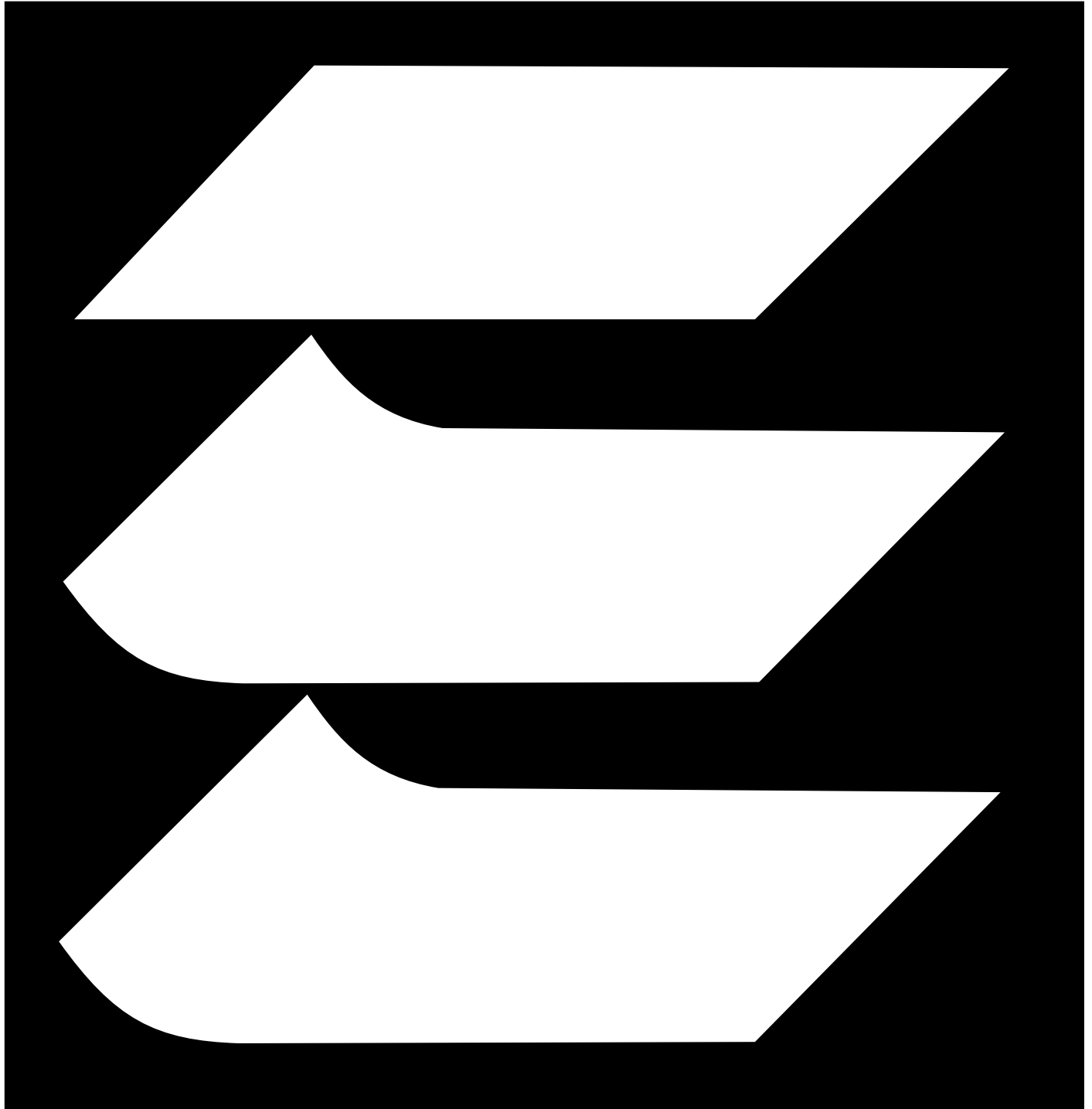




Double Wall
OVAL



SPIRAL PIPE & FITTINGS



Double Wall OVAL

DUAL WALL OVAL SPIRAL DUCT AND FITTINGS CONSTRUCTION STANDARDS

Standard Fitting Construction

Gauge selection for galvanized steel (ASTM A653), and paint grip steel. Other materials are available. All pipe is corrugated.

MAJOR AXIS	2005 SMACNA POSITIVE PRESSURE		STANDARD INNER SHELL		SPIRORIB INNER SHELL
	SPIRAL SEAM	FITTINGS	SPIRAL SEAM	FITTINGS	SPIRAL SEAM
10"-24"	24	20	26	22	26
25"-36"	22	20	22	22	26
37"-48"	22	18	22	22	26
49"-60"	20	18	22	22	26
61"-70"	20	16	22	22	26
71"-UP	18	16	22	22	24

Other materials and gauges are available.

Standard insulation is 1" thick, 1 pound per cubic foot density, with a thermal conductivity (ASTM C 518) @ 75° F mean temperature of 0.26 (BTU-in./hr.ft.2°F)

Sound absorption coefficients. (ASTM C 423, Type A)

Surface burning characteristics (ASTM E 84, UL 723)

25 flame spread

50 smoke developed.

Frequency, Hz						
125	250	500	1000	2000	4000	NRC
0.17	0.24	0.62	0.79	0.88	0.96	0.65

Standard material for the inner shell of spiral pipe is Spirorib perforated steel (ASTM A653), with 3/32" holes on 3/16" staggered centers for a free area of 23%. Standard material for the inner shell of fittings is solid steel. Fittings are also available with a perforated liner and spiral pipe with a solid liner.

NOMINAL SPIRAL OVAL PIPE SIZES

INITIAL SPIRAL SIZE	MINOR AXIS																MAJOR AXIS	
	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34		36
8	10																	
9	12	11																
10	13	12	11															
11	15	14	13															
12	17	15	14	13														
13	18	17	16	15	14													
14	20	19	17	16	15													
15	21	20	19	18	17	16												
16	23	22	21	19	18	17												
17	24	23	22	21	20	19	18											
18	26	25	24	23	21	20	19											
19	28	26	25	24	23	22	21											
20	29	28	27	26	25	23	22	21										
21	31	30	28	27	26	25	24	23										
22	32	31	30	29	28	27	25	24										
23	33	32	30	29	28	27	26	25										
24	34	33	32	31	30	29	27	26										
25	36	35	34	32	31	30	29	28										
26	37	36	35	34	33	32	31	29	28									
27	39	38	37	36	34	33	32	31	30									
28	41	39	38	37	36	35	34	33	31	30								
29	42	41	40	39	38	36	35	34	33	32								
30	44	42	41	40	39	38	37	36	35	33	32							
32	47	46	45	43	42	41	40	39	38	37	35	34						
34	50	49	48	47	45	44	43	42	41	40	39	37	36					
36	53	52	51	50	49	47	46	45	44	43	42	41	39	38				
38	56	55	54	53	52	51	49	48	47	46	45	44	43	41	40			
40	59	58	57	56	55	54	53	51	50	49	48	47	46	45	43	42		
42	63	61	60	59	58	57	56	55	53	52	51	50	49	48	47	45	44	
44	66	65	63	62	61	60	59	58	57	55	54	53	52	51	50	49	48	47
46	69	68	67	65	64	63	62	61	60	59	57	56	55	54	53	52	51	50
48	72	71	70	69	67	66	65	64	63	62	61	59	58	57	56	55	54	53
50		74	73	72	71	69	68	67	66	65	64	63	61	60	59	58	57	56
52			75	74	73	71	70	69	68	67	66	65	63	62	61	60	59	58
54				76	75	73	72	71	70	69	68	67	66	65	64	63	62	61
56				79	78	77	75	74	73	72	71	70	69	68	67	66	65	64
58						81	80	79	77	76	75	74	73	72	71	70	69	68
60								82	81	79	78	77	76	75	74	73	72	71
62								85	84	83	81	80	79	78	77	76	75	74
64										86	85	83	82	81	80	79	78	77
66												87	86	85	84	83	82	81
68													89	88	87	86	85	84
70														91	90	89	88	87
72																		



Double Wall OVAL

ACTUAL SPIRAL OVAL PIPE SIZES

INITIAL SPIRAL SIZE	MINOR AXIS																MAJOR AXIS	
	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34		36
8	10.28																	
9	11.85	10.71																
10	13.42	12.28	11.14															
11	15.00	13.85	12.71															
12	16.57	15.42	14.28	13.14														
13	18.14	17.00	15.85	14.71	13.57													
14	19.71	18.57	17.42	16.28	15.14													
15	21.28	20.14	19.00	17.85	16.71	15.57												
16	22.85	21.71	20.57	19.42	18.28	17.14												
17	24.42	23.28	22.14	21.00	19.85	18.71	17.57											
18	25.99	24.85	23.71	22.57	21.42	20.28	19.14											
19	27.56	26.42	25.28	24.14	23.00	21.85	20.71											
20	29.13	27.99	26.85	25.71	24.57	23.42	22.28	21.14										
21	30.70	29.56	28.42	27.28	26.14	25.00	23.85	22.71										
22	32.27	31.13	29.99	28.85	27.71	26.57	25.42	24.28										
23		32.70	31.56	30.42	29.28	28.14	27.00	25.85	24.71									
24		34.27	33.13	31.99	30.85	29.71	28.57	27.42	26.28									
25		35.85	34.70	33.56	32.42	31.28	30.14	29.00	27.85									
26		37.42	36.27	35.13	33.99	32.85	31.71	30.57	29.42	28.28								
27		38.99	37.85	36.70	35.56	34.42	33.28	32.14	31.00	29.85								
28		40.56	39.42	38.27	37.13	35.99	34.85	33.71	32.57	31.42	30.28							
29		42.13	40.99	39.85	38.70	37.56	36.42	35.28	34.14	33.00	31.85							
30		43.70	42.56	41.42	40.27	39.13	37.99	36.85	35.71	34.57	33.42	32.28						
32		46.84	45.70	44.56	43.42	42.27	41.13	39.99	38.85	37.71	36.57	35.42	34.28					
34		49.98	48.84	47.70	46.56	45.42	44.27	43.13	41.99	40.85	39.71	38.57	37.42	36.28				
36		53.12	51.98	50.84	49.70	48.56	47.42	46.27	45.13	43.99	42.85	41.71	40.57	39.42	38.28			
38		56.27	55.12	53.98	52.84	51.70	50.56	49.42	48.27	47.13	45.99	44.85	43.71	42.57	41.42	40.28		
40		59.41	58.27	57.12	55.98	54.84	53.70	52.56	51.42	50.27	49.13	47.99	46.85	45.71	44.57	43.42	42.28	
42		62.55	61.41	60.27	59.12	57.98	56.84	55.70	54.56	53.42	52.27	51.13	49.99	48.85	47.71	46.57	45.42	
44		65.69	64.55	63.41	62.27	61.12	59.98	58.84	57.70	56.56	55.42	54.27	53.13	51.99	50.85	49.71	48.57	
46		68.83	67.69	66.55	65.41	64.27	63.12	61.98	60.84	59.70	58.56	57.42	56.27	55.13	53.99	52.85	51.71	
48		71.87	70.83	69.69	68.55	67.41	66.27	65.12	63.98	62.84	61.70	60.56	59.42	58.27	57.13	55.99	54.85	
50			73.97	72.83		71.69	70.55	69.41	68.27	67.12	65.98	64.84	63.70	62.56	61.42	60.27	59.13	57.99
52					74.83	73.69		72.55	71.41	70.27	69.12	67.98	66.84	65.70	64.56	63.42	62.27	61.13
54							75.69	74.55	73.41	72.27	71.12	69.98	68.84	67.70	66.56	65.42	64.27	63.13
56							78.83	77.69	76.55	75.41	74.27	73.12	71.98	70.84	69.70	68.56	67.42	66.28
58								80.83	79.69	78.55	77.41	76.27	75.12	73.98	72.84	71.71	70.56	
60										81.69	80.55	79.41	78.27	77.12	75.98	74.84	73.70	
62										84.83	83.69	82.55	81.41	80.27	79.12	77.98	76.84	
64												85.69	84.55	83.41	82.27	81.12	79.98	
66														86.55	85.41	84.27	83.12	
68															88.55	87.41	86.27	
70																90.55	89.41	



Double Wall OVAL

Sometimes it is desirable to change oval size, because of height restrictions or because a given size oval is not available in spiral. The chart below lists nominal oval sizes with the equivalent round size for friction loss to their left.

