

Double Wall Round Spiral Duct and Fittings Construction Standards

Positive Pressure

Gauge selection for G90 galvanized steel (ASTM A653), paint grip steel (A40), type 304 stainless steel, and poly coated steel (PCS/PVC).*

Fittings are spot welded and/or gorelocked through 40" diameter. All larger fittings are continuously welded except for PCS/PVC fittings. All fittings can be provided as continuously welded if required.

Duct Diameter	2005 SMACNA 10" WG		1995 SMACNA 2" WG		1995 SMACNA 10" WG	
	Spiral Pipe	Fittings	Spiral Pipe	Fittings	Spiral 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
12"	26	26	26	26	26	24
14"	26	26	26	26	26	24
16"	26	26	24	24	24	22
18"	26	26	24	24	24	22
20"-24"	26	24	24	24	24	22
26"	24	22	24	24	24	22
28"-36"	24	22	24	22	22	20
38"-42"	24	22	22	20	22	20
44"-48"	22	20	22	20	20	20
50"	22	20	22	20	20	20
52"-60"	22	20	20	18	18	18
62"-66"	22	18	18	16	18	16
68"-84"	20	18	18	16	18	16

Duct Diameter	2005 SMACNA 10" WG		1995 SMACNA 2" WG		1995 SMACNA 10" WG	
	Spiral Pipe	Fittings	Spiral Pipe	Fittings	Spiral Pipe	Fittings
3"-8"	26	26	26	24	26	20
9"-14"	26	26	26	24	26	20
16"-26"	24	24	24	22	24	20
28"-36"	24	22	22	20	22	20
38"-50"	22	20	20	20	20	18
52"-60"	20	18	18	18	18	18
62"-84"	18	16	18	16	18	16

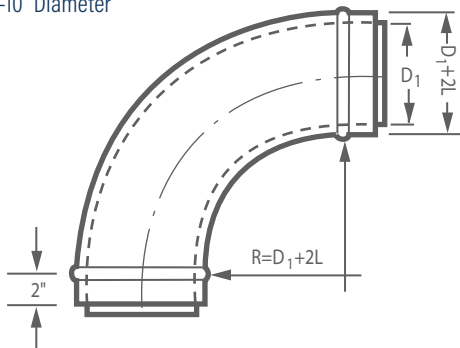
Gauge selection for aluminum type 3003.

Fittings are spot welded and/or gorelocked through 40" diameter. All larger fittings are continuously welded. All fittings can be provided as continuously welded if required.

Duct Diameter	2005 SMACNA 10" WG: POSITIVE		2005 SMACNA 2" WG: NEGATIVE	
	Spiral Pipe	Fittings	Spiral Pipe	Fittings
3"-8"	0.025"	0.032"	0.025"	0.040"
9"-14"	0.025"	0.032"	0.032"	0.040"
16"-26"	0.032"	0.040"	0.040"	0.050"
28"-36"	0.040"	0.050"	0.050"	0.063"
38"-50"	0.050"	0.063"	0.063"	0.071"
52"-60"	0.063"	0.071"	consult factory	0.090"
62"-84"	consult factory	0.090"	consult factory	consult factory

