



## Single Wall Round Spiral Duct and Fittings Construction Standards Positive Pressure

**Gauge selection for galvanized steel (ASTM A653), paint grip steel, 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.**

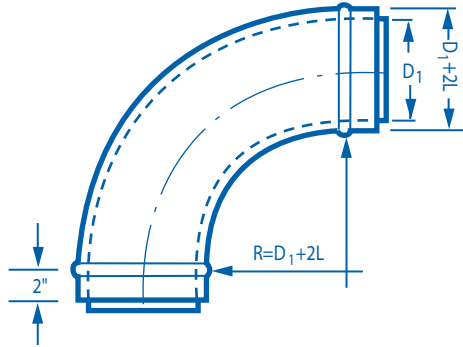
Fittings are spot welded and/or gorelocked through 40" diameter. All larger fittings are continuously welded. All fittings can be provided as continuously welded if required.

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



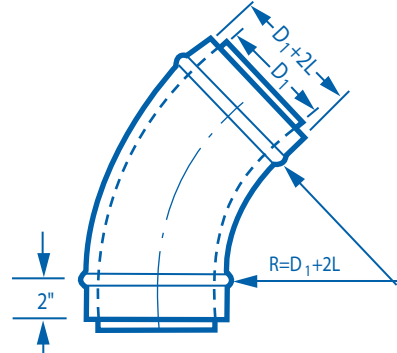
### 90° Pressed Elbow

4"-10" Diameter

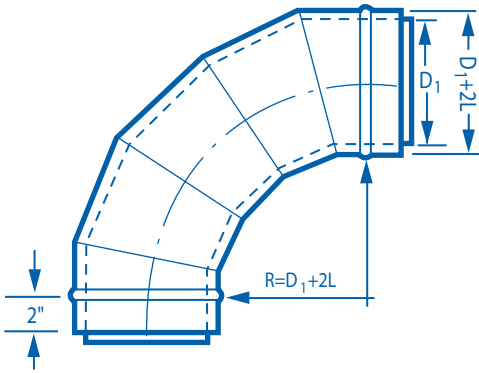


### 45° Pressed Elbow

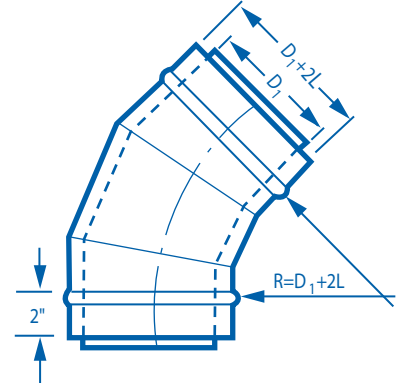