Example: Change 18" x 34" oval to a smaller size. To change the size, first note the equivalent round size listed for 18" x 34", it is 25.7". This means 18" x 34" oval spiral will have the same friction loss as 25.7" round spiral. Next, find 25.7" for an oval with a smaller minor axis. Two choices are 16" x 38", with an equivalent round of 25.8", or 14" x 45", with an equivalent round of 26.1". Either choice would be acceptable but please note, the initial spiral size gets larger as the minor axis gets smaller, making the pipe more expensive.

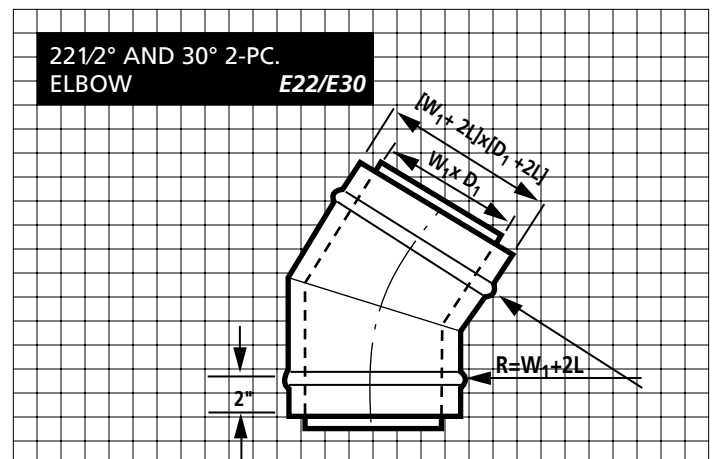
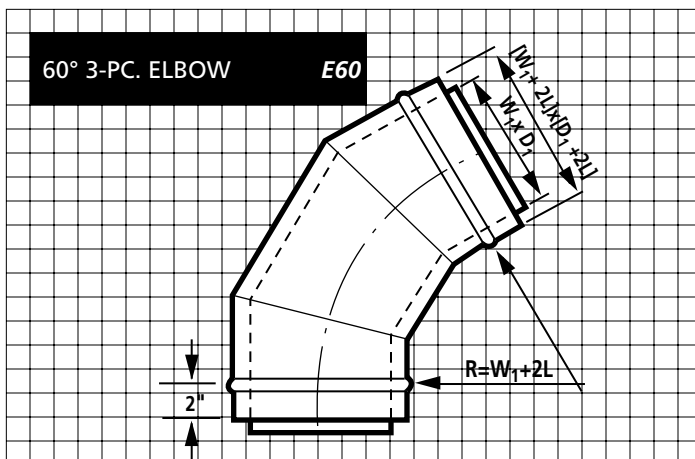
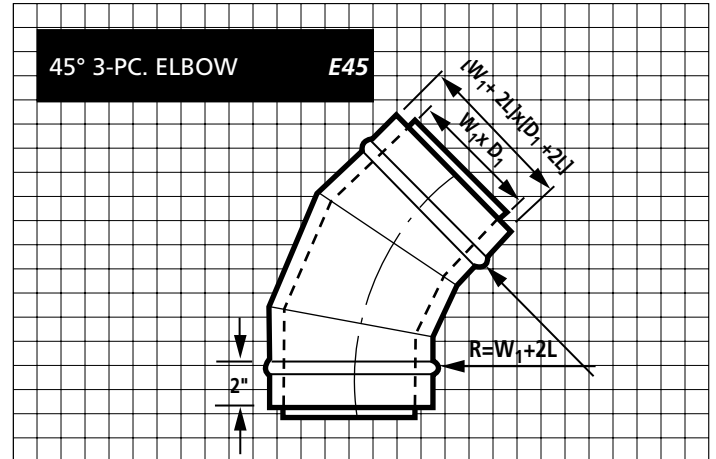
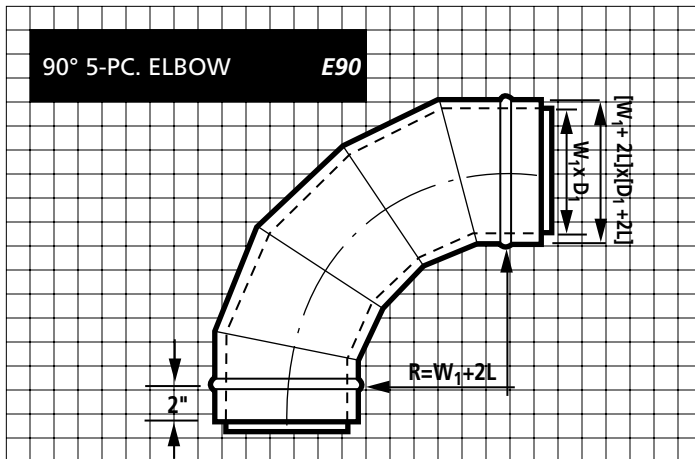
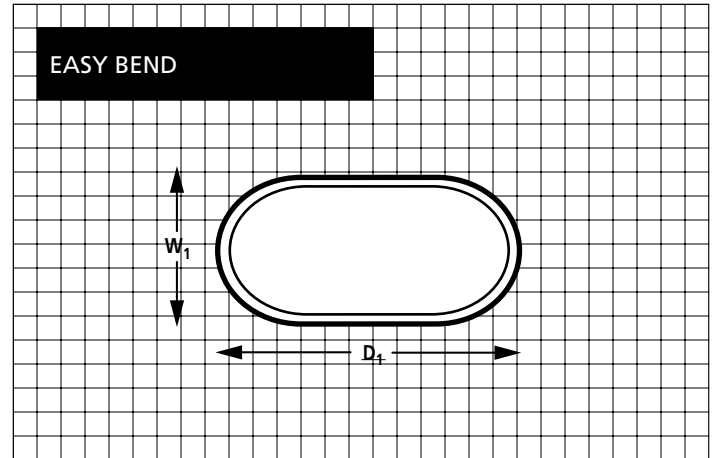
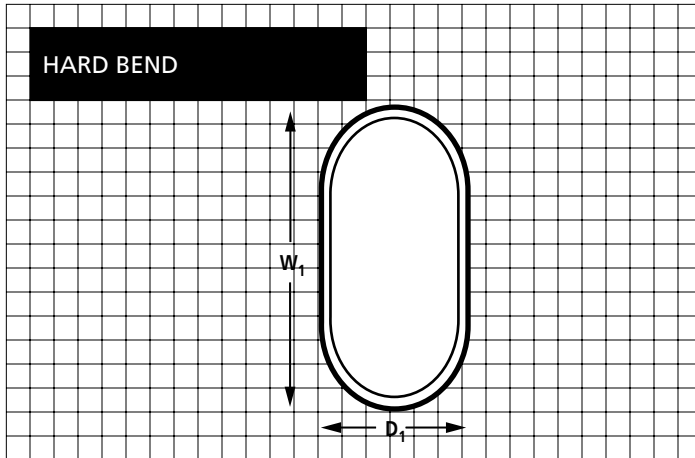
NOMINAL SPIRAL OVAL PIPE SIZES AND ROUND EQUIVALENT

