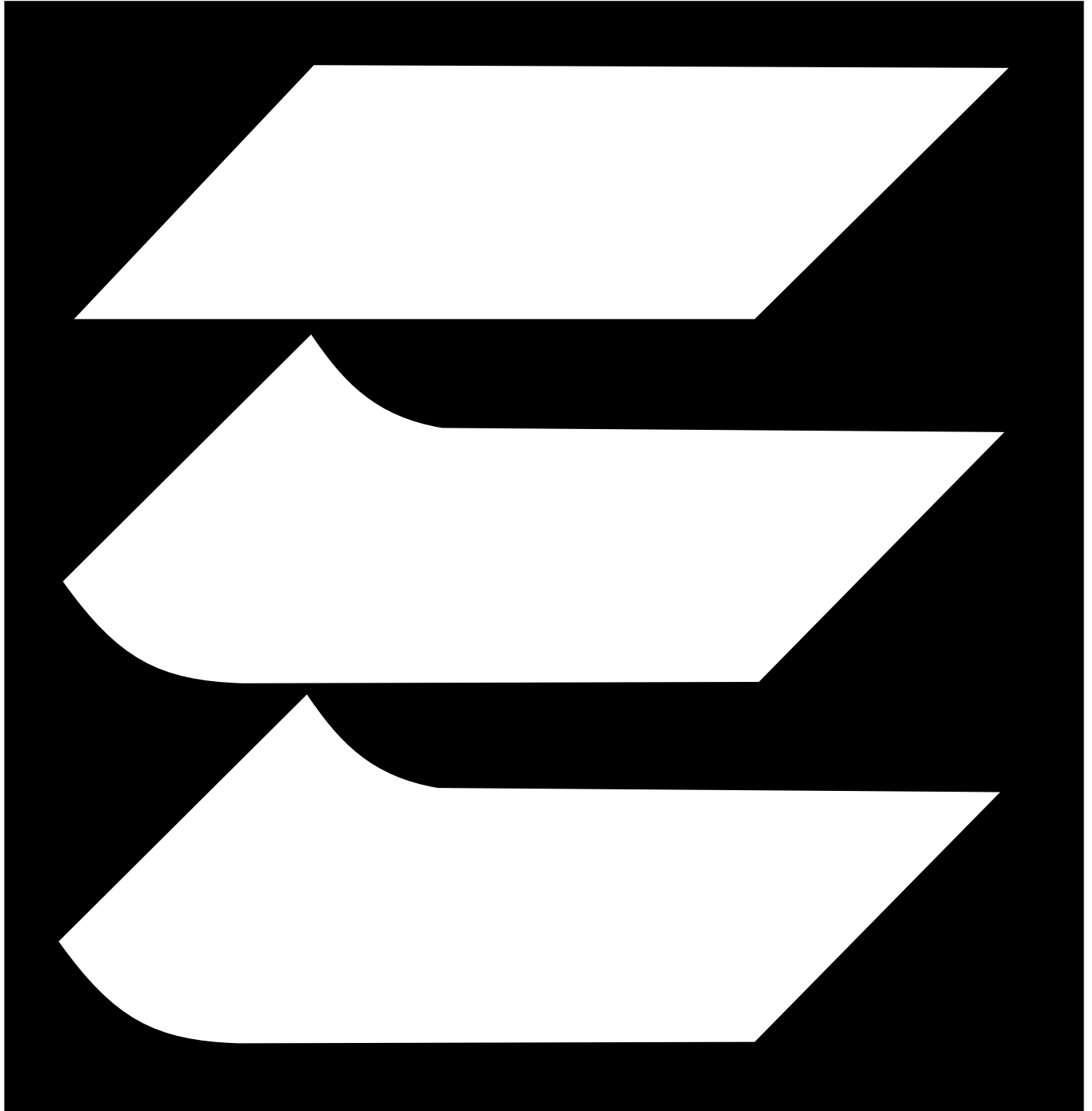




Double Wall
ROUND



SPIRAL PIPE & FITTINGS



Double Wall ROUND

DUAL WALL ROUND SPIRAL DUCT AND FITTINGS CONSTRUCTION STANDARDS

Outer Shell Positive Pressure

Gauge selection for galvanized (ASTM A653), paint grip steel, and types 304 and 316 stainless steel. Fittings are spot welded or gorelocked through 40" diameter. All larger fittings are continuously welded except for PCS fittings. All fittings can be provided as continuously welded if required. All galvanized spiral pipe 6" and larger is corrugated. All spiral pipe from other materials will be smooth.

DUCT DIAMETER	2005 SMACNA 10" WG SPIRAL		1995 SMACNA 2" WG SPIRAL		1995 SMACNA 10" WG SPIRAL	
	PIPE	FITTINGS	PIPE	FITTINGS	PIPE	FITTINGS
3"-6"	26	26	26	26	26	26
7"-8"	26	26	26	26	26	26
9"-10"	26	26	26	26	26	26
11"-12"	26	26	26	26	26	24
13"-14"	26	26	26	26	26	24
15"-16"	26	26	24	24	24	22
17"-18"	26	26	24	24	24	22
19"-24"	26	24	24	24	24	22
25"-26"	24	22	24	24	24	22
27"-36"	24	22	24	22	22	20
37"-42"	24	22	22	20	22	20
43"-48"	22	20	22	20	20	20
49"-50"	22	20	22	20	20	20
51"-60"	22	20	20	18	18	18
61"-66"	22	18	18	16	18	16
67"-84"	20	18	18	16	18	16

DUCT DIAMETER	1985 SMACNA 2" WG SPIRAL		1985 SMACNA 10" WG SPIRAL		ALUMINUM 2" WG SPIRAL	
	PIPE	FITTINGS	PIPE	FITTINGS	PIPE	FITTINGS
3"-8"	26	26	26	24	0.025"	0.032"
9"-14"	26	26	26	24	0.025"	0.032"
15"-26"	24	24	24	22	0.032"	0.040"
27"-36"	24	22	22	20	0.040"	0.050"
37"-50"	22	20	20	20	0.040"	0.063"
51"-60"	20	18	18	18	0.063"	0.071"
61"-84"	18	16	18	16	0.063"	0.090"

Inner Shell

Gauge selection for inner shell. 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.

DUCT DIAMETER	SPIRORIB		SPIRAL PIPE
	PIPE	FITTINGS	
3"-26"	26	22	26
27"-60"	26	22	22
61"-84"	24	22	22

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)

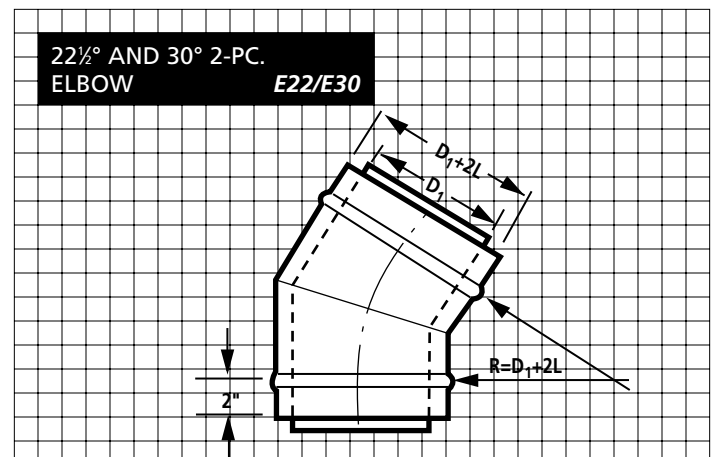
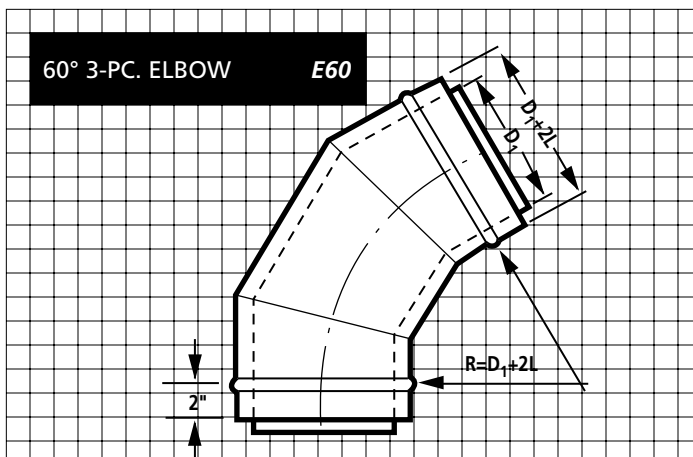
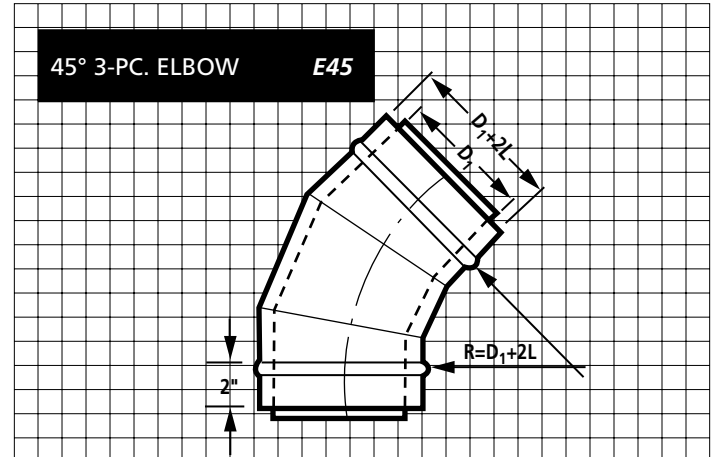
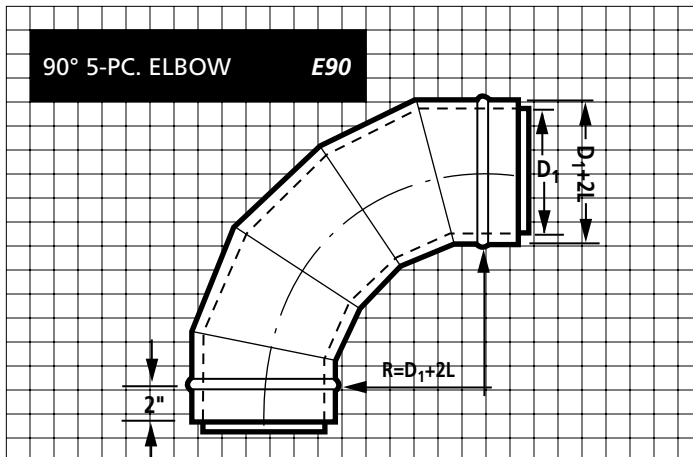
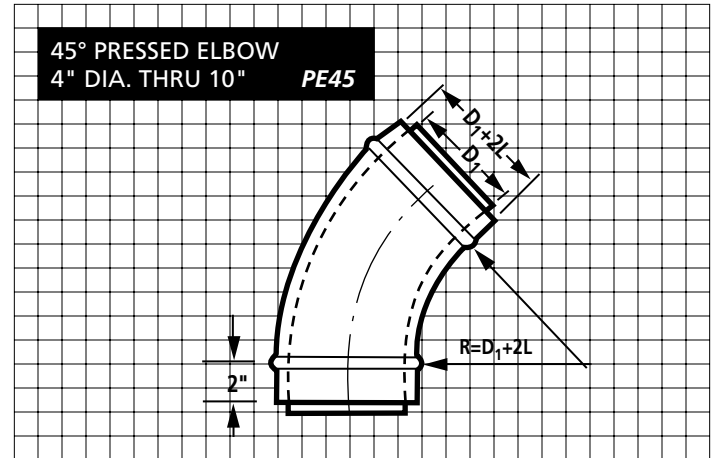
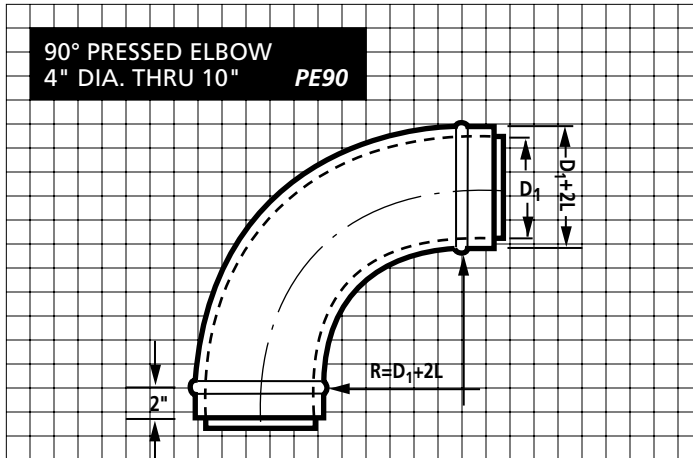
Surface burning characteristics (ASTM E 84, UL 723)
25 flame spread
50 smoke developed.