4"-10" Diameter



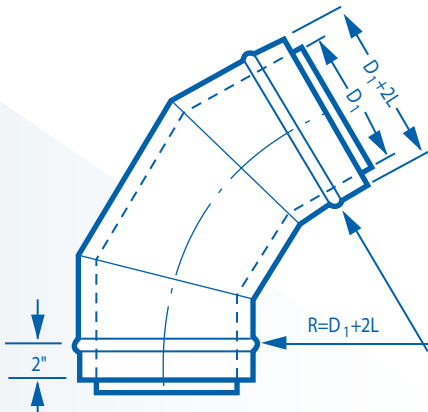
### 90° 5-Piece Gored Elbow



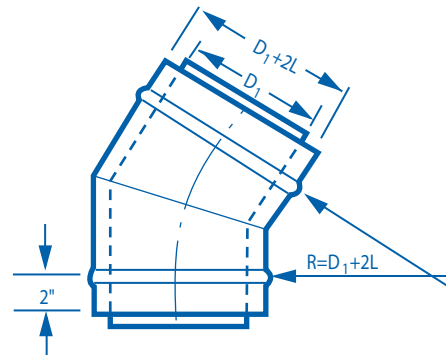
### 45° 3-Piece Gored Elbow



### 60° 3-Piece Gored Elbow

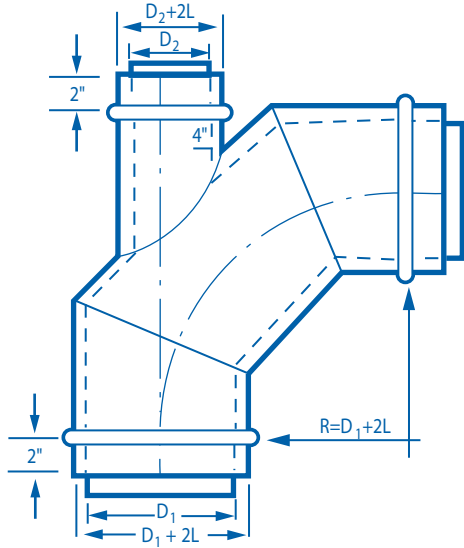


### 22½° and 30° 2-Piece Gored Elbow

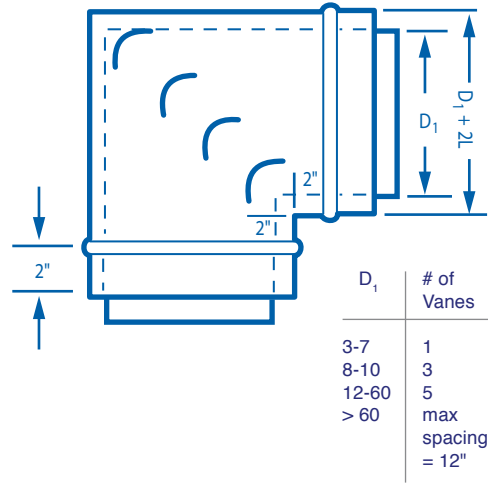




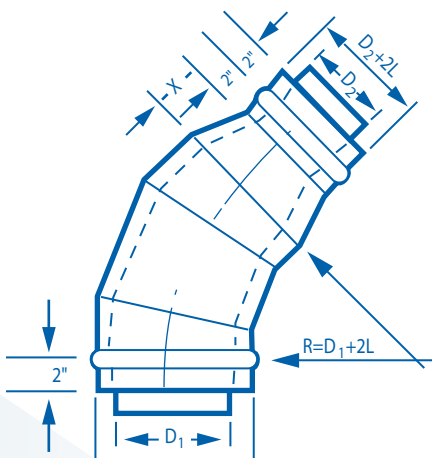
### 90° 3-Piece Elbow with Heel Tap



### 90° 2-Piece Mitered Elbow

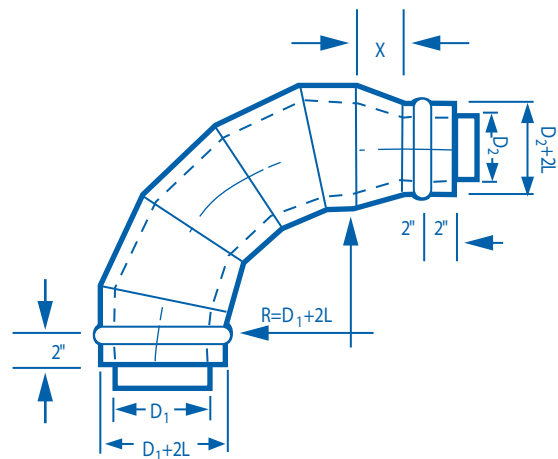


### 45° 3-Piece Elbow with Reducer



$X = D_1 - D_2$   
4" Minimum

### 90° 5-Piece Elbow with Reducer

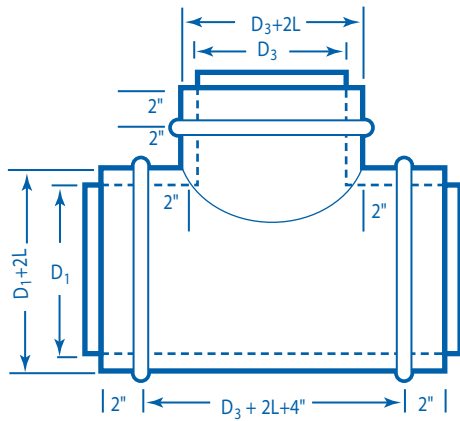


$X = D_1 - D_2$   