INITIAL SPIRAL SIZE	MINOR AXIS																MAJOR AXIS	
	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34		36
8	6.7/10																	
9	7.2/12	8.4/11																
10	7.6/13	9.0/12	9.8/11															
11	8.0/15	9.5/14	10.5/13															
12	8.3/17	10.0/15	11.2/14	11.8/13														
13	8.7/18	10.5/17	11.8/16	12.6/15	13.0/14													
14	9.0/20	10.9/19	12.3/17	13.6/16	13.8/15													
15	9.3/21	11.4/20	12.9/19	14.0/18	14.6/17	15.0/16												
16	9.6/23	11.8/22	13.4/21	14.6/19	15.4/18	15.9/17												
17	9.8/24	12.1/23	13.9/22	15.2/21	16.2/20	16.7/19	17.0/18											
18	10.1/26	12.5/25	14.3/24	15.7/23	16.7/21	17.5/20	17.9/19											
19	10.3/28	12.8/26	14.7/25	16.2/24	17.4/23	18.2/22	18.7/21											
20	10.6/29	13.1/28	15.1/27	16.7/26	18.0/25	18.9/23	19.5/22	19.9/21										
21	10.8/31	13.5/30	15.5/28	17.2/27	18.5/26	19.5/25	20.3/24	20.8/23										
22	11.0/32	13.8/31	15.9/30	17.7/29	19.1/28	20.2/27	21.0/25	21.6/24										
23		14.0/33	16.3/32	18.1/30	19.6/29	20.8/28	21.7/27	22.3/26	22.8/25									
24		14.3/34	16.6/33	18.5/32	20.1/31	21.3/30	22.3/29	23.1/27	23.6/26									
25		14.6/36	17.0/35	18.9/34	20.6/32	21.9/31	22.9/30	23.8/29	24.4/28									
26		14.9/37	17.3/36	19.3/35	21.0/34	22.4/33	23.6/32	24.5/31	25.2/29	25.6/28								
27		15.1/39	17.6/38	19.7/37	21.5/36	22.9/34	24.1/33	25.1/32	25.9/31	26.4/30								
28		15.2/41	17.9/39	20.1/38	21.9/37	23.4/36	24.7/35	25.7/34	26.6/33	27.2/31	27.7/30							
29		15.6/42	18.2/41	20.4/40	22.3/39	23.9/38	25.2/36	26.3/35	27.3/34	28.0/33	28.5/32							
30		15.9/44	18.5/42	20.8/41	22.7/40	24.4/39	25.8/38	26.9/37	27.9/36	28.7/35	29.3/33	29.7/32						
32		16.3/47	19.1/46	21.5/45	23.5/43	25.3/42	26.8/41	28.1/40	29.1/39	30.0/38	30.8/37	31.3/35	31.7/34					
34		16.8/50	19.7/49	22.1/48	24.2/47	26.1/45	27.7/44	29.1/43	30.3/42	31.3/41	32.2/40	32.8/39	33.4/37	33.7/36				
36		17.2/53	20.2/52	22.7/51	25.0/50	26.9/49	28.6/47	30.1/46	31.4/45	32.5/44	33.5/43	34.3/42	34.9/41	35.4/39	35.8/38			
38		17.6/56	20.7/55	23.3/54	25.6/53	27.7/52	29.5/51	31.1/49	32.5/48	33.7/47	34.7/46	35.6/45	36.4/44	37.0/43	37.4/41	37.8/40		
40		18.0/59	21.1/58	23.9/57	26.3/56	28.4/55	30.3/54	32.0/53	33.5/51	34.8/50	35.9/49	36.9/48	37.8/47	38.5/46	39.0/45	39.5/43	39.8/42	
42		18.3/63	21.6/61	24.4/60	26.9/59	29.1/58	31.1/57	32.8/56	34.4/55	35.8/53	37.0/52	38.1/51	39.1/50	39.9/49	40.5/48	41.1/47	41.5/45	
44		18.7/66	22.1/65	25.0/63	27.5/62	29.8/61	31.8/60	33.7/59	35.3/58	36.8/57	38.1/55	39.3/54	40.3/53	41.2/52	42.0/51	42.6/50	43.1/49	
46		19.1/69	22.5/68	25.5/67	28.1/65	30.5/64	32.6/63	34.5/62	36.2/61	37.8/60	39.2/59	40.4/57	41.5/56	42.5/55	43.3/54	44.1/53	44.7/52	
48		19.4/72	22.9/71	26.0/70	28.7/69	31.1/67	33.3/66	35.3/65	37.1/64	38.7/63	40.1/62	41.5/61	42.7/59	43.7/58	44.6/57	45.5/56	46.2/55	
50			23.3/74	26.4/73		29.2/72	31.7/71	34.0/69	36.0/68	37.9/67	39.6/66	41.1/65	42.5/64	43.8/63	44.9/61	45.9/60	46.8/59	47.6/58
52					29.7/75	32.3/74	34.6/73	36.7/71	38.7/70	40.4/69	42.0/68	43.5/67	44.8/66	46.0/65	47.1/63	48.1/62	48.9/61	
54							35.3/76	37.4/75	39.4/73	43.1/72	42.9/71	44.4/70	45.8/69	47.1/68	48.3/67	49.3/65	50.2/64	
56							35.9/79	38.1/78	40.2/77	42.1/75	43.8/74	45.4/73	46.8/72	48.2/71	49.4/70	50.5/69	51.5/67	
58								38.8/81	40.9/80	42.8/79	44.6/77	46.3/76	47.8/75	49.2/74	50.5/73	55.6/72	52.7/71	
60										43.6/82	45.4/81	47.2/79	48.7/78	50.2/77	51.5/76	52.7/75	53.9/74	
62										44.3/85	46.2/84	48.0/83	49.6/81	51.1/80	52.5/79	53.8/78	55.0/77	
64												48.8/86	50.5/85	52.1/83	53.5/82	54.9/81	56.1/80	
66														53.0/87	54.5/85	55.9/84	57.2/83	
68															55.4/89	56.9/87	58.2/86	
70																57.8/91	59.2/89	
72																	60.2/93	



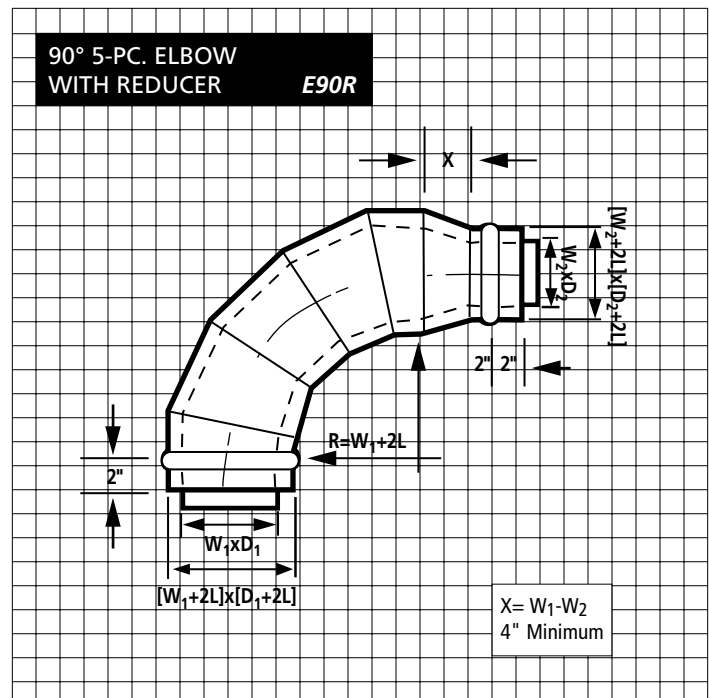
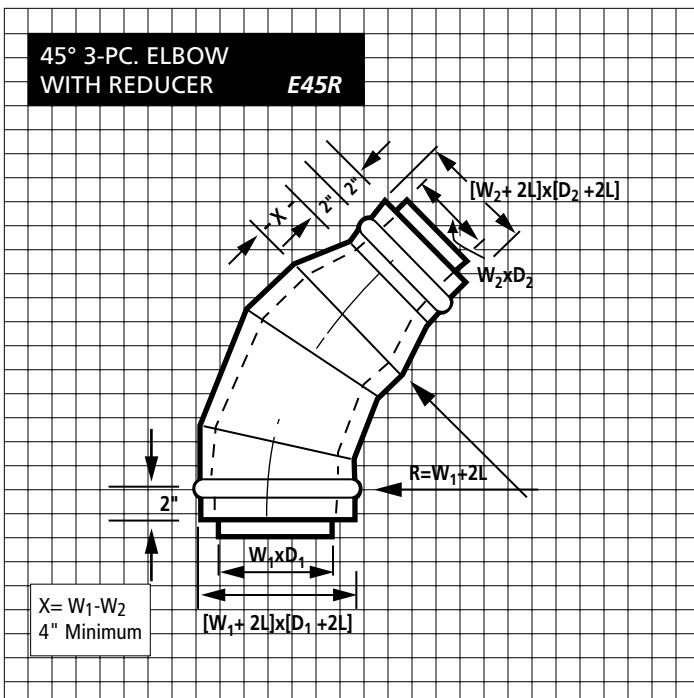
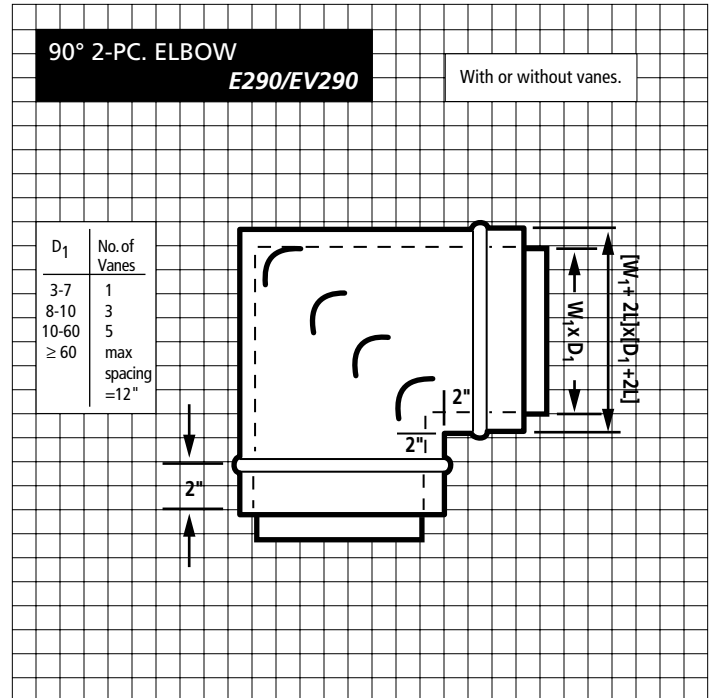
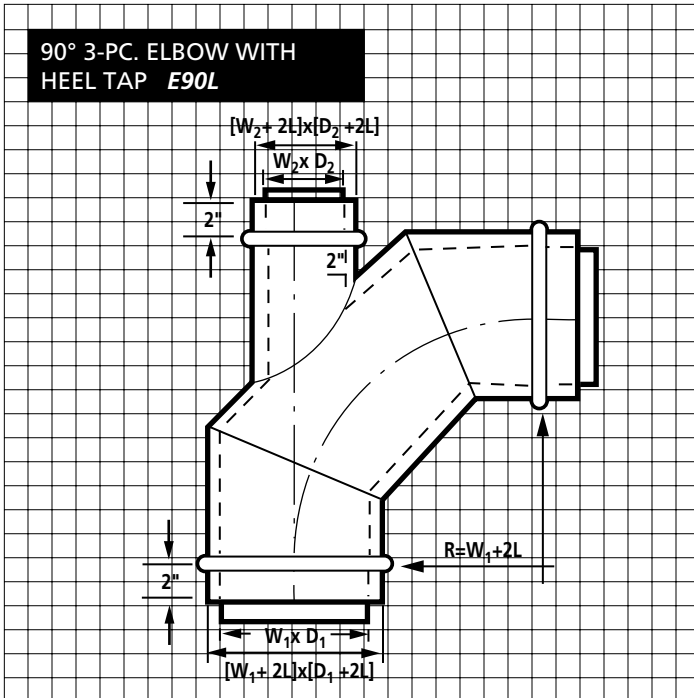
Double Wall Oval ELBOWS