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

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

Double Wall Round ELBOWS

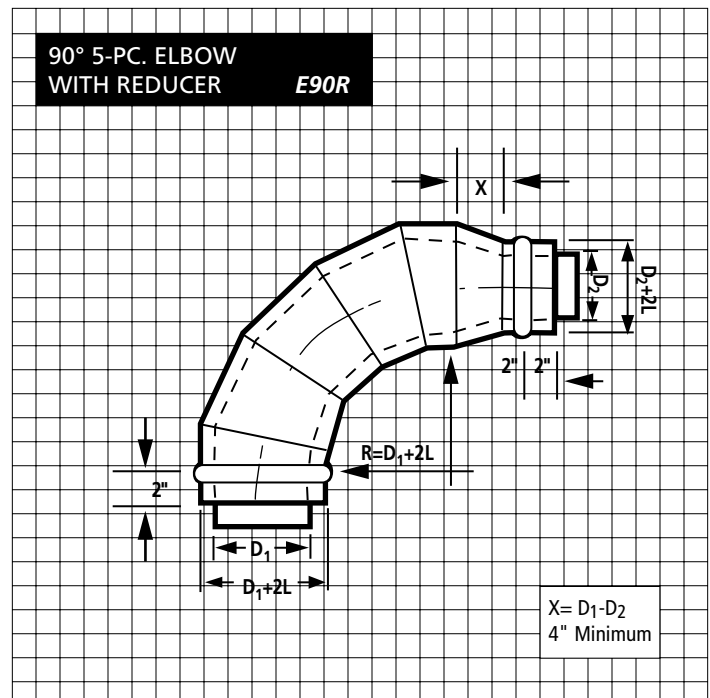
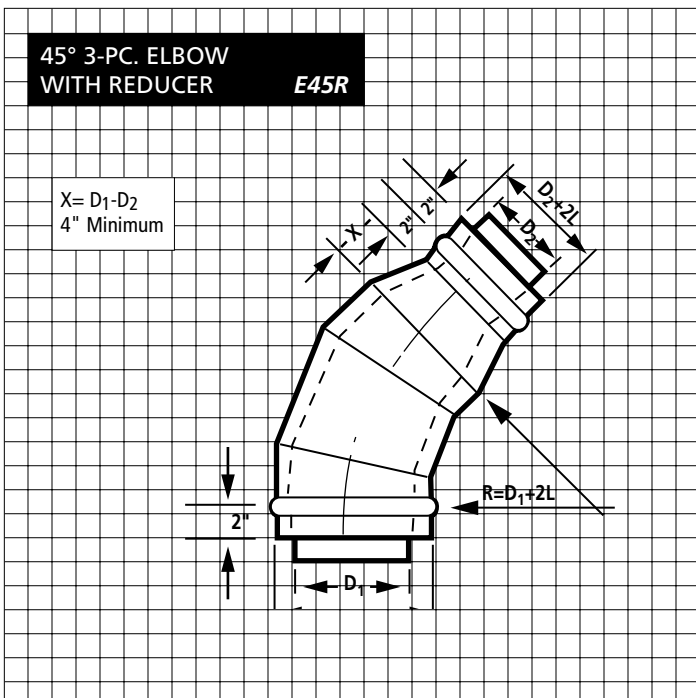
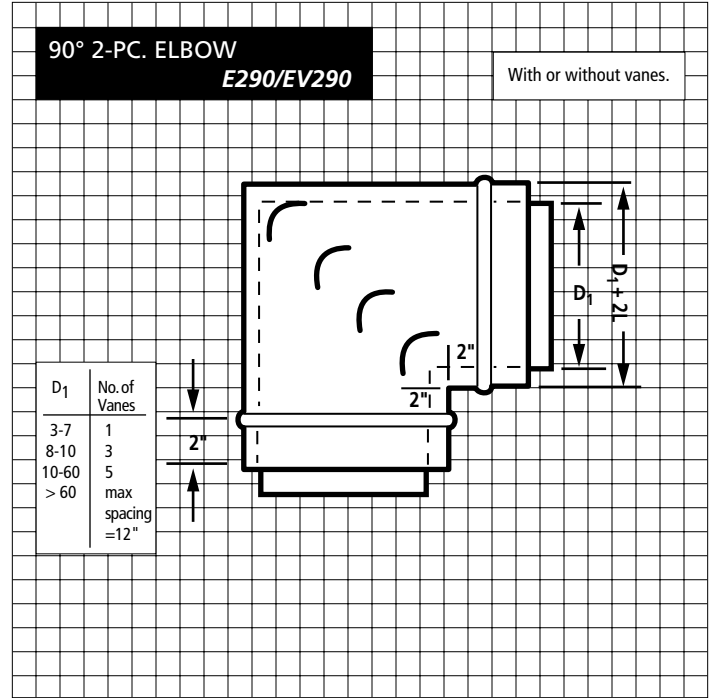
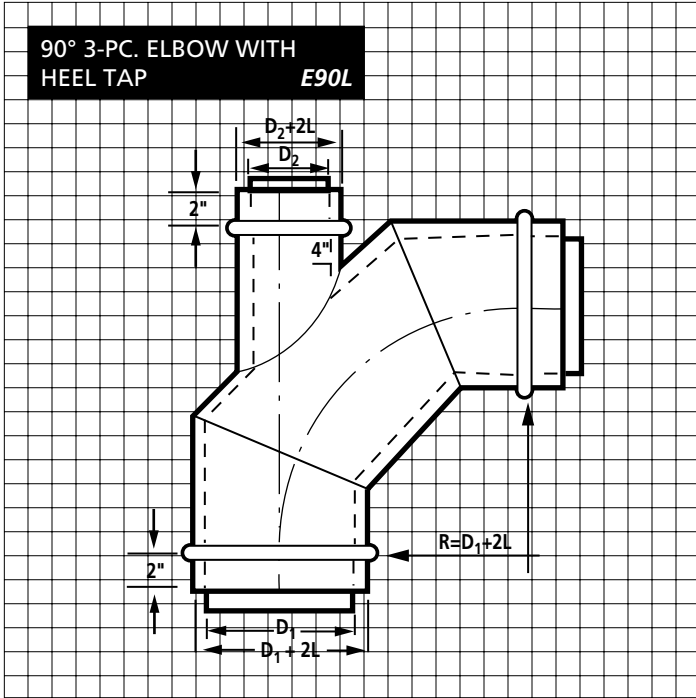
L = Liner Thickness





