

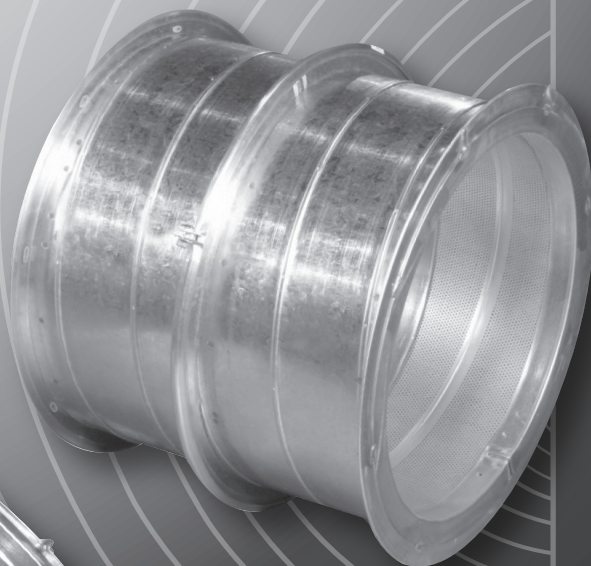


SHEET METAL CONNECTORS, INC.

FABRICATION THAT PERFORMS

SPECIFICATIONS FOR

DOUBLE WALL SPIRAL PIPE & FITTING



MINNEAPOLIS, MN

5850 Main Street N.E.
Minneapolis, MN 55432
LOCALLY CALL: 763-572-0000
TOLL FREE: 1-800-328-1966
FAX: 763-572-1100

ROCKFORD, IL

5601 Sandy Hollow Road
Rockford, IL 61109
LOCALLY CALL: 815-874-4600
TOLL FREE: 1-866-504-4600
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Corporate Headquarters

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Manufacturing Facilities

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**Sheet Metal Connectors, Inc. is proud to be a member or affiliated
with the following associations;**



YELLOW LABEL

**Sheet Metal Workers' International Association
Washington, DC**



**Sheet Metal Air Conditioning Contractors'
National Association
Chantilly, VA**



**SPIDA
Spiral Duct Manufacturers Association
Irmo, SC**



**SMACNA Testing & Research Institute
Chantilly, VA**

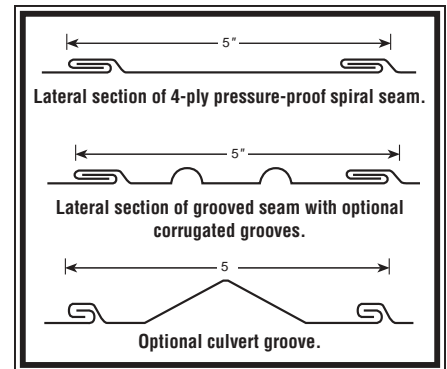
Double-Wall Round Spiral Pipe & Fittings

Sheet Metal Connectors, Inc. (SMC) Double Wall Pipe and Fittings with E-Z Flange and Barrel Clamp or Standard Slip Connection

Sheet Metal Connectors, Inc. double wall round spiral duct and fittings are one part of our complete line of HVAC products. Double wall round spiral duct has two different types of applications:

- Acoustical double wall for noise control
- Thermal double wall duct for temperature control

SMC double wall round spiral pipe and fittings are manufactured with an E-Z Flange with Barrel Clamp, E-Z Flange Jr. with Barrel Clamp or standard slip construction. All sizes shall be listed using inside dimensions.



Acoustical Double Wall

Standard acoustical double wall is for noise control. Constructed of a perforated inner shell surrounded by a layer of insulation and covered by a solid outer shell. The perforated inner shell has 3/32" diameter holes staggered at 3/16" on center for a clear open area of 23%.

