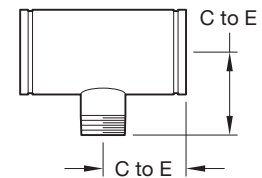
**NOTE:** Figure 323 can be supplied with either ISO 7-1 or NPT threads per ASME B1.20.1

Nominal Pipe Size		C to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
2 x 2 x 1 50 x 50 x 25	2.375 x 2.375 x 1.315 60,3 x 60,3 x 33,4	3.25 82,6	2.2 1,0
2 x 2 x 1-1/4 50 x 50 x 32	2.375 x 2.375 x 1.660 60,3 x 60,3 x 42,4	3.25 82,6	2.3 1,0
2 x 2 x 1-1/2 50 x 50 x 40	2.375 x 2.375 x 1.900 60,3 x 60,3 x 48,3	3.25 82,6	1.4 1,1
2-1/2 x 2-1/2 x 1 65 x 65 x 25	2.874 x 2.874 x 1.315 73,0 x 73,0 x 33,4	3.75 95,3	3.6 1,6
2-1/2 x 2-1/2 x 1-1/4 65 x 65 x 32	2.874 x 2.874 x 1.660 73,0 x 73,0 x 42,4	3.75 95,3	3.8 1,7
2-1/2 x 2-1/2 x 1-1/2 65 x 65 x 40	2.874 x 2.874 x 1.900 73,0 x 73,0 x 48,3	3.75 95,3	4.0 1,8
2-1/2 x 2-1/2 x 2 65 x 65 x 50	2.874 x 2.874 x 2.375 73,0 x 73,0 x 60,3	3.75 95,3	4.2 1,9
76,1mm x 76,1mm x 1 65 x 65 x 25	3.000 x 3.000 x 1.315 76,1 x 76,1 x 33,4	3.75 95,3	3.7 1,7
76,1mm x 76,1mm x 1-1/4 65 x 65 x 32	3.000 x 3.000 x 1.660 76,1 x 76,1 x 42,4	3.75 95,3	3.9 1,8
76,1mm x 76,1mm x 1-1/2 65 x 65 x 40	3.000 x 3.000 x 1.900 76,1 x 76,1 x 48,3	3.75 95,3	4.1 1,9
76,1mm x 76,1mm x 2 65 x 65 x 50	3.000 x 3.000 x 2.375 76,1 x 76,1 x 60,3	3.75 95,3	4.4 2,0
3 x 3 x 1 80 x 80 x 25	3.500 x 3.500 x 1.315 88,9 x 88,9 x 33,4	4.25 108,0	5.7 2,6
3 x 3 x 1-1/2 80 x 80 x 40	3.500 x 3.500 x 1.900 88,9 x 88,9 x 48,3	4.25 108,0	5.8 2,6
3 x 3 x 2 80 x 80 x 50	3.500 x 3.500 x 2.375 88,9 x 88,9 x 60,3	4.25 108,0	5.9 2,7
3 x 3 x 2-1/2 80 x 80 x 65	3.500 x 3.500 x 2.874 88,9 x 88,9 x 73,0	4.25 108,0	6.3 2,9
3 x 3 x 76,1mm 80 x 80 x 65	3.500 x 3.500 x 3.000 88,9 x 88,9 x 76,1	4.25 108,0	6.4 2,9
108,0mm x 108,0mm x 1 100 x 100 x 25	4.252 x 4.252 x 1.315 108,0 x 108,0 x 33,4	5.00 127,0	6.8 3,1
108,0mm x 108,0mm x 1-1/4 100 x 100 x 32	4.252 x 4.252 x 1.660 108,0 x 108,0 x 42,4	5.00 127,0	7.5 3,4
108,0mm x 108,0mm x 1-1/2 100 x 100 x 40	4.252 x 4.252 x 1.900 108,0 x 108,0 x 48,3	5.00 127,0	8.2 3,7
108,0mm x 108,0mm x 2 100 x 100 x 50	4.252 x 4.252 x 2.375 108,0 x 108,0 x 60,3	5.00 127,0	9.5 4,3
108,0mm x 108,0mm x 2-1/2 100 x 100 x 65	4.252 x 4.252 x 2.874 108,0 x 108,0 x 73,0	5.00 127,0	9.7 4,4
108,0mm x 108,0mm x 76,1mm 100 x 100 x 65	4.252 x 4.252 x 3.000 108,0 x 108,0 x 76,1	5.00 127,0	9.8 4,4
108,0mm x 108,0mm x 3 100 x 100 x 80	4.252 x 4.252 x 3.500 108,0 x 108,0 x 88,9	5.00 127,0	9.9 4,5
4 x 4 x 1 100 x 100 x 25	4.500 x 4.500 x 1.315 114,3 x 114,3 x 33,4	5.00 127,0	6.9 3,1
4 x 4 x 1-1/4 100 x 100 x 32	4.500 x 4.500 x 1.660 114,3 x 114,3 x 42,4	5.00 127,0	7.6 3,4
4 x 4 x 1-1/2 100 x 100 x 40	4.500 x 4.500 x 1.900 114,3 x 114,3 x 48,3	5.00 127,0	8.3 3,8
4 x 4 x 2 100 x 100 x 50	4.500 x 4.500 x 2.375 114,3 x 114,3 x 60,3	5.00 127,0	9.6 4,4

**TABLE 22 (1 OF 5)**  
**FIGURE 323 FABRICATED GROOVE X GROOVE X MALE THREAD REDUCING TEES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