Double Wall Round ELBOWS

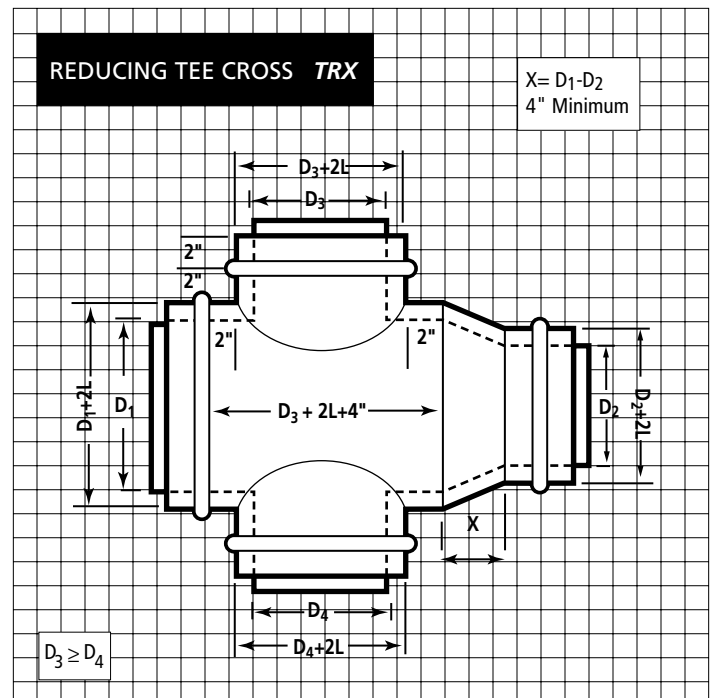
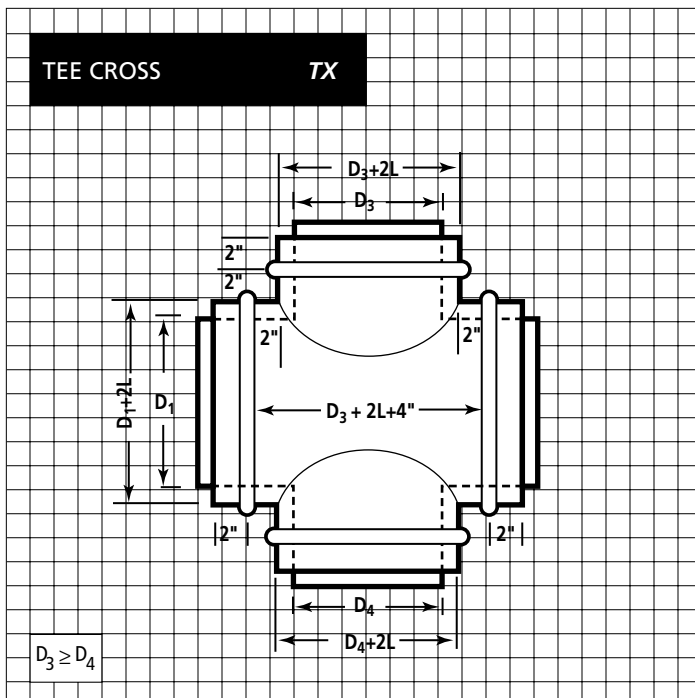
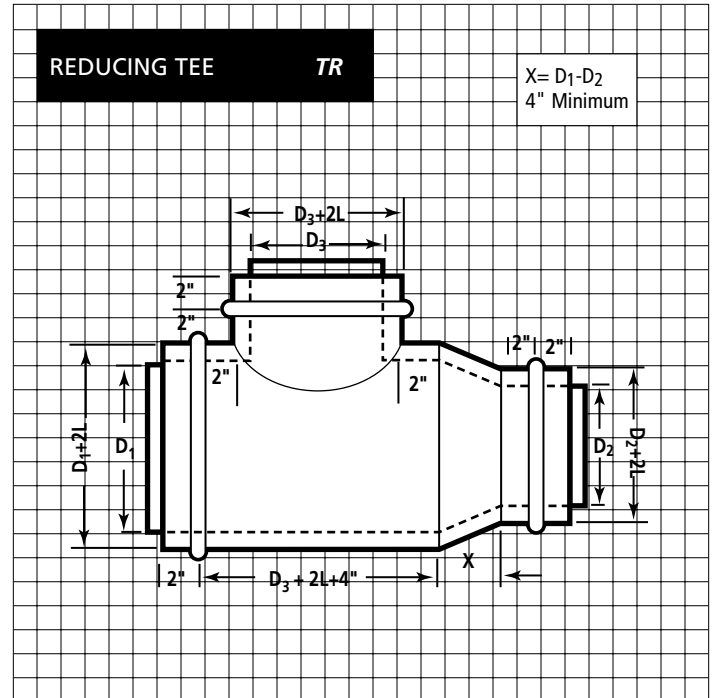
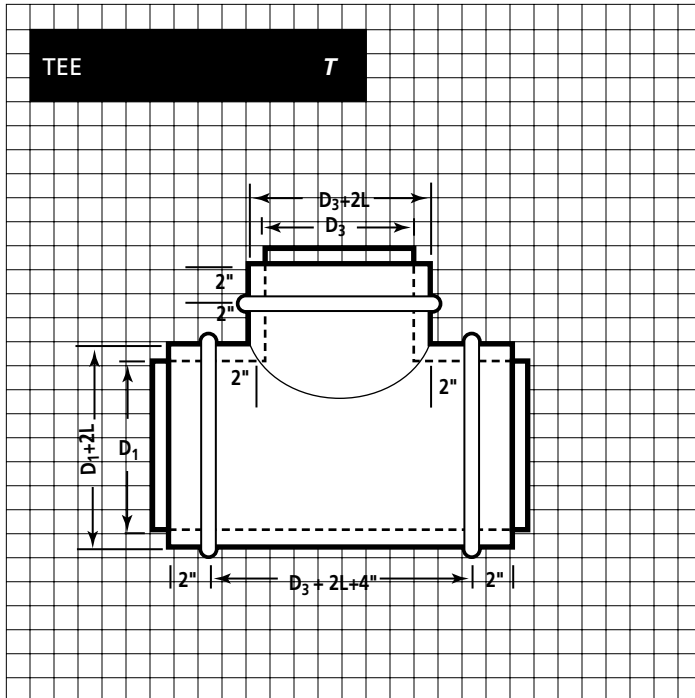
L = Liner Thickness





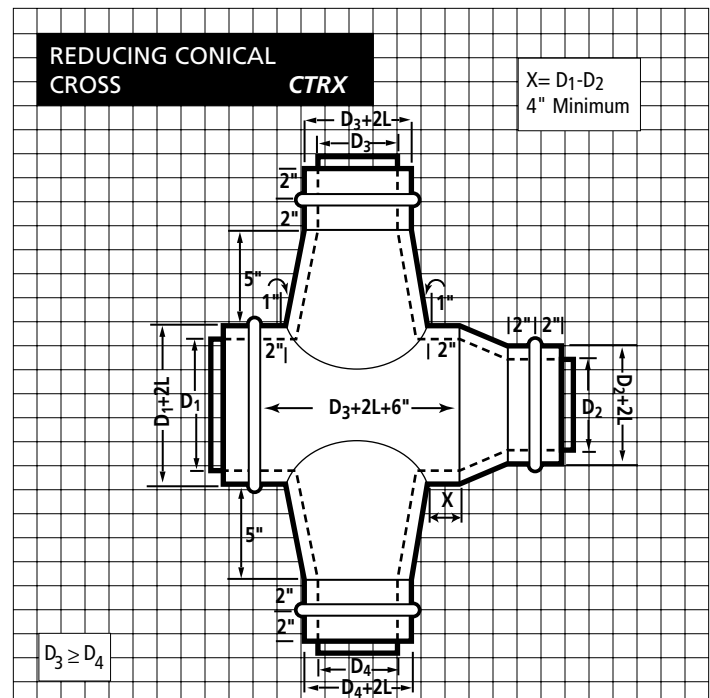
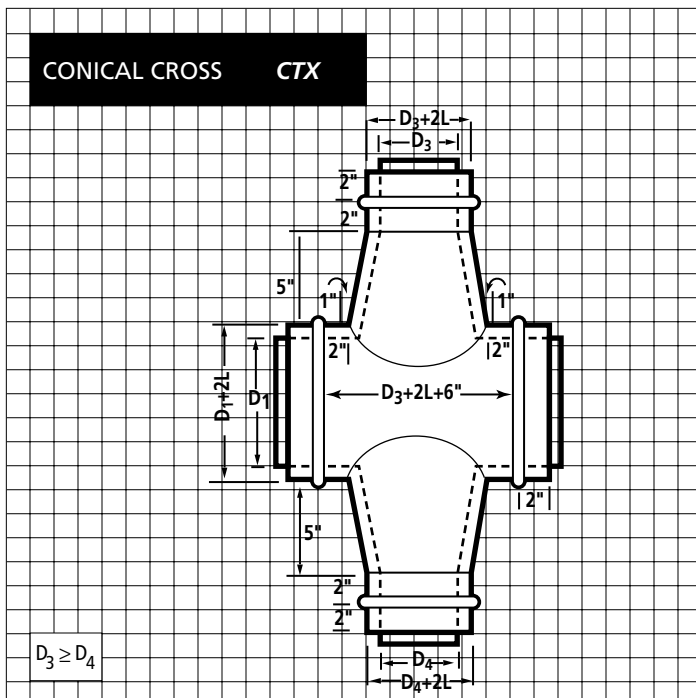
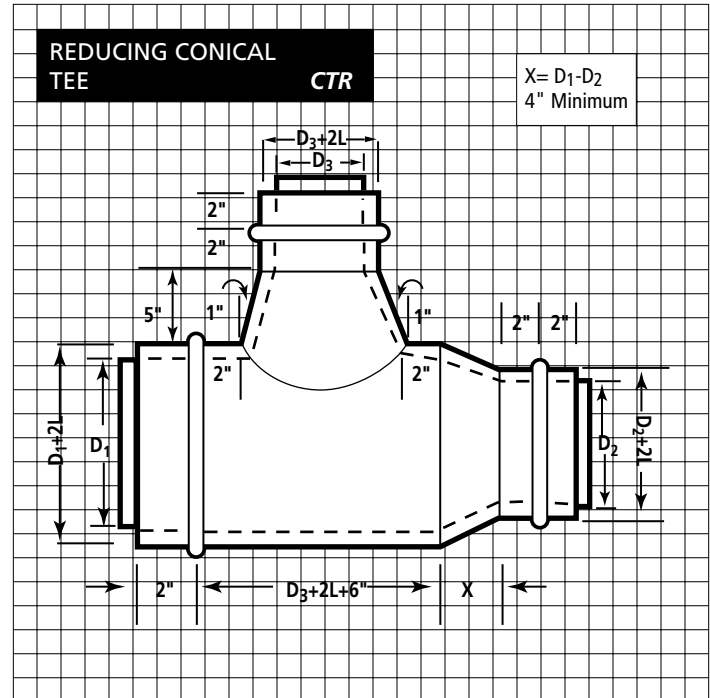
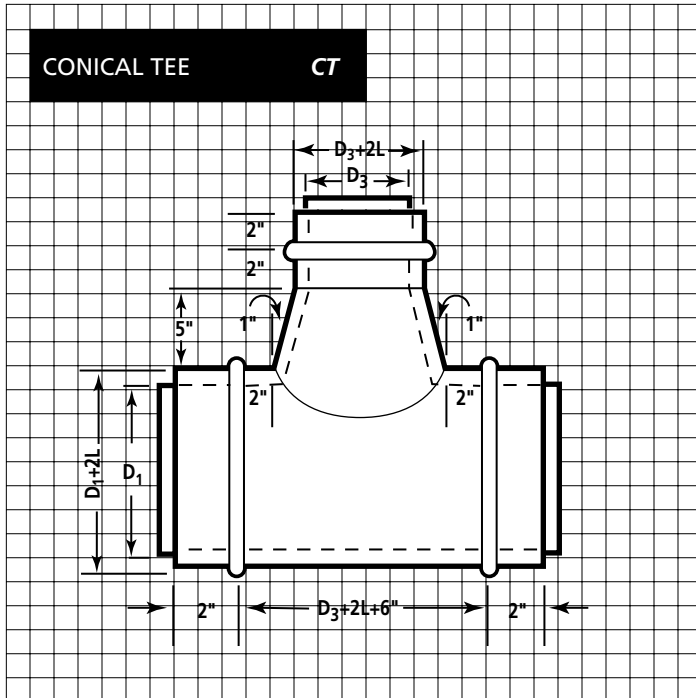
Double Wall Round STRAIGHT TEES

