



Submittal For Single Wall Spiral With Non-Gasketed Fittings

Hranec Sheet Metal Inc.
763 McClellandtown Road
Uniontown PA 15401

www.hranec.com
Fax: 724-437-2233
Ph.: 724-437-2211

HRANEC CORP.



SUBMITTAL **Single Wall Spiral**

INDEX

PAGE 1	FABRCATION FORM
PAGE 2	SPECIAL NOTES
PAGE 3	PRESSURE CLASSES
PAGE 4	CONNECTIONS
PAGE 5	SPIRAL DUCTWORK
PAGE 6	GORE-LOCK ELBOWS
PAGE 7	REDUCERS
PAGE 8	ROUND END SADDLE TAP
PAGE 9	END CAPS
PAGE 10	OFFSETS
PAGE 11	RECTANGULAR END SADDLE TAPS
PAGE 12	ROUND TAPS OFF FLAT SURFACES
PAGE 13	TEE'S & CROSSES
PAGE 14	ROUND DAMPERS
PAGE 15	DUCT LINER INSTALLATION APPLICATION DETAIL
PAGE 16-17	LINER SPECS

SPECIAL NOTES:

- **SUBMITAL** = INCLUDES ALL AVAILABLE MATERIALS, CONNECTIONS AND PRESSURE CLASSES REFERENCE OUR FABRICATION FORM FOR PROJECT SPECIFIC DUCTWORK INFORMATION. LISTED AS PAGE 1
- **FABRICATION** = ALL DUCTWORK IS FABRICATED PER SMACNA STANDARDS AND / PROJECT SPECIFICATIONS
- **MATERIALS FOR PAINTING** = RECOMMENDED MATERIAL FOR PAINTED SPIRAL DUCT = PAINT GRIP, HOWEVER GALVANIZED G90 CAN EASILY BE PAINTED WITH EXTRA PREP WORK.
- **PREP BEFORE PAINTING** = WE RECOMMENDED WIPING DOWN MINIMAL EXCESS LUBRICANT TWICE BEFORE PAINTING WITH DRY RAGS. IN ADDITION, WIPE DOWN WITH NO RINSE PREPAINT CLEANER #13158 (SHERWIN WILLIAMS) BEFORE APPLYING TWO COATS METAL PRIMER.
- **PAINT AND PRIMER** = ALL PRIMER AND PAINT SHOULD BE LABELED TO ADHERE TO METAL PAINTING APPLICATIONS. FOLLOW PAINT MANUFACTURERS APPLICATION PROCEDURES, TEMPERATURE, HUMIDITY, SURFACE PREP WORK, ETC.
- **CAUTION** = IF A STEEL CABLE HANGING SYSTEM IS USED TO SUSPEND DUCT WORK, DO NOT APPLY PAINT, LUBRICANTS, OR OTHER COATINGS TO THE HANGING SYSTEM. FOLLOW HANGING SYSTEM MANUFACTURERS INSTRUCTIONS
- **TESTING** = OUR SPIRAL DUCTWORK HAS BEEN EXTENSIVELY AIR TESTED FOR LOW, MEDIUM, & HIGH PRESSURES.
- **SEAMS** = LONGITUDINAL SEAMS ARE ALL STITCH WELDED ON FITTINGS.
- **GAUGES** = METAL GAUGES ARE PRESSURE CLASS DRIVEN FROM LATEST SMACNA STANDARDS
- **SEALANT** = PROPER SEALING OF ALL COMPONENTS ESPECIALLY CONNECTIONS. IS REQUIRED TO AVOID DARK AIR STREAKS AFTER INSTALLATION.
- **MATERIAL** = GALVANIZED, PAINT GRIP, SS304, SS316, PVC 4X4, ALUMINUM
- **WATER PROOF** = SPIRAL SEAM DUCT WORK IS NOT CONSTRUCTED TO BE WATER PROOF



PRESSURE CLASSES

POSITIVE PRESSURE

2005 SMACNA +10WG -6WG

Diameter	Fittings	Spiral
3-9	28	28
9-14	28	28
15-18	26	26
19-24	24	26
25-42	22	24
43-60	20	22
61-66	18	22
67-96	18	20

ALUMINUM

2005 SMACNA +4WG -6WG

Dia.	Fittings	Spiral
3-8	0.032	0.025
9-14	0.032	0.025
15-26	0.040	0.032
27-36	0.050	0.040
37-50	0.063	0.050
51-60	0.071	0.063

GALV, PG, SS, PVC ("Steel")

HRANEC PIPE HRANEC FITTINGS

Size	Gauge	Size	Gauge
4"-18"	26	5"-20"	24
20-28	24	22-36	22
30-38	22	38-50	20
40-48	20	52-60	18
50-58	18	62-70	16
60-70	16		