4" Minimum

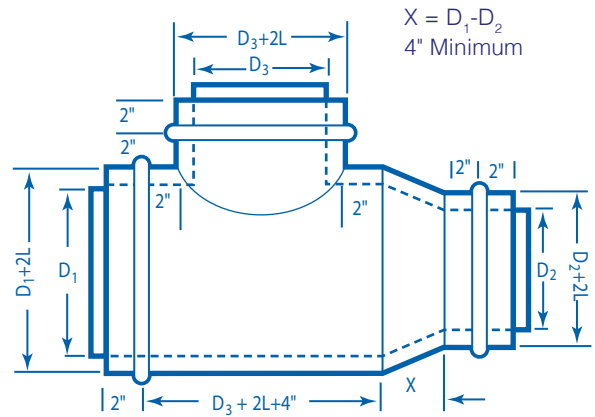


## Straight Tees

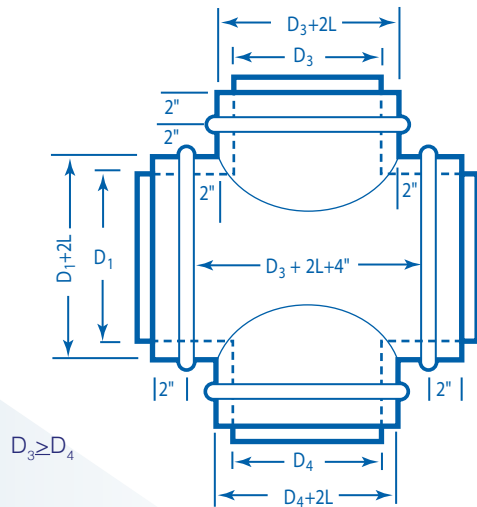
Tee



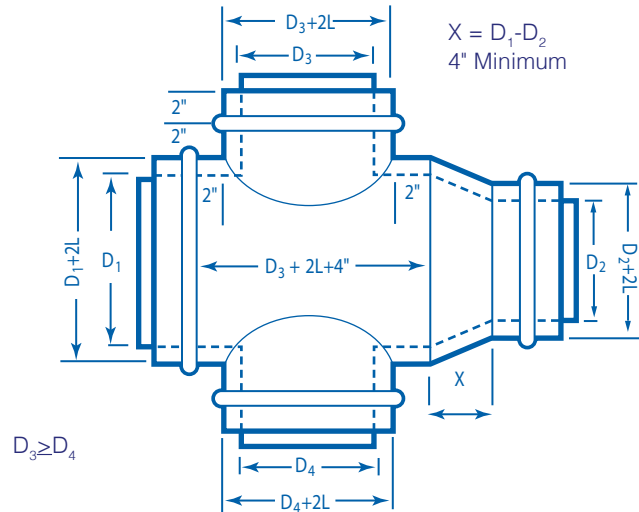
Reducing Tee



Cross Tee

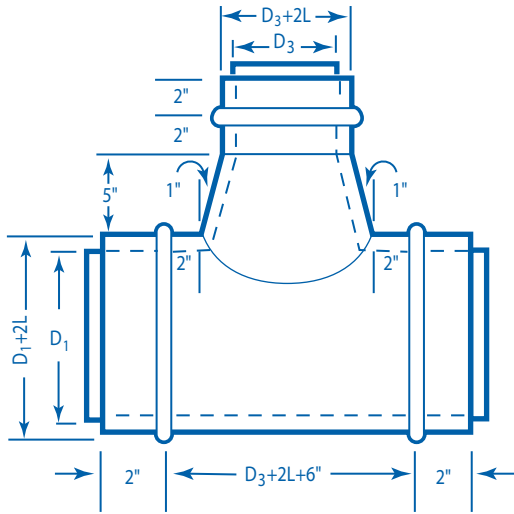


Reducing Cross Tee

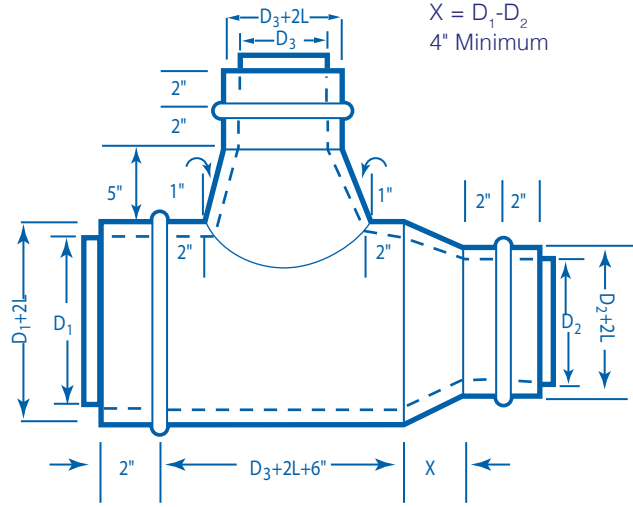




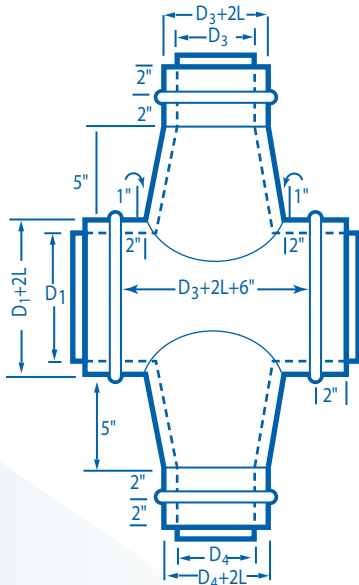
### Conical Tee



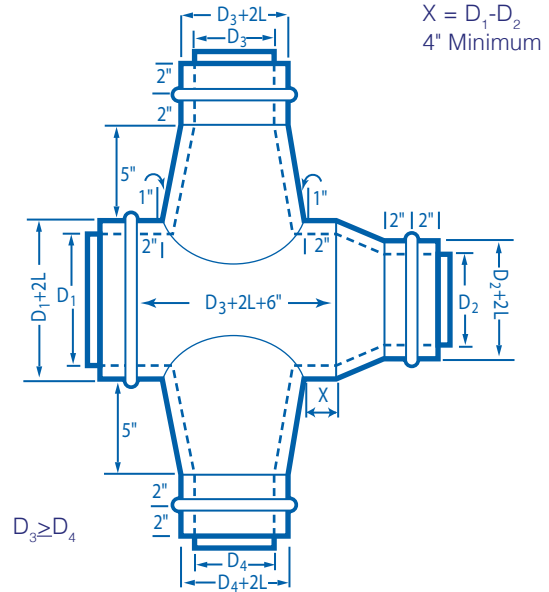
### Reducing Conical Tee



### Conical Cross Tee



### Reducing Conical Cross Tee



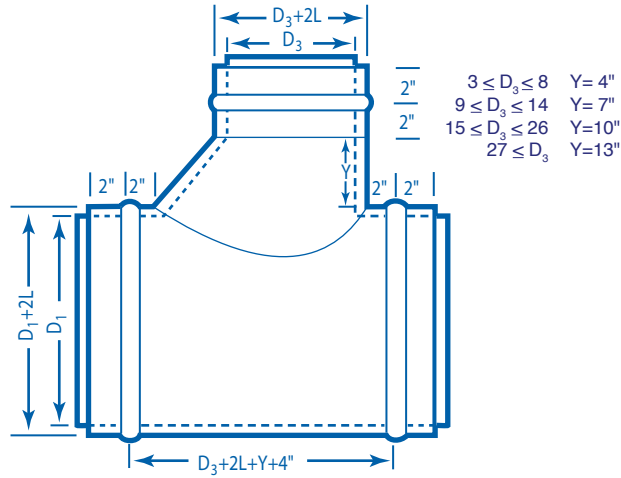
$$D_3 \geq D_4$$

$$D_3 \geq D_4$$

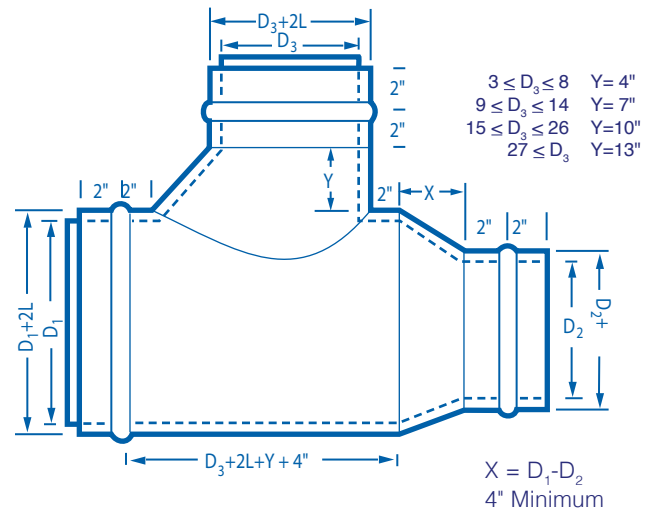


## Combination Tees

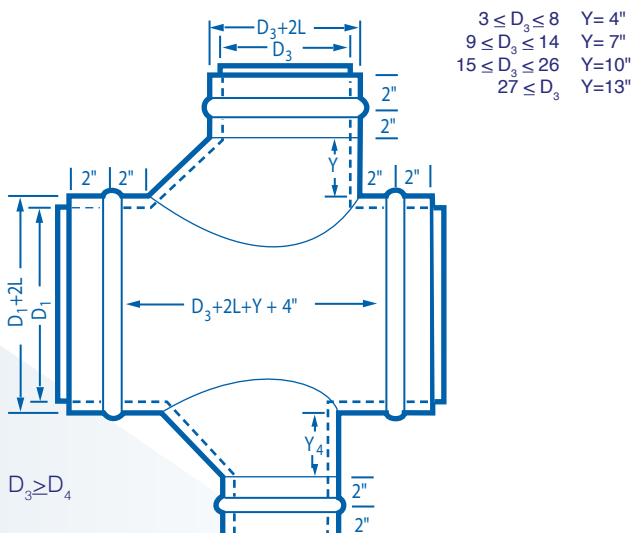