L = Liner Thickness



Double Wall Round CONICAL TEES

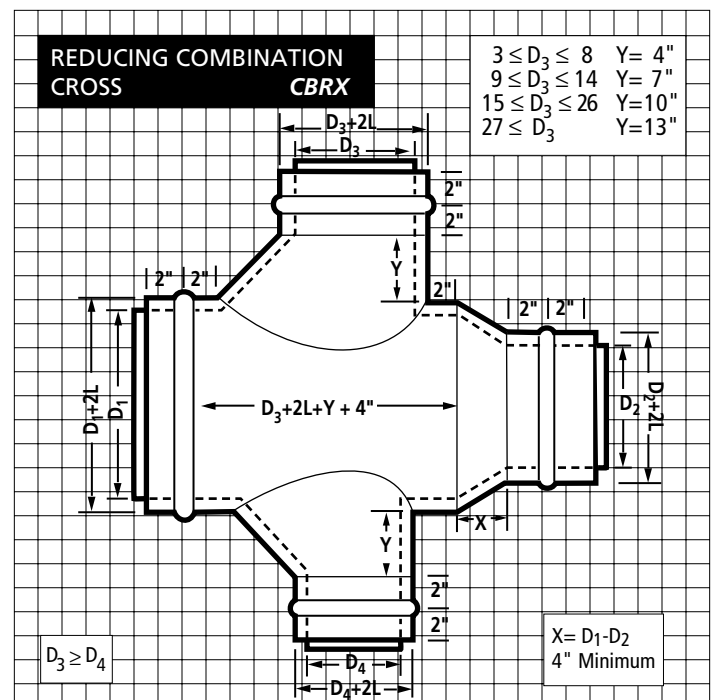
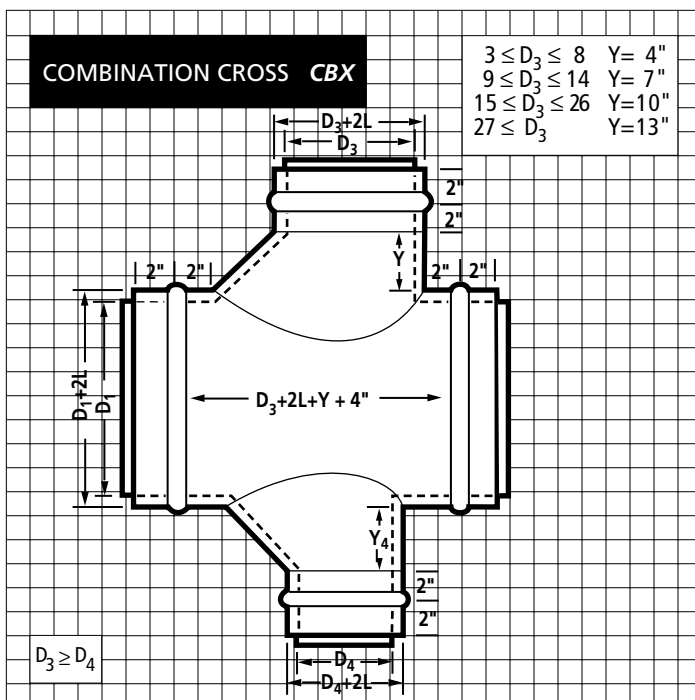
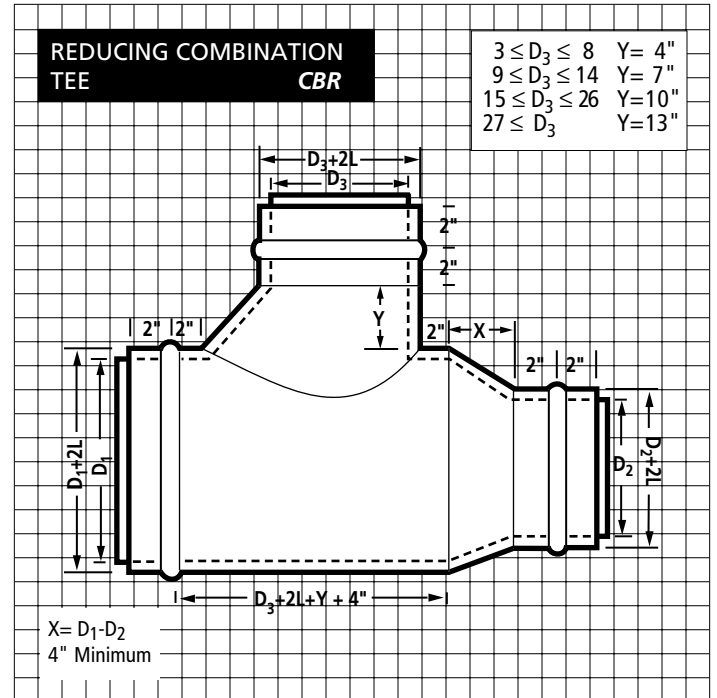
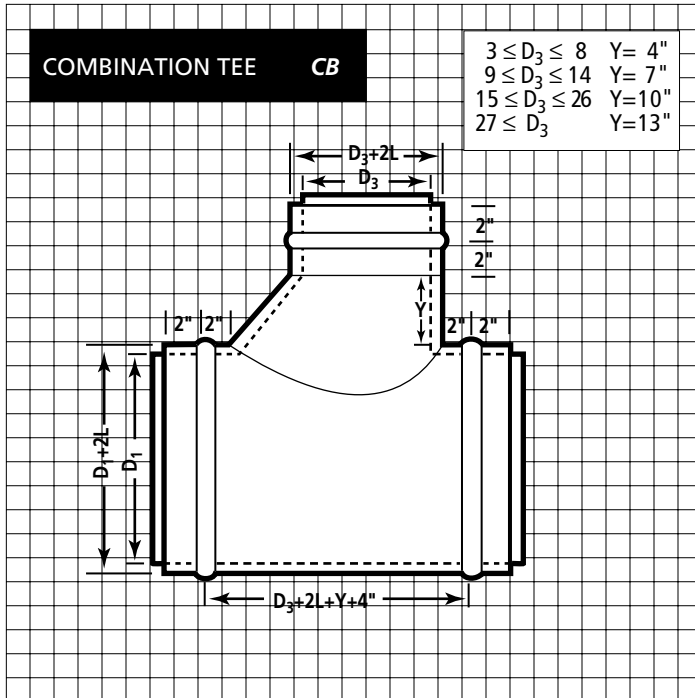
L = Liner Thickness