L = Liner Thickness



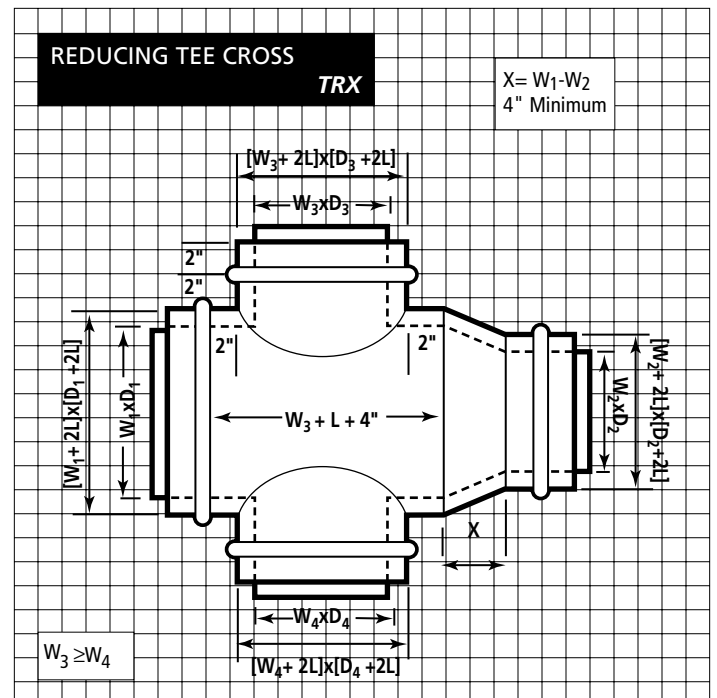
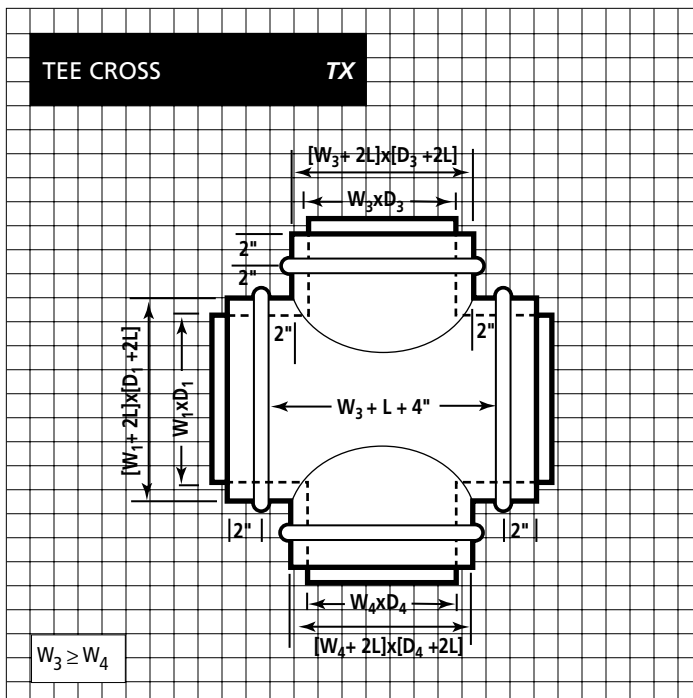
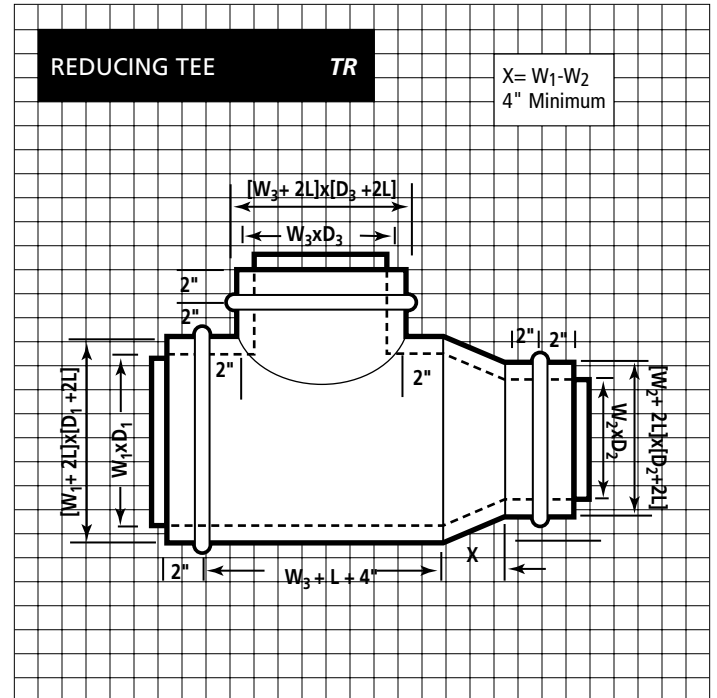
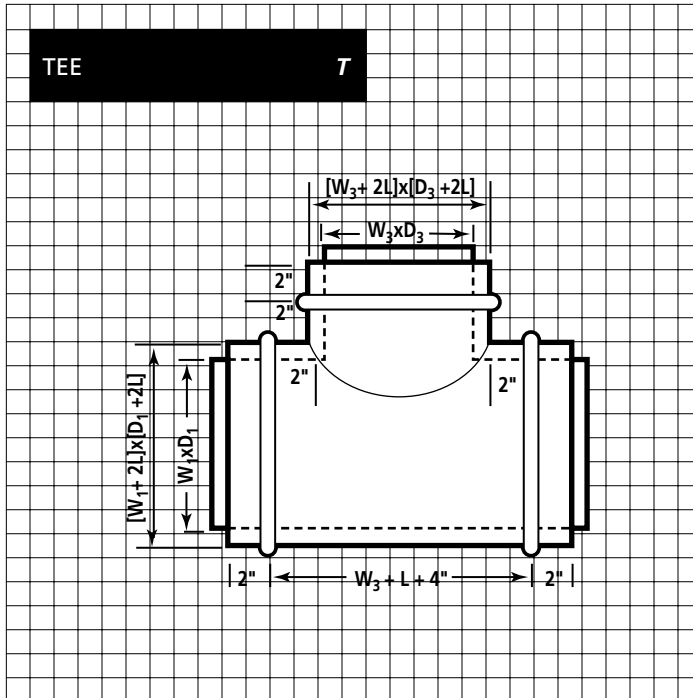
Double Wall Oval ELBOWS

L = Liner Thickness



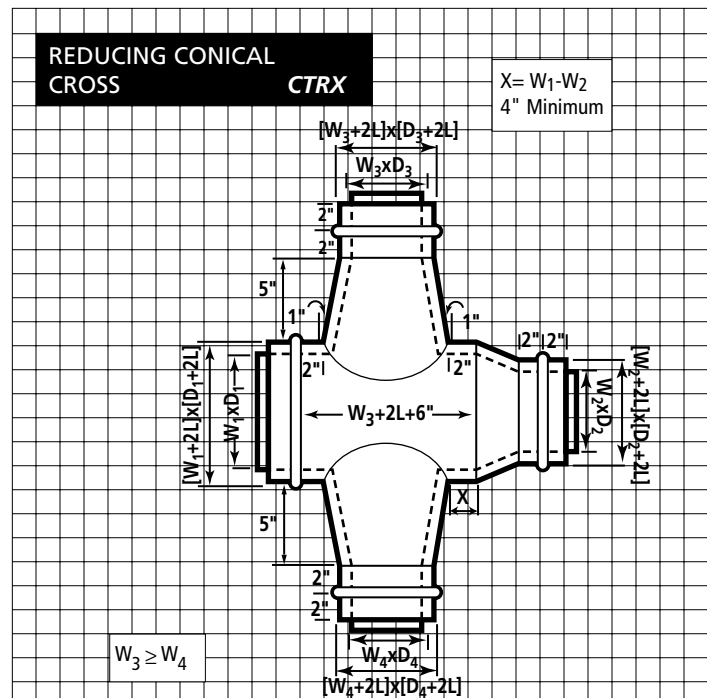
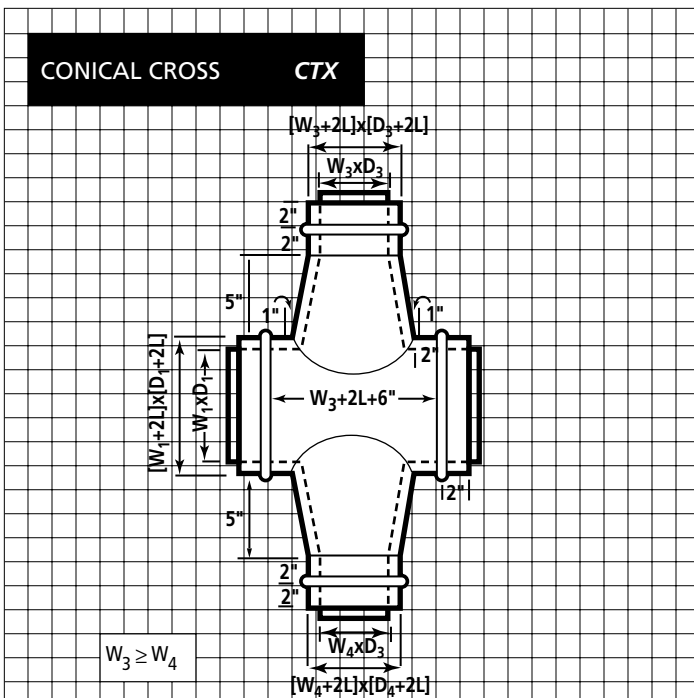
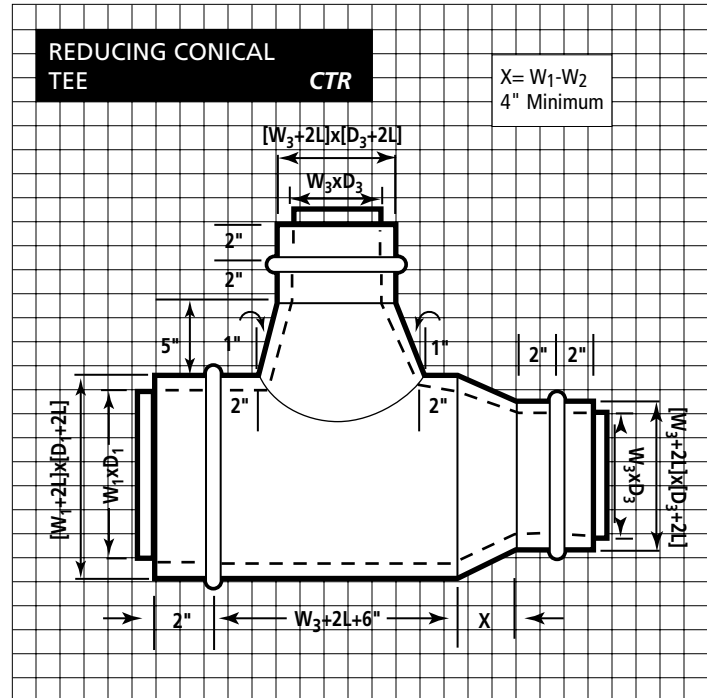
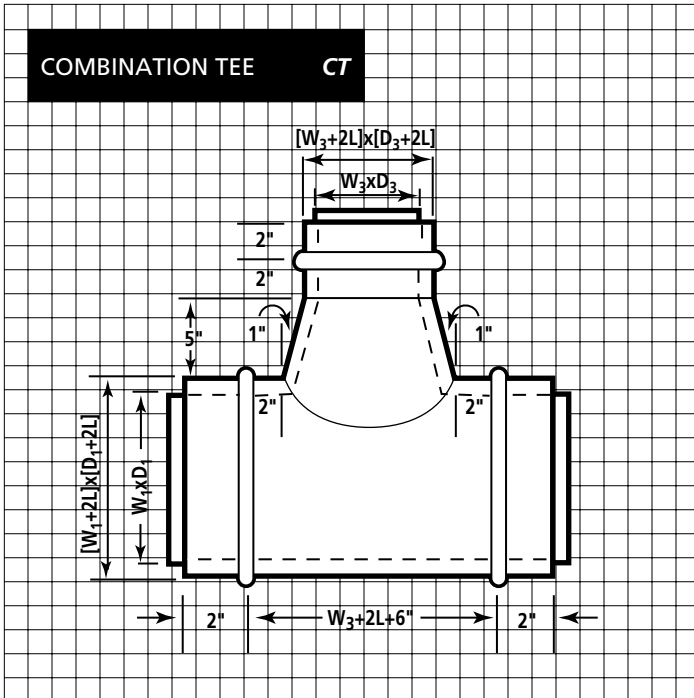
Double Wall Oval STRAIGHT TEES