### Combination Tee



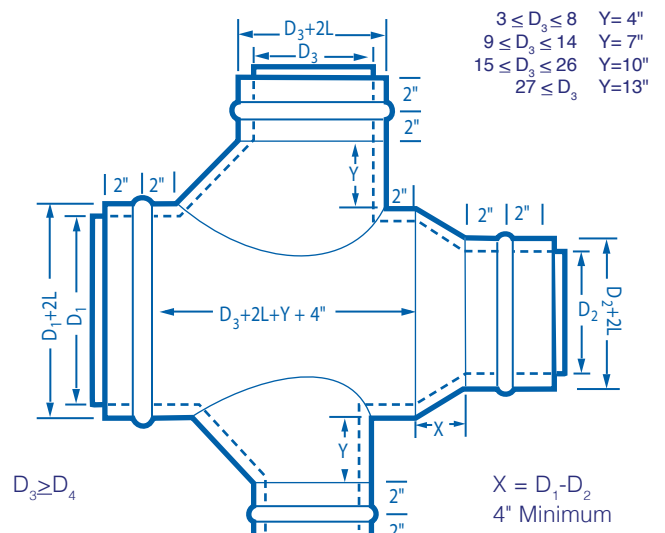
### Reducing Combination Tee



### Combination Cross



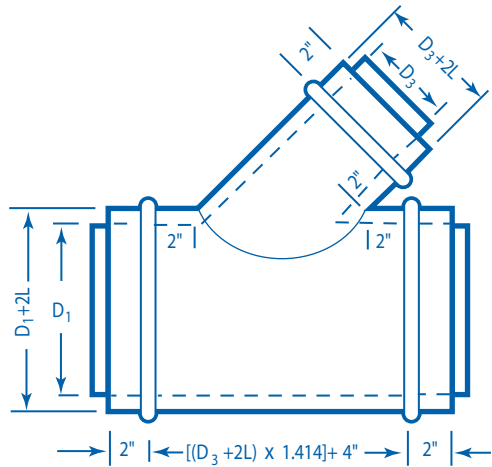
### Reducing Combination Cross



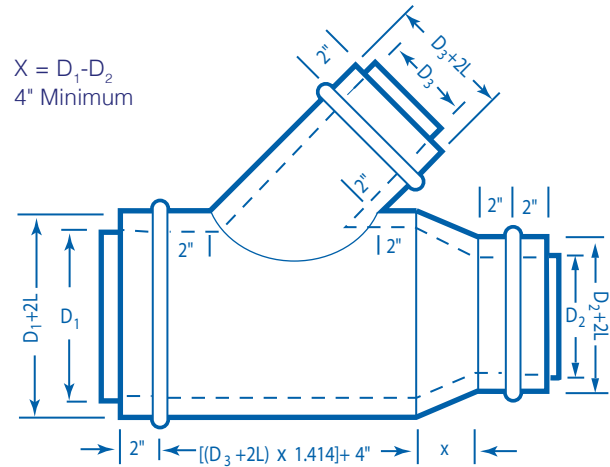


## Straight Laterals

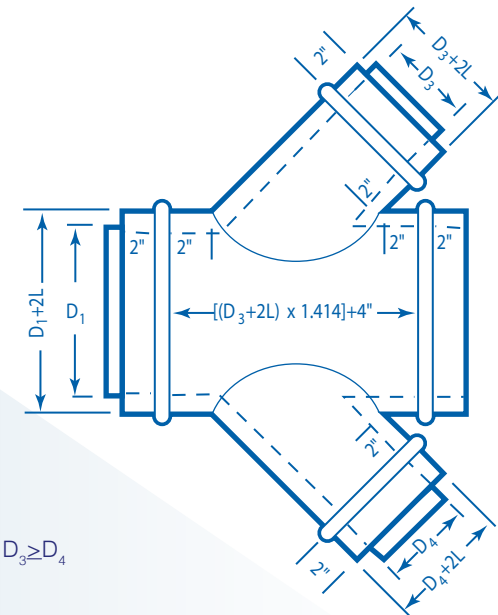
Lateral 45°



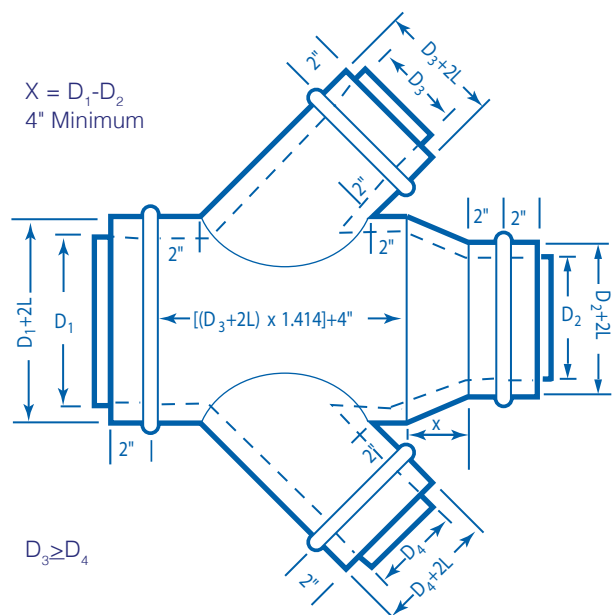
Reducing Lateral 45°



Lateral Cross 45°



Reducing 45° Lateral Cross



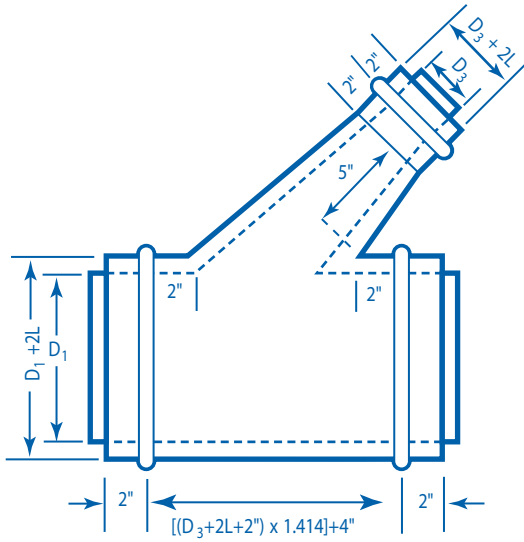
$D_3 \geq D_4$

$D_3 \geq D_4$

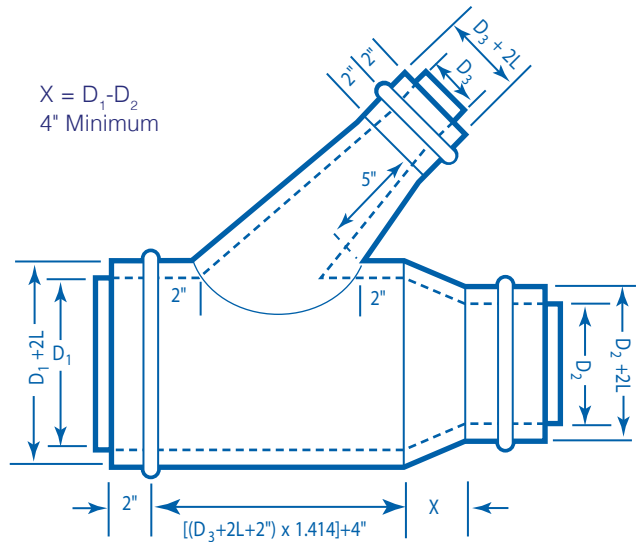


Conical Laterals

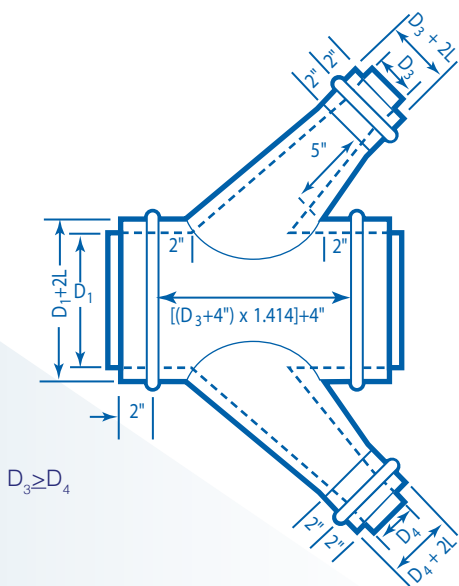
Conical Lateral 45°



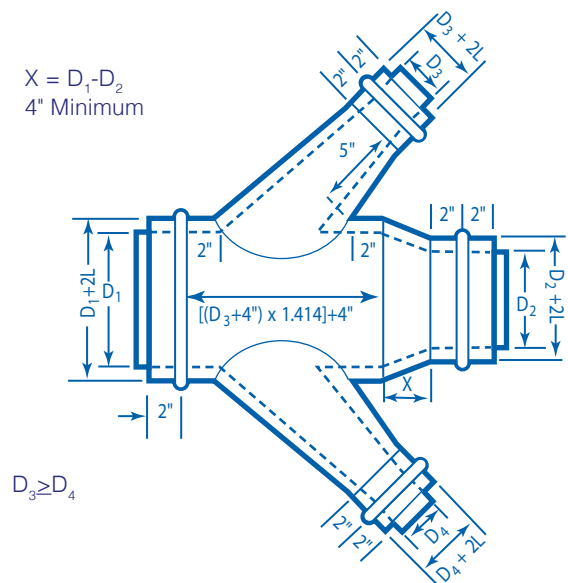