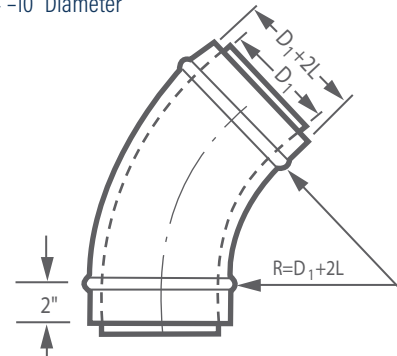
90° Pressed Elbow

4"-10" Diameter

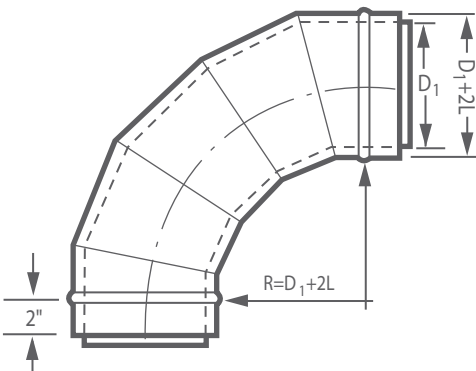


45° Pressed Elbow

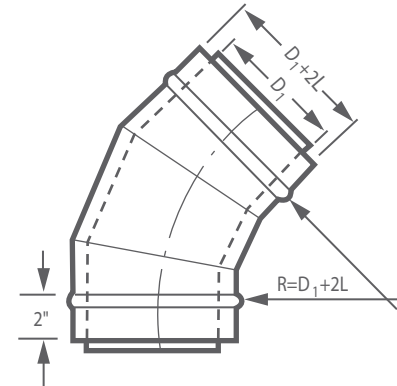
4"-10" Diameter



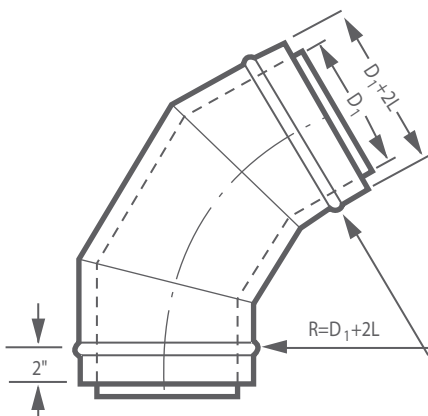
90° 5-Piece Gored Elbow



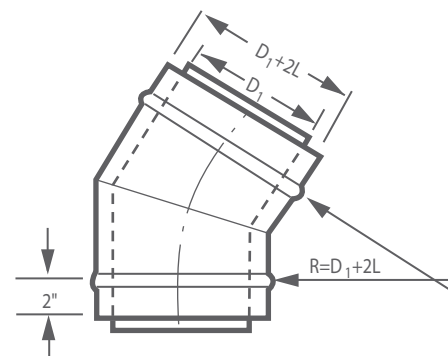
45° 3-Piece Gored Elbow



60° 3-Piece Gored Elbow

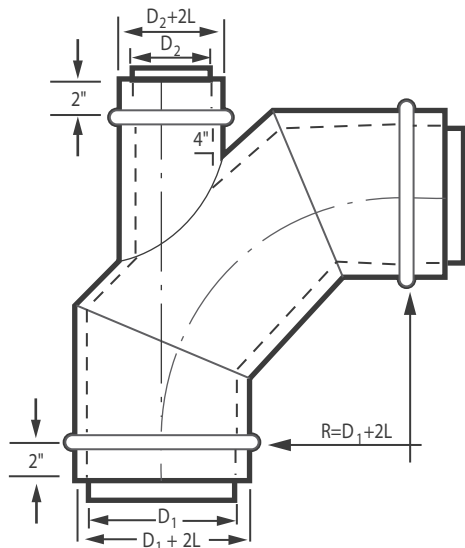


22½° and 30° 2-Piece Gored Elbow

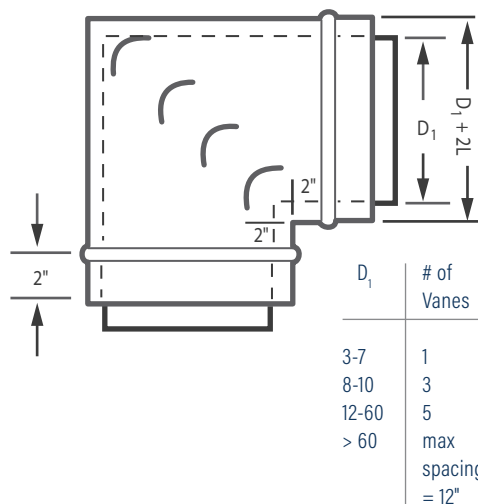


Elbows

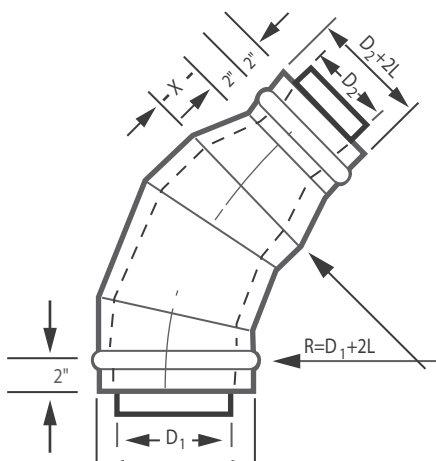
90° 3-Piece Elbow with Heel Tap



90° 2-Piece Mitered Elbow

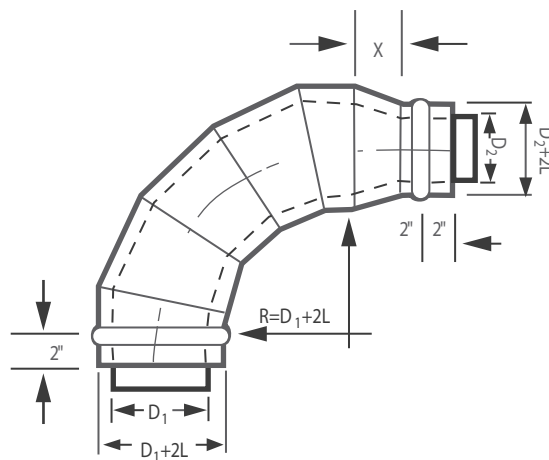