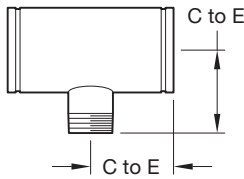


Nominal Pipe Size		C to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
4 x 4 x 2-1/2 100 x 100 x 65	4.500 x 4.500 x 2.874 114,3 x 114,3 x 73,0	5.00 127,0	10.0 4,5
4 x 4 x 76,1mm 100 x 100 x 65	4.500 x 4.500 x 3.000 114,3 x 114,3 x 76,1	5.00 127,0	10.2 4,6
4 x 4 x 3 100 x 100 x 80	4.500 x 4.500 x 3.500 114,3 x 114,3 x 88,9	5.00 127,0	10.3 4,7
133,0mm x 133,0mm x 2 125 x 125 x 50	5.250 x 5.250 x 2.375 133,0 x 133,0 x 60,3	5.50 139,7	13.8 6,3
133,0mm x 133,0mm x 2-1/2 125 x 125 x 65	5.250 x 5.250 x 2.874 133,0 x 133,0 x 73,0	5.50 139,7	14.1 6,4
133,0mm x 133,0mm x 76,1mm 125 x 125 x 65	5.250 x 5.250 x 3.000 133,0 x 133,0 x 76,1	5.50 139,7	14.2 6,4
133,0mm x 133,0mm x 3 125 x 125 x 80	5.250 x 5.250 x 3.500 133,0 x 133,0 x 88,9	5.50 139,7	14.4 6,5
133,0mm x 133,0mm x 4 125 x 125 x 100	5.250 x 5.250 x 4.500 133,0 x 133,0 x 114,3	5.50 139,7	14.9 6,8
139,7mm x 139,7mm x 2 125 x 125 x 50	5.500 x 5.500 x 2.375 139,7 x 139,7 x 60,3	5.50 139,7	13.9 6,3
139,7mm x 139,7mm x 2-1/2 125 x 125 x 65	5.500 x 5.500 x 2.874 139,7 x 139,7 x 73,0	5.50 139,7	14.2 6,4
139,7mm x 139,7mm x 76,1mm 125 x 125 x 65	5.500 x 5.500 x 3.000 139,7 x 139,7 x 76,1	5.50 139,7	14.3 6,5
139,7mm x 139,7mm x 3 125 x 125 x 80	5.500 x 5.500 x 3.500 139,7 x 139,7 x 88,9	5.50 139,7	14.5 6,6
139,7mm x 139,7mm x 4 125 x 125 x 100	5.500 x 5.500 x 4.500 139,7 x 139,7 x 114,3	5.50 139,7	15.0 6,8
5 x 5 x 2 125 x 125 x 50	5.563 x 5.563 x 2.375 141,3 x 141,3 x 60,3	5.50 139,7	14.0 6,4
5 x 5 x 76,1mm 125 x 125 x 65	5.563 x 5.563 x 3.000 141,3 x 141,3 x 76,1	5.50 139,7	14.4 6,5
5 x 5 x 2-1/2 125 x 125 x 65	5.563 x 5.563 x 2.874 141,3 x 141,3 x 73,0	5.50 139,7	14.3 6,5
5 x 5 x 3 125 x 125 x 80	5.563 x 5.563 x 3.500 141,3 x 141,3 x 88,9	5.50 139,7	14.6 6,6
5 x 5 x 4 125 x 125 x 100	5.563 x 5.563 x 4.500 141,3 x 141,3 x 114,3	5.50 139,7	15.1 6,8
159,0mm x 159,0mm x 2 150 x 150 x 50	6.250 x 6.250 x 2.375 159,0 x 159,0 x 60,3	6.50 165,1	20.9 9,5
159,0mm x 159,0mm x 76,1mm 150 x 150 x 65	6.250 x 6.250 x 3.000 159,0 x 159,0 x 76,1	6.50 165,1	21.3 9,7
159,0mm x 159,0mm x 2-1/2 150 x 150 x 65	6.250 x 6.250 x 2.874 159,0 x 159,0 x 73,0	6.50 165,1	21.2 9,6
159,0mm x 159,0mm x 3 150 x 150 x 80	6.250 x 6.250 x 3.500 159,0 x 159,0 x 88,9	6.50 165,1	21.6 9,8
159,0mm x 159,0mm x 4 150 x 150 x 100	6.250 x 6.250 x 4.500 159,0 x 159,0 x 114,3	6.50 165,1	22.1 10,0
159,0mm x 159,0mm x 139,7mm 150 x 150 x 125	6.250 x 6.250 x 5.500 159,0 x 159,0 x 139,7	6.50 165,1	22.4 10,2
159,0mm x 159,0mm x 5 150 x 150 x 125	6.250 x 6.250 x 5.563 159,0 x 159,0 x 141,3	6.50 165,1	22.7 10,3
165,1mm x 165,1mm x 2 150 x 150 x 50	6.500 x 6.500 x 2.375 165,1 x 165,1 x 60,3	6.50 165,1	21.1 9,6
165,1mm x 165,1mm x 76,1mm 150 x 150 x 65	6.500 x 6.500 x 3.000 165,1 x 165,1 x 76,1	6.50 165,1	21.5 9,8



**NOTE:** Figure 323 can be supplied with either ISO 7-1 or NPT threads per ASME B1.20.1

**TABLE 22 (2 OF 5)  
FIGURE 323 FABRICATED GROOVE X GROOVE X MALE THREAD REDUCING TEES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

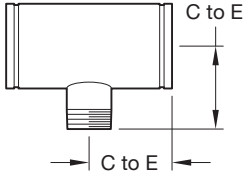


**NOTE:** Figure 323 can be supplied with either ISO 7-1 or NPT threads per ASME B1.20.1

Nominal Pipe Size		C to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
165,1mm x 165,1mm x 2-1/2 150 x 150 x 65	6.500 x 6.500 x 2.874 165,1 x 165,1 x 73,0	6.50 165,1	21.4 9,7
165,1mm x 165,1mm x 3 150 x 150 x 80	6.500 x 6.500 x 3.500 165,1 x 165,1 x 88,9	6.50 165,1	21.8 9,9
165,1mm x 165,1mm x 4 150 x 150 x 100	6.500 x 6.500 x 4.500 165,1 x 165,1 x 114,3	6.50 165,1	22.3 10,1
165,1mm x 165,1mm x 139,7mm 150 x 150 x 125	6.500 x 6.500 x 5.500 165,1 x 165,1 x 139,7	6.50 165,1	22.6 10,3
165,1mm x 165,1mm x 5 150 x 150 x 125	6.500 x 6.500 x 5.563 165,1 x 165,1 x 141,3	6.50 165,1	22.9 10,4
6 x 6 x 2 150 x 150 x 50	6.625 x 6.625 x 2.375 168,3 x 168,3 x 60,3	6.50 165,1	21.3 9,7
6 x 6 x 2-1/2 150 x 150 x 65	6.625 x 6.625 x 2.874 168,3 x 168,3 x 73,0	6.50 165,1	21.7 9,8
6 x 6 x 3 150 x 150 x 80	6.625 x 6.625 x 3.500 168,3 x 168,3 x 88,9	6.50 165,1	22.0 10,0
6 x 6 x 4 150 x 150 x 100	6.625 x 6.625 x 4.500 168,3 x 168,3 x 114,3	6.50 165,1	22.5 10,2
6 x 6 x 139,7mm 150 x 150 x 125	6.625 x 6.625 x 5.500 168,3 x 168,3 x 139,7	6.50 165,1	22.8 10,3
6 x 6 x 5 150 x 150 x 125	6.625 x 6.625 x 5.563 168,3 x 168,3 x 141,3	6.50 165,1	23.1 10,5
216,3mm x 216,3mm x 2 200 x 200 x 50	8.516 x 8.516 x 2.375 216,3 x 216,3 x 60,3	7.75 196,9	32.5 14,7
216,3mm x 216,3mm x 76,1mm 200 x 200 x 65	8.516 x 8.516 x 3.000 216,3 x 216,3 x 76,1	7.75 196,9	32.7 14,8
216,3mm x 216,3mm x 3 200 x 200 x 80	8.516 x 8.516 x 3.500 216,3 x 216,3 x 88,9	7.75 196,9	33.3 15,1
216,3mm x 216,3mm x 4 200 x 200 x 100	8.516 x 8.516 x 4.500 216,3 x 216,3 x 114,3	7.75 196,9	34.3 15,5
216,3mm x 216,3mm x 139,7mm 200 x 200 x 125	8.516 x 8.516 x 5.500 216,3 x 216,3 x 139,7	7.75 196,9	34.4 15,6
216,3mm x 216,3mm x 165,1mm 200 x 200 x 150	8.516 x 8.516 x 6.500 216,3 x 216,3 x 165,1	7.75 196,9	35.2 15,9
216,3mm x 216,3mm x 5 200 x 200 x 125	8.516 x 8.516 x 5.563 216,3 x 216,3 x 141,3	7.75 196,9	34.5 15,6
216,3mm x 216,3mm x 6 200 x 200 x 150	8.516 x 8.516 x 6.625 216,3 x 216,3 x 168,3	7.75 196,9	35.4 16,0
8 x 8 x 2 200 x 200 x 50	8.625 x 8.625 x 2.375 219,1 x 219,1 x 60,3	7.75 196,9	32.7 14,8
8 x 8 x 76,1mm 200 x 200 x 65	8.625 x 8.625 x 3.000 219,1 x 219,1 x 60,3	7.75 196,9	32.9 14,9
8 x 8 x 3 200 x 200 x 80	8.625 x 8.625 x 3.500 219,1 x 219,1 x 88,9	7.75 196,9	33.5 15,2
8 x 8 x 4 200 x 200 x 100	8.625 x 8.625 x 4.500 219,1 x 219,1 x 114,1	7.75 196,9	34.5 15,6
8 x 8 x 139,7mm 200 x 200 x 125	8.625 x 8.625 x 5.500 219,1 x 219,1 x 139,7	7.75 196,9	34.6 15,7
8 x 8 x 165,1mm 200 x 200 x 150	8.625 x 8.625 x 6.500 219,1 x 219,1 x 165,1	7.75 196,9	35.4 16,0
8 x 8 x 5 200 x 200 x 125	8.625 x 8.625 x 5.563 219,1 x 219,1 x 141,3	7.75 196,9	34.7 15,7
8 x 8 x 6 200 x 200 x 150	8.625 x 8.625 x 6.625 219,1 x 219,1 x 168,3	7.75 196,9	35.6 16,1