Solid Outer Shell

DIAMETER	MATERIAL	THICKNESS	ASTM	TYPE	LENGTH
5" - 96"	Galvanized	26 - 14 gauge	A-653	G60-G90	1' - 20', 10' Standard
5" - 96"	Paint Grip	24 - 18 gauge	A-653	A60	1' - 20', 10' Standard
5" - 96"	PVS*	24 - 16 gauge	A-653	4 x 1, 4 x 4	1' - 20', 10' Standard
5" - 60"	Aluminum	.032 - .063	B-316	3003 H-14	1' - 20', 10' Standard
5" - 60"	Stainless Steel	24 - 18 gauge	A-240	304 or 316	1' - 20', 10' Standard

*PVS specification book available

Perforated Inner Shell

DIAMETER	MATERIAL	THICKNESS	ASTM	TYPE	LENGTH
3" - 94"	Galvanized	24 - 22 gauge	A-653	G60-G90	1' - 20', 10' Standard

*Special order perforated available in other materials - consult factory

Thermal Double Wall

Standard thermal double wall is for temperature control. Constructed of a solid shell surrounded by a layer of insulation and covered by a solid outer shell.

Solid Outer and Inner Shell

DIAMETER	MATERIAL	THICKNESS	ASTM	TYPE	LENGTH
3" - 96"	Galvanized	26 - 14 gauge	A-653	G60-G90	1' - 20', 10' Standard
3" - 96"	Paint Grip	24 - 18 gauge	A-653	A60	1' - 20', 10' Standard
3" - 96"	PVS*	24 - 16 gauge	A-653	4 x 1, 4 x 4	1' - 20', 10' Standard
3" - 60"	Aluminum	.032 - .063	B-316	3003 H-14	1' - 20', 10' Standard
3" - 60"	Stainless Steel	24 - 18 gauge	A-240	304 or 316	

*PVS specification book available



Note: SMACNA Testing and Research Institute verified that Sheet Metal Connectors, Inc. shop standards comply with the 1995-2nd edition of the SMACNA HVAC Duct Construction Standards.



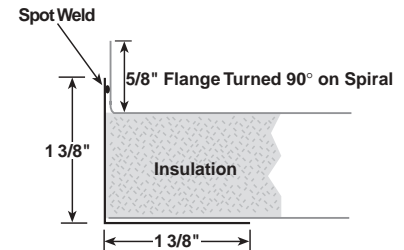
SHEET METAL CONNECTORS, INC.

MARCH 2004

Double-Wall Connections

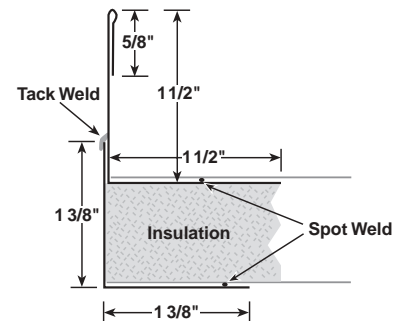
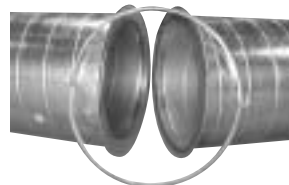
Double Wall E-Z Flange Jr. with Barrel Clamp - 6" to 24" Diameter

The Double Wall E-Z Flange Jr. is a 5/8" flange turned out 90° on the outer shell. A 1-3/8" angle flange is inserted into the inner shell. The two flanges are then tack welded together creating a double wall E-Z Flange Jr. This double wall E-Z Flange Jr. can be shipped in sets or factory installed. A set consists of two double wall E-Z Flange Jr. and one barrel clamp. For field installation the installer attaches the double wall E-Z Flange Jr., applies a gasket on one flange, mates the two double wall E-Z Flange Jr. together and attaches the barrel clamp. For field cuts a 5/8" double wall flange sleeve is available, cut the spiral pipe to the measured length and apply the sleeve.



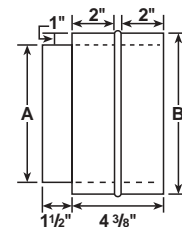
Double Wall E-Z Flange with Barrel Clamp - 26" to 96" Diameter

The double wall E-Z Flange with Barrel Clamp can be shipped in sets or factory installed. A set consists of two double wall E-Z Flanges and one barrel clamp. For field installation the installer attaches the double wall E-Z Flange to the pipe and fittings. Next the installer applies the gasket to one flange, mates the two double wall flanges together and attaches the barrel clamp. Sheet Metal Connectors also installs double wall E-Z Flanges. Flanges are spot welded and internally sealed on all ends of the spiral pipe and fittings.