45° 3-Piece Elbow with Reducer



$X = D_1 - D_2$
4" Minimum

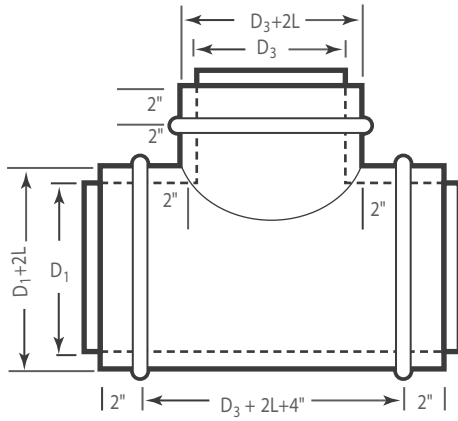
90° 5-Piece Elbow with Reducer



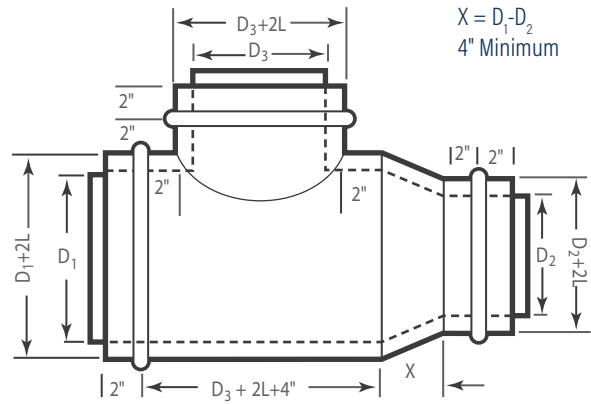
$X = D_1 - D_2$
4" Minimum

Straight Tees

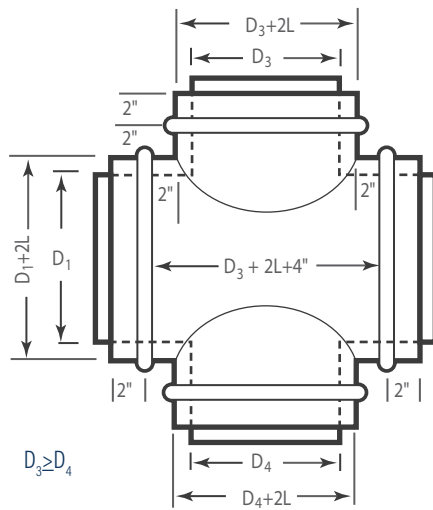
Tee



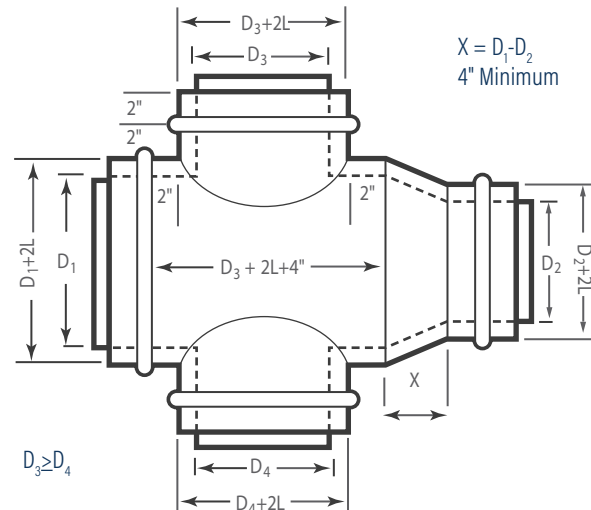
Reducing Tee



Cross Tee

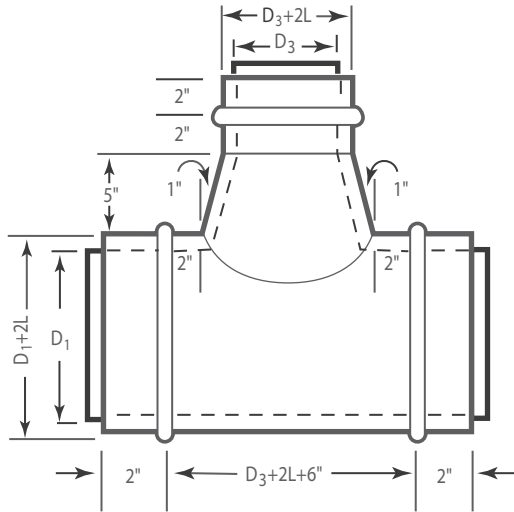


Reducing Cross Tee

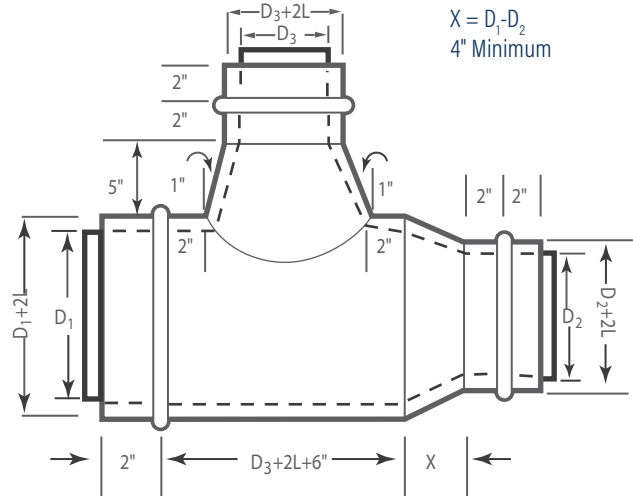


Conical Tees

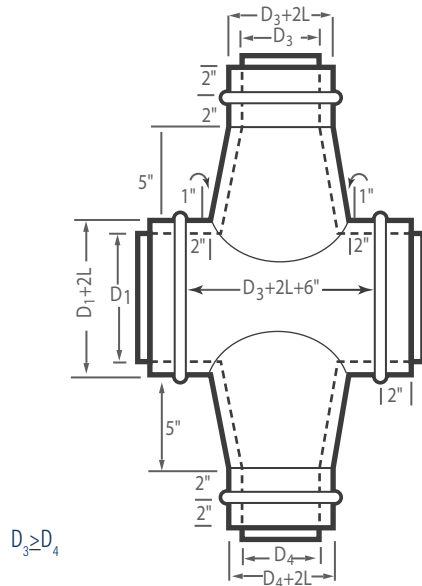
Conical Tee



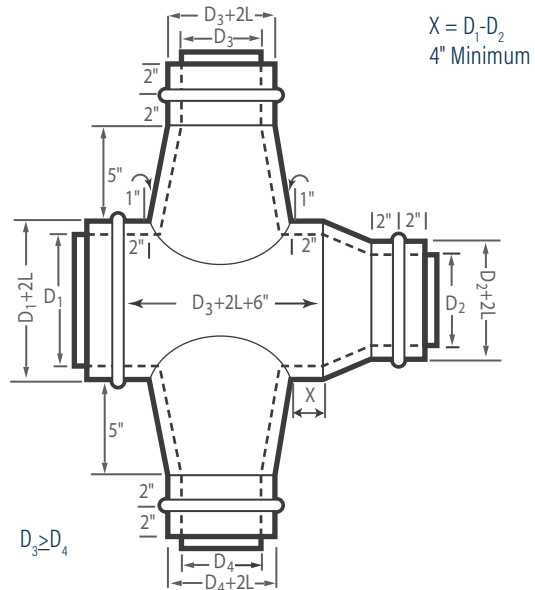
Reducing Conical Tee



Conical Cross Tee

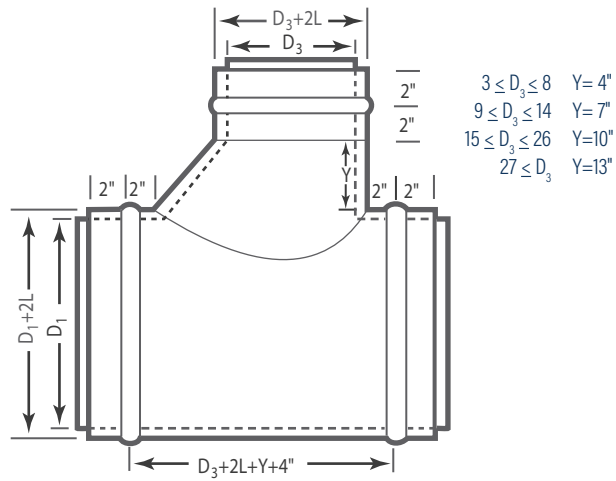