Reducing Conical Lateral 45°



Conical Lateral 45° Cross



Reducing Conical 45° Lateral Cross



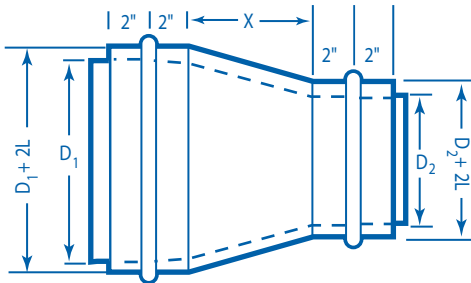




### Concentric Reducer

$$X = D_1 - D_2$$

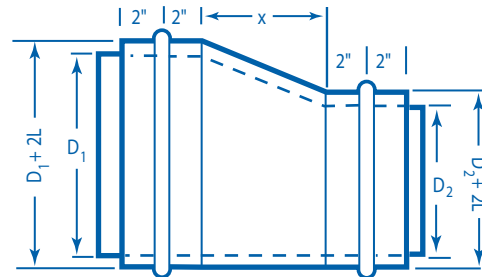
4" Minimum



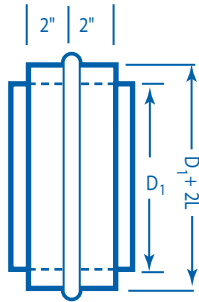
### Eccentric Reducer

$$X = 2 [ D_1 - D_2 ]$$

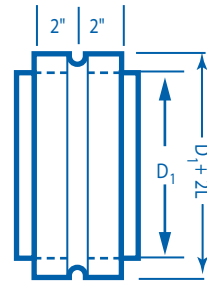
4" Minimum



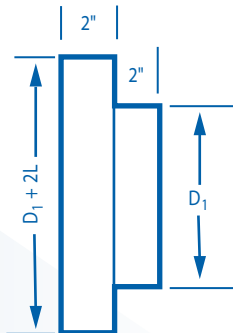
### Pipe Couplings



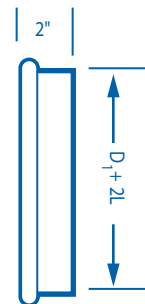
### Fitting Couplings



### Insulation Stop

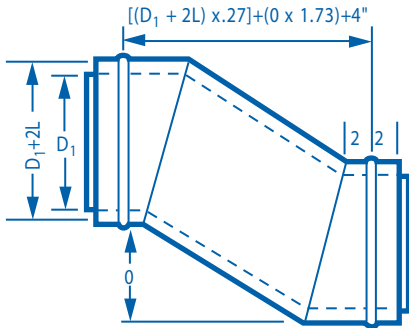


### End Cap

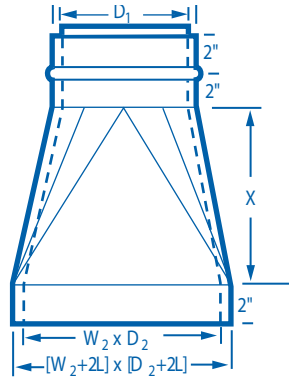