L = Liner Thickness



Double Wall Oval CONICAL TEES

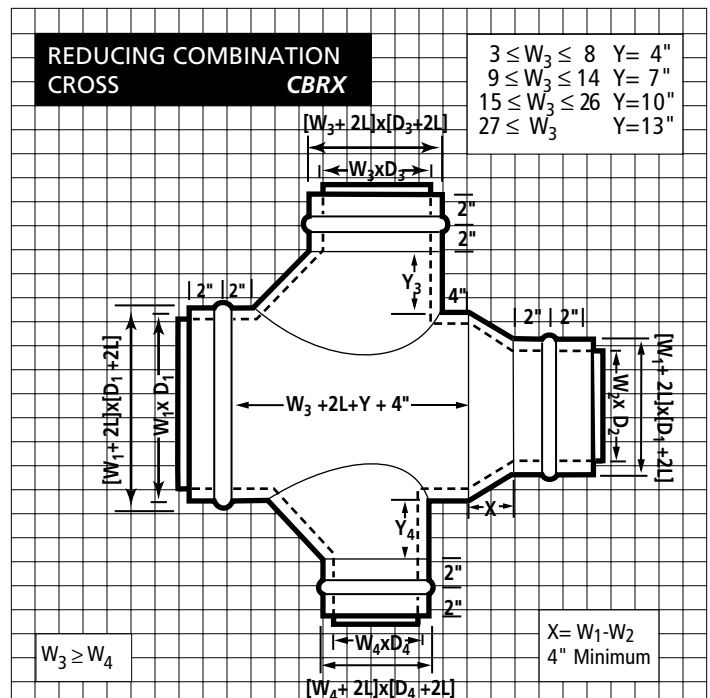
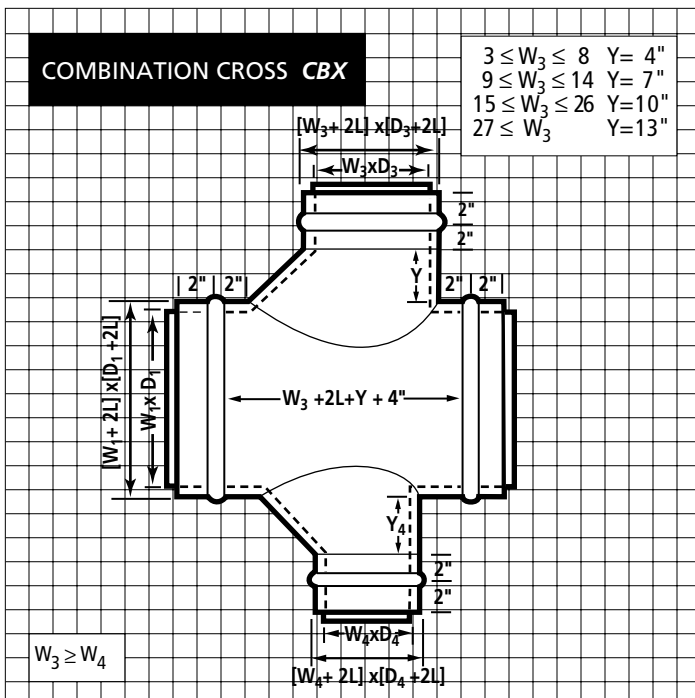
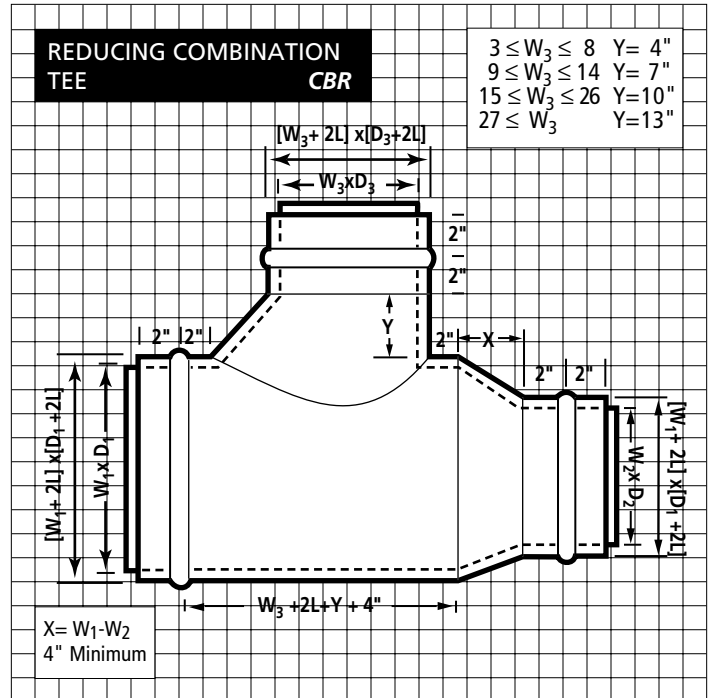
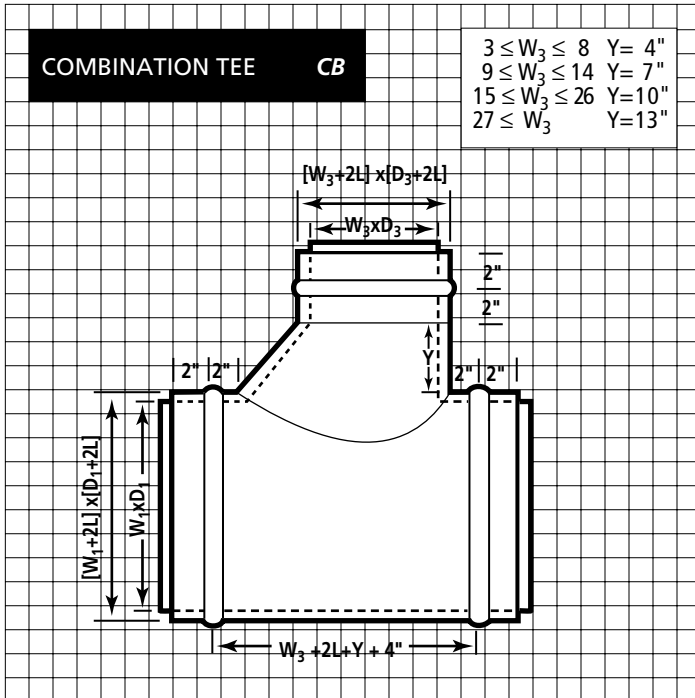
L = Liner Thickness





Double Wall Oval COMBINATION TEES

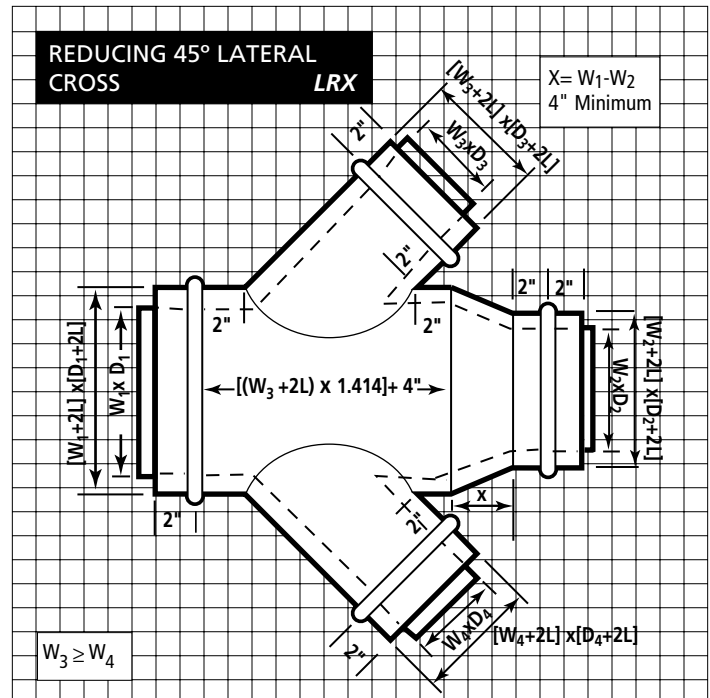
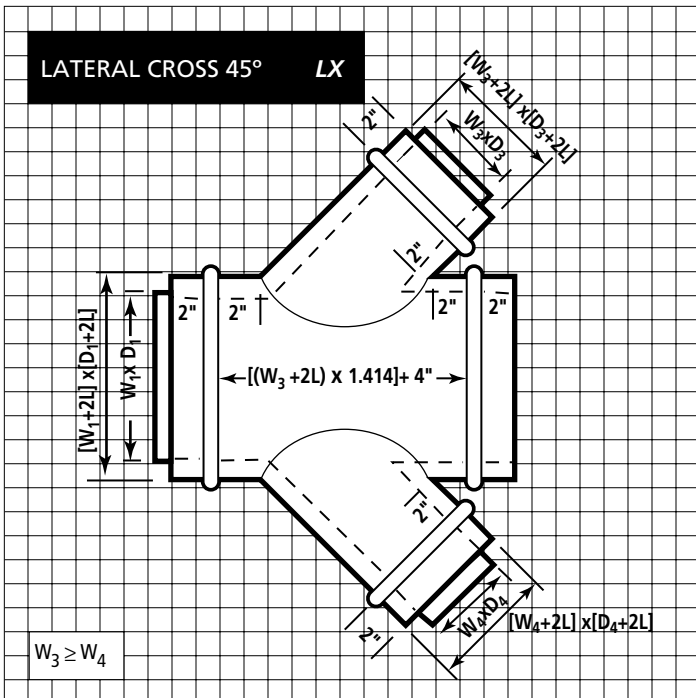
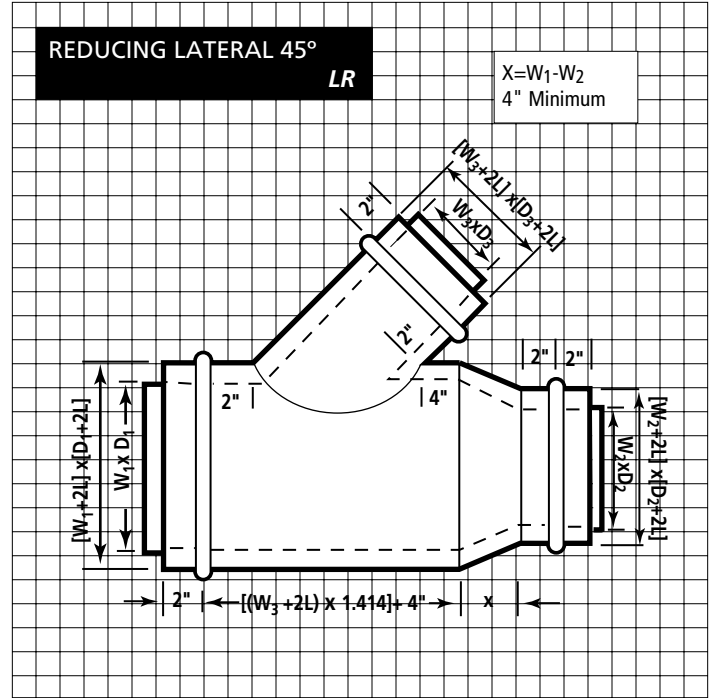
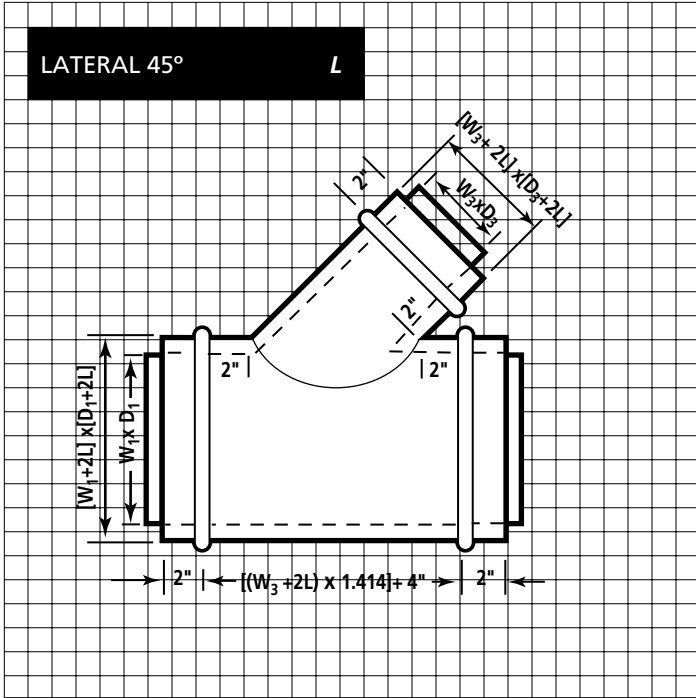
L = Liner Thickness