Reducing Conical Cross Tee

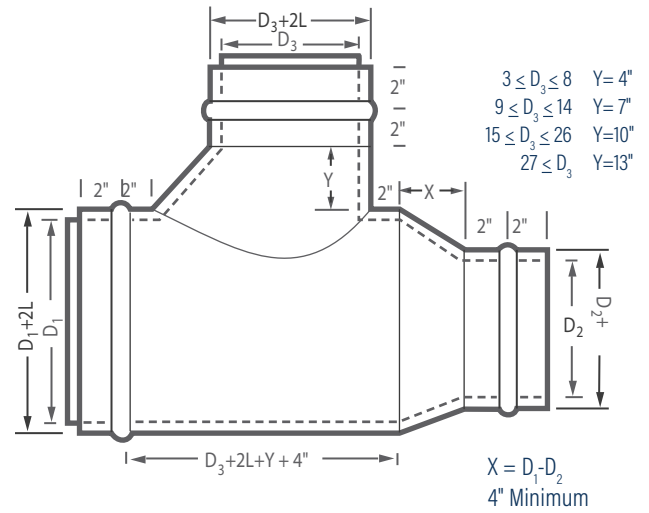


Combination Tees

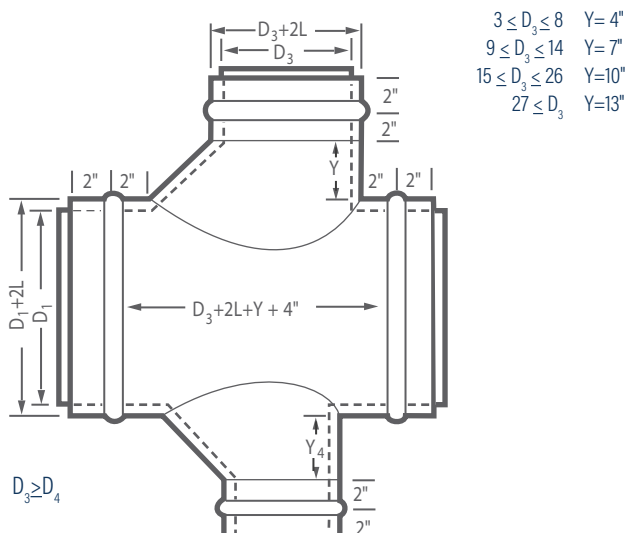
Combination Tee



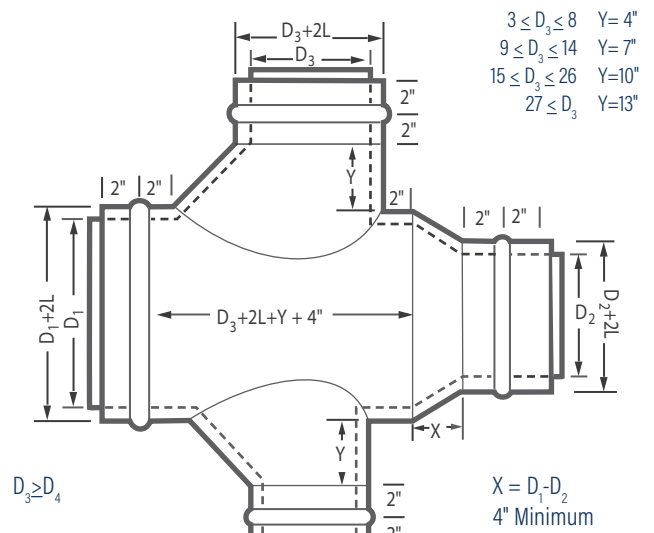
Reducing Combination Tee



Combination Cross

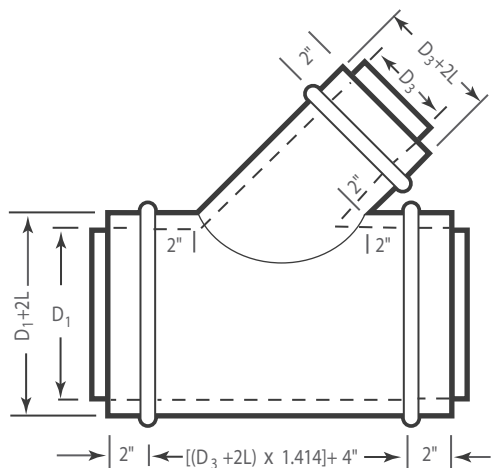


Reducing Combination Cross

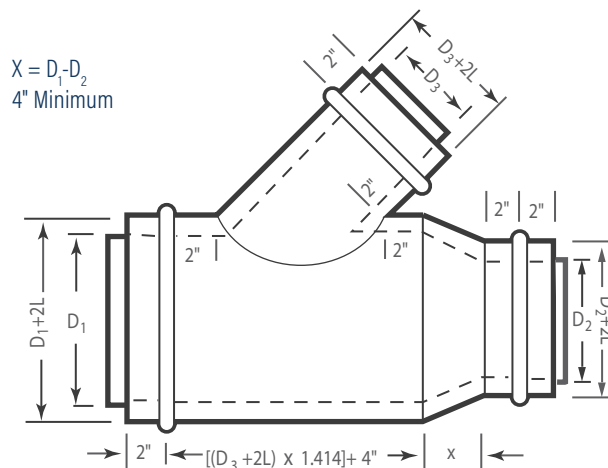


Straight Laterals

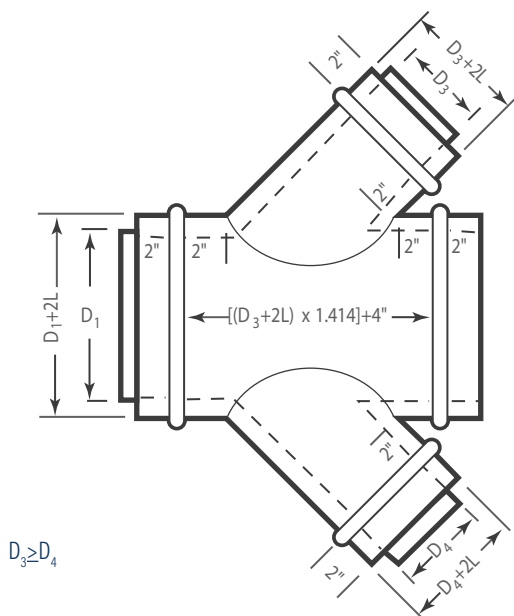
Lateral 45°



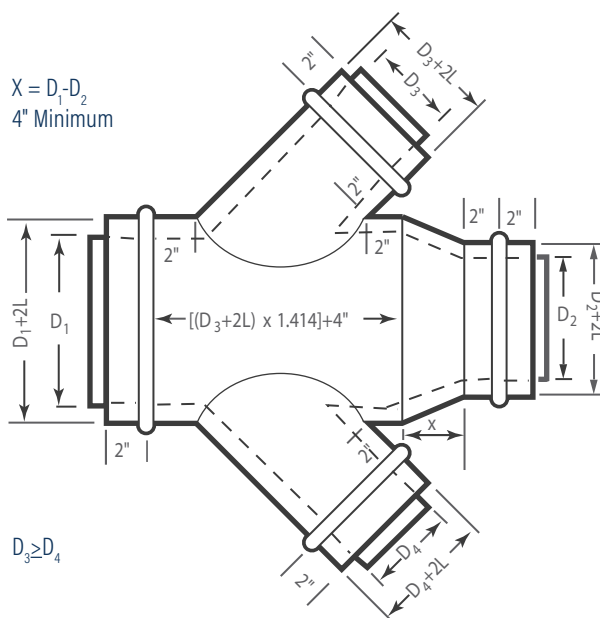
Reducing Lateral 45°



Lateral Cross 45°

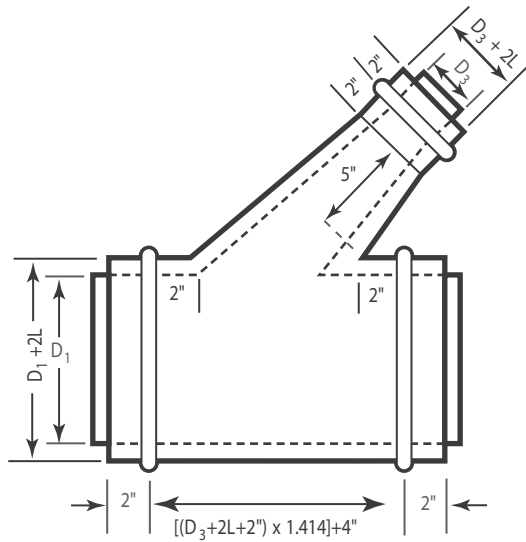


Reducing 45° Lateral Cross

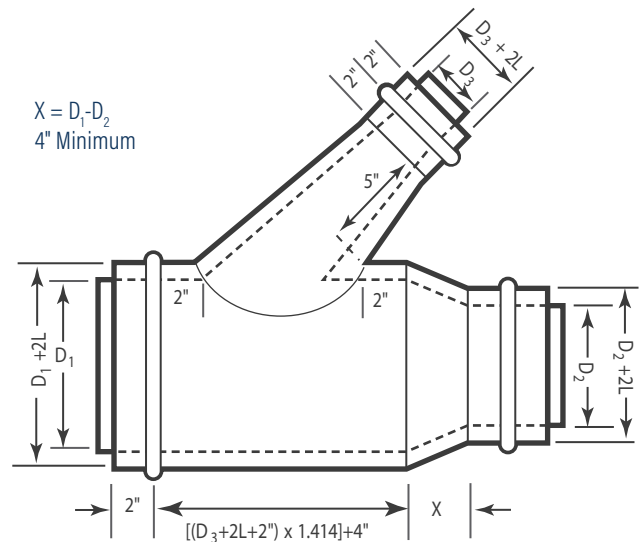