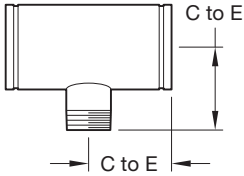
**TABLE 22 (3 OF 5)**  
**FIGURE 323 FABRICATED GROOVE X GROOVE X MALE THREAD REDUCING TEES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		C to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
267,4mm x 267,4mm x 2 250 x 250 x 50	10.528 x 10.528 x 2.375 267,4 x 267,4 x 60,3	9.00 228,6	52.0 23,6
267,4mm x 267,4mm x 76,1mm 250 x 250 x 65	10.528 x 10.528 x 3.000 267,4 x 267,4 x 76,1	9.00 228,6	52.2 23,7
267,4mm x 267,4mm x 3 250 x 250 x 80	10.528 x 10.528 x 3.500 267,4 x 267,4 x 88,9	9.00 228,6	52.8 23,9
267,4mm x 267,4mm x 4 250 x 250 x 100	10.528 x 10.528 x 4.500 267,4 x 267,4 x 114,3	9.00 228,6	53.4 24,2
267,4mm x 267,4mm x 139,7mm 250 x 250 x 125	10.528 x 10.528 x 5.500 267,4 x 267,4 x 139,7	9.00 228,6	53.6 24,3
267,4mm x 267,4mm x 165,1mm 250 x 250 x 150	10.528 x 10.528 x 6.500 267,4 x 267,4 x 165,1	9.00 228,6	53.8 24,4
267,4mm x 267,4mm x 5 250 x 250 x 125	10.528 x 10.528 x 5.563 267,4 x 267,4 x 141,3	9.00 228,6	54.0 24,5
267,4mm x 267,4mm x 6 250 x 250 x 150	10.528 x 10.528 x 6.625 267,4 x 267,4 x 168,3	9.00 228,6	54.7 24,8
267,4mm x 267,4mm x 8 250 x 250 x 200	10.528 x 10.528 x 8.625 267,4 x 267,4 x 219,1	9.00 228,6	55.1 25,0
10 x 10 x 2 250 x 250 x 50	10.750 x 10.750 x 2.375 273,0 x 273,0 x 60,3	9.00 228,6	52.2 23,7
10 x 10 x 76,1mm 250 x 250 x 65	10.750 x 10.750 x 3.000 273,0 x 273,0 x 76,1	9.00 228,6	52.4 23,8
10 x 10 x 3 250 x 250 x 80	10.750 x 10.750 x 3.500 273,0 x 273,0 x 88,9	9.00 228,6	53.0 24,0
10 x 10 x 4 250 x 250 x 100	10.750 x 10.750 x 4.500 273,0 x 273,0 x 114,3	9.00 228,6	53.6 24,3
10 x 10 x 139,7mm 250 x 250 x 125	10.750 x 10.750 x 5.500 273,0 x 273,0 x 139,7	9.00 228,6	53.8 24,4
10 x 10 x 165,1mm 250 x 250 x 150	10.750 x 10.750 x 6.500 273,0 x 273,0 x 165,1	9.00 228,6	54.0 24,5
10 x 10 x 5 250 x 250 x 125	10.750 x 10.750 x 5.563 273,0 x 273,0 x 141,3	9.00 228,6	54.2 24,6
10 x 10 x 6 250 x 250 x 150	10.750 x 10.750 x 6.625 273,0 x 273,0 x 168,3	9.00 228,6	54.9 24,9
10 x 10 x 8 250 x 250 x 200	10.750 x 10.750 x 8.625 273,0 x 273,0 x 219,1	9.00 228,6	55.3 25,1
318,5mm x 318,5mm x 3 300 x 300 x 80	12.539 x 12.539 x 3.500 318,5 x 318,5 x 88,9	10.00 254,0	74.2 33,7
318,5mm x 318,5mm x 4 300 x 300 x 100	12.539 x 12.539 x 4.500 318,5 x 318,5 x 114,3	10.00 254,0	74.9 33,9
318,5mm x 318,5mm x 139,7mm 300 x 300 x 125	12.539 x 12.539 x 5.500 318,5 x 318,5 x 139,7	10.00 254,0	75.2 34,1
318,5mm x 318,5mm x 5 300 x 300 x 125	12.539 x 12.539 x 5.563 318,5 x 318,5 x 141,3	10.00 254,0	75.4 34,2
318,5mm x 318,5mm x 165,1mm 300 x 300 x 150	12.539 x 12.539 x 6.500 318,5 x 318,5 x 165,1	10.00 254,0	75.8 34,4
318,5mm x 318,5mm x 6 300 x 300 x 150	12.539 x 12.539 x 6.625 318,5 x 318,5 x 168,3	10.00 254,0	76.0 34,5
318,5mm x 318,5mm x 8 300 x 300 x 200	12.539 x 12.539 x 8.625 318,5 x 318,5 x 219,1	10.00 254,0	76.1 34,5
318,5mm x 318,5mm x 10 300 x 300 x 250	12.539 x 12.539 x 10.750 318,5 x 318,5 x 273,0	10.00 254,0	77.4 35,1
12 x 12 x 3 300 x 300 x 80	12.750 x 12.750 x 3.500 323,9 x 323,9 x 88,9	10.00 254,0	74.6 33,8



**NOTE:** Figure 323 can be supplied with either ISO 7-1 or NPT threads per ASME B1.20.1

**TABLE 22 (4 OF 5)  
FIGURE 323 FABRICATED GROOVE X GROOVE X MALE THREAD REDUCING TEES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

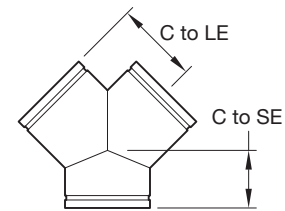


**NOTE:** Figure 323 can be supplied with either ISO 7-1 or NPT threads per ASME B1.20.1

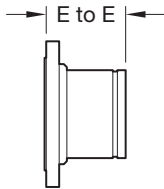
Nominal Pipe Size		C to E Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm		
12 x 12 x 4 300 x 300 x 100	12.750 x 12.750 x 4.500 323,9 x 323,9 x 141,3	10.00 254,0	75.1 34,1
12 x 12 x 139,7mm 300 x 300 x 125	12.750 x 12.750 x 5.500 323,9 x 323,9 x 139,7	10.00 254,0	75.4 34,2
12 x 12 x 5 300 x 300 x 125	12.750 x 12.750 x 5.563 323,9 x 323,9 x 114,3	10.00 254,0	75.6 34,3
12 x 12 x 165,1mm 300 x 300 x 150	12.750 x 12.750 x 6.500 323,9 x 323,9 x 139,7	10.00 254,0	76.0 34,5
12 x 12 x 6 300 x 300 x 150	12.750 x 12.750 x 6.625 323,9 x 323,9 x 219,1	10.00 254,0	76.2 34,6
12 x 12 x 8 300 x 300 x 200	12.750 x 12.750 x 8.625 323,9 x 323,9 x 219,1	10.00 254,0	76.3 34,6
12 x 12 x 10 300 x 300 x 250	12.750 x 12.750 x 10.750 323,9 x 323,9 x 273,0	10.00 254,0	77.6 35,2

**TABLE 22 (5 OF 5)**  
**FIGURE 323 FABRICATED GROOVE X GROOVE X MALE THREAD REDUCING TEES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