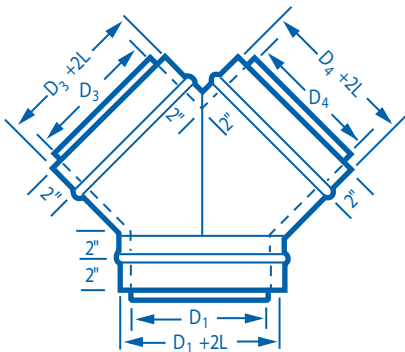
### 30° Offset



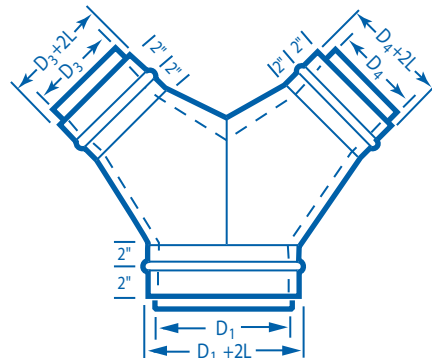
### Rectangle to Round



### Wye Branch



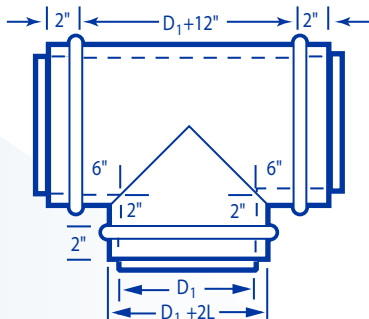
### Reducing Wye Branch



### Bullhead Tee

With or without vanes

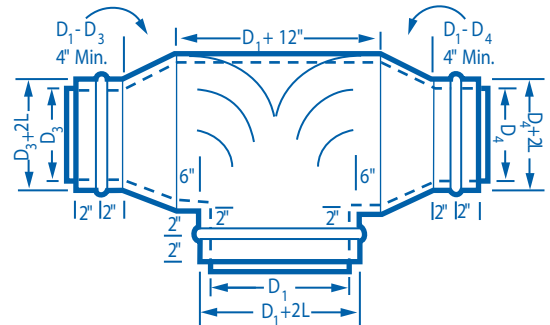
D <sub>1</sub>	# of Vanes
3-7	1
8-10	3
12-60	5
> 60	max spacing = 12"



### Reducing Bullhead Tee

With or without vanes

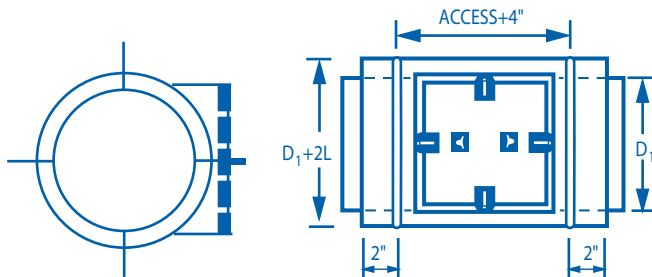
D <sub>1</sub>	# of Vanes
3-7	1
8-10	3
12-60	5
> 60	max spacing = 12"





### Rectangular Access Section

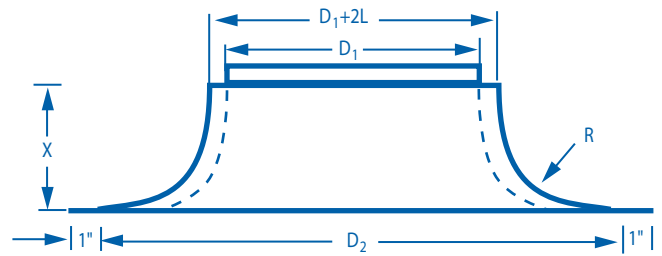
Also available as shop-installed SRTA or field-installed accessory FRTA.