Double Wall Standard Spiral Pipe Connector

Pipe to Pipe connections are made by using a double wall fitting size coupling that slips inside the mating pipe sections, as shown. A stop bead runs around the middle of the coupling to center the coupling in the connection. Secure the connections by installing sheet metal screws through the outer shell of the duct, 1/2" from the stop bead.



SHEET METAL CONNECTORS, INC.

Sheet Metal Connectors

Double Wall Fittings

Sheet Metal Connectors, Inc. double wall duct has a complete line of compatible fittings. Fittings can be fabricated with standing seam, elbow lock or welded seam construction. Double wall fittings can be fabricated to desired length and many different configurations. All sizes shall be listed using inside dimensions.

All fittings can be manufactured with:

- E-Z Flange Jr. with Barrel Clamp - 6" to 24" Diameter
- E-Z Flange with Barrel Clamp - 26" to 96" Diameter
- Double Wall Couplings

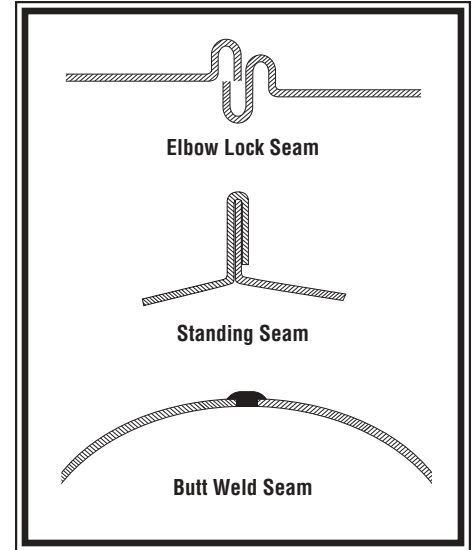
Insulation

SMC double wall round spiral duct is a dependable, erosion resistant alternative to lined round spiral duct, providing improved protection for insulation exposed to the airstream. In double wall round spiral duct a metal inner liner insures that high airflow velocities cannot separate insulation by pulling away from the duct's outer wall and creating erosion or airflow problems.

SMC constructs each piece with an inner shell (perforated or solid) surrounded by a layer of insulation and covered by a solid outer shell. The insulation is used in both acoustical and thermal duct systems.

SMC solves air quality problems caused by bacteria and other contaminants that can embed in fibrous materials, which can be a health hazard in environments such as schools, hospitals, laboratories, and food or pharmaceutical plants. In cases where additional erosion or contamination protection is desired for such an environment, we can provide a customer specified barrier material (mylar) between the insulation and the perforated liner.

Standard insulation is 1" thick with 1 1/2 lb. per cubic foot density. See chart below for specifications. Many other thickness' and densities are available, consult factory.



SOUND ABSORPTION COEFFICIENTS (ASTM C 423, Type A Mounting)
1/3 Octave Band Center Frequency (cycles/sec.)

Type	125	250	500	1000	2000	4000	NRC
1" - 1 1/2 # Cu. Ft.	.09	.31	.55	.72	.86	.93	.60
2" - 1 1/2 # Cu. Ft.	.18	.58	.79	1.02	1.06	.99	.85
1" - 3 # Cu. Ft.	.09	.28	.63	.86	.91	.92	.65

Coefficients determined per ASTM E 795 Type A Mounting

Note: Pressure classifications are based on SMACNA Second Edition - 1995

THERMAL CONDUCTANCE "C" AND RESISTANCE "R"
(ASTM C 177)

Product	Mean Temperature 75°F (24°)	
	Conductance "C" ⁽¹⁾	Resistance "R" ⁽²⁾
1" - 1 1/2 # Cu. Ft.	.28 (1.59)	3.6 (.36)
2" - 1 1/2 # Cu. Ft.	.14 (.80)	7.1 (1.26)
1" - 3 # Cu. Ft.	.24 (1.36)	4.2 (.73)

¹ The lower the value, the better the performance. ² The higher the value, the better the performance.

Specification Compliance

SMC standard insulation meets the requirements of the following codes and specifications:

NFPA 90A and NFPA 90B

NAIMA Standard AHC-101

ASTM C 1071 Type 1 Replaces HH-I-545B Type 1



SHEET METAL CONNECTORS, INC.