Nominal Pipe Size		C to LE Inches mm	C to SE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm			
1-1/4 32	1,660 42,4	2.75 69,9	2.50 63,5	1.4 0,6
1-1/2 40	1,900 48,3	2.75 69,9	2.75 69,9	1.7 0,8
2 50	2,375 60,3	3.25 82,6	2.75 69,9	2.5 1,1
2-1/2 65	2,874 73,0	3.75 95,3	3.00 76,2	4.4 2,0
76,1mm 65	3,000 76,1	3.75 95,3	3.00 76,2	4.4 2,0
3 80	3,500 88,9	4.25 108,0	3.25 82,6	6.4 2,9
108,0mm 100	4,252 108,0	5.00 127,0	3.75 95,3	10.3 4,7
4 100	4,500 114,3	5.00 127,0	3.75 95,3	10.5 4,8
133,0mm 125	5,250 133,0	5.50 139,7	4.00 101,6	14.8 6,7
139,7mm 125	5,500 139,7	5.50 139,7	4.00 101,6	15.0 6,8
5 125	5,563 141,3	5.50 139,7	4.00 101,6	15.2 6,9
159,0mm 150	6,250 159,0	6.50 165,1	4.50 114,3	21.6 9,8
165,1mm 150	6,500 165,1	6.50 165,1	4.50 114,3	22.9 10,4
6 150	6,625 168,3	6.50 165,1	4.50 114,3	22.9 10,4
216,3mm 200	8,516 216,3	7.75 196,9	6.00 152,4	41.5 18,8
8 200	8,625 219,1	7.75 196,9	6.00 152,4	41.9 19,0
267,4mm 250	10,528 267,4	9.00 228,6	6.50 165,71	65.8 29,8
10 250	10,750 273,0	9.00 228,6	6.50 165,71	66.2 30,0
318,5mm 300	12,539 318,5	10.00 254,0	7.00 177,8	87.2 39,5
12 300	12,750 323,9	10.00 254,0	7.00 177,8	87.7 39,8
14 350	14,000 355,6	11.00 279,4	7.50 190,5	105.3 47,8
16 400	16,000 406,4	12.00 304,8	8.00 203,2	129.1 58,6
18 450	18,000 457,2	15.50 393,7	8.50 215,9	184.4 83,6
20 500	20,000 508,0	17.25 438,2	9.00 238,6	225.8 102,4
24 600	24,000 609,6	20.00 508,0	10.00 254,0	308.5 139,9



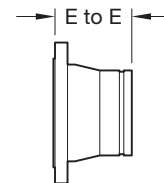
**TABLE 23**  
**FIGURE 324 FABRICATED 90° TRUE Y**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



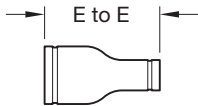
Nominal Pipe Size		Figure 341 Fabricated Flange Adapter ANSI Class 150 Lbs.		Figure 342 Fabricated Flange Adapter ANSI Class 300 Lbs.		E to E Inches mm
ANSI Inches DN	O.D. Inches mm	Mating Flange Bolt Qty.	Weight Lbs. kg	Mating Flange Bolt Qty.	Weight Lbs. kg	
1-1/4 32	1.660 42,4	4	3.7 1,7	4	4.6 2,1	4.00 101,6
1-1/2 40	1.900 48,3	4	3.9 1,8	4	7.1 3,2	4.00 101,6
2 50	2.375 60,3	4	6.4 2,8	8	8.2 3,7	4.00 101,6
2-1/2 65	2.874 73,0	4	8.8 4,0	8	11.9 5,4	4.00 101,6
76,1mm 65	3.000 76,1	4	10.0 4,5	8	12.5 5,7	4.00 101,6
3 80	3.500 88,9	4	10.4 4,7	8	15.5 7,0	4.00 101,6
108,0mm 100	4.252 108,0	8	18.0 8,2	8	27.2 12,3	6.00 152,4
4 100	4.500 114,3	8	18.2 8,3	8	28.0 12,7	6.00 152,4
133,0mm 125	5.250 133,0	8	21.5 9,8	8	35 15,9	6.00 152,4
139,7mm 125	5.500 139,7	8	21.8 9,9	8	36 16,3	6.00 152,4
5 125	5.563 141,3	8	22.0 10,0	8	37.0 16,8	6.00 152,4
159,0mm 150	6.250 159,0	8	27.5 12,5	12	46 20,9	6.00 152,4
165,1mm 150	6.500 165,1	8	27.8 12,6	12	47 21,3	6.00 152,4
6 150	6.625 168,3	8	28.1 12,7	12	48.0 21,8	6.00 152,4
216,3mm 200	8.516 216,3	8	43.2 19,6	12	77 34,9	6.00 152,4
8 200	8.625 219,1	8	43.7 19,8	12	79.0 35,8	6.00 152,4
267,4mm 250	10.528 267,4	12	68.2 30,9	16	86 39,0	8.00 203,2
10 250	10.750 273,0	12	68.2 30,9	16	122.0 55,3	8.00 203,2
318,5mm 300	12.539 318,5	12	88.0 39,9	16	175.0 79,4	8.00 203,2
12 300	12.750 323,9	12	96.1 43,6	16	183.0 83,0	8.00 203,2
14 350	14.000 355,6	12	123.0 55,8	20	199.0 90,3	8.00 203,2
16 400	16.000 406,4	16	151.0 68,5	20	255.0 155,7	8.00 203,2
18 450	18.000 457,2	16	165.0 74,8	24	303.0 137,4	8.00 203,2
20 500	20.000 508,0	20	205.0 93,0	24	365.0 165,6	8.00 203,2
24 600	24.000 609,6	20	265.0 120,2	24	550.0 249,5	8.00 203,2

**TABLE 24**  
**FIGURES 341 AND 342 FABRICATED FLANGE ADAPTERS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

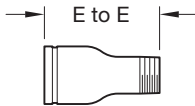
Nominal Pipe Size		Figure 343 Fabricated Flange Adapter PN16		Figure 344 Fabricated Flange Adapter PN10		E to E Inches mm
ANSI Inches DN	O.D. Inches mm	Mating Flange Bolt Qty.	Weight Lbs. kg	Mating Flange Bolt Qty.	Weight Lbs. kg	
2 50	2.375 60,3	4	6.4 2,9	-	-	3.74 95,0
2-1/2 65	2.874 73,0	4	8.8 4,0	-	-	3.74 95,0
76,1mm 65	3.000 76,1	4	10.0 45,4	-	-	3.74 95,0
3 80	3.500 88,9	8	10.4 4,7	-	-	3.94 100,0
108,0mm 100	4.252 108,0	8	18.0 8,2	-	-	4.02 102,0
4 100	4.500 114,3	8	18.2 8,3	-	-	4.02 102,0
133,0mm 125	5.250 133,0	8	21.5 9,8	-	-	4.13 105,0
139,7mm 125	5.500 139,7	8	21.8 9,9	-	-	4.13 105,0
5 125	5.563 141,3	8	22.0 10,0	-	-	4.13 105,0
159,0mm 150	6.250 159,0	8	27.5 12,5	-	-	4.13 105,0
165,1mm 150	6.500 165,1	8	27.8 12,6	-	-	4.13 105,0
6 150	6.625 168,3	8	28.1 12,7	-	-	4.13 105,0
216,3mm 200	8.516 216,3	12	43.2 19,6	8	42.6 19,3	4.40 112,0
8 200	8.625 219,1	12	43.7 19,8	8	43.1 19,5	4.40 112,0
267,4mm 250	10.528 267,4	12	68.2 30,9	12	67.1 30,4	5.43 138,0
10 250	10.750 273,0	12	68.5 31,1	12	67.4 30,6	5.43 138,0
318,5mm 300	12.539 318,5	12	94.5 29,3	12	93.1 42,2	5.43 138,0
12 300	12.750 323,9	12	96.1 43,6	12	94.0 42,6	5.43 138,0



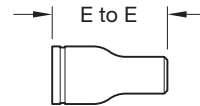
**TABLE 25**  
**FIGURES 343 AND 344 FABRICATED FLANGE ADAPTERS**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 397  
FABRICATED SWAGED NIPPLE  
GROOVE X GROOVE**