Double Wall Round COMBINATION TEES

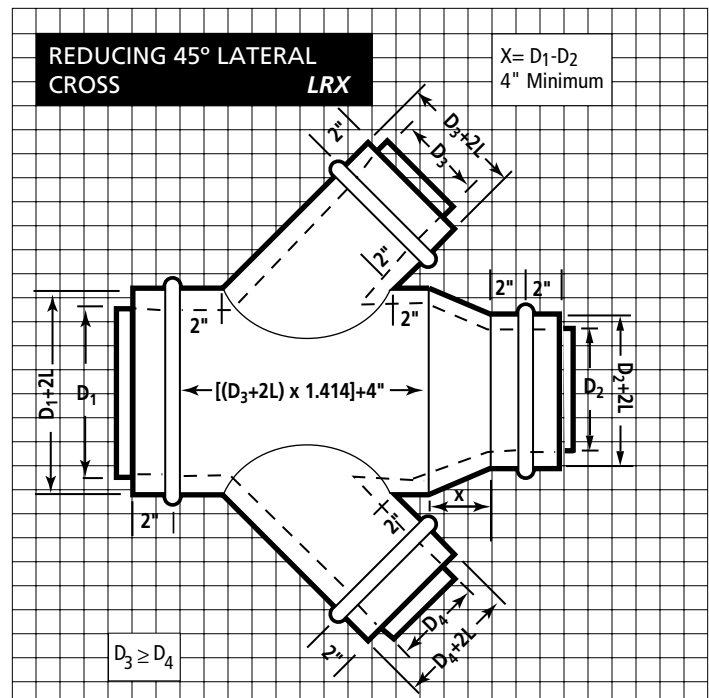
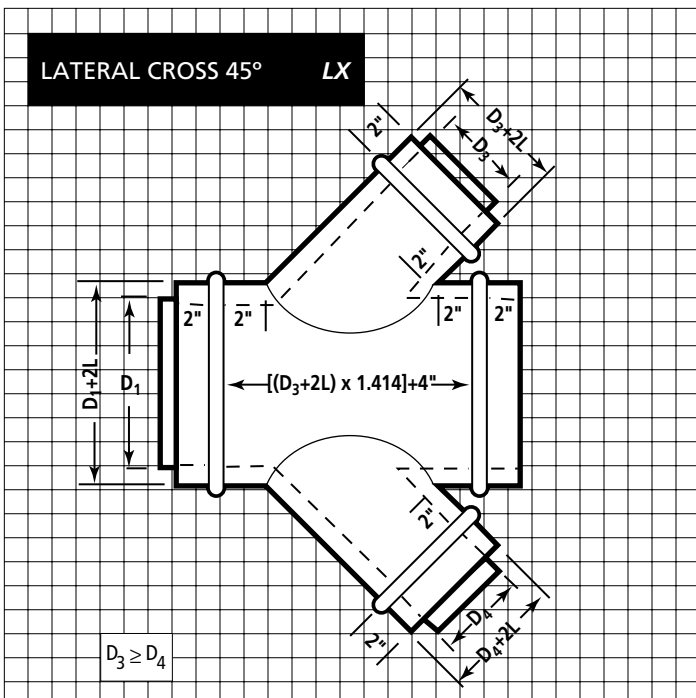
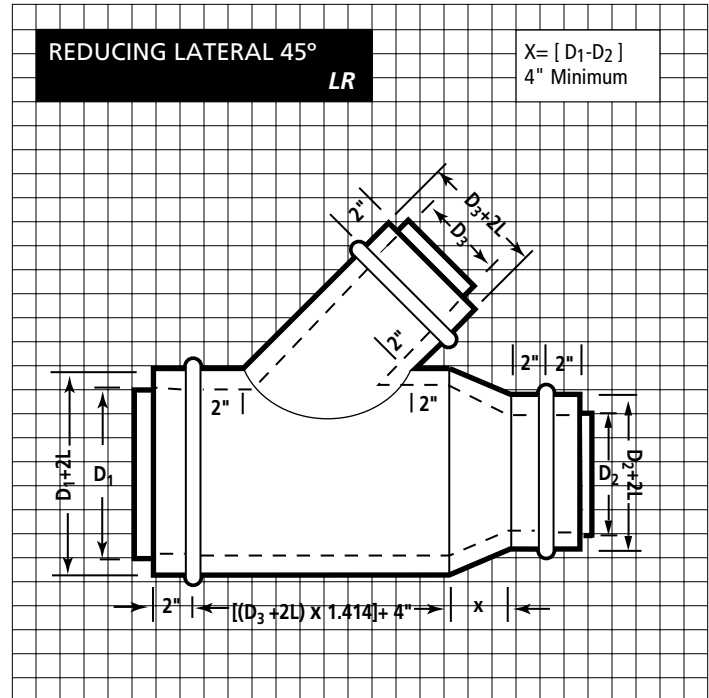
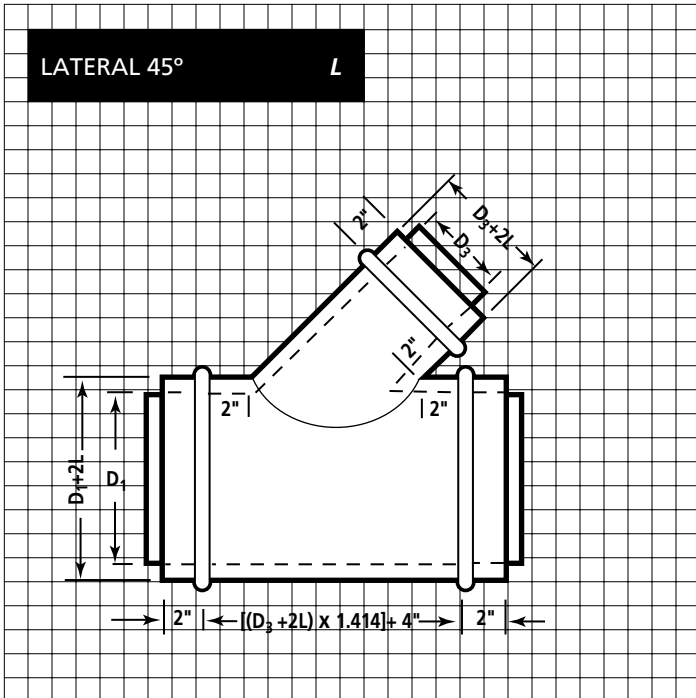
L = Liner Thickness





Double Wall Round STRAIGHT LATERALS

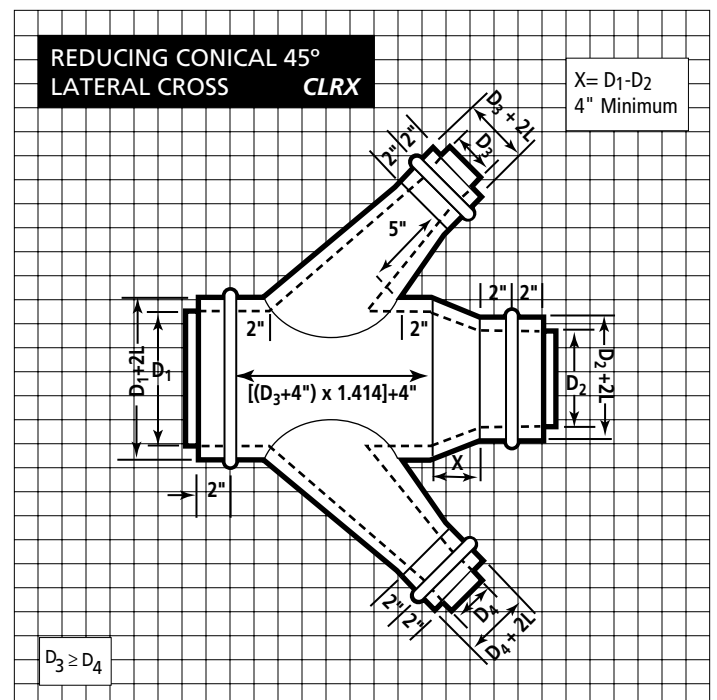
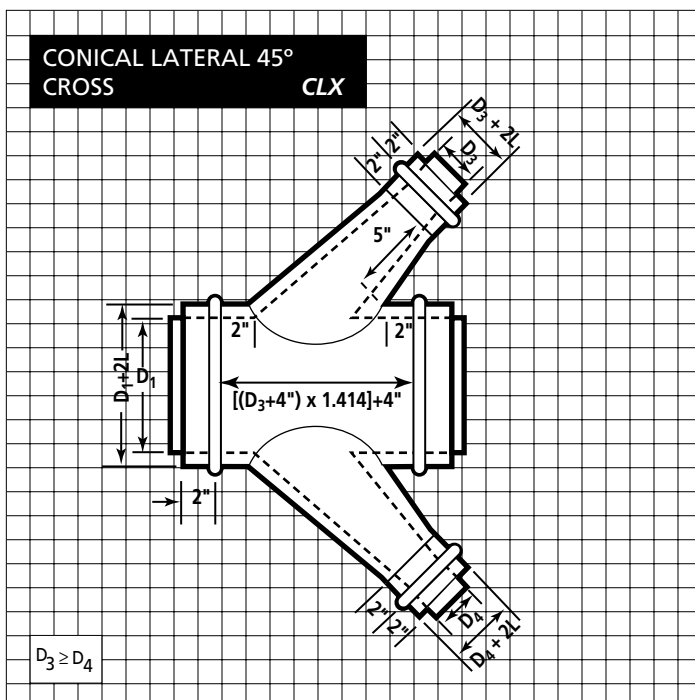
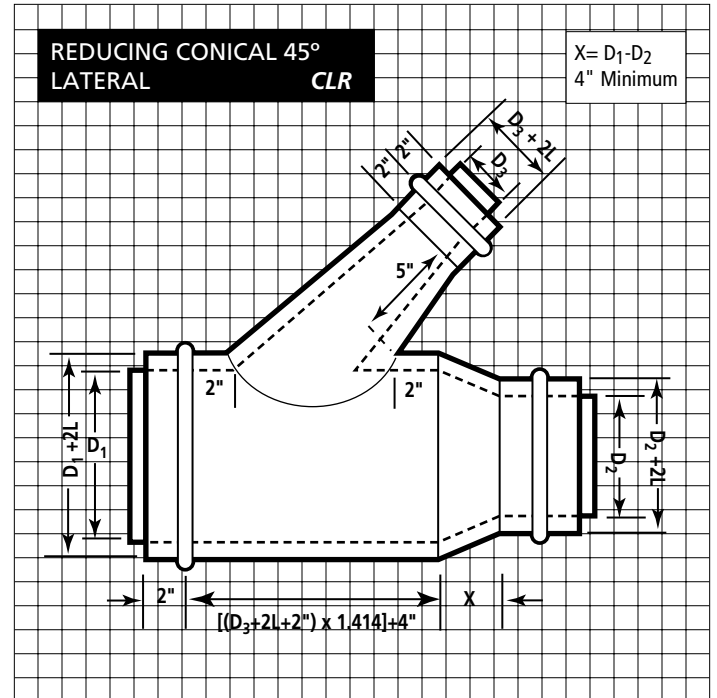
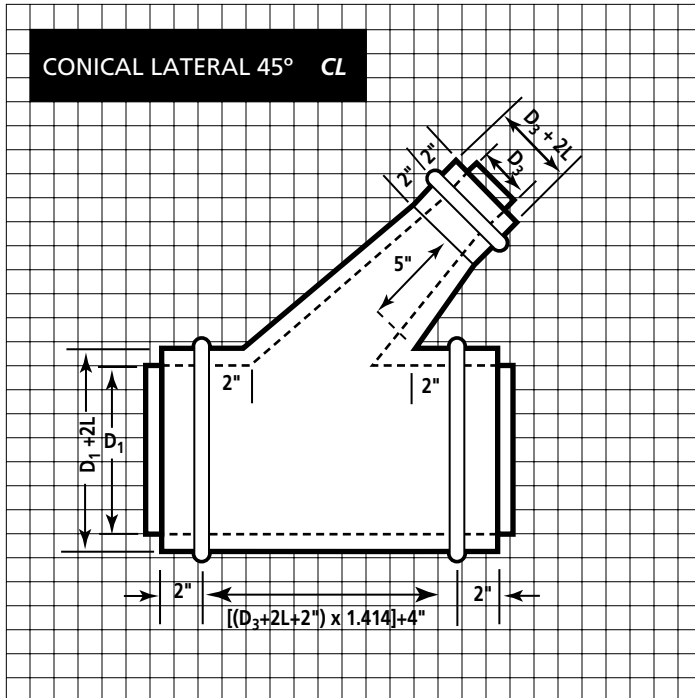
L = Liner Thickness