Double Wall Oval STRAIGHT LATERALS

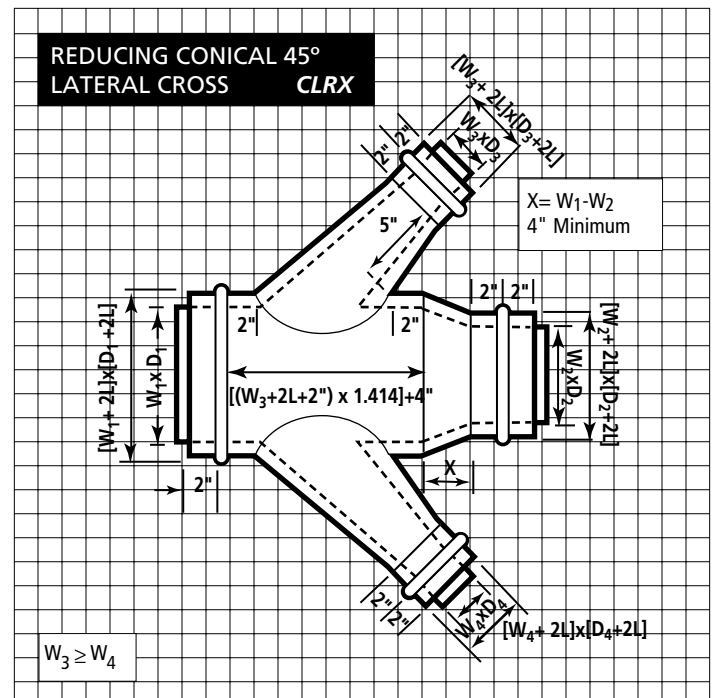
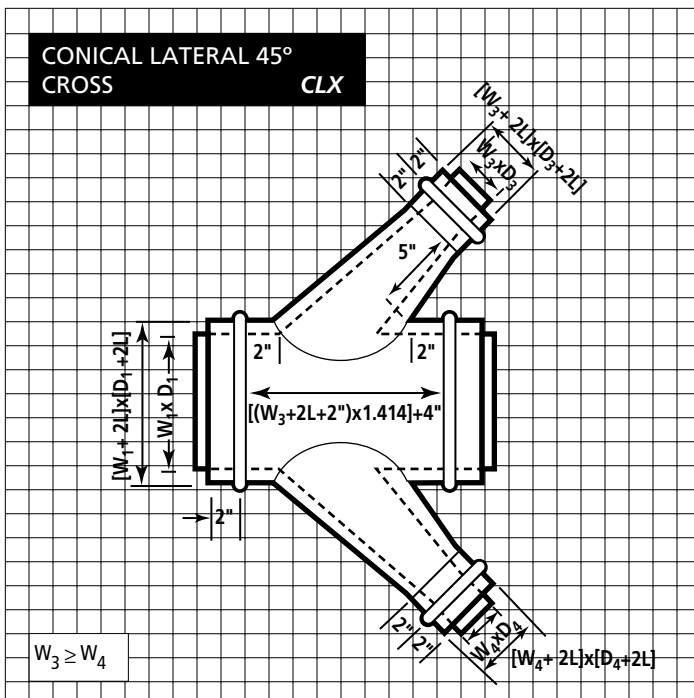
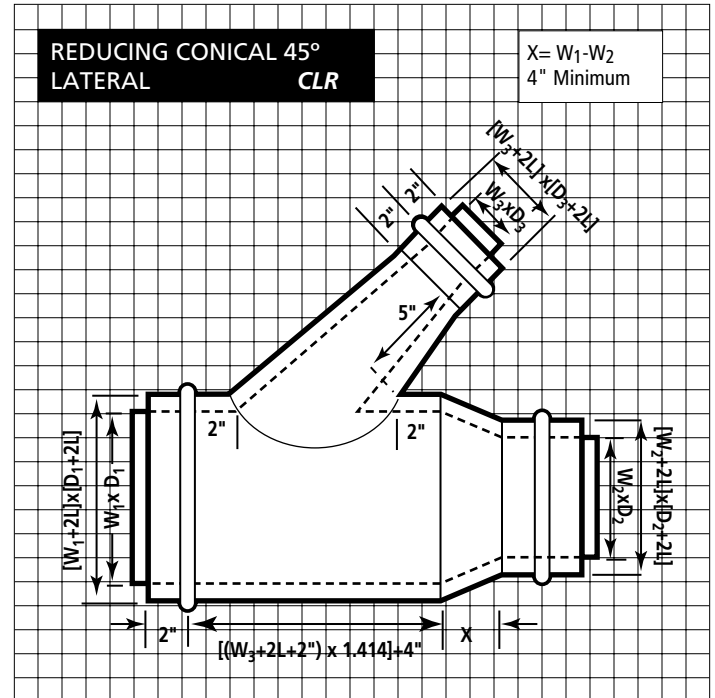
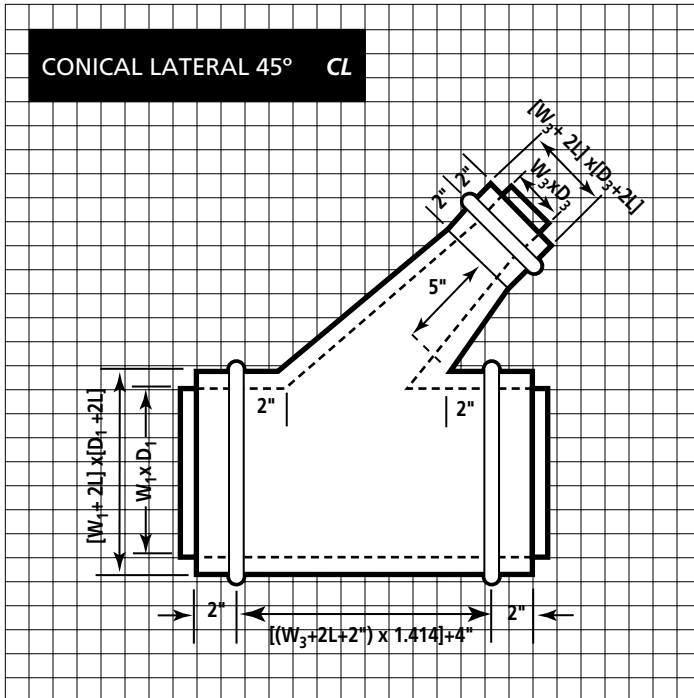
L = Liner Thickness





Double Wall Oval CONICAL LATERALS

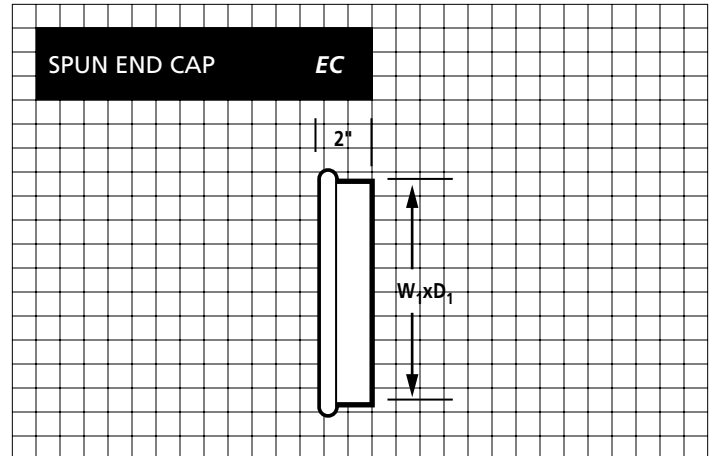
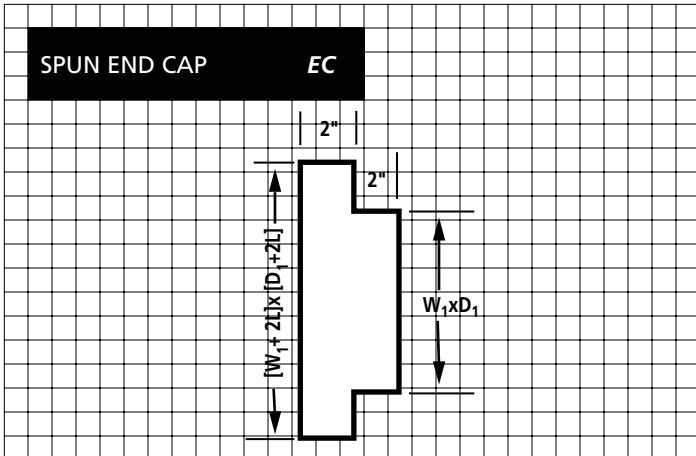
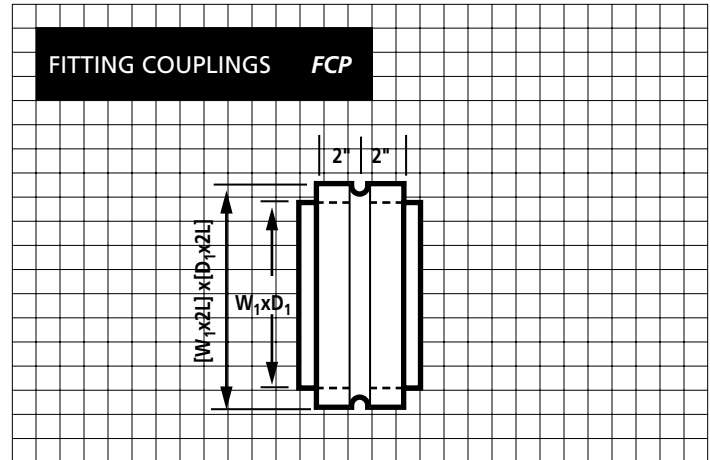
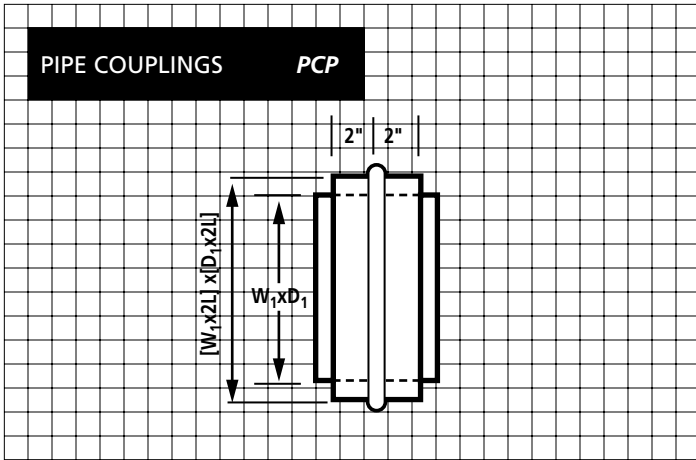
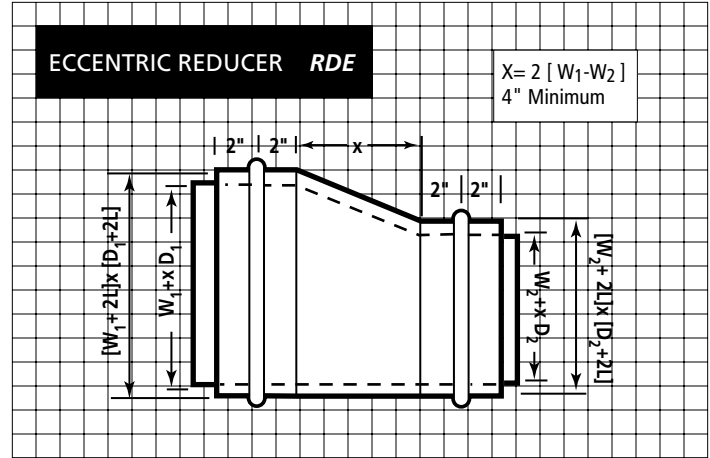
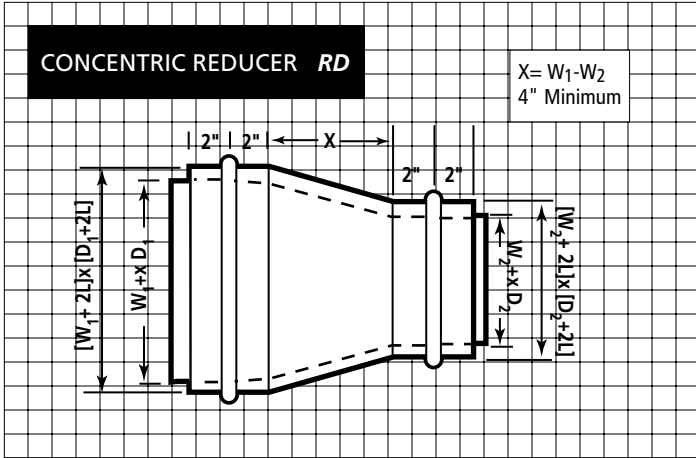
L = Liner Thickness