ALUM

HRANEC PIPE HRANEC FITTINGS

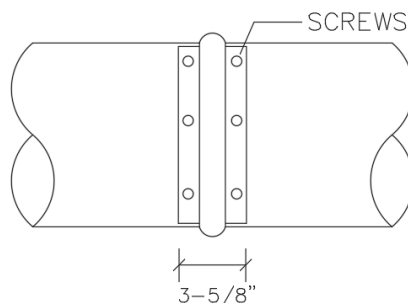
SIZE	GAUGE	SIZE	GAUGE
4" - 40"	.040	4" - 40"	.040
42" - 70"	.050	42" - 70"	.050

- ALL GAUGE AND DIAMETER PIPE WILL BE SPIRAL SEAM
- ALL STEEL FITTINGS 24 GAUGE TO 20 GAUGE TO HAVE GORELOCK TRANSVERSE SEAM
- ALL STEEL FITTINGS 24 GAUGE TO 20 GAUGE TO HAVE STITCH WELD LONGITUDINAL SEAM
- ALL STEEL FITTINGS 18 GAUGE TO 16 GAUGE TO HAVE TACK WELDED AND SEALED TRANSVERSE SEAM
- ALL STEEL FITTINGS 18 GAUGE TO 16 GAUGE TO HAVE TACK WELDED AND SEALED LONGITUDINAL SEAM
- ALL ALUMINUM FITTINGS 50" AND SMALLER TO HAVE GORELOCK TRANSVERSE SEAM
- ALL ALUMINUM FITTINGS 50" AND SMALLER TO HAVE BUTTON LOCK LONGITUDINAL SEAM
- ALL ALUMINUM FITTINGS 52" AND LARGER TO HAVE BUTTON LOCK TRANSVERSE SEAM
- ALL ALUMINUM FITTINGS 50" AND SMALLER TO HAVE TACK WELDED AND SEALED LONGITUDINAL SEAM

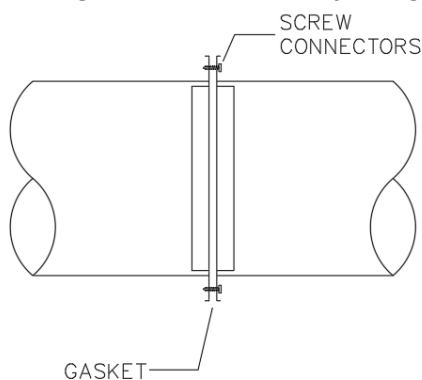


CONNECTIONS AVAILABLE FOR ROUND DUCT AND FITTINGS

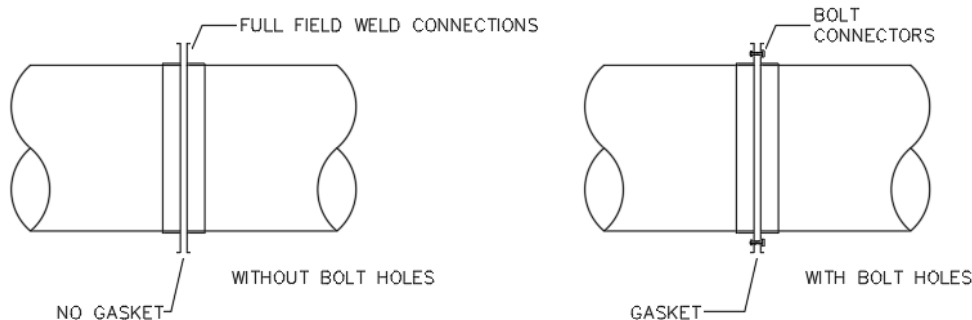
1. **SLIP FIT** = RECOMMENDED INSTALLATION = COUPLING CONNECTIONS TO BE CAULKED AND SCREWED EVERY 10" AROUND THE DIAMETER



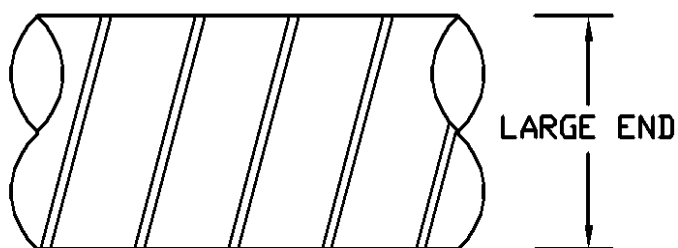
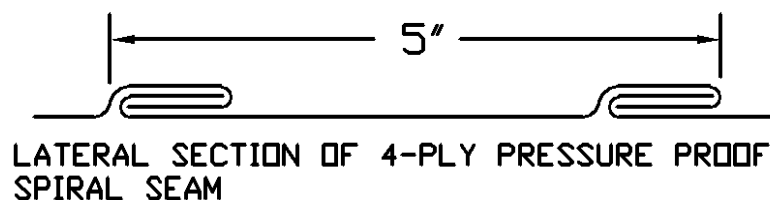
2. **SINGLE - WALL FLANGE** = RECOMMENDED INSTALLATION = FLANGED CONNECTION TO BE GASKETED OR CAULKED AND SCREWED EVERY 10" AROUND THE DIAMETER