**FIGURE 398  
FABRICATED SWAGED NIPPLE  
GROOVE X MALE THREAD**

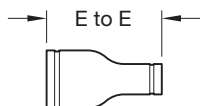


**FIGURE 399  
FABRICATED SWAGED NIPPLE  
GROOVE X PLAIN**

Nominal Pipe Size		Figures 397 Fabricated Swaged Nipple		Figures 398 Fabricated Swaged Nipple		Figures 399 Fabricated Swaged Nipple	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
2 x 1 50 x 25	2.375 x 1.315 60,3 x 33,4	6.50 165,1	2.0 0,9	6.50 165,1	2.0 0,9	6.50 165,1	2.0 0,9
2 x 1-1/4 50 x 32	2.375 x 1.660 60,3 x 42,4	6.50 165,1	2.0 0,9	6.50 165,1	2.0 0,9	6.50 165,1	2.0 0,9
2 x 1-1/2 50 x 40	2.375 x 1.900 60,3 x 48,3	6.50 165,1	2.0 0,9	6.50 165,1	2.0 0,9	6.50 165,1	2.0 0,9
2-1/2 x 1 65 x 25	2.874 x 1.315 73,0 x 33,4	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6
2-1/2 x 1-1/4 65 x 32	2.874 x 1.660 73,0 x 42,4	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6
2-1/2 x 1-1/2 65 x 40	2.874 x 1.900 73,0 x 48,3	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6
2-1/2 x 2 65 x 50	2.874 x 2.375 73,0 x 60,3	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6	7.00 177,8	3.5 1,6
76,1mm x 1 65 x 25	3.000 x 1.315 76,1 x 33,4	7.00 177,8	3.6 1,6	7.00 177,8	3.6 1,6	7.00 177,8	2.2 0,9
76,1mm x 1-1/4 65 x 32	3.000 x 1.660 76,1 x 42,4	7.00 177,8	3.6 1,6	7.00 177,8	3.6 1,6	7.00 177,8	3.2 1,5
76,1mm x 1-1/2 65 x 40	3.000 x 1.900 76,1 x 48,3	7.00 177,8	3.7 1,7	7.00 177,8	3.7 1,7	7.00 177,8	3.7 1,7
76,1mm x 2 65 x 50	3.000 x 2.375 76,1 x 60,3	7.00 177,8	3.7 1,7	7.00 177,8	3.7 1,7	7.00 177,8	3.7 1,7
3 x 1 80 x 25	3.500 x 1.315 88,9 x 33,4	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3
3 x 1-1/4 80 x 32	3.500 x 1.660 88,9 x 42,4	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3
3 x 1-1/2 80 x 40	3.500 x 1.900 88,9 x 48,3	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3
3 x 2 80 x 50	3.500 x 2.375 88,9 x 60,3	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3
3 x 2-1/2 80 x 65	3.500 x 2.874 88,9 x 73,0	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3	8.00 203,2	5.0 2,3
3 x 76,1mm 80 x 65	3.500 x 3.000 88,9 x 73,0	8.00 203,2	5.2 2,4	8.00 203,2	5.2 2,4	8.00 203,2	5.2 2,4
108,0mm x 1 100 x 25	4.252 x 1.315 108,0 x 33,4	9.00 228,6	5.2 2,4	9.00 228,6	5.2 2,4	9.00 228,6	5.2 2,4
108,0mm x 1-1/4 100 x 32	4.252 x 1.660 108,0 x 42,4	9.00 228,6	5.2 2,4	9.00 228,6	5.2 2,4	9.00 228,6	5.2 2,4
108,0mm x 1-1/2 100 x 40	4.252 x 1.900 108,0 x 48,3	9.00 228,6	5.6 2,5	9.00 228,6	5.6 2,5	9.00 228,6	5.6 2,5
108,0mm x 2 100 x 50	4.252 x 2.375 108,0 x 60,3	9.00 228,6	5.6 2,5	9.00 228,6	5.6 2,5	9.00 228,6	5.6 2,5
108,0mm x 2-1/2 100 x 65	4.252 x 2.874 108,0 x 73,0	9.00 228,6	6.7 3,0	9.00 228,6	6.7 3,0	9.00 228,6	6.7 3,0
108,0mm x 76,1mm 100 x 65	4.252 x 3.000 108,0 x 76,1	9.00 228,6	6.7 3,0	9.00 228,6	6.7 3,0	9.00 228,6	6.7 3,0

**TABLE 26 (1 OF 4)  
FIGURES 397, 398 AND 399 FABRICATED SWAGED NIPPLES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**





**FIGURE 397  
FABRICATED SWAGED NIPPLE  
GROOVE X GROOVE**



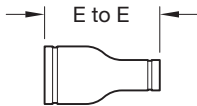
**FIGURE 398  
FABRICATED SWAGED NIPPLE  
GROOVE X MALE THREAD**



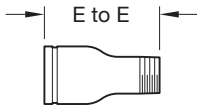
**FIGURE 399  
FABRICATED SWAGED NIPPLE  
GROOVE X PLAIN**

Nominal Pipe Size		Figures 397 Fabricated Swaged Nipple		Figures 398 Fabricated Swaged Nipple		Figures 399 Fabricated Swaged Nipple	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
108,0mm x 3 100 x 80	4.252 x 3.500 108,0 x 88,9	9,00 228,6	6,7 3,0	9,00 228,6	6,7 3,0	9,00 228,6	6,7 3,0
4 x 1 100 x 25	4.500 x 1.315 114,3 x 33,4	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6
4 x 1-1/4 100 x 32	4.500 x 1.660 114,3 x 42,4	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6
4 x 1-1/2 100 x 40	4.500 x 1.900 114,3 x 48,3	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6
4 x 2 100 x 50	4.500 x 2.375 114,3 x 60,3	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6
4 x 2-1/2 100 x 65	4.500 x 2.874 114,3 x 73,0	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6
4 x 76,1mm 100 x 65	4.500 x 3.000 114,3 x 76,1	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6
4 x 3 100 x 80	4.500 x 3.500 114,3 x 88,9	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6	9,00 228,6	8,0 3,6
133,0mm x 1-1/2 125 x 40	5.250 x 1.900 133,0 x 48,3	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8	-	-
133,0mm x 2 125 x 50	5.250 x 2.375 133,0 x 60,3	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8
133,0mm x 2-1/2 125 x 65	5.250 x 2.874 133,0 x 73,0	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8
133,0mm x 76,1mm 125 x 65	5.250 x 3.000 133,0 x 76,1	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8
133,0mm x 3 125 x 80	5.250 x 3.500 133,0 x 88,9	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8	11,00 279,4	8,4 3,8
133,0mm x 108,0mm 125 x 100	5.250 x 4.252 133,0 x 108,0	11,00 279,4	9,1 4,1	-	-	11,00 279,4	9,1 4,1
133,0mm x 4 125 x 100	5.250 x 4.500 133,0 x 114,3	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1
139,7mm x 1-1/2 125 x 40	5.500 x 1.900 139,7 x 48,3	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1
139,7mm x 2 125 x 50	5.500 x 2.375 139,7 x 60,3	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1
139,7mm x 2-1/2 125 x 65	5.500 x 2.874 139,7 x 73,0	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1
139,7mm x 76,1mm 125 x 65	5.500 x 3.000 139,7 x 76,1	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1	11,00 279,4	9,1 4,1
139,7mm x 3 125 x 80	5.500 x 3.500 139,7 x 88,9	11,00 279,4	11,2 5,1	11,00 279,4	11,2 5,1	11,00 279,4	11,2 5,1
139,7mm x 108,0mm 125 x 100	5.500 x 4.252 139,7 x 108,0	11,00 279,4	11,2 5,1	-	-	11,00 279,4	11,2 5,1
139,7mm x 4 125 x 100	5.500 x 4.500 139,7 x 114,3	11,00 279,4	11,2 5,1	11,00 279,4	11,2 5,1	11,00 279,4	11,2 5,1
5 x 1-1/2 125 x 40	5.563 x 1.900 141,3 x 48,3	11,00 279,4	11,2 5,1	11,00 279,4	11,2 5,1	11,00 279,4	11,2 5,1

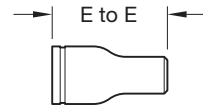
**TABLE 26 (2 OF 4)  
FIGURES 397, 398 AND 399 FABRICATED SWAGED NIPPLES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 397  
FABRICATED SWAGED NIPPLE  
GROOVE X GROOVE**