Conical Laterals

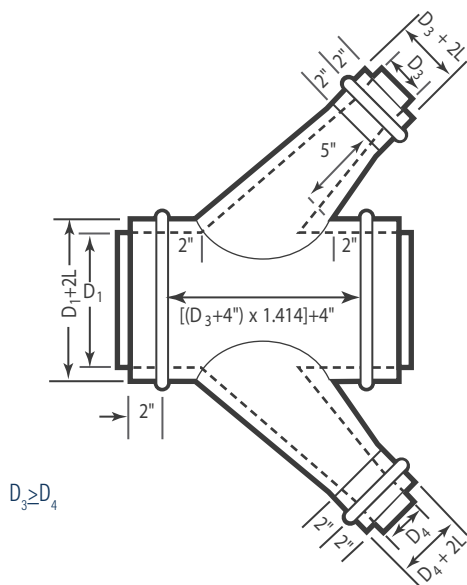
Conical Lateral 45°



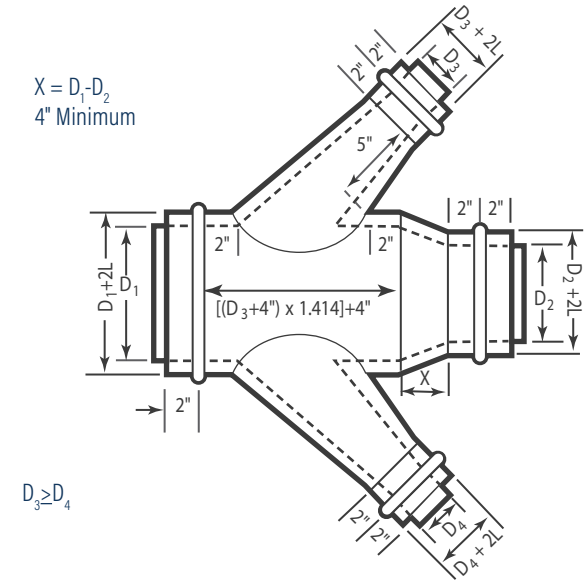
Reducing Conical Lateral 45°



Conical Lateral 45° Cross

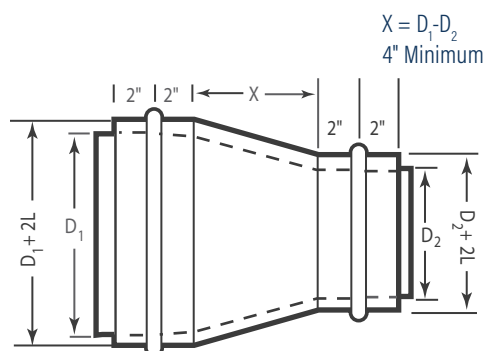


Reducing Conical 45° Lateral Cross

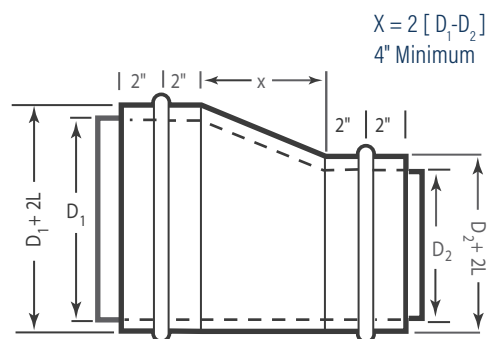


Miscellaneous

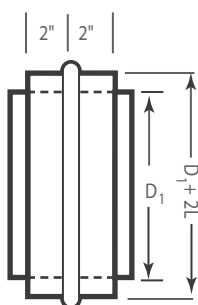
Concentric Reducer



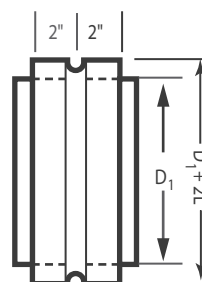
Eccentric Reducer



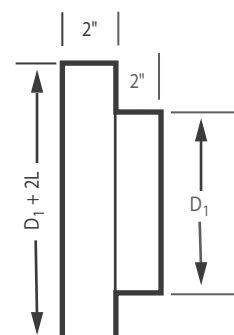
Pipe Couplings



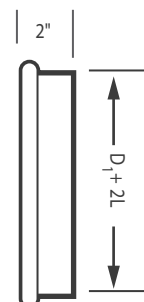
Fitting Couplings



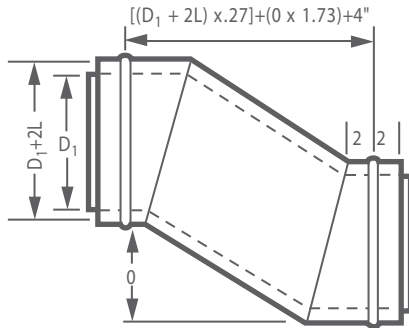
Insulation Stop