3. **ANGLE RING WITH OR WITHOUT BOLT HOLES** = RECOMMENDED INSTALLATION = ANGLE RINGS WITHOUT BOLT HOLES TO HAVE FIELD FULLY WELDED CONNECTIONS WITH NO GASKET, ANGLE RINGS WITH BOLT HOLES TO BE GASKETED THEN NUT AND BOLTED USING THE BOLT HOLE PATTERN WITHOUT SKIPPING ANY HOLES. REFERENCE SMACNA FOR FULL INSTALLATION GUIDLINES



SPIRAL DUCT

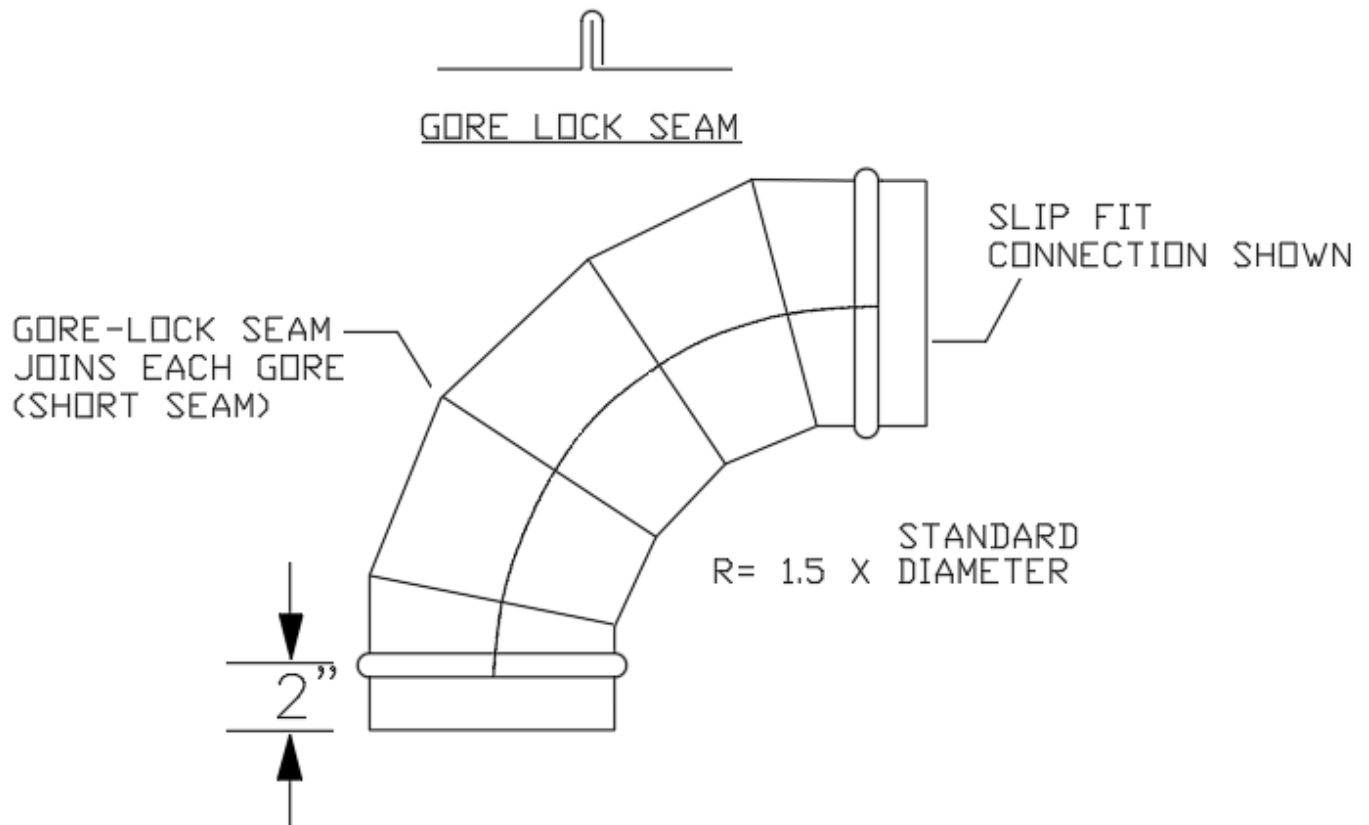


NOTES:

- A. AVAILABLE IN EVEN SIZES 4"Ø THROUGH 70" Ø
- B. AVAILABLE IN ODD SIZES 5"Ø, 7", & 9"Ø
- C. LENGTHS - 6" THROUGH 240" (STANDARD 120")



GORE-LOCK ELBOW



- AVAILABLE IN 5° THROUGH 120°
- SHORT RADIUS ELBOWS ARE CONSIDERED 1 X DIAMETER AND IS CENTERLINE
- OTHER RADIUS ELBOWS ARE AVAILABLE