$D_1$	Access Size
8" to 12"	8" x 8"
13" to 17"	12" x 12"
18" and over	18" x 18"

Negative and positive pressure.

### Spun Bellmouth



#### STANDARD BELLMOUTH

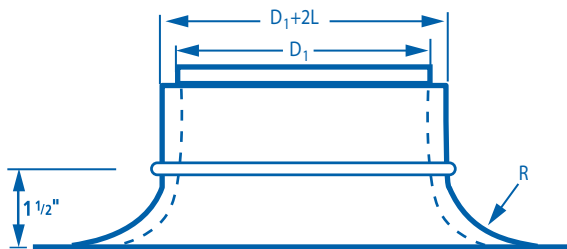
$D_1$	$D_2$	L	R
13"	19"	4"	3"
14"	21"	4"	3"
15"	24"	5"	4"
16"	26"	5"	4"
17"	25"	5"	4"
18"	26"	5"	4"
20"	28"	5"	4"
21"	29"	5"	4"
22"	32"	6"	5"
23"	33"	6"	5"
24"	34"	6"	5"
26"	38"	7"	6"
28"	40"	7"	6"
30"	42"	7"	6"
32"	46"	8"	7"
34"	48"	8"	7"
36"	50"	8"	7"
38"	52"	8"	7"
40"	56"	9"	8"
42"	58"	9"	8"
44"	60"	9"	8"
46"	62"	9"	8"
48"	64"	9"	8"

#### SHORT RADIUS BELLMOUTH

$D_1$	$D_2$	L
12"	14"	3½"
14"	16"	3½"
16"	18"	3½"
18"	20"	3½"
20"	22"	3½"
22"	24"	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"	40"	3½"
50"	52"	3½"
52"	54"	3½"
54"	56"	3½"
56"	58"	3½"
58"	60"	3½"
60"	62"	3½"

### 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"

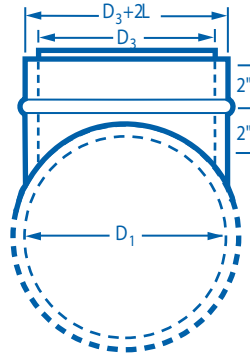


## Accessories

Shop Installed / Field Installed

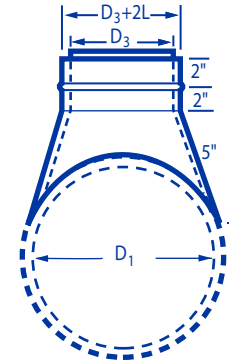
### Shop/Field Installed Tap

Standard flange is 1/2".  
2" flange is also available.



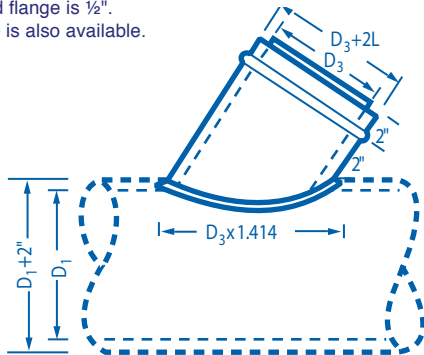
### Shop/Field Installed Conical Tap

Standard flange is 1/2".  
2" flange is also available.



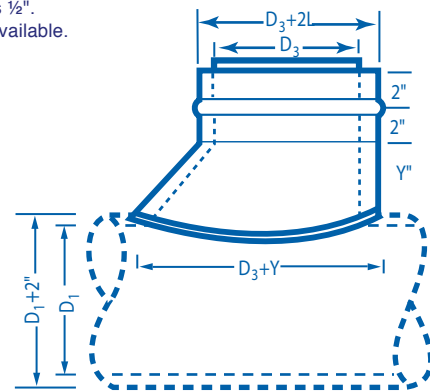
### Shop/Field Installed Lateral Tap

Standard flange is 1/2".  
2" flange is also available.

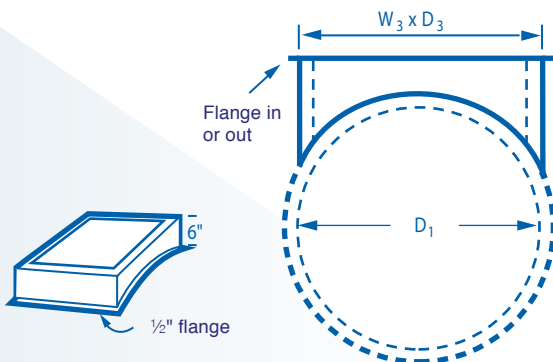


### Shop/Field Installed Combination Tap

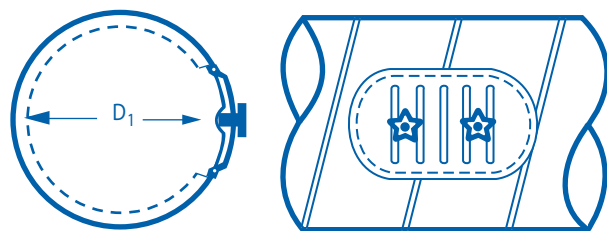
Standard flange is 1/2".  
2" flange is also available.