Double Wall Round CONICAL LATERALS

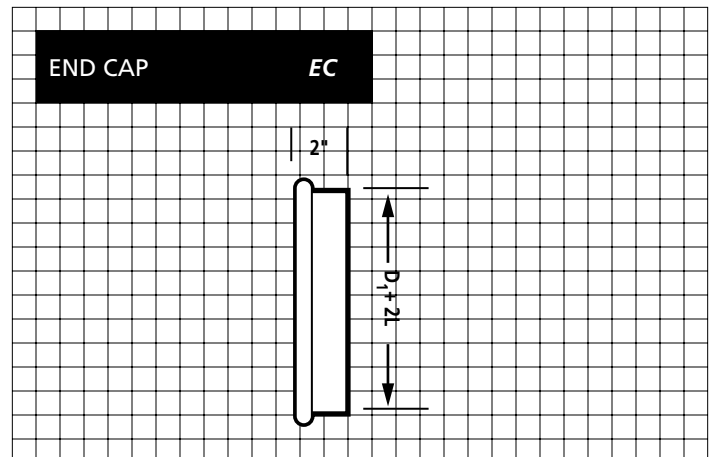
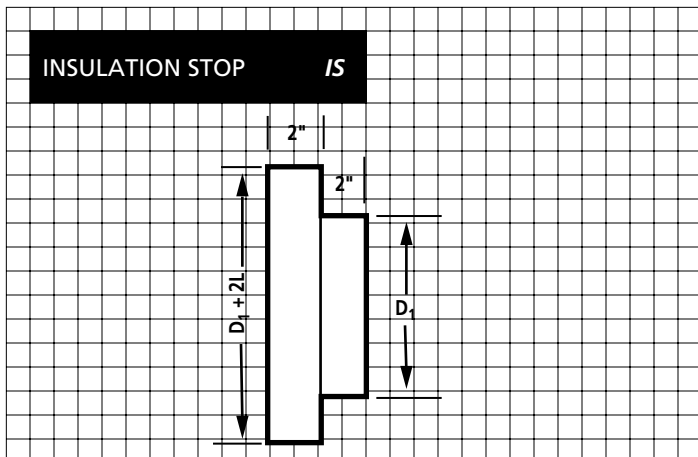
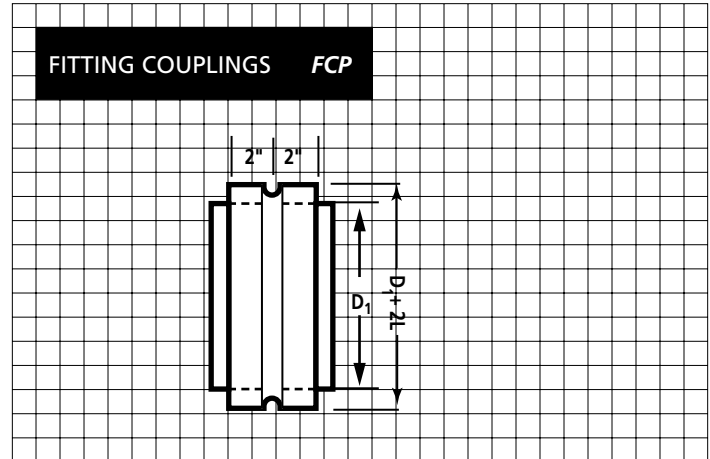
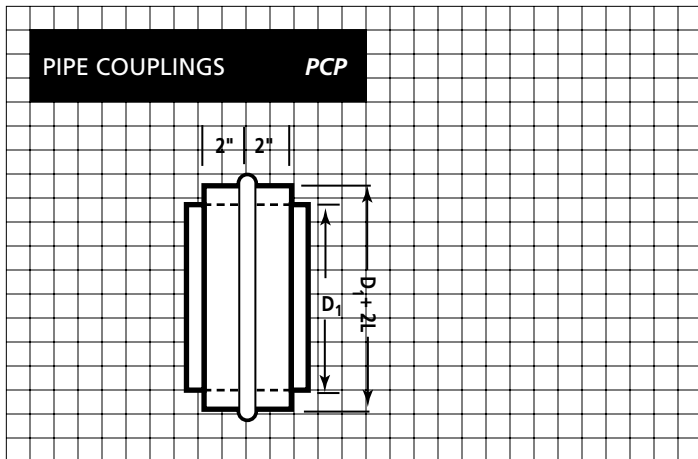
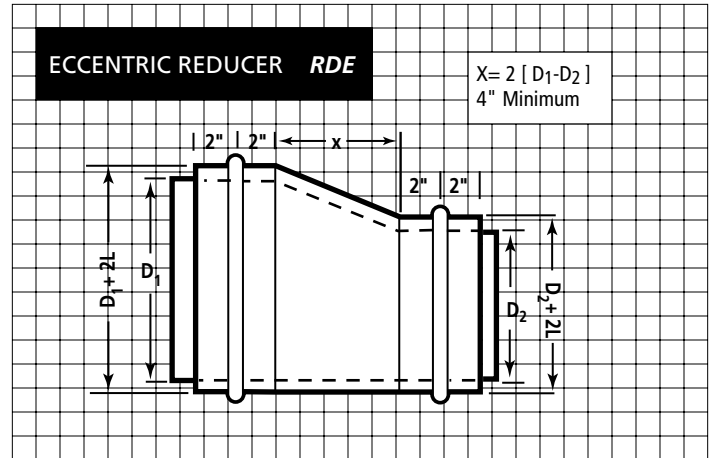
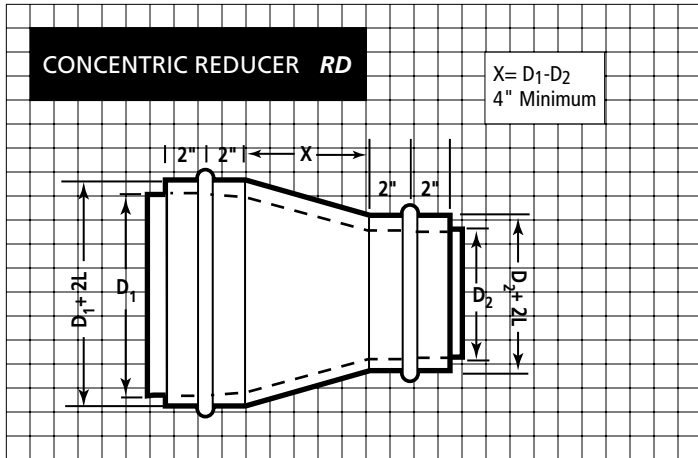
L = Liner Thickness





Double Wall Round MISCELLANEOUS

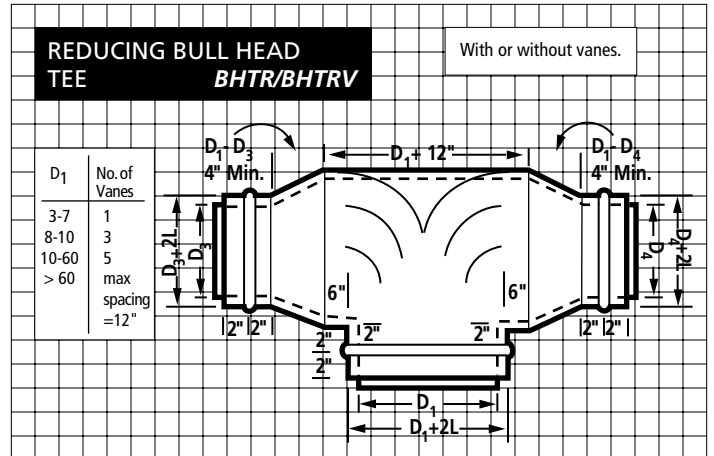
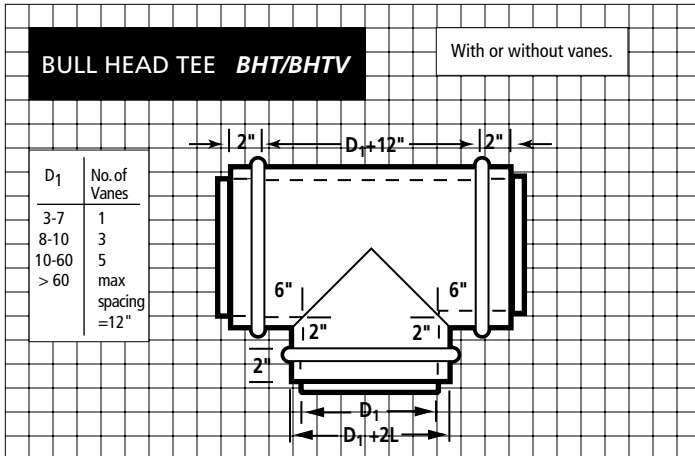
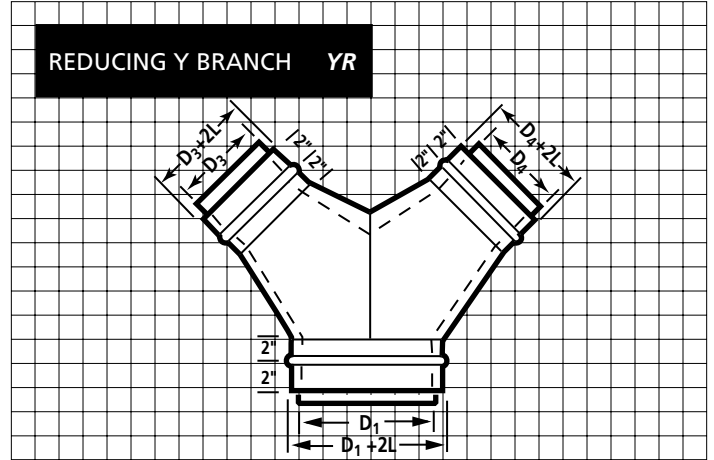
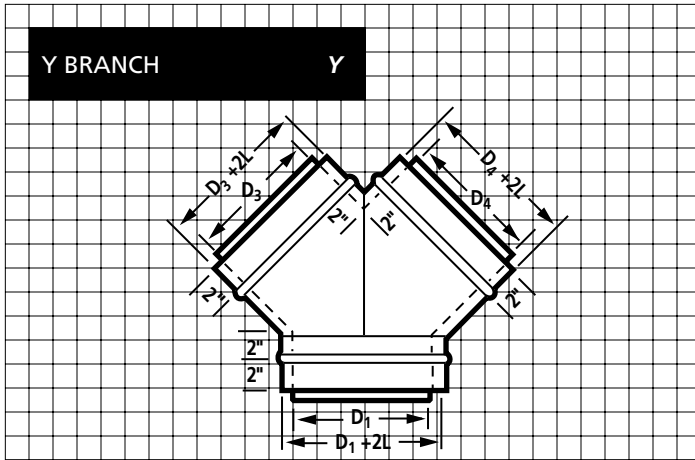
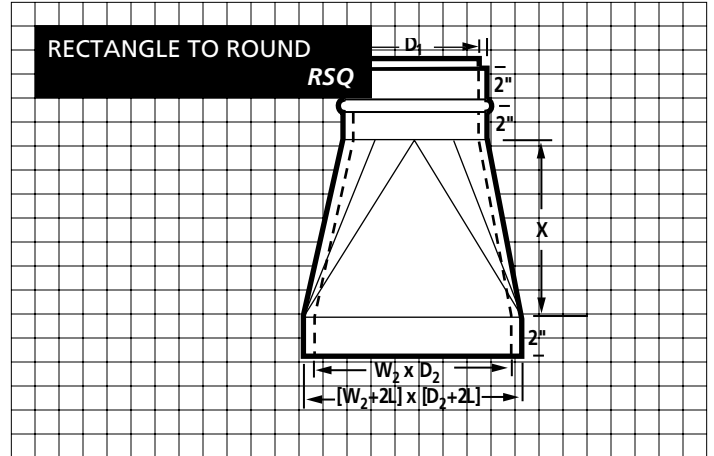
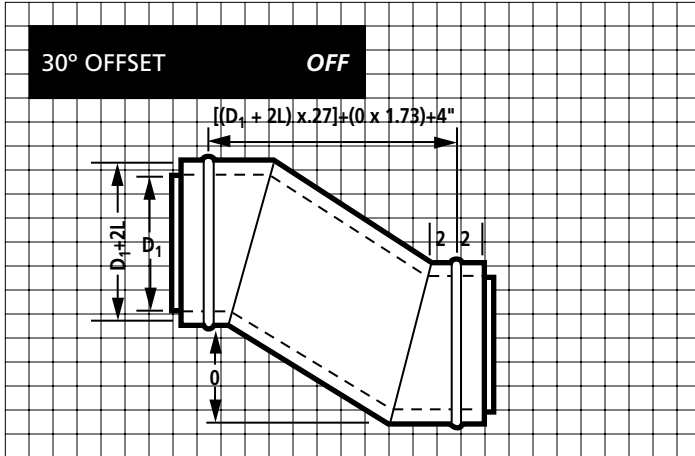
L = Liner Thickness