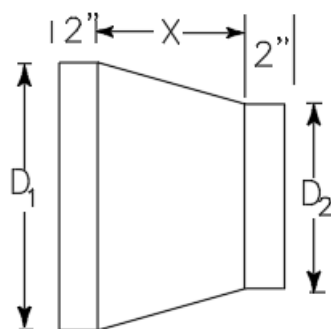


REDUCERS

CONCENTRIC REDUCER

$$X = \frac{D_1 - D_2}{2} \times 3$$

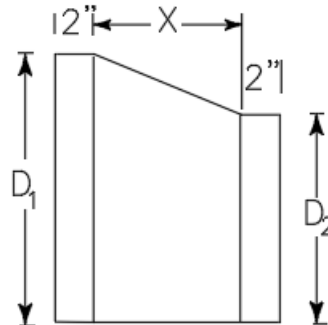
4" Minimum



ECCENTRIC REDUCER

$$X = \frac{D_1 - D_2}{2} \times 3$$

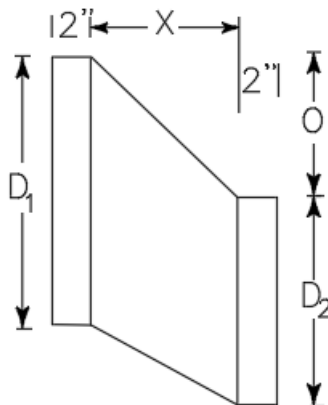
4" Minimum



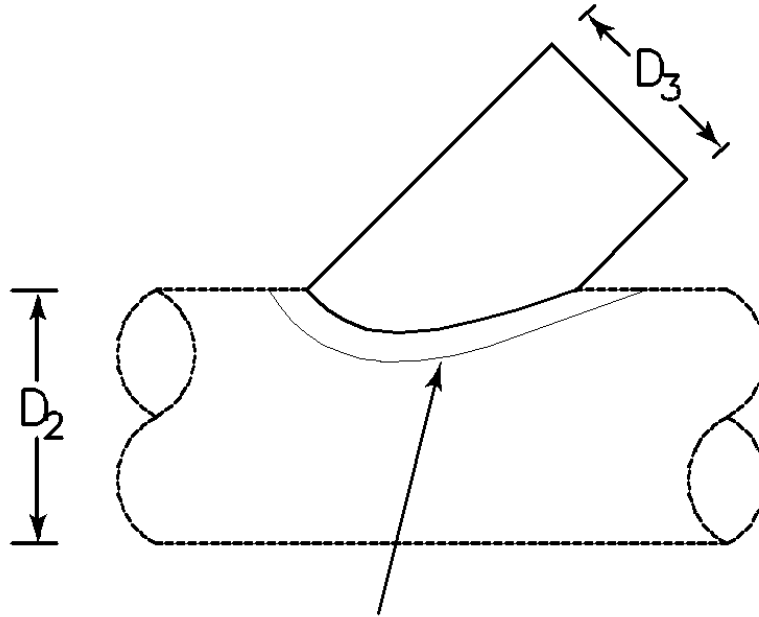
OFFSETTING REDUCER

$$X = O \times 3$$

4" Minimum



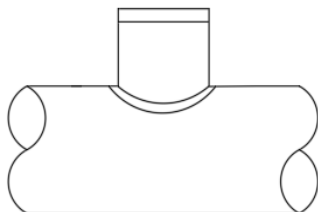
ROUND END SADDLE TAPS



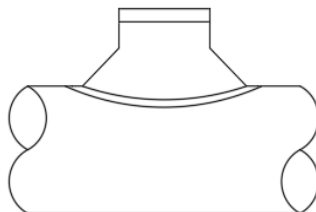
4"-16"= 1/2" FLANGE OUT

18" AND ABOVE= 2" PLATE WITH 1/2" HEM IN

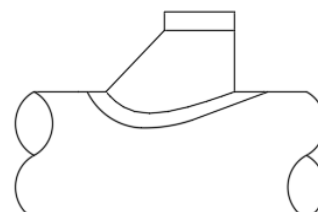
- STANDARD 45 DEGREE&90 DEGREE ANGLES. ALTERNATE ANGLES AVAILABLE.
- 90 DEGREE CONICAL AVAILABLE.
- HIGH EFFICIENCY SHOE STYLE AVAILABLE