Single Wall Weight and Gauge Chart

Diam.	26 Gauge lbs./ft.	24 Gauge lbs./ft.	22 Gauge lbs./ft.	20 Gauge lbs./ft.	18 Gauge lbs./ft.	16 Gauge lbs./ft.
3"	0.8	1.1	1.3	1.5		
4"	1.1	1.4	1.7	2.0		
5"	1.4	1.7	2.1	2.5	3.2	4.0
6"	1.6	2.0	2.5	3.0	3.9	4.5
7"	1.9	2.4	2.9	3.4	4.6	5.6
8"	2.1	2.8	3.3	3.9	5.2	6.3
9"	2.4	3.1	3.8	4.4	5.9	7.2
10"	2.6	3.4	4.2	4.9	6.5	7.9
11"	2.9	3.8	4.6	5.4	7.1	8.7
12"	3.2	4.1	5.0	5.9	7.8	9.5
13"	3.5	4.5	5.4	6.4	8.5	10.2
14"	3.8	4.8	5.8	6.9	9.1	11.1
15"	4.1	5.1	6.2	7.4	9.8	11.9
16"	4.4	5.5	6.6	7.8	10.4	12.7
17"	4.6	5.8	7.1	8.3	11.1	13.4
18"	4.9	6.1	7.5	8.8	11.7	14.2
20"	5.5	6.8	8.3	9.8	13.0	15.8
22"	6.0	7.5	9.1	10.8	14.3	17.4
24"	6.5	8.2	9.9	11.7	15.6	19.0
26"	7.1	9.0	10.8	12.7	16.9	20.6
28"	7.6	9.7	11.6	13.7	18.2	22.2
30"	8.2	10.4	12.4	14.6	19.5	23.8
32"	8.7	11.1	13.3	15.6	20.8	25.4
34"	9.3	11.8	14.1	16.6	22.0	26.9
36"	9.8	12.5	14.9	17.6	23.3	28.5
38"	10.4	13.2	16.1	18.5	24.6	30.1
40"	10.9	13.9	16.9	19.5	25.9	31.7
42"	11.5	14.6	17.7	20.5	27.2	33.3
44"	12.0	15.3	18.6	21.5	28.5	34.9
46"	12.5	16.0	19.5	22.5	29.8	36.4
48"	13.1	16.7	20.3	23.4	31.1	38.0
50"	13.6	17.4	21.2	24.5	32.4	39.6
52"	14.2	18.1	22.0	25.9	33.7	41.3
54"	14.7	18.8	22.9	26.9	34.8	42.9
56"	15.3	19.5	23.7	27.9	36.3	44.5
58"	15.8	20.2	24.5	28.9	37.4	46.0
60"	16.4	20.9	25.4	29.9	38.9	47.3

Standard gauges in boxed area, weights may vary slightly.

To calculate weight of Double Wall Spiral:
(Weight of Inner Shell) + (Weight of Outer Shell) = Lbs./Ft.

Example:

10' - 0" of 20"Ø Double Wall

20"Ø I.D. 24 Gauge = 6.8 lbs./ft. x 10' = 68#

22"Ø O.D. 22 Gauge = 9.1 lbs./ft. x 10' = 91#

Weight = 159# Less Insulation

Positive Pressure

Bursting Pressure various gauges of spiral tubing

Diam.	26 Gauge	24 Gauge	22 Gauge	20 Gauge	18 Gauge
3"	420	535	650	765	995
4"	308	392	475	560	728
5"	238	303	369	435	566
6"	199	252	308	363	473
7"	169	216	262	309	403
8"	145	186	224	264	344
9"	127	161	196	230	299
10"	113	144	177	208	271
12"	93	118	145	171	223
14"	76	100	120	142	185
16"	68	86	103	122	162
18"		75	91	104	136
20"		66	81	96	125
22"		60	72	85	111
24"			66	78	101
26"			61	72	94
28"			55	65	85
30"			51	60	78
32"			47	56	73
34"				52	68
36"				48	65
38"				45	59
40"				42	55
42"				39	51
44"	1 PSI = 27.678 H₂O				47
46"					44
48"					41
50"					39

All tube diameters in inches. All pressure in PSI.