Double Wall Oval MISCELLANEOUS

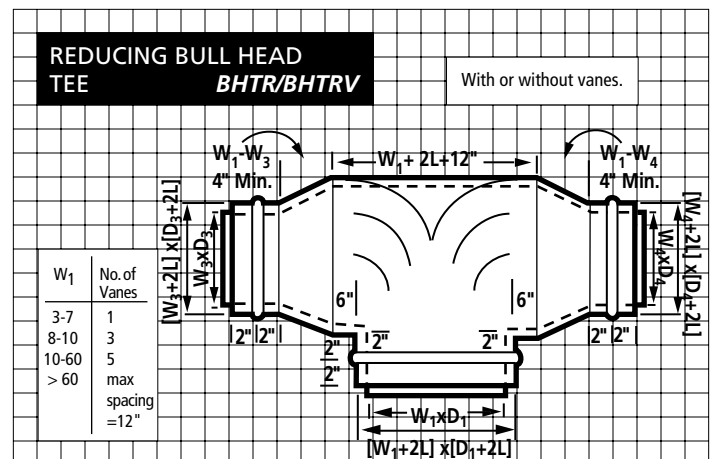
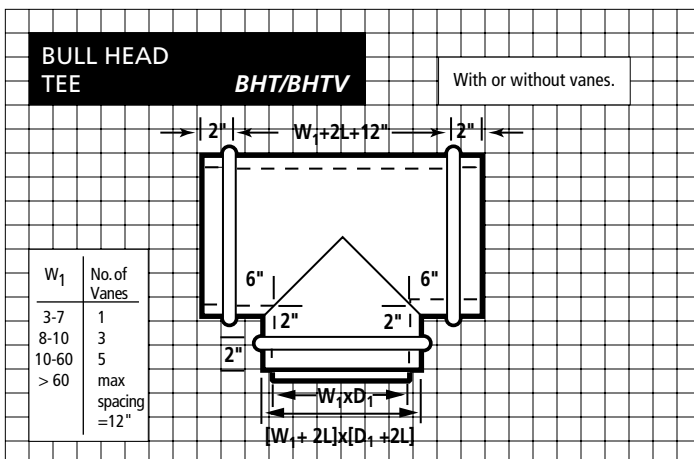
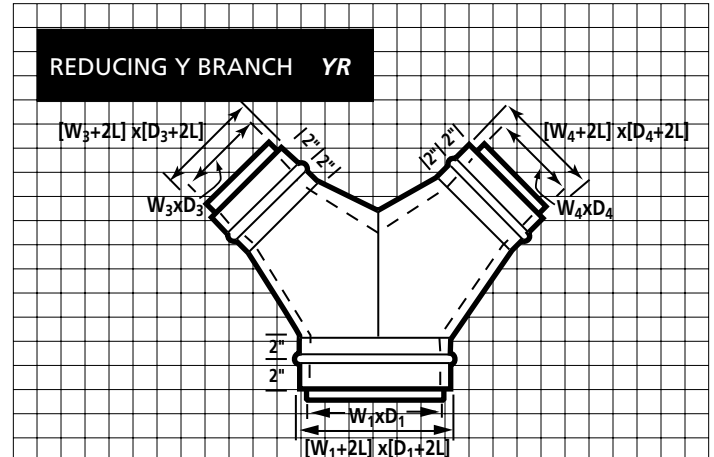
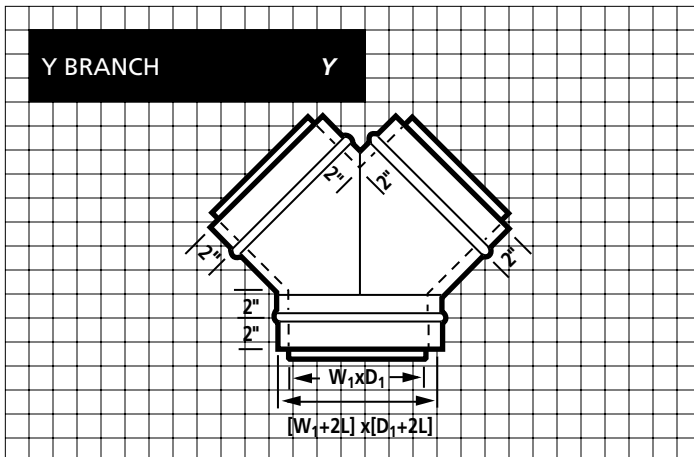
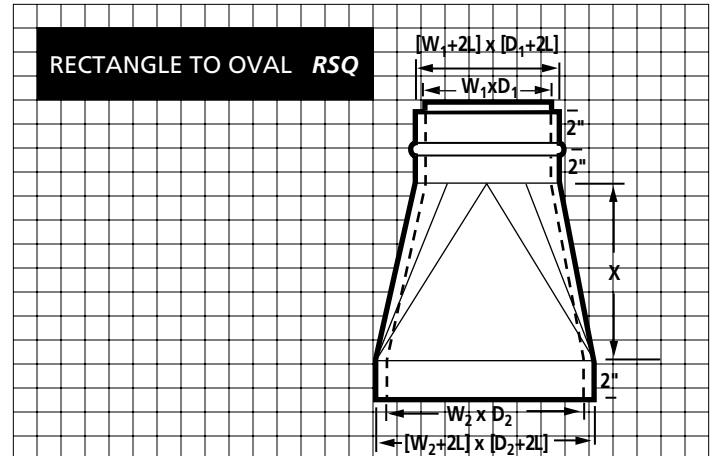
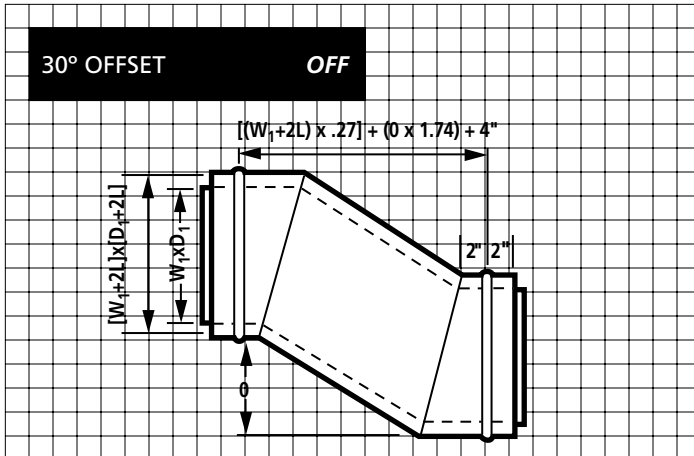
L = Liner Thickness





Double Wall Oval MISCELLANEOUS

L = Liner Thickness





Double Wall Oval MISCELLANEOUS

L = Liner Thickness

RECTANGULAR ACCESS SECTION AXRT

Also available as shop-installed SRTA or field-installed accessory FRTA.

D ₁	ACCESS SIZE
8" to 12"	8" x 8"
13" to 17"	12" x 12"
18" and OVER	18" x 18"

Negative and positive pressure.