90 DEGREE SADDLE



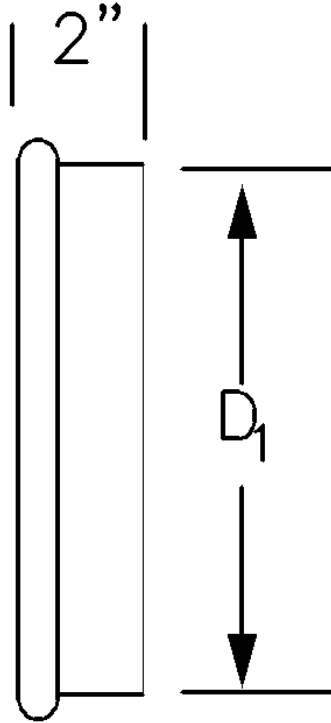
CONICAL SADDLE



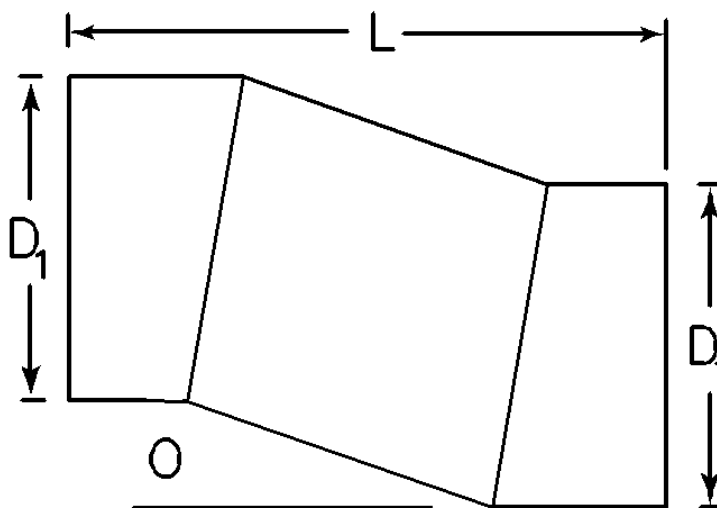
SHOE STYLE SADDLE



END CAPS



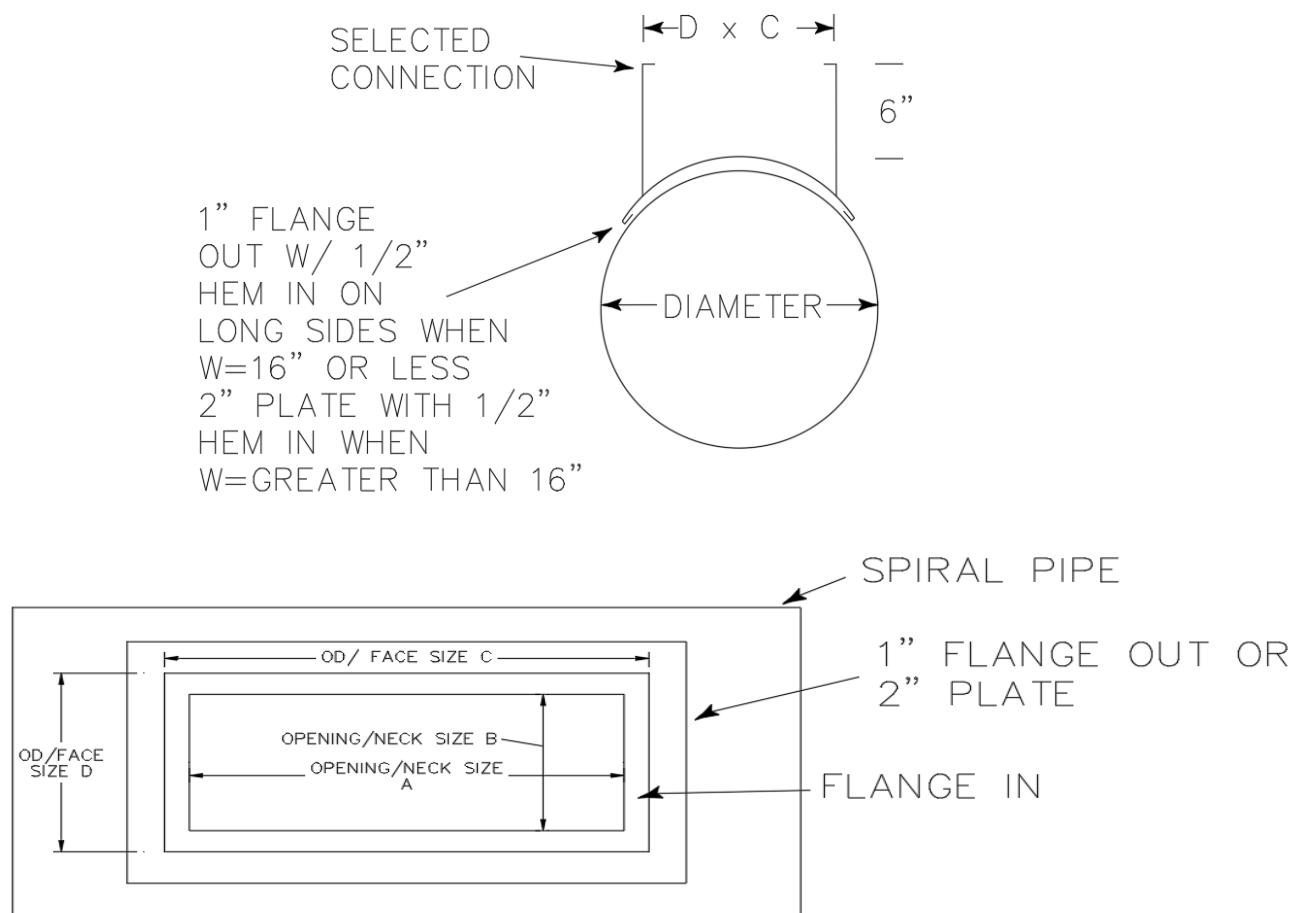
OFFSETS



- LENGTH TWO OR THREE TIMES THE OFFSET



RECTANGULAR END SADDLE TAPS

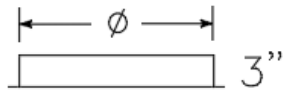


REGISTER BOX SQUARE END SADDLE

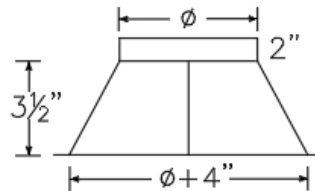
- **SPOT WELDED SEAMS USED ON BOXES**
- **STANDARD RECTANGULAR CONNECTION IS FLANGE IN**
- **ALTERNATE CONNECTIONS AVAILABLE: SLIP AND DRIVE, TDC, OR PREMANUFACTURED FLANGE FOR RECTANGULAR END**