Double Wall Round MISCELLANEOUS

L = Liner Thickness





Double Wall Round 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.

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"

SPUN BELL MOUTH **SB**

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

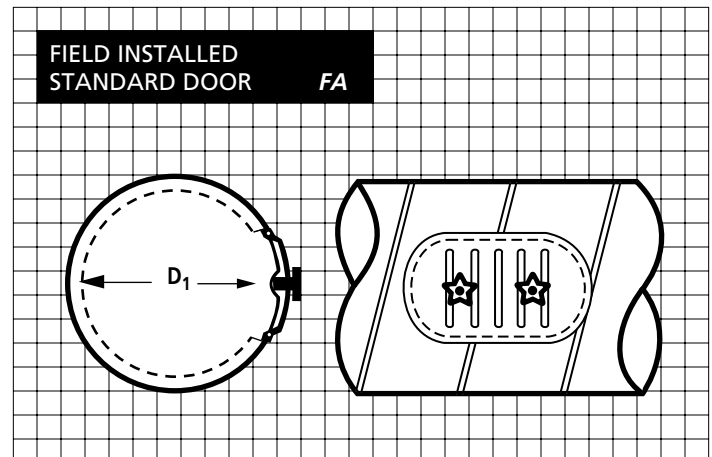
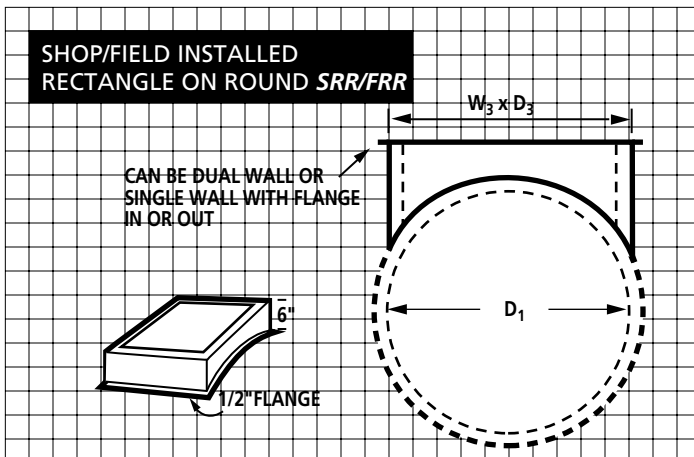
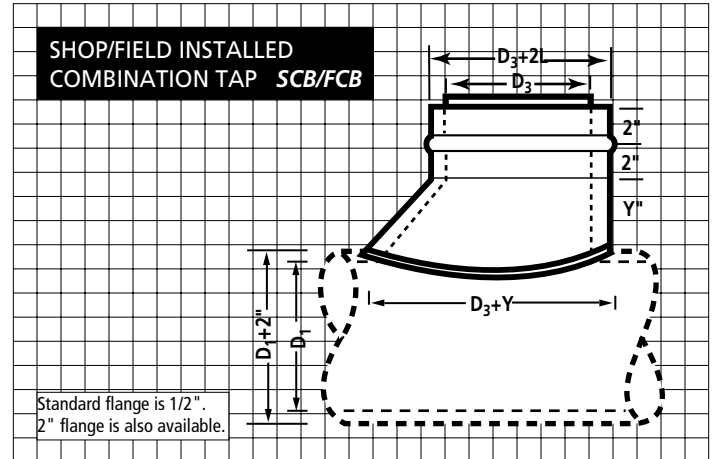
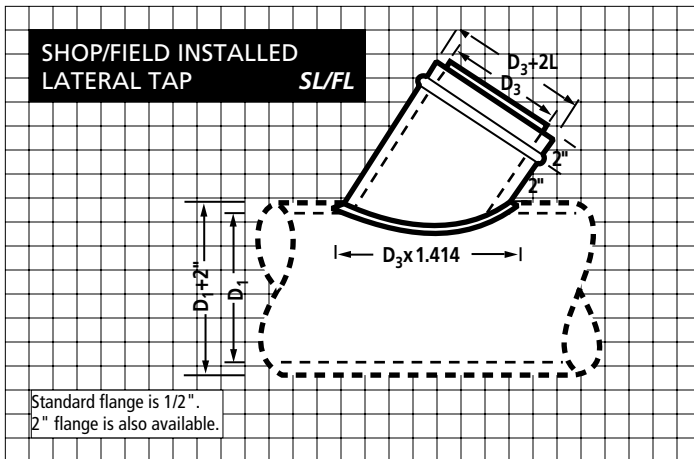
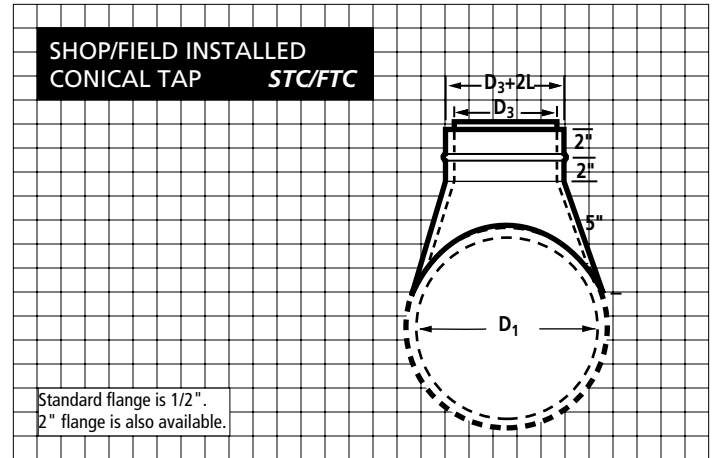
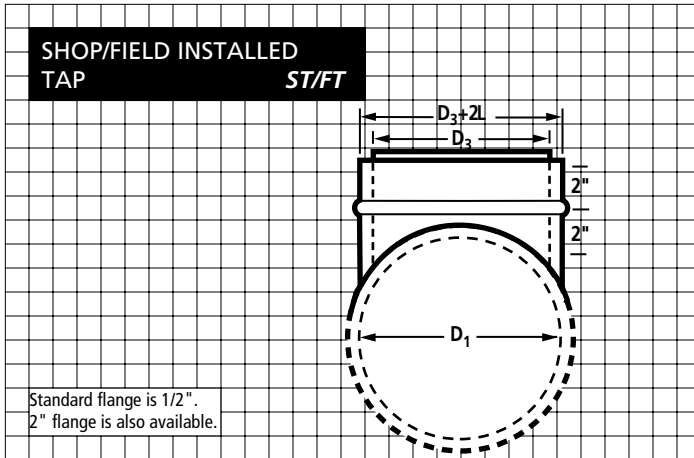
D ₁	D ₂	L
13"	15"	3½"
14"	16"	3½"
15"	17"	3½"
16"	18"	3½"
17"	19"	3½"
18"	20"	3½"
19"	21"	3½"
20"	22"	3½"
21"	23"	3½"
22"	24"	3½"
23"	25"	3½"
24"	26"	3½"
26"	28"	3½"
28"	30"	3½"
30"	32"	3½"
32"	34"	3½"
34"	36"	3½"
36"	38"	3½"
38"	40"	3½"
40"	42"	3½"
42"	44"	3½"
44"	46"	3½"
46"	48"	3½"
48"	50"	3½"
50"	52"	3½"
52"	54"	3½"
54"	56"	3½"
56"	58"	3½"
56"	60"	3½"
60"	62"	3½"



Double Wall Round ACCESSORIES

SHOP INSTALLED/ FIELD INSTALLED

L = Liner Thickness





Double Wall Round INSTALLATION

DUAL WALL SLIP FIT

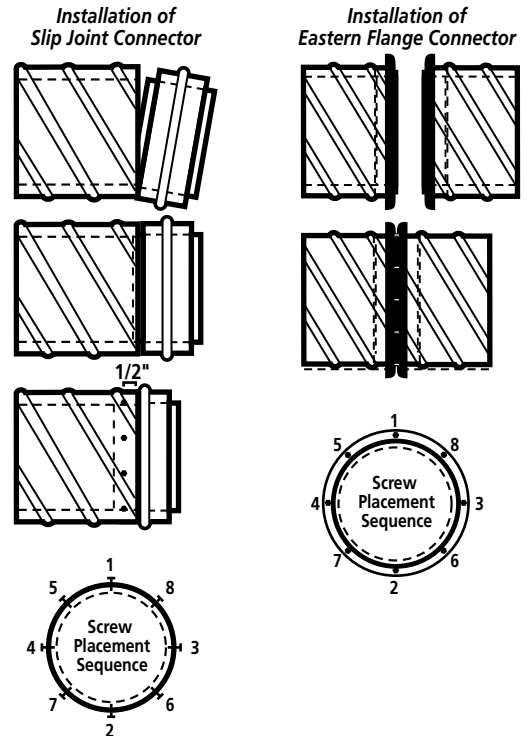
The inner and outer collars of Eastern Sheet Metal fittings are sized to slip into, and should be used with, Eastern Sheet Metal spiral duct. The inner collar projects beyond the outer collar. This permits the inner collar to be started into the inner liner of the spiral duct in a manner similar to the 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. Skip this step if installing Eastern Tight fittings.
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 61" in diameter, 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 at right. 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.