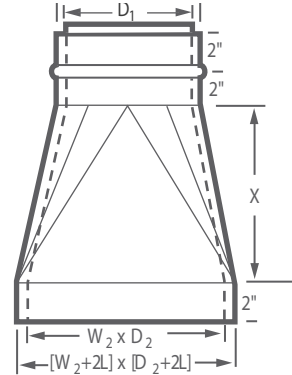
End Cap



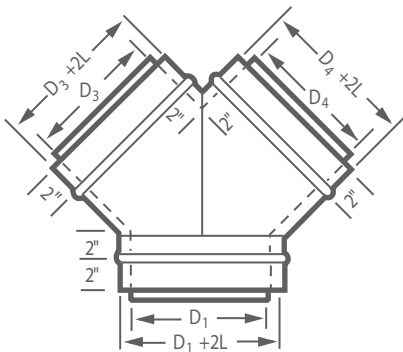
30° Offset



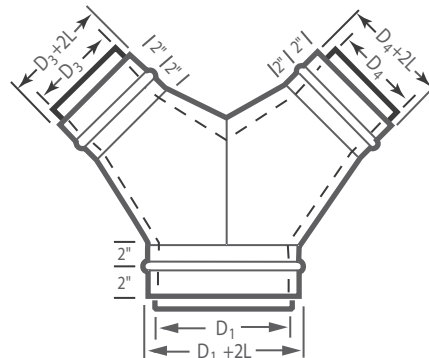
Rectangle to Round



Wye Branch

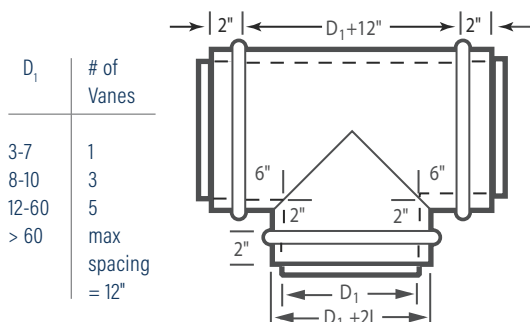


Reducing Wye Branch



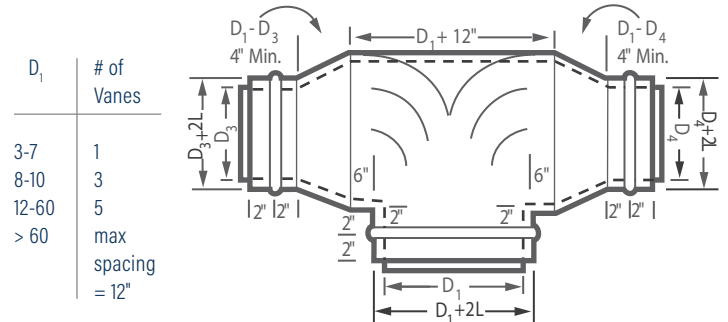
Bullhead Tee

With or without vanes



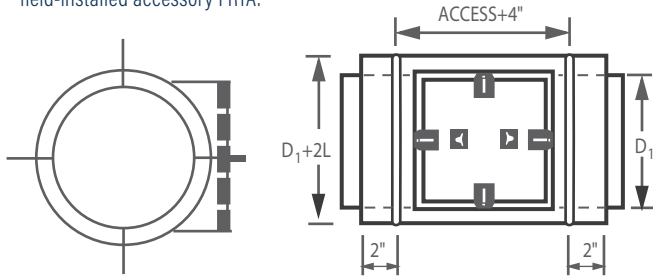
Reducing Bullhead Tee

With or without vanes



Rectangular Access Section

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

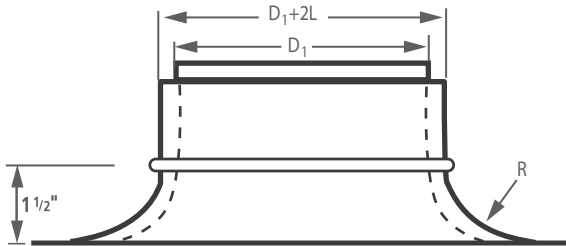


D ₁	Access Size
8" to 12"	8" x 8"
13" to 17"	12" x 12"
18" and over	18" x 18"

Negative and positive pressure.