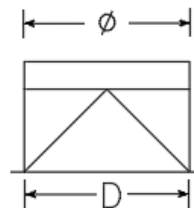
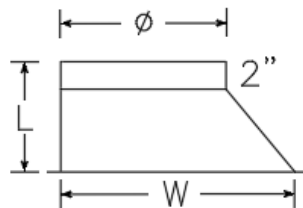
ROUND TAPS OFF FLAT SURFACES



STRAIGHT STICK-ON



CONICAL STICK-ON

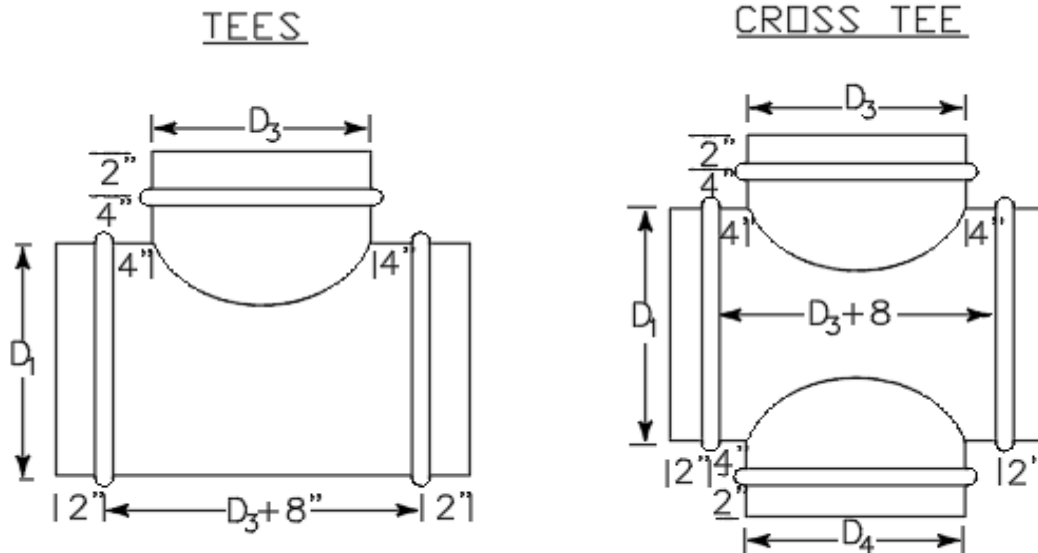


HIGH EFFICIENCY SIDE TAKE OFF

- **ALL TAPS HAVE 3/4" FLANGE OUT WITH 1/8" THICK GASKET.**
- **45 DEGREE LATERAL TAPS AVAILABLE**
- **INSTALLED DAMPERS AVAILABLE (SEE DAMPER SHEET FOR DETAILS)**



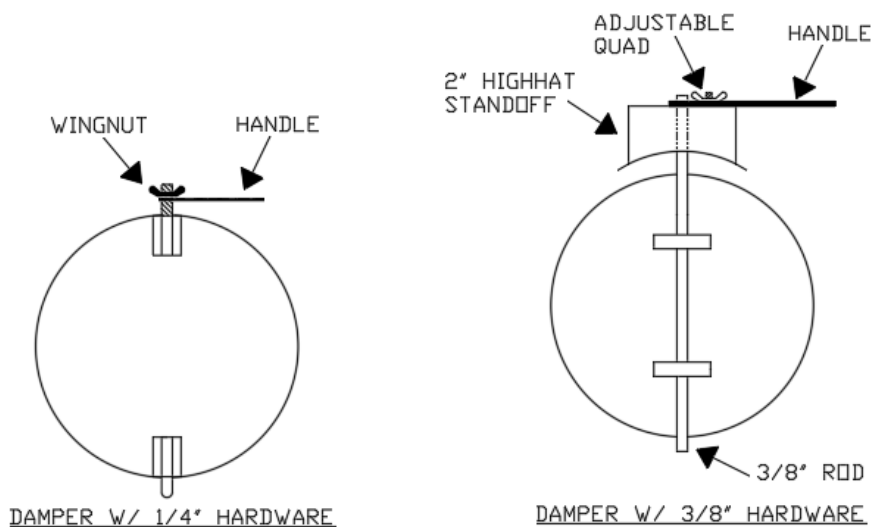
TEES AND CROSSES



- SEALED, TACK WELDED SEAMS, STITCH WELDED LONGITUDINAL SEAMS
- CONICAL, SHOE STYLE, 45 DEGREE LATERAL TEES AND CROSSES AVAILABLE
- REDUCING TEES AND LATERALS ALSO AVAILABLE