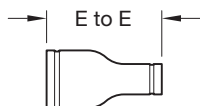
**FIGURE 398  
FABRICATED SWAGED NIPPLE  
GROOVE X MALE THREAD**



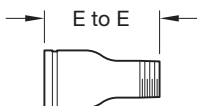
**FIGURE 399  
FABRICATED SWAGED NIPPLE  
GROOVE X PLAIN**

Nominal Pipe Size		Figures 397 Fabricated Swaged Nipple		Figures 398 Fabricated Swaged Nipple		Figures 399 Fabricated Swaged Nipple	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
5 x 2 125 x 50	5.563 x 2.375 141,3 x 60,3	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4
5 x 2-1/2 125 x 65	5.563 x 2.874 141,3 x 73,0	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4
5 x 76,1mm 125 x 65	5.563 x 3.000 141,3 x 76,1	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4
5 x 3 125 x 80	5.563 x 3.500 141,3 x 88,9	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4
5 x 108,0mm 125 x 100	5.563 x 4.252 141,3 x 108,0	11.00 279,4	12.0 5,4	-	-	11.00 279,4	12.0 5,4
5 x 4 125 x 100	5.563 x 4.500 141,3 x 114,3	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4	11.00 279,4	12.0 5,4
159,0mm x 1 150 x 25	6.250 x 1.315 159,0 x 33,4	12.00 304,8	12.2 5,5	12.00 304,8	12.2 5,5	12.00 304,8	12.2 5,5
159,0mm x 1-1/4 150 x 32	6.250 x 1.660 159,0 x 42,4	12.00 304,8	12.2 5,5	12.00 304,8	12.2 5,5	12.00 304,8	12.2 5,5
159,0mm x 1-1/2 150 x 40	6.250 x 1.900 159,0 x 48,3	12.00 304,8	12.2 5,5	12.00 304,8	12.2 5,5	12.00 304,8	12.2 5,5
159,0mm x 2 150 x 50	6.250 x 2.375 159,0 x 60,3	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6
159,0mm x 2-1/2 150 x 65	6.250 x 2.874 159,0 x 73,0	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6
159,0mm x 76,1mm 150 x 65	6.250 x 3.000 159,0 x 76,1	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6
159,0mm x 3 150 x 80	6.250 x 3.500 159,0 x 88,9	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6	12.00 304,8	12.4 5,6
159,0mm x 108,0mm 150 x 100	6.250 x 4.252 159,0 x 108,0	12.00 304,8	12.9 5,9	-	-	12.00 304,8	12.9 5,9
159,0mm x 4 150 x 100	6.250 x 4.500 159,0 x 114,3	12.00 304,8	12.9 5,9	12.00 304,8	12.9 5,9	12.00 304,8	12.9 5,9
159,0mm x 133,0mm 150 x 125	6.250 x 5.250 159,0 x 133,0	12.00 304,8	12.9 5,9	-	-	12.00 304,8	12.9 5,9
159,0mm x 139,7mm 150 x 125	6.250 x 5.500 159,0 x 139,7	-	-	12.00 304,8	-	-	-
159,0mm x 5 150 x 125	6.250 x 5.563 159,0 x 141,3	12.00 304,8	13.0 5,9	12.00 304,8	13.0 5,9	12.00 304,8	13.0 5,9
165,1mm x 1 150 x 25	6.500 x 1.315 165,1 x 33,4	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2
165,1mm x 1-1/4 150 x 32	6.500 x 1.660 165,1 x 42,4	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2
165,1mm x 1-1/2 150 x 40	6.500 x 1.900 165,1 x 48,3	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2
165,1mm x 2 150 x 50	6.500 x 2.375 165,1 x 60,3	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2	12.00 304,8	15.8 7,2
165,1mm x 2-1/2 150 x 65	6.500 x 2.874 165,1 x 73,0	12.00 304,8	16.4 7,4	12.00 304,8	16.4 7,4	12.00 304,8	16.4 7,4

**TABLE 26 (3 OF 4)  
FIGURES 397, 398 AND 399 FABRICATED SWAGED NIPPLES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



**FIGURE 397**  
**FABRICATED SWAGED NIPPLE**  
**GROOVE X GROOVE**



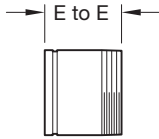
**FIGURE 398**  
**FABRICATED SWAGED NIPPLE**  
**GROOVE X MALE THREAD**



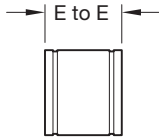
**FIGURE 399**  
**FABRICATED SWAGED NIPPLE**  
**GROOVE X PLAIN**

Nominal Pipe Size		Figures 397 Fabricated Swaged Nipple		Figures 398 Fabricated Swaged Nipple		Figures 399 Fabricated Swaged Nipple	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
165,1mm x 76,1mm 150 x 65	6.500 x 3.000 165,1 x 76,1	12.00 304,8	16.4 7,4	12.00 304,8	16.4 7,4	12.00 304,8	16.4 7,4
165,1mm x 3 150 x 80	6.500 x 3.500 165,1 x 88,9	12.00 304,8	16.4 7,4	12.00 304,8	16.4 7,4	12.00 304,8	16.4 7,4
165,1mm x 108,0mm 150 x 100	6.500 x 4.252 165,1 x 108,0	12.00 304,8	16.4 7,4	-	-	12.00 304,8	16.4 7,4
165,1mm x 4 150 x 100	6.500 x 4.500 165,1 x 114,3	12.00 304,8	18.0 8,2	12.00 304,8	18.0 8,2	12.00 304,8	18.0 8,2
165,1mm x 133,0mm 150 x 125	6.500 x 5.250 165,1 x 133,0	12.00 304,8	18.0 8,2	-	-	12.00 304,8	18.0 8,2
165,1mm x 139,7mm 150 x 125	6.500 x 5.500 165,1 x 139,7	12.00 304,8	18.0 8,2	12.00 304,8	18.0 8,2	12.00 304,8	18.0 8,2
165,1mm x 5 150 x 125	6.500 x 5.563 165,1 x 141,3	12.00 304,8	18.0 8,2	12.00 304,8	18.0 8,2	12.00 304,8	18.0 8,2
6 x 1 150 x 25	6.625 x 1.315 168,3 x 33,4	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 1-1/4 150 x 32	6.625 x 1.660 168,3 x 42,4	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 1-1/2 150 x 40	6.625 x 1.900 168,3 x 48,3	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 2 150 x 50	6.625 x 2.375 168,3 x 60,3	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 2-1/2 150 x 65	6.625 x 2.874 168,3 x 73,0	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 76,1mm 150 x 65	6.625 x 3.000 168,3 x 76,1	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 3 150 x 80	6.625 x 3.500 168,3 x 88,9	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 108,0mm 150 x 100	6.625 x 4.500 168,3 x 108,0	12.00 304,8	19.0 8,6	-	-	12.00 304,8	19.0 8,6
6 x 4 150 x 100	6.625 x 4.500 168,3 x 114,3	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 133,0mm 150 x 125	6.625 x 5.250 168,3 x 133,0	12.00 304,8	19.0 8,6	-	-	12.00 304,8	19.0 8,6
6 x 139,7mm 150 x 125	6.625 x 5.500 168,3 x 139,7	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
6 x 5 150 x 125	6.625 x 5.563 168,3 x 141,3	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6	12.00 304,8	19.0 8,6
216,3mm x 165,1mm 200 x 150	8.516 x 6.500 216,3 x 165,1	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6
216,3mm x 6 200 x 150	8.516 x 6.625 216,3 x 168,3	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6
8 x 165,1mm 200 x 150	8.625 x 6.500 219,1 x 165,1	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6
8 x 6 200 x 150	8.625 x 6.625 219,1 x 168,3	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6	12.00 304,8	21.2 9,6

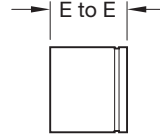
**TABLE 26 (4 OF 4)**  
**FIGURES 397, 398 AND 399 FABRICATED SWAGED NIPPLES**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