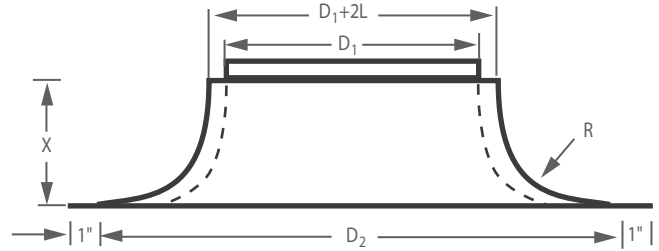
Pressed Bellmouth

Galvanized only



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 Bellmouth



STANDARD BELLMOUTH

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"
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 BELLMOUTH

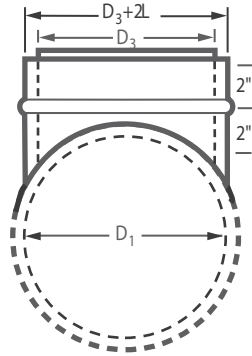
D ₁	D ₂	L
12"	14"	3 1/2"
14"	16"	3 1/2"
16"	18"	3 1/2"
18"	20"	3 1/2"
20"	22"	3 1/2"
22"	24"	3 1/2"
24"	26"	3 1/2"
26"	28"	3 1/2"
28"	30"	3 1/2"
30"	32"	3 1/2"
32"	34"	3 1/2"
34"	36"	3 1/2"
36"	38"	3 1/2"
38"	40"	3 1/2"
40"	42"	3 1/2"
42"	44"	3 1/2"
44"	46"	3 1/2"
46"	48"	3 1/2"
48"	40"	3 1/2"
50"	52"	3 1/2"
52"	54"	3 1/2"
54"	56"	3 1/2"
56"	58"	3 1/2"
58"	60"	3 1/2"
60"	62"	3 1/2"

Accessories

Shop Installed / Field Installed

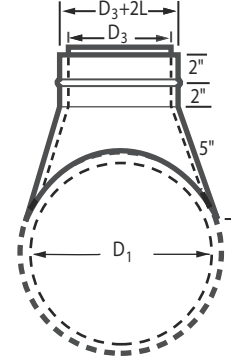
Shop/Field Installed Tap

Standard flange is $\frac{1}{2}$ ".
2" flange is also available.



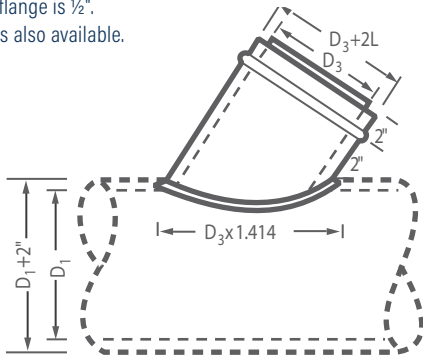
Shop/Field Installed Conical Tap

Standard flange is $\frac{1}{2}$ ".
2" flange is also available.



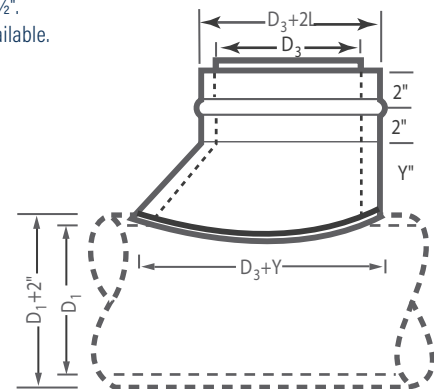
Shop/Field Installed Lateral Tap

Standard flange is $\frac{1}{2}$ ".
2" flange is also available.

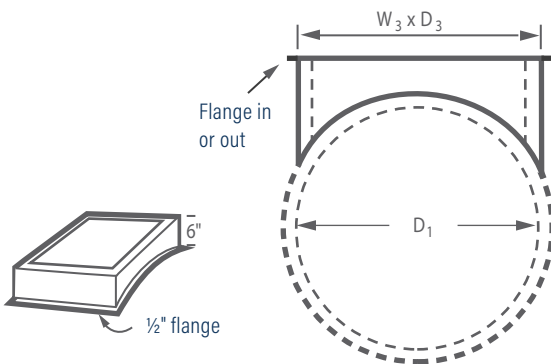


Shop/Field Installed Combination Tap

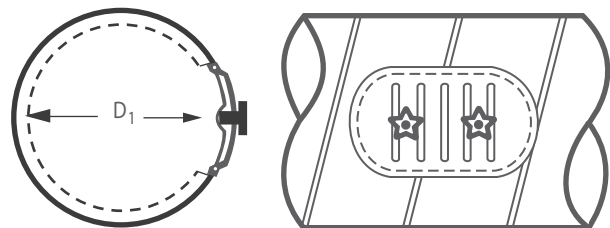
Standard flange is $\frac{1}{2}$ ".
2" flange is also available.



Shop/Field Rectangle on Round



Field Installed Standard Door



Installation

DUAL WALL SLIP FIT

The inner and outer collars of fittings are sized to slip into, and should be used with, Corken Steel 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 handling and installation to avoid dents and distortions that can cause improper fit or difficult installation.

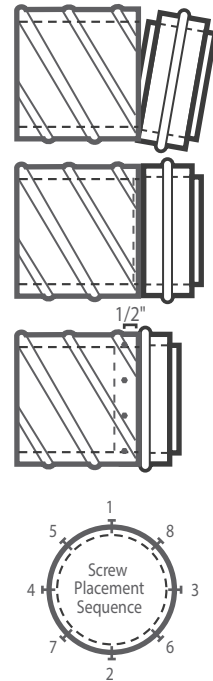
1. Bring the bottom of the inner fitting collar into the inner spiral duct at a slight angle.
2. Work the rest of the inner collar into the spiral duct.
3. When the inner collar is fully inserted, start the outer collar in the same manner.
4. Carefully work the rest of the collar into the spiral duct 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 $\frac{1}{2}$ " back from the stop bead. Placement of the screws should be opposite of each other as demonstrated in the diagram.

FLANGE

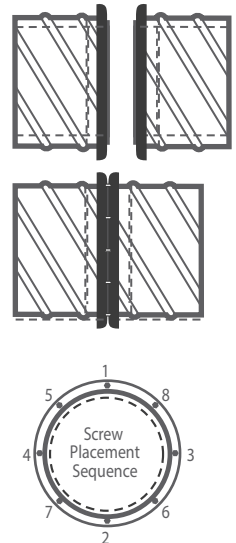
Flanges come factory-mounted on fittings and spiral duct. Flanges are standard for all duct 61" in diameter, but are available in smaller sizes. Dual wall flanges attach to both the outer wall and inner wall of the duct, eliminating the need to make an inner connection.

