

Sample Engineering Specification for Lindab Safe®

I. GENERAL

- A. All round supply, return and exhaust ductwork shall be Lindab Safe® as manufactured by Linx Industries, Inc. (800) 797-7476. The duct system shall consist of fittings that are factory fitted with a sealing gasket and spiral duct which, when installed according to the manufacturer's instructions, will seal the duct joints without the use of duct sealer.
- B. The contractor may, at his option, convert rectangular ductwork to round provided that the project space limitations are properly addressed and that the overall system design static pressure has not been exceeded.

II. MATERIALS

- A. Galvanized steel conforming to ASTM standards A653 and A924 conforming to the latest SMACNA HVAC Duct Construction Standards.
- B. When specified on the contract documents, stainless steel type 304L or type 316L in accordance with ASTM A-240 shall be provided with a surface finish #2.
- C. When specified on the contract documents an epoxy based powder coating with an average coating thickness of 4 mils (0.004 inch) both inside and outside of the spiral pipe and fittings. Coating to meet or exceed 1,000 hour salt spray test in accordance with ASTM B117-97.
- D. EPDM sealing gasket to conform to ASTM E84-91A and NFPA 90A flame spread and smoke developed ratings of 25/50.

III. CONSTRUCTION

- A. Unless otherwise noted, all duct and fittings shall be constructed per the latest SMACNA HVAC Duct Construction Standards for +10 inch water gauge pressure.
- B. Duct is of spiral lockseam construction with a mechanically formed seam locking indentation evenly spaced along the spiral seam. All spiral duct greater than 7 inch diameter incorporates multiple corrugations between the spiral seams.
- C. Double wall duct and fittings will consist of 1 inch (or optional 2 inch), 1.0 lb/ft³ layer of glass fiber insulation. On spiral pipe, a retaining fabric is wrapped between the perforated inner and the glass fiber insulation. This fabric provides glass fiber tear retention while maintaining the desired acoustical properties. Fittings have a solid inner liner. The outer pressure shell diameter will be 2 inches larger (or 4 inches larger with the optional 2 inch insulation) than the inner liner. The inner liner and outer duct will be spiral lock seam construction and furnished

with a recesses perforated inner liner and Linx's EnergyX insulation stop. Fittings will be furnished with the Lindab Safe® gasket on the outer shell. The inner shell will be flushed with the outer shell and will utilize an insulation stop for thermal integrity and to simplify installation.

D. Fittings

- a. All fitting ends shall come factory equipped with a double lipped, U-profile, EPDM rubber gasket. Gasket shall be manufactured to gauge and flexibility so as to insure that system will meet all of the performance criteria set forth in the manufacturer's literature.
- b. The gasket is to be mechanically attached to the fitting using a spot welded stainless steel metal band located in a groove at the end of the fitting.
- c. All fitting ends shall be calibrated to manufacturer's published dimensional tolerance standard and associated spiral duct.
- d. All fitting ends shall have rolled over edges for added strength and rigidity.
- e. All fittings ends 26 inch and larger shall have an extended and tapered slip dimension to facilitate assembly.
- f. All elbows from 3" to 12" diameter shall be 2 pieces die stamped and continuously stitch welded. All elbows 14" diameter and larger shall be standing seam gore lock construction and internally sealed.
- g. All fittings that are of either spot-welded or button punched construction shall be internally sealed. When contract documents require divided flow fittings, only full body fittings will be accepted. The use of duct taps is unacceptable.

E. All volume and balancing dampers shall be Lindab Safe® type DRU, DSU or DTU as specified on the contract documents. Damper shall be fitting sized to slip into the spiral duct with a double lipped, U-profile, EPDM rubber gasket. Damper shall have the following features:

- a. Locking quadrant with blade position indicator
- b. 2" sheet metal insulation stand-off
- c. Integral shaft/blade assembly
- d. Shaft mounted, load bearing bushings
- e. Gasketed shaft penetrations to minimize air leakage

IV. PERFORMANCE – Manufacturer shall provide to the owner a written 10 year duct system performance warranted to satisfy SMACNA Leakage Class 3. Any joints or connections installed without a self-sealing gasketed connection shall be supplied with a factory installed flange and field sealed to meet leakage Class 3 requirements. The duct system must be field tested by an independent agency to satisfy Leakage Class 3; this testing will not be required with Lindab Safe® products.