Double Wall Round SOUND DATA

INSERTION LOSS TESTING

Insertion loss testing for ESM Double Wall Spiral Pipe was conducted by the Center for Mechanical System Technology at the University of Nevada Las Vegas. Test results for 1" liner and 2" liner are shown below.

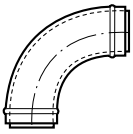
Insertion Loss = dB/ft

Diameter in.	Liner Thickness = 1"							
	Octave Band Center Frequency - Hz							
	63	125	250	500	1000	2000	4000	8000
12	0.07	0.34	1.01	1.75	3.83	3.04	2.06	1.62
14	0.07	0.30	0.92	1.67	3.57	2.80	1.99	1.62
16	0.06	0.26	0.84	1.61	3.34	2.59	1.93	1.60
18	0.06	0.22	0.77	1.54	3.12	2.40	1.87	1.59
20	0.05	0.19	0.70	1.48	2.91	2.24	1.82	1.57
22	0.05	0.16	0.64	1.42	2.72	2.10	1.78	1.55
24	0.04	0.14	0.58	1.37	2.55	1.98	1.74	1.52
26	0.04	0.11	0.53	1.31	2.39	1.88	1.70	1.49
28	0.03	0.10	0.48	1.26	2.25	1.80	1.66	1.46
30	0.03	0.08	0.44	1.21	2.11	1.73	1.63	1.42
32	0.02	0.07	0.40	1.17	1.99	1.67	1.60	1.39
34	0.02	0.05	0.36	1.12	1.88	1.63	1.58	1.35
36	0.01	0.04	0.33	1.07	1.78	1.59	1.55	1.31
38	0.01	0.04	0.30	1.03	1.69	1.57	1.53	1.26
40	0.01	0.03	0.28	0.99	1.60	1.55	1.50	1.22
42	0.00	0.02	0.25	0.94	1.53	1.53	1.48	1.17
44	0.00	0.02	0.23	0.90	1.46	1.52	1.45	1.12
46	0.00	0.02	0.21	0.85	1.39	1.52	1.43	1.07
48	0.00	0.01	0.20	0.80	1.33	1.51	1.40	1.02
50	0.00	0.01	0.18	0.75	1.27	1.50	1.38	0.97
52	0.00	0.01	0.16	0.71	1.22	1.48	1.35	0.92
54	0.00	0.01	0.15	0.65	1.17	1.46	1.31	0.87
56	0.00	0.01	0.13	0.60	1.12	1.44	1.28	0.81
58	0.00	0.00	0.12	0.54	1.07	1.40	1.24	0.76
60	0.00	0.00	0.10	0.48	1.02	1.36	1.20	0.71
62	0.00	0.00	0.08	0.42	0.97	1.30	1.15	0.66
64	0.00	0.00	0.06	0.36	0.91	1.23	1.10	0.61
66	0.00	0.00	0.05	0.29	0.86	1.15	1.04	0.56
68	0.00	0.00	0.02	0.21	0.79	1.04	0.97	0.51
70	0.00	0.00	0.00	0.13	0.73	0.92	0.90	0.46
72	0.00	0.00	0.00	0.05	0.66	0.78	0.83	0.41

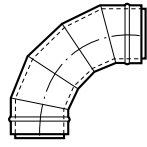
Diameter in.	Liner Thickness = 2"							
	Octave Band Center Frequency - Hz							
	63	125	250	500	1000	2000	4000	8000
12	0.15	0.52	1.58	2.75	3.83	3.04	2.06	1.62
14	0.15	0.47	1.49	2.68	3.57	2.80	1.99	1.62
16	0.14	0.43	1.41	2.61	3.34	2.59	1.93	1.60
18	0.14	0.40	1.34	2.55	3.12	2.40	1.87	1.59
20	0.13	0.37	1.27	2.48	2.91	2.24	1.82	1.57
22	0.12	0.34	1.21	2.43	2.72	2.10	1.78	1.55
24	0.12	0.31	1.15	2.37	2.55	1.98	1.74	1.52
26	0.11	0.29	1.10	2.32	2.39	1.88	1.70	1.49
28	0.11	0.27	1.05	2.27	2.25	1.80	1.66	1.46
30	0.11	0.25	1.01	2.22	2.11	1.73	1.63	1.42
32	0.10	0.24	0.97	2.17	1.99	1.67	1.60	1.39
34	0.10	0.23	0.93	2.12	1.88	1.63	1.58	1.35
36	0.09	0.22	0.90	2.08	1.78	1.59	1.55	1.31
38	0.09	0.21	0.87	2.03	1.69	1.57	1.53	1.26
40	0.09	0.20	0.85	1.99	1.60	1.55	1.50	1.22
42	0.08	0.20	0.83	1.95	1.53	1.53	1.48	1.17
44	0.08	0.19	0.80	1.90	1.46	1.52	1.45	1.12
46	0.08	0.19	0.79	1.85	1.39	1.52	1.43	1.07
48	0.08	0.19	0.77	1.81	1.33	1.51	1.40	1.02
50	0.07	0.19	0.75	1.76	1.27	1.50	1.38	0.97
52	0.07	0.19	0.73	1.71	1.22	1.48	1.35	0.92
54	0.07	0.18	0.72	1.66	1.17	1.46	1.31	0.87
56	0.07	0.18	0.70	1.60	1.12	1.44	1.28	0.81
58	0.07	0.18	0.69	1.55	1.07	1.40	1.24	0.76
60	0.06	0.18	0.67	1.49	1.02	1.36	1.20	0.71
62	0.06	0.17	0.66	1.43	0.97	1.30	1.15	0.66
64	0.06	0.17	0.64	1.36	0.91	1.23	1.10	0.61
66	0.06	0.16	0.62	1.29	0.86	1.15	1.04	0.56
68	0.06	0.15	0.60	1.22	0.79	1.04	0.97	0.51
70	0.06	0.14	0.57	1.14	0.73	0.92	0.90	0.46
72	0.06	0.13	0.55	1.06	0.66	0.78	0.83	0.41



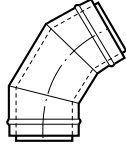
Double Wall ROUND



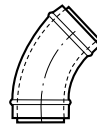
PE90



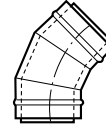
E90



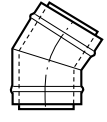
E60



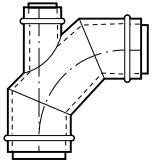
PE45



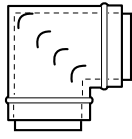
E45



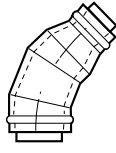
E22/E30



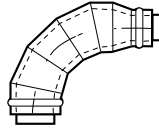
E90L



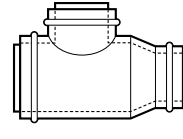
E290/EV290



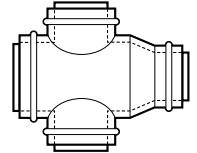
E45R



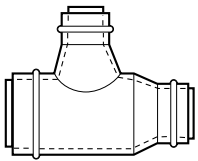
E90R



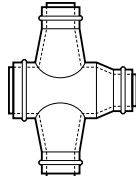
TR



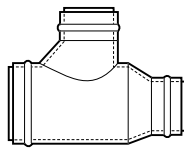
TRX



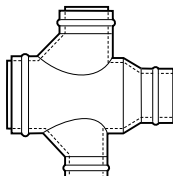
CTR



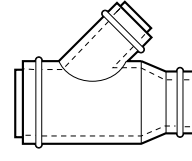
CTRX



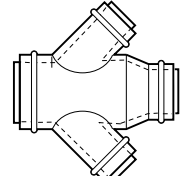
CBR



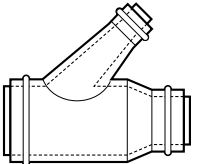
CBRX



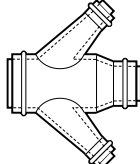
LR



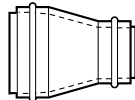
LRX



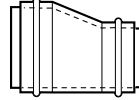
CLR



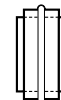
CLRX



RD



RDE



PCP



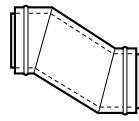
FCP



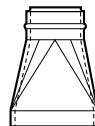
IS



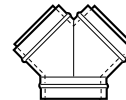
EC



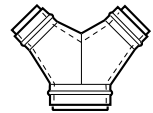
OFF



RSQ



Y



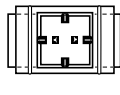
YR



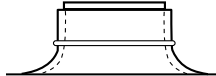
BHTR/BHTRV



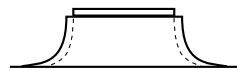
AXRT



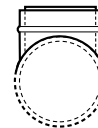
PB



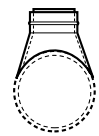
SB



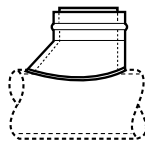
ST/FT



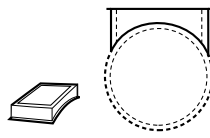
STC/FC



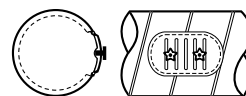
SL/FL



SCB/FCB



SRR/FRR



FA