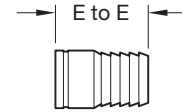
**FIGURE 391  
FABRICATED  
ADAPTER NIPPLE  
GROOVE X MALE THREAD**



**FIGURE 392  
FABRICATED  
ADAPTER NIPPLE  
GROOVE X GROOVE**



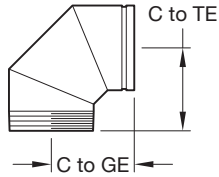
**FIGURE 393  
FABRICATED  
ADAPTER NIPPLE  
GROOVE X PLAIN**



**FIGURE 395  
FABRICATED HOSE  
ADAPTER NIPPLE  
GROOVE X HOSE**

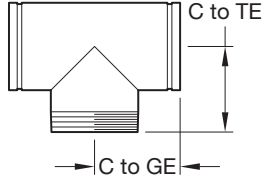
Nominal Pipe Size		Figures 391 Fabricated Adapter Nipple		Figures 392 & 393 Fabricated Adapter Nipple		Figure 395 Fabricated Hose Adapter Nipple	
ANSI Inches DN	O.D. Inches mm	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg	E to E Inches mm	Weight Lbs. kg
1 25	1.315 33,4	3.00 76,2	0.6 0,3	3.00 76,2	0.6 0,3	3.00 76,2	0.4 0,2
1-1/4 32	1.660 42,4	4.00 101,6	0.8 0,4	4.00 101,6	0.8 0,4	3.63 92,1	0.7 0,3
1-1/2 40	1.900 48,3	4.00 101,6	0.9 0,4	4.00 101,6	0.9 0,4	4.00 101,6	0.8 0,4
2 50	2.375 60,3	4.00 101,6	1.2 0,5	4.00 101,6	1.2 0,5	4.63 117,5	1.3 0,6
2-1/2 65	2.874 73,0	4.00 101,6	1.9 0,9	4.00 101,6	1.9 0,9	5.50 139,7	2.1 1,0
76,1mm 65	3.000 76,1	4.00 101,6	1.9 0,9	4.00 101,6	1.9 0,9	5.50 139,7	2.1 1,0
3 80	3.500 88,9	4.00 101,6	2.5 1,1	4.00 101,6	0,9	6.00 152,4	3.3 1,5
108,0mm 100	4.252 108,0	-	-	6.00 154,4	5.0 2,3	7.25 184,2	5.0 2,3
4 100	4.500 114,3	6.00 154,4	5.4 2,5	6.00 154,4	5.4 2,5	7.25 184,2	5.5 2,5
133,0mm 125	5.250 133,0	-	-	6.00 154,4	6.9 3,1	9.75 247,7	6.9 3,1
139,7mm 125	5.500 139,7	6.00 154,4	-	6.00 154,4	7.1 3,2	9.75 247,7	7.1 3,2
5 125	5.563 141,3	6.00 154,4	7.3 3,4	6.00 154,4	7.3 3,4	9.75 247,7	8.1 3,7
159,0mm 150	6.250 159,0	-	-	6.00 154,4	8.7 3,9	11.00 279,4	8.7 3,9
165,1mm 150	6.500 165,1	6.00 154,4	9.1 4,1	6.00 154,4	9.1 4,1	11.00 279,4	9.1 4,1
6 150	6.625 168,3	6.00 154,4	9.4 4,3	6.00 154,4	9.4 4,3	11.00 279,4	13.2 6,0
216,3mm 200	8.516 216,3	-	-	6.00 154,4	13.8 6,3	12.50 317,5	21.0 9,5
8 200	8.625 219,1	6.00 154,4	14.2 6,4	6.00 154,4	14.2 6,4	12.50 317,5	24.0 10,9
267,4mm 250	10.528 267,4	-	-	8.00 203,2	25.0 11,3	14.00 355,6	29.0 13,2
10 250	10.750 273,0	8.00 203,2	27.0 12,2	8.00 203,2	27.0 12,2	14.00 355,6	29.0 13,2
318,5mm 300	12.539 318,5	-	-	8.00 203,2	33.0 15,0	16.00 406,4	46.0 20,9
12 300	12.750 323,9	8.00 203,2	33.0 15,0	8.00 203,2	33.0 15,0	16.00 406,4	46.0 20,9

**TABLE 27  
FIGURES 391, 392, 393 AND 395 FABRICATED ADAPTER NIPPLES  
NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



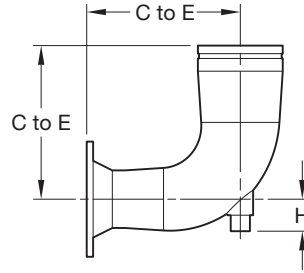
Nominal Pipe Size		C to GE Inches mm	C to TE Inches mm	Weight Lbs. kg	Nominal Pipe Size		C to GE Inches mm	C to TE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				ANSI Inches DN	O.D. Inches mm			
1-1/4 32	1.660 42,4	2.75 69,9	2.75 69,9	0.9 0,4	4 100	4.500 114,3	5.00 127,0	7.25 184,2	9.8 4,4
1-1/2 40	1.900 48,3	2.75 69,9	2.75 69,9	1.2 0,5	159,0mm 150	6.250 159,0	6.50 165,1	6.50 165,1	16.8 7,6
2 50	2.375 60,3	3.25 82,6	4.25 108,0	2.0 0,9	165,1mm 150	6.500 165,1	6.50 165,1	6.50 165,1	17.2 7,8
2-1/2 60	2.874 73,0	3.75 95,3	3.75 95,3	3.1 1,4	6 150	6.625 168,3	6.50 165,1	6.50 165,1	17.6 8,0
76,1mm 65	3.000 76,1	3.75 95,3	3.75 95,3	3.2 1,5	1-1/4 32	1.660 42,4	2.75 69,9	2.75 69,9	1.5 0,7
3 80	3.500 88,9	4.25 108,0	6.00 152,4	5.7 2,6	1-1/2 40	1.900 48,3	2.75 69,9	2.75 69,9	1.9 0,9
108,0mm 100	4.252 108,0	5.00 127,0	7.25 184,2	9.6 4,4					

**TABLE 28**  
**FIGURE 315 FABRICATED**  
**GROOVE X MALE THREAD 90° ELBOW**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



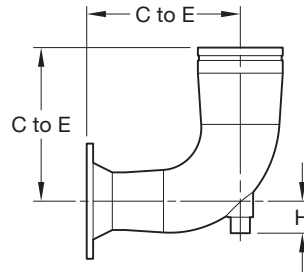
Nominal Pipe Size		C to GE Inches mm	C to TE Inches mm	Weight Lbs. kg	Nominal Pipe Size		C to GE Inches mm	C to TE Inches mm	Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm				ANSI Inches DN	O.D. Inches mm			
2 50	2.375 60,3	3.25 82,6	4.25 108,0	3.2 1,5	5 125	5.563 141,3	5.50 139,7	5.50 139,7	22.6 10,3
2-1/2 65	2.874 73,0	3.75 95,3	3.75 95,3	4.0 1,8	165,1mm 150	6.500 165,1	6.50 165,1	6.50 165,1	23.0 10,4
76,1mm 65	3.000 76,1	3.75 95,3	3.75 95,3	4.2 1,9	6 150	6.625 168,3	6.50 165,1	6.50 165,1	23.0 10,5
3 80	3.500 88,9	4.25 108,0	6.00 152,4	6.0 2,7	8 200	8.625 219,1	7.75 196,9	7.75 196,9	38.7 17,6
4 100	4.500 114,3	5.00 127,0	7.25 184,2	11.0 5,0	10 250	10.750 273,0	9.00 228,6	9.00 228,6	72.1 32,8
139,7mm 125	5.500 139,7	5.50 139,7	5.50 139,7	22.2 10,1	12 300	12.750 323,9	10.00 254,0	10.00 254,0	92.5 42,0