1. Place closed cell neoprene gasket on the face of one of the mating 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.

Installation of
Slip Joint Connector



Installation of
Flange Connector



Duct Perimeter Round Equiv.	# of Screws	
	Slip Fit	Flange
4"-9"	3	NA
10"	3	4
12"-16"	3	6
18"-20"	4	8
22"-26"	5	10
28"-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

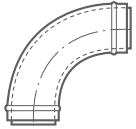
Insertion Loss Testing

Insertion loss testing for 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.

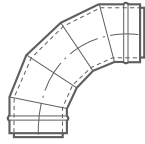
Insertion Loss = dB/ft

Dia. in.	LINER THICKNESS = 1"								LINER THICKNESS = 2"							
	Octave Band Center Frequency - Hz								Octave Band Center Frequency - Hz							
	63	125	250	500	1000	2000	4000	8000	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	0.15	0.52	1.58	2.75	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	0.15	0.47	1.49	2.68	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	0.14	0.43	1.41	2.61	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	0.14	0.40	1.34	2.55	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	0.13	0.37	1.27	2.48	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	0.12	0.34	1.21	2.43	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	0.12	0.31	1.15	2.37	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	0.11	0.29	1.10	2.32	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	0.11	0.27	1.05	2.27	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	0.11	0.25	1.01	2.22	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	0.10	0.24	0.97	2.17	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	0.10	0.23	0.93	2.12	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	0.09	0.22	0.90	2.08	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	0.09	0.21	0.87	2.03	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	0.09	0.20	0.85	1.99	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	0.08	0.20	0.83	1.95	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	0.08	0.19	0.80	1.90	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	0.08	0.19	0.79	1.85	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	0.08	0.19	0.77	1.81	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	0.07	0.19	0.75	1.76	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	0.07	0.19	0.73	1.71	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	0.07	0.18	0.72	1.66	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	0.07	0.18	0.70	1.60	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	0.07	0.18	0.69	1.55	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	0.06	0.18	0.67	1.49	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	0.06	0.17	0.66	1.43	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	0.06	0.17	0.64	1.36	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	0.06	0.16	0.62	1.29	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	0.06	0.15	0.60	1.22	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	0.06	0.14	0.57	1.14	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	0.06	0.13	0.55	1.06	0.66	0.78	0.83	0.41

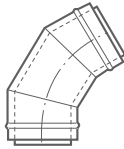
Fittings and Accessories



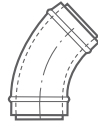
90° Pressed Elbow



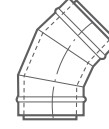
90° 5-Piece Elbow



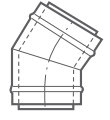
60° 3-Piece Elbow



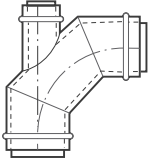
45° Pressed Elbow



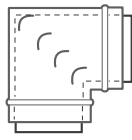
45° 3-Piece Elbow



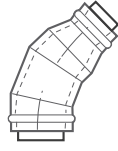
22½° and 30° 2-Pc. Elbow



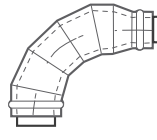
90° 3-Pc. Elbow
with Heel Tap



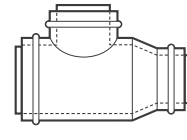
90° Mitered Elbow



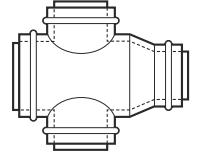
45° 3-Piece Elbow
with Reducer



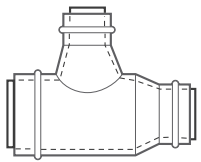
90° 5-Piece Elbow
with Reducer



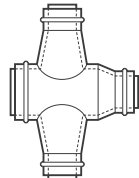
Reducing Tee



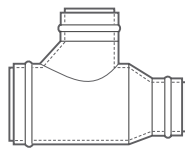
Reducing Tee Cross



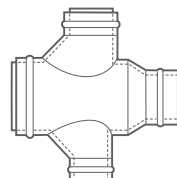
Reducing Conical Tee



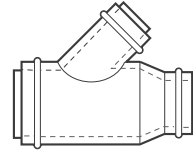
Reducing Conical
Cross



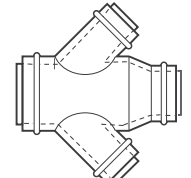
Reducing Conical
Tee



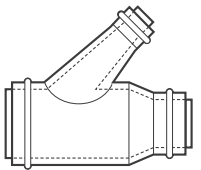
Reducing Combination
Cross



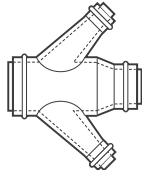
Reducing Lateral 45°



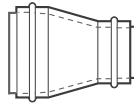
Reducing 45° Lateral
Cross



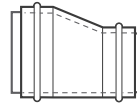
Reducing Conical
45° Lateral



Reducing Conical
45° Lateral Cross



Concentric Reducer



Eccentric Reducer



Pipe Coupling



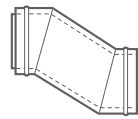
Fitting Coupling



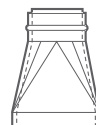
Insulation Stop



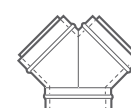
End Cap



30° Offset



Rectangle to Round



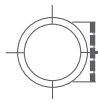
Wye



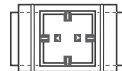
Reducing Wye



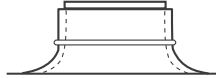
Reducing Bullhead
Tee



Rectangular Access
Section



Pressed Bellmouth



Spun Bellmouth



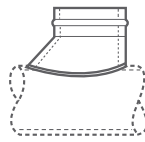
Shop/Field Installed
Tap



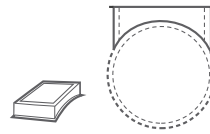
Shop/Field Installed
Conical Tap



Shop/Field Installed
Lateral Tap



Shop/Field Installed
Combination Tap



Shop/Field Installed
Rectangle on Round



Field Installed
Standard Door