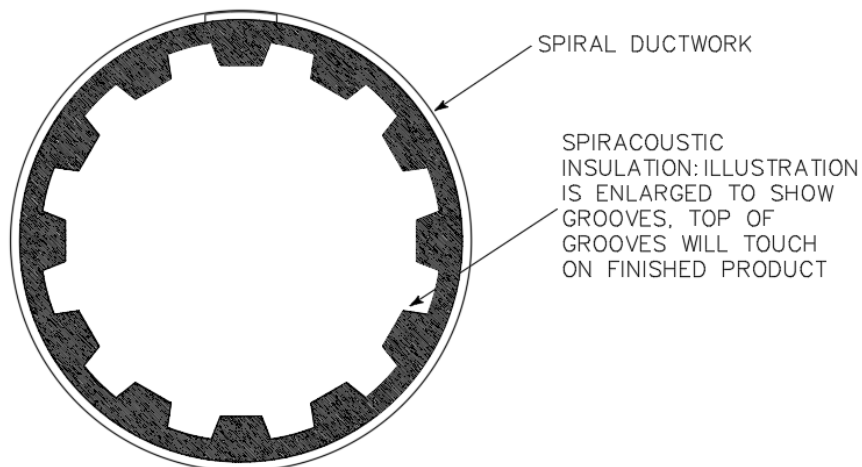
ROUND DAMPERS



- **DAMPER AVAILABLE IN SLEEVES, LOOSE, OR INSTALLED IN SPIRAL PIPE AND FITTINGS**
- **DAMPERS UP TO 16" ROUND WILL BE 1/4" HARDWARE**
- **DAMPER 18" AND ABOVE WILL BE 3/8" ROD HARDWARE**
- **RAPID STANDOFFS AVAILABLE FOR 1/4" HARDWARE**



DUCT LINER INSTALLATION APPLICATION DETAIL



- **DUCT BOARD IS CUT TO LENGTH OF SPIRAL DUCT**
- **CUT PIECE IS THEN GROOVED AT HRANEC CORP**
- **GROOVED PIECES ARE ROLLED AND TAPED AT THE SEAM**
- **BOARD IS THEN INSERTED INTO SPIRAL AND HELD IN PLACE BY FRICTION**



LINER SPECIFICATIONS



QUIETR® DUCT BOARD ALL-IN-ONE SYSTEM



Owens Corning® QuietR® Duct Board is a rigid, resin bonded fibrous glass board with a tough, damage-resistant, flame retardant, reinforced aluminum foil (FRK) facing; with a durable mat air stream surface.

QUIETR® DUCT BOARD

- Absorbs noise and reduces popping noises caused by expansion, contraction and vibration
- Assured thermal R-value performance
- Bacterial and fungal growth resistant with an EPA registered biocide that helps protect the air stream surface from microbial growth
- Thermal/acoustical insulation board plus jacket forms a single component duct system, thus reducing inspection time
- Lightweight boards are easier to transport and handle than insulated sheet metal ducts
- Virtually eliminates air leakage thus saving energy and removing the need for system overdesign

Physical Properties

PROPERTY	TEST METHOD	VALUE
Maximum operating temperature limits	UL 181/ULC S110	Internal: 250°F (121°C) External: 150°F (65°C)
Maximum air velocity	UL 181/ULC S110 Erosion test	6,000 fpm (30.5 m/s)
Static pressure limit	UL 181/ULC S110	±2 in. w.g. (500 Pa)
Water vapor sorption	ASTM C 1104	<3% by weight at 120°F (49°C), 95% R.H.
Mold growth	UL 181/ULC S110	Meets requirements
Fungi resistance	ASTM G21	Meets requirements
Bacteria resistance	ASTM G22	Meets requirements
Surface burning characteristics ¹	UL 723/ULC S102	<251 ±50
Flame spread		
Smoke developed		
Fire retardancy	UL 181/ULC S110	Flame penetration 30mm

1. The surface burning characteristics of this product have been determined in accordance with UL 723/ULC S102. This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. Values are reported to the nearest 5 rating.

Product Applications

QuietR® Duct Board may be used to fabricate components for indoor commercial and residential heating, ventilating and air conditioning duct systems operating at static pressures to ±2 in. w.g. (500 Pa), internal air temperatures 40°F (4°C) to 250°F (121°C), and air velocities to 6,000 fpm (30.5 m/s). Straight duct sections, elbows, tees, offsets and other system elements can quickly and easily be fabricated at the shop or on the job and assembled into a complete air distribution system using these lightweight, thermally efficient boards.

Availability

TYPE	THICKNESS	DENSITY, PCF (KG/M3)
Type 475	1" (25mm)	4.4 (70)
Type 800	1½" (38mm)	3.8 (61)
Type 1400	2" (51mm)	3.8 (61)

Type designates tensile strength defined by flexural rigidity. Type selection depends on duct size, pressure and reinforcement schedule. The 1½" (38mm) and 2" (51mm) thickness provides superior thermal value.