**TABLE 29**  
**FIGURE 320 FABRICATED**  
**GROOVE X GROOVE X MALE THREAD TEE**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size			C to E Inches mm	H Inches mm	B Dia. NPSC Threaded Inches mm
Inches DN	Grooved End OD Inches mm	Flanged End OD Inches mm			
165,1mm x 4 150 x 100	6.500 165,1	4.504 114,3	12.00 304,8	2.50 63,5	1.50 38,1
6 x 4 150 x 100	6.625 168,3	4.504 114,3	12.00 304,8	2.50 63,5	1.50 38,1
165,1mm x 5 150 x 125	6.500 165,1	5.563 141,3	12.50 317,5	2.50 63,5	1.50 38,1
6 x 5 150 x 125	6.625 168,3	5.563 141,3	12.50 317,5	2.50 63,5	1.50 38,1
165mm x 139,7mm 150 x 125	6.500 165,1	5.476 139,1	12.50 317,5	2.50 63,5	1.50 38,1
8 x 139,7mm 200 x 125	8.625 219,1	5.476 139,1	15.50 393,7	3.00 76,2	1.50 38,1
8 x 5 200 x 150	8.625 219,1	5.563 141,3	15.50 393,7	3.00 76,2	1.50 38,1
8 x 165,1mm 200 x 150	8.625 219,1	6.500 165,1	15.50 393,7	3.00 76,2	1.50 38,1
8 x 6 200 x 150	8.625 219,1	6.625 168,3	15.50 393,7	3.00 76,2	1.50 38,1
216,3mm x 5 200 x 125	8.516 216,3	5.563 141,3	15.50 393,7	3.00 76,2	1.50 38,1
216,3mm x 6 200 x 150	8.516 216,3	6.625 168,3	15.50 393,7	3.00 76,2	1.50 38,1
216,3mm x 139,7mm 200 x 125	8.516 216,3	5.476 139,1	15.50 393,7	3.00 76,2	1.50 38,1
216,3mm x 165,1mm 200 x 150	8.516 216,3	6.500 165,1	15.50 393,7	3.00 76,2	1.50 38,1
267,4mm x 165,1mm 250 x 150	10.528 267,4	6.500 165,1	18.50 469,9	3.50 88,9	1.50 38,1
267,4mm x 6 250 x 150	10.528 267,4	6.625 168,3	18.50 469,9	3.50 88,9	1.50 38,1
10 x 165,1mm 250 x 150	10.750 273,0	6.500 165,1	18.50 469,9	3.50 88,9	1.50 38,1
10 x 6 250 x 150	10.750 273,0	6.625 168,3	18.50 469,9	3.50 88,9	1.50 38,1
267,4mm x 8 250 x 200	10.528 267,4	8.625 219,1	19.00 482,6	3.50 88,9	1.50 38,1
267,4mm x 216,3mm 250 x 200	10.528 267,4	8.516 216,3	19.00 482,6	3.50 88,9	1.50 38,1
10 x 216,3mm 250 x 200	10.750 273,0	8.516 216,3	19.00 482,6	3.50 88,9	1.50 38,1
10 x 8 250 x 200	10.750 273,0	8.625 219,1	19.00 482,6	3.50 88,9	1.50 38,1

**TABLE 30 (1 OF 2)**  
**FIGURE 316 FABRICATED REDUCING BASE SUPPORT 90° ELBOW**  
**GROOVE X FLANGE END**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**



Nominal Pipe Size		C to E Inches mm	H Inches mm	B Dia. NPSC Threaded Inches mm	
Inches DN	Grooved End OD Inches mm				Flanged End OD Inches mm
12 x 216,3mm 300 x 200	12.750 323,9	8.516 216,3	22.00 558,8	4.00 101,6	1.50 38,1
318,5mm x 216,3mm 300 x 200	12.539 318,5	8.516 216,3	22.00 558,8	4.00 101,6	1.50 38,1
318,5mm x 8 300 x 200	12.539 318,5	8.625 219,1	22.00 558,8	4.00 101,6	1.50 38,1
12 x 8 300 x 200	12.750 323,9	8.625 219,1	22.00 558,8	4.00 101,6	1.50 38,1
12 x 267,4mm 300 x 250	12.750 323,9	10.528 267,4	22.00 558,8	4.00 101,6	1.50 38,1
12 x 10 300 x 250	12.750 323,9	10.750 273,1	22.00 558,8	4.00 101,6	1.50 38,1
318,5mm x 267,4mm 300 x 250	12.539 318,5	10.528 267,4	22.00 558,8	4.00 101,6	1.50 38,1
318,5mm x 10 300 x 200	12.539 318,5	10.750 273,1	22.00 558,8	4.00 101,6	1.50 38,1

**TABLE 30 (2 OF 2)**  
**FIGURE 316 FABRICATED REDUCING BASE SUPPORT 90° ELBOW**  
**GROOVE X FLANGE END**  
**NOMINAL DIMENSIONS AND APPROXIMATE WEIGHTS**

## Ordering Procedure

GRINNELL Products are available globally through a network of distribution centers. Visit [www.grinnell.com](http://www.grinnell.com) for the nearest distributor.

When placing an order, indicate the full product name. Specify the quantity, figure number, size, and wall thickness.

Nominal Pipe Size		Elbows 90° Feet m	Elbows 45° Feet m	Tee Branch Feet m	Tee Run Feet m
ANSI Inches DN	O.D. Inches mm				
1-1/4 32	1.660 42,4	1.9 0,6	1.0 0,3	4.8 1,5	1.9 0,6
1-1/2 40	1.900 48,3	2.3 0,7	1.2 0,4	5.8 1,8	2.3 0,7
2 50	2.375 60,3	3.2 1,0	1.6 0,5	8.0 2,5	3.2 1,0
2-1/2 65	2.874 73,0	3.9 1,2	2.0 0,6	9.8 3,0	3.9 1,2
76,1mm 65	3.000 76,1	4.1 1,2	2.1 0,6	10.3 3,1	4.1 1,2
3 80	3.500 88,9	4.9 1,5	2.4 0,7	12.2 3,7	4.9 1,5
108,0mm 100	4.252 108,0	6.5 2,0	3.3 1,0	16.3 5,0	6.5 2,0
4 100	4.500 114,3	6.5 2,0	3.3 1,0	16.3 5,0	6.5 2,0
133,0mm 125	5.250 133,0	8.0 2,4	4.0 1,2	20.0 6,1	8.0 2,4
139,7mm 125	5.500 139,7	8.0 2,4	4.1 1,3	20.0 6,1	8.0 2,4
5 125	5.563 141,3	8.2 2,5	4.1 1,3	20.5 6,3	8.2 2,5
159,0mm 150	6.250 159,0	9.5 2,9	4.8 1,4	23.8 7,2	9.5 2,9
165,1mm 150	6.500 165,1	9.5 2,9	4.8 1,4	23.8 7,2	9.5 2,9
6 150	6.625 168,3	9.9 3,0	5.0 1,5	24.8 7,6	9.9 3,0
216,3mm 200	8.516 216,3	13.1 4,0	6.6 2,0	32.8 10,0	13.1 4,0
8 200	8.625 219,1	13.1 4,0	6.6 2,0	32.8 10,0	13.1 4,0
10 250	10.750 273,0	16.5 5,0	8.3 2,5	41.3 12,6	16.5 5,0
12 300	12.750 323,9	19.9 6,1	9.9 3,0	49.7 15,1	19.9 6,1
14 350	14.000 355,6	23.0 7,0	18.0 5,5	67.9 20,7	23.0 7,0
16 400	16.000 406,4	25.9 7,9	20.0 6,1	78.1 23,8	25.9 7,9
18 450	18.000 457,2	28.9 8,8	23.0 7,0	85.0 25,9	28.9 8,8
20 500	20.000 508,0	33.1 10,1	25.9 7,9	100.1 30,5	33.1 10,1
24 600	24.000 609,6	40.0 12,2	29.9 9,1	115.2 35,1	40.0 12,2

For the reducing tee branches, use the value that is corresponding to the branch size.

Example:

For 8" x 8" x 2" tee, the branch value of 2" is 8.0 feet.

For sizes not listed, interpolate from the values shown.

**TABLE 31**  
**FRICITION RESISTANCE**  
**EXPRESSED AS EQUIVALENT STRAIGHT PIPE**