### Shop/Field Rectangle on Round



### Field Installed Standard Door





### 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.

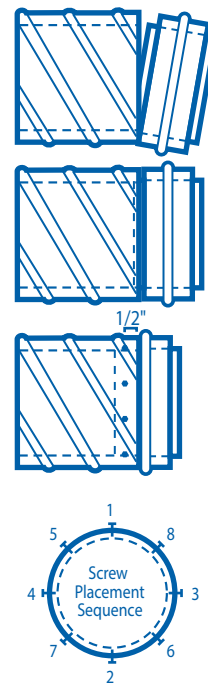
1. Bring the bottom of the inner fitting collar into the inner spiral duct at a slight angle.
2. Work the rest of the inner collar into the spiral duct.
3. When the inner collar is fully inserted, start the outer collar in the same manner.
4. Carefully work the rest of the collar into the spiral duct 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

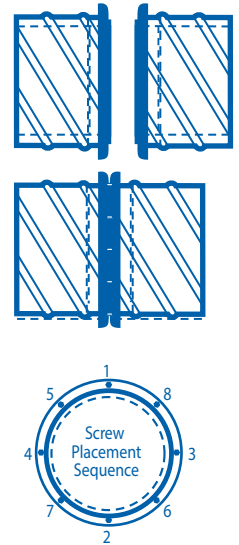
Flanges come factory-mounted on fittings and spiral duct. Flanges are standard for all duct 61" in diameter, but are available in smaller sizes. Dual wall flanges attach to both the outer wall and inner wall of the duct, eliminating the need to make an inner connection.

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.

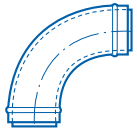
#### Insertion Loss = dB/ft

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

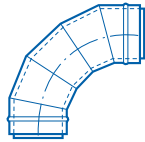


# DOUBLE WALL ROUND

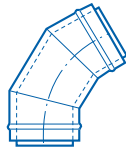
## Fittings and Accessories



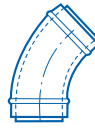
90° Pressed Elbow



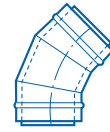
90° 5-Piece Elbow



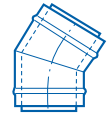
60° 3-Piece Elbow



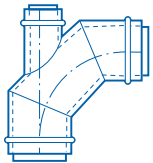
45° Pressed Elbow



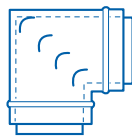
45° 3-Piece Elbow



22½° and 30° 2-Pc. Elbow



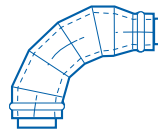
90° 3-Pc. Elbow with Heel Tap



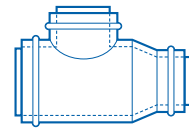
90° Mitered Elbow



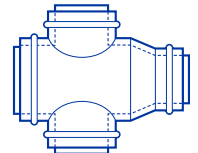
45° 3-Piece Elbow with Reducer



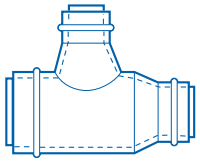
90° 5-Piece Elbow with Reducer



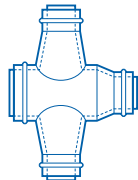
Reducing Tee



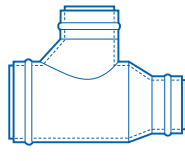
Reducing Tee Cross



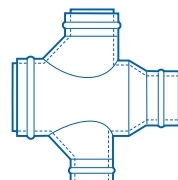
Reducing Conical Tee



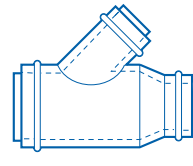
Reducing Conical Cross



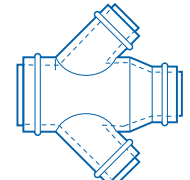
Reducing Conical Tee



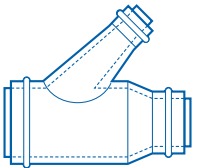
Reducing Combination Cross



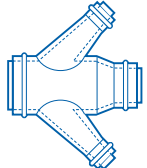
Reducing Lateral 45°



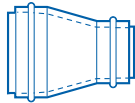
Reducing 45° Lateral Cross



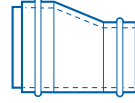
Reducing Conical 45° Lateral



Reducing Conical 45° Lateral Cross



Concentric Reducer



Eccentric Reducer



Pipe Coupling



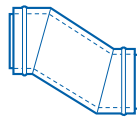
Fitting Coupling



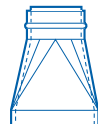
Insulation Stop



End Cap



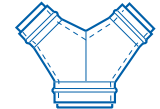
30° Offset



Rectangle to Round



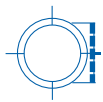
Wye



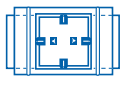
Reducing Wye



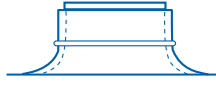
Reducing Bullhead Tee



Rectangular Access Section



Pressed Bellmouth



Spun Bellmouth



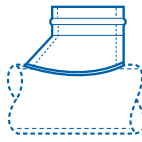
Shop/Field Installed Tap



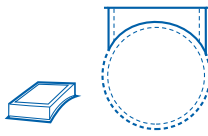
Shop/Field Installed Conical Tap



Shop/Field Installed Lateral Tap



Shop/Field Installed Combination Tap



Shop/Field Installed Rectangle on Round



Field Installed Standard Door