Thermal Performance

AT 75°F (24°C) MEAN TEMPERATURE	1" (25MM)	1½" (38MM)	2" (51MM)
R-value, hr-ft²·°F/Btu (RSI, m²·°C/W)	4.30 (0.76)	6.50 (1.15)	8.70 (1.53)
k-value, Btu-in/hr-ft²·°F (W/m·°C)	0.23 (0.033)	0.23 (0.033)	0.23 (0.033)
C-value, Btu/hr-ft²·°F (W/m²·°C)	0.23 (1.32)	0.16 (0.87)	0.12 (0.65)

Mean R-value is the average of 1-in fiberglass duct, 1-in of metal made-in-duct and 1-in of the ambient or outside air. Spec. for design thickness should be accurate to prevent exterior surface condensation.

Acoustical Performance

Sound absorption coefficients at octave band center frequencies, Hz.

THICKNESS	125	250	500	1000	2000	4000	NRC
1"	0.10	0.24	0.74	1.02	1.06	1.06	0.75
1½"	0.15	0.42	1.03	1.12	1.07	1.06	0.90
2"	0.15	0.77	1.19	1.16	1.05	1.06	1.05

This data was collected using a limited sample size and are not givings values. The above representative values must be applied. Tests were conducted in accordance with ASTM C473, Mounting A (1" material applied against a solid backing).

Technical Information

National Fire Protection Association Standards NFPA 90A and 90B for air conditioning and ventilating systems require air ducts to be Class 0 or 1. The tests set stringent requirements on fire safety as well as ruggedness. To meet Class 1 air duct requirements, the system must withstand UL 181/ULC S110 tests such as erosion, pressure loss, impact, collapse, puncture, static load and fire retardancy (30 minute flame penetration test). Also, to qualify as a Class 1 Air Duct System, the following UL 723/ULC S102 fire testing requirements must be met: Flame Spread, 25; Smoke Developed, 50.

Limitations

Fiberglass ducts should not be used in the following applications:

- Kitchen or fume exhaust ducts, or to convey solids or corrosive gases;
- In concrete or buried below grade, outdoors;
- As casings and/or housings of built-up equipment;
- Immediately adjacent to high temperature electric heating coils without radiation protection;
- For vertical risers in air duct systems serving more than two stories in height;
- With coal or wood fueled equipment, or with equipment of any type which does not include automatic maximum temperature controls;
- In variable air volume systems on the high pressure side unless reinforced to withstand the full fan pressure;
- As penetrations in construction where fire dampers are required, unless the fire damper is installed in a sheet metal sleeve extending through the fire wall, or
- When the duct system is located in non-conditioned space and is used for cooling only (when heating is from another source), unless all registers which would allow moist air into the duct system are vapor sealed during the heating season to prevent condensation from forming inside the duct.

Standards, Codes Compliance

- Meets UL 181 Class 1 Air Ducts
- Meets NFPA 90A/90B
- Meets ICC International Mechanical Code, Corps of Engineers Guide Spec.
- Supported by NAIMA and SMACNA industry standards
- Meets requirements of UL 181 and ASTM C1338 (mold growth), ASTM G21 (fungi test) and ASTM G22 (bacteria test)

Fabrication and Installation

Fabrication and installation of fiber glass Duct Systems shall be in accordance with the UL listing and shall conform to Owens Corning's published methods and/or latest editions of NAIMA (North American Insulation Manufacturers Association) Fibrous Glass Duct Construction Standards (AH116 or AH119) or SMACNA (Sheet Metal and Air Conditioning Contractors National Association) Fibrous Glass Duct Construction Standards.

UL181A Listed Closure

UL 181A Listed Closure must be employed to meet the requirements of UL 181/ULC S110. USE OF A NON-LISTED CLOSURE SYSTEM VOIDS THE UL CLASS 1 AIR DUCT RATING. The following are the listed closure methods:

- Pressure-Sensitive Tape (UL 181A-P)
- Mastic and Glass Fabric (UL 181A-M)
- Heat-Activated Tape (UL 181A-H)

Cleanability

The durable mat air stream surface makes it easy to clean the duct system using methods and equipment described in North American Insulation Manufacturers Association (NAIMA) Publication AH122, Cleaning Fibrous Glass Insulated Duct Systems.

Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation and composite solutions, delivering a broad range of high-quality products and services.

Owens Corning is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. More information can be found at www.owenscorning.com.

For additional information, refer to the Safe Use Instruction Sheet (SUIS) found in the SDS Database via <http://sds.owenscorning.com>.

Certifications and Sustainable Features

- Certified by SCS Global Services to contain an average 53% with minimum 22% post-consumer and balance 31% pre-consumer recycled glass content
- GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit ul.com/gg*
- Environmental Product Declaration (EPD) has been certified by UL Environment
- Health Product Declaration® for QuietR® Duct Board
- Certified as made with 100% wind-powered electricity by SCS Global Services



*GREENGUARD Gold certification is for boards 1" or less in thickness.