SPUN BELL MOUTH SB

PRESSED BELL MOUTH GALVANIZED ONLY PB

D ₁	R
4"	.394"
5"	.472"
6"	.787"
7"	1.0"
8"	1.0"
9"	1.0"
10"	1.0"
12"	1.0"

STANDARD BELL MOUTH

D ₁	D ₂	L	R
13"	19"	4"	3"
14"	21"	4"	3"
15"	24"	5"	4"
16"	26"	5"	4"
17"	25"	5"	4"
18"	26"	5"	4"
19"	27"	5"	4"
20"	28"	5"	4"
21"	29"	5"	4"
22"	32"	6"	5"
23"	33"	6"	5"
24"	34"	6"	5"
26"	38"	7"	6"
28"	40"	7"	6"
30"	42"	7"	6"
32"	46"	8"	7"
34"	48"	8"	7"
36"	50"	8"	7"
38"	52"	8"	7"
40"	56"	9"	8"
42"	58"	9"	8"
44"	60"	9"	8"
46"	62"	9"	8"
48"	64"	9"	8"

SHORT RADIUS BELL MOUTH

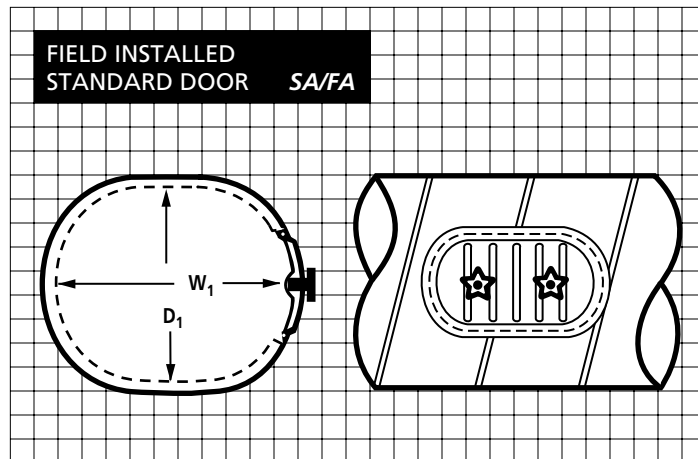
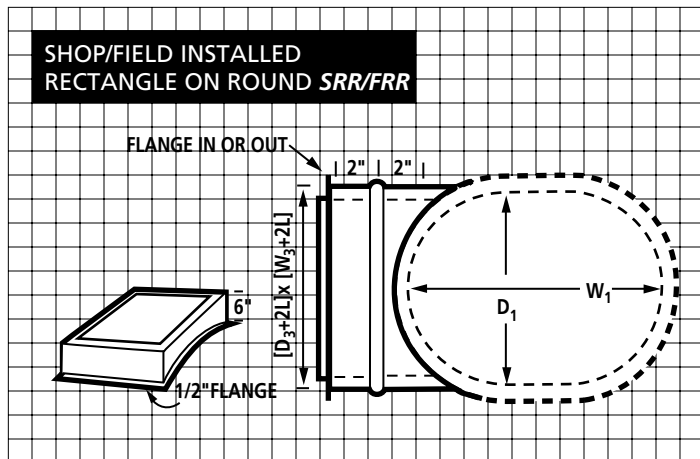
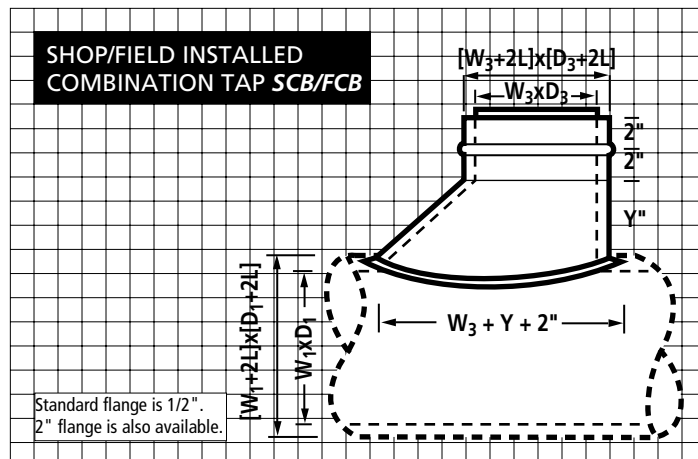
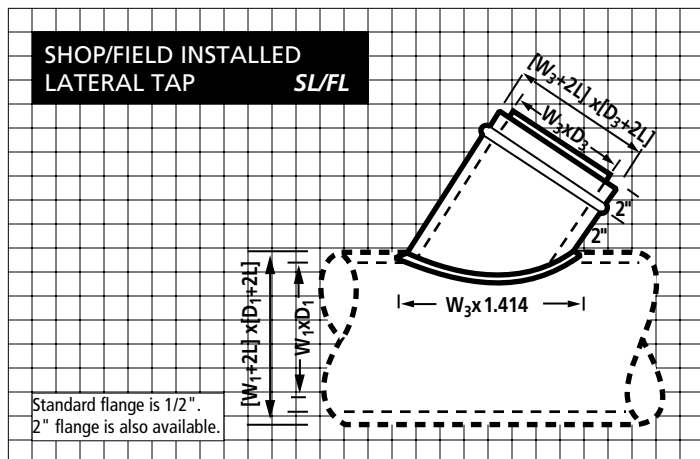
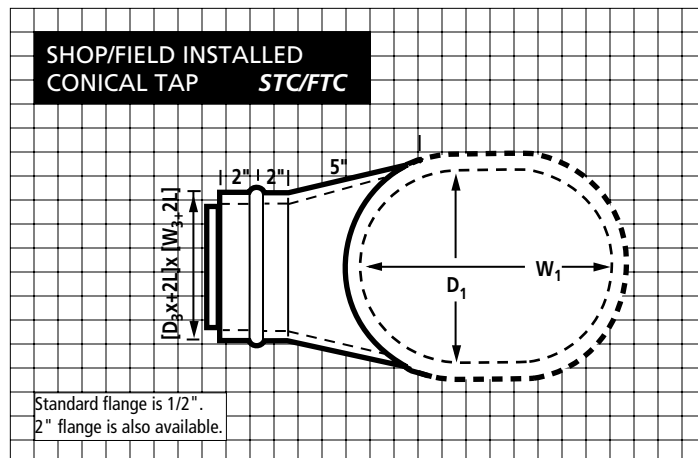
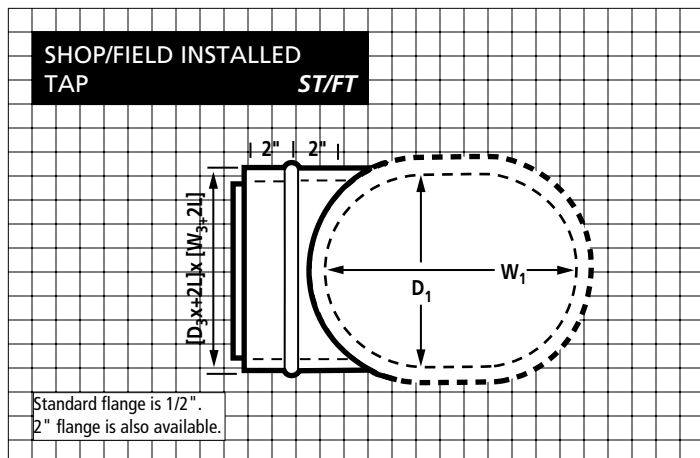
D ₁	D ₂	L
13"	15"	3 1/2"
14"	16"	3 1/2"
15"	17"	3 1/2"
16"	18"	3 1/2"
17"	19"	3 1/2"
18"	20"	3 1/2"
19"	21"	3 1/2"
20"	22"	3 1/2"
21"	23"	3 1/2"
22"	24"	3 1/2"
23"	25"	3 1/2"
24"	26"	3 1/2"
26"	28"	3 1/2"
28"	30"	3 1/2"
30"	32"	3 1/2"
32"	34"	3 1/2"
34"	36"	3 1/2"
36"	38"	3 1/2"
38"	40"	3 1/2"
40"	42"	3 1/2"
42"	44"	3 1/2"
44"	46"	3 1/2"
46"	48"	3 1/2"
48"	50"	3 1/2"
50"	52"	3 1/2"
52"	54"	3 1/2"
54"	56"	3 1/2"
56"	58"	3 1/2"
56"	60"	3 1/2"
60"	62"	3 1/2"



Double Wall Oval ACCESSORIES

SHOP INSTALLED/ FIELD INSTALLED

L = Liner Thickness





Double Wall Oval INSTALLATION

DUAL WALL SLIP FIT

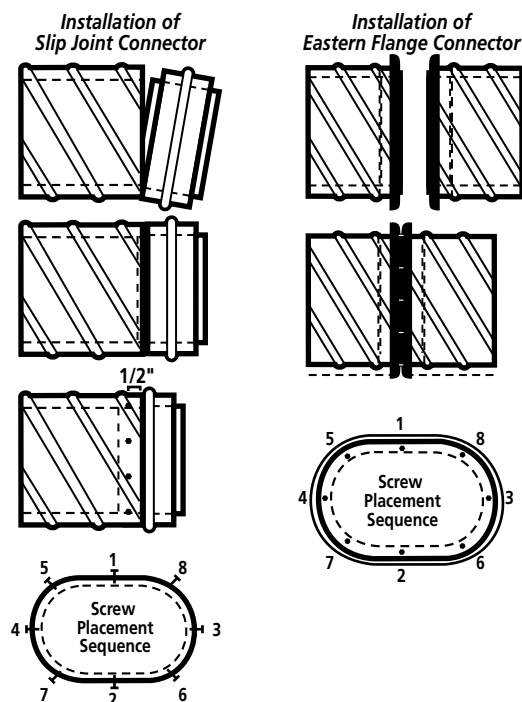
The inner and outer collars Eastern Sheet Metal fitting are sized to slip into, and should be used with, Eastern Sheet Metal spiral duct. The inner collar projects beyond the outer collar. This permits the inner collar to be started into the inner liner of the spiral duct in a manner similar to the single wall technique. A tight fit is necessary to minimize friction loss and to promote proper sealing. Care should be taken during the handling and installation to avoid dents and distortions that can cause improper fit or difficult installation.

1. Bring the bottom of the inner fitting collar into the inner spiral duct at a slight angle.
2. Work the rest of the inner collar into the spiral duct.
3. When the inner collar is fully inserted, start the outer collar in the same manner.
4. Carefully work the rest of the collar into the spiral duct until approximately one inch of the collar remains exposed between the end of the spiral duct and the stop bead of the fitting collar. Do not use a screwdriver or knife to help make the connection. Apply pressure with the heel of your hand or with your fist to help slip the fitting into the duct.
5. Apply duct sealer to this exposed area.
6. Push the fitting into the spiral duct until the stop bead meets the edge of the spiral duct.
7. Fasten the fitting into the spiral duct with screws per the chart at right. The screws should be evenly spaced around the perimeter of the connection, approximately 1/2" back from the stop bead. Placement of the screws should be opposite of each other as demonstrated in the diagram.

DUAL WALL EASTERN FLANGE

Eastern Flanges come factory-mounted on fittings and spiral duct. Eastern Flanges are standard for all duct over 71" major axis, but are available on smaller sizes. Dual wall Eastern Flanges attach to both the outer wall and the inner wall of the duct, eliminating the need to make an inner connection.

1. Place closed cell neoprene gasket on the face of one of the mating outer flanges.
2. Push the flanges together keeping the edges of the flanges aligned.
3. Clamp the flanges to help hold them in place.
4. Screw the flanges together with self-tapping screws per the chart below. The screws should be evenly spaced around the perimeter of the connection. Placement of the screws should be opposite of each other as demonstrated in the diagram.



DUCT PERIMETER ROUND EQUIV.	#OF SCREWS	
	SLIP FIT	EASTERN FLANGE
4"-9"	3	NA
10"	3	4
11"-16"	3	6
17"-21"	4	8
22"-26"	5	10
27"-30"	6	12
32"-36"	7	14
38"-42"	8	16
44"-46"	9	18
48"-52"	10	20
54"-56"	11	22
58"-60"	12	24
62"-66"	NA	26
68"-72"	NA	28
74"-76"	NA	30
78"-84"	NA	32

Protected by the following U.S. Patents: 7,287,407; D518,885; D517,679; D516,698; D516,697.