Internal Pressure

Collapsing Pressure various gauges of spiral tubing

Diam.	26 Gauge	24 Gauge	22 Gauge	20 Gauge	18 Gauge	16 Gauge
6"	220.4					
8"	69.2	121.2				
10"	34.6	110.6	691.7			
12"	22.0	55.1	249.2	1107.0		
14"	15.3	38.5	110.6	456.6	2767.7	
16"	11.0	27.5	105.1	236.2	1383.8	5258.6
18"	9.0	20.8	53.9	149.6	664.1	2214.1
20"	7.8	16.5	38.5	99.6	332.2	1245.6
22"	7.2	14.1	30.3	72.0	221.2	692.1
24"	5.5	11.8	24.8	55.5	155.1	387.4
26"	5.1	9.8	20.8	44.0	110.6	290.5
28"	4.7	8.6	18.1	35.8	88.5	243.7
30"	4.3	8.2	15.3	30.3	69.2	166.1
32"		6.6	13.7	26.3	58.2	128.7
34"				22.0	48.4	103.9
36"		5.5	11.0	20.4	42.9	85.8
38"				17.7	37.4	72.0
40"		4.3	9.8	16.5	33.0	62.2
42"			9.0	15.3	29.1	53.9
44"				13.7	26.3	47.2
46"				12.5	23.6	41.3
48"				11.8	22.0	37.4
50"	.036 PSI = 1 inch H₂O			11.0	19.2	34.6
60"					14.9	24.8

Internal negative pressure in inches of water.

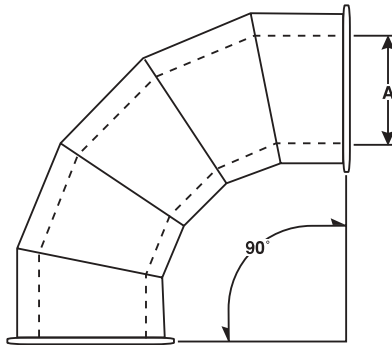
These tables are given only as a courtesy. Sheet Metal Connectors is not responsible for any results listed on these charts.

Double Wall Pipe & Fittings

Double Wall 90° Elbow with E-Z Flange and Barrel Clamp

Inside dimensions to be listed

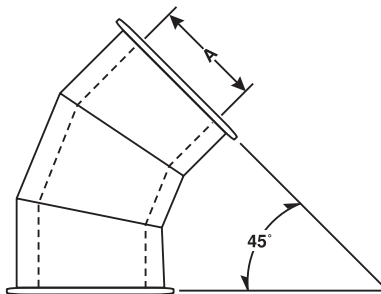
Standard Throats	
8" Thru 18"	8" Throat
20" Thru 40"	10" Throat
42" Thru 60"	20" Throat



Double Wall 45° Angle with E-Z Flange and Barrel Clamp

Inside dimensions to be listed

Standard Throats	
8" Thru 18"	8" Throat
20" Thru 40"	10" Throat
42" Thru 60"	20" Throat

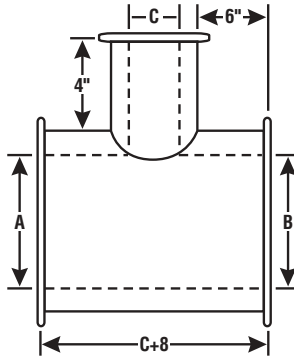


SHEET METAL CONNECTORS, INC.

Double Wall Pipe and Fitting

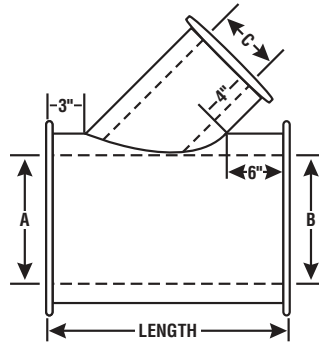
Double Wall 90° Tee with E-Z Flange and Barrel Clamp

Inside dimensions to be listed
A, B, C



Double Wall 45° Lateral with E-Z Flange and Barrel Clamp

Inside dimensions to be listed
A, B, C
 $C + 2 \times 1.414 + 9'' = \text{Length}$



Double Wall Pipe with E-Z Flange and Barrel Clamp

Inside dimensions to be listed



**Many Other Fittings
Are Available, Please
Consult Factory**



SHEET METAL CONNECTORS, INC.

DP1010 WATER BASED DUCT SEALANT - Gray

A smooth, water based, premium quality, U.L. 181 Classified, high velocity duct sealant for commercial and residential use.

Available in 1/12 gallon tubes, 1 gallon pail, or 5 gallon pail.

Recommended Uses:

- Sealing metal joints on air duct where a smooth finish is desired
- Sealing connections on flexible duct or fiberglass ductboard
- Intended for use on duct systems which do not exceed 15 inches water column pressure



DP1090 SOLVENT BASED DUCT SEALANT

A premium quality UL Classified high velocity duct sealant, for commercial use.

Recommended Uses:

- DP1090 is formulated for sealing low, medium and high-pressure metal duct systems in commercial and industrial applications
- DP1090 is intended for use on duct systems which do not exceed 15 inches water column pressure
- DP1090 is ideal for sealing rectangular, round, oval and metal flexible ducts.



DP2501 WATER BASED DUCT LINER ADHESIVE - Clear

A water based, premium quality U.L. Classified duct liner adhesive.

DP 2501 is specifically formulated for roller and low pressure spray applications.

Available in 5 gallon pails, 54 gallon drum

Recommended Uses:

- Bonding fibrous duct liner installation to galvanized ductwork
- Sealing cut edges of fiberglass insulation
- Bonding kraft backed foil coverings to fiberglass and urethane flat stock or pipe insulation
- Bonding multiple layers of fibrous insulation board



DP2502 WATER BASED DUCT LINER ADHESIVE - Clear

A water based, premium quality U.L. Classified duct liner adhesive. DP 2502 is a higher viscosity version of DP 2501. DP 2502 is specifically formulated for spray, brush, and roller applications.

Available in 5 gallon pails, 54 gallon drum

Recommended Uses:

- Bonding fibrous duct liner installation to galvanized ductwork
- Sealing cut edges of fiberglass insulation
- Bonding kraft backed foil coverings to fiberglass and urethane flat stock or pipe insulation
- Bonding multiple layers of fibrous insulation board



DP 2590 SOLVENT BASED SPRAY ADHESIVE

A premium quality, solvent based, fast drying, non-flammable, pressure sensitive insulation adhesive. DP 2590 is supplied in a convenient spray system which is both portable and cost effective.

Available in 12# canister or 40# canister. Pro spray gun and 12' hose sold separately.

Recommended Uses:

- Bonding fiberglass duct liner to galvanized steel, stainless steel and aluminum HVAC duct
- Bonding fiberglass insulation to the exterior of galvanized steel, stainless steel and aluminum HVAC duct
- Sealing and bonding laps in HVAC duct insulation
- Adhering kraft backed foil and foil jacketing to urethane foam



DP 77 INDUSTRIAL SPRAY ADHESIVE

Solvent based industrial strength aerosol duct liner spray adhesive.

Available in 12 oz. spray cans.

Recommended Uses:

- Bonding galvanized metal, wood, fiberglass, foam rubber, cardboard, textiles, cloth and plastics



DP 2" CHIP BRUSH



DUCT TAPE

Product Number	Description Application	Colors	Adhesive	Total Thickness mils (mm)	Tensile Strength lbs/in (kg/cm)	Adhesion To Steel ozs/in (g/cm)
557 Printed	Premium performance duct tape specifically engineered for flex duct systems. Meets UL 181B-FX & UL 723	Grey	Natural Rubber	14.0 (0.36)	45 (8.01)	50 (560)
229	Heavy duty contractor grade duct tape with extra thick adhesive for conformability Meets UL 723	Grey	Natural Rubber	12.0 (0.30)	25 (4.45)	70 (784)
339 Printed	Dead-soft aluminum foil backed duct tape for fiberglass duct systems. UL 181 A-P approved	Silver	Acrylic	4.4 (0.11)	25 (4.45)	72 (806)
330	All-weather duct tape, working temperature range of -35°F to 260°F, plain dead soft aluminum foil, extremely conformable.	Silver	Acrylic	3.5 (0.08)	20 (3.56)	45 (504)



SHEET METAL CONNECTORS, INC.



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