



Fabric Duct Systems, Inc.

**Polyester 300 – Woven Coated Fabric**  
Used exclusively with punched orifice air distribution

**Section 23 3110 – Non-metal ducts**

**PART 1-GENERAL**

**1.01 DESCRIPTION OF WORK:**

- A. Custom fabric ductwork is indicated on drawings and by requirements of this section.
- B. Types of fabric ductwork required for this project include the following:
  - 1. PowerThrow® orifices over 1½ inches diameter
  - 2. GentlThrow® orifices from ¼ to 1½ inches diameter

**1.02 QUALITY ASSURANCE:**

- A. Building Codes and Standards:
  - 1. Product must be tested in accordance with the 25/50 flame spread / smoke developed requirements of NFPA 90-A. Each duct run to be labeled with flame spread/smoke test data..
- B. Design & Quality Control
  - 1. Manufacturer must have documented design support information including duct sizing, vent and orifice location, sizing, & spacing, duct length, and suspension type. Parameters for design, including maximum air temperature, air flow velocity, static pressure and fabric permeability, shall be considered and documented.

**1.03 SUBMITTALS:**

- A. Product Data: Submit manufacturer's specifications on materials and manufactured products used for work of this section.
- B. All submittals must include performance data for each duct system including inlet CFM, Static Pressure, inlet air flow velocity, vent/orifice orientation & sizing, suspension type, and Installation Instructions.

**1.04 WARRANTY**

- A. Manufacturer must provide a 10 Year Product Warranty for the fabric portion of this system as well as a Design and Performance Warranty.

**1.05 DELIVERY, STORAGE AND HANDLING:**

- A. Protect fabric duct product from damage during shipping, storage and handling.
- B. Where possible, store products inside in a dry, above the floor location. Prevent dirt and moisture from entering packaging. Fabric ducts must be installed only after all construction debris has been eliminated and the inlet sheet metal runs cleaned and new inlet filters installed.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURER:**

Subject to compliance with requirements, provide product engineered and manufactured only in the United States.

Q-Sox - Fabric Duct Systems, Inc.

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- A. Air diffusers shall be constructed of a treated woven fire retardant fabric complying with the following physical characteristics:
  - 1. Fabric Construction: 100% Polyester
  - 2. Coating: urethane treatment
  - 3. Weight: 7.3 oz./yd<sup>2</sup>
  - 4. Color: (MUST SPECIFY-white, black, gray, blue, red, green)
  - 5. Air Permeability: 0 cfm/ft<sup>2</sup> per ASTM D737, Frazier
  - 6. Temperature Range: 0 degrees F to 350 degrees F
  - 7. Product must be tested in accordance with the 25/50 flame spread /smoke developed requirements of NFPA 90-A.
- B. SYSTEMS FABRICATION REQUIREMENTS:
  - 1. Dispersion orifice sizing, up to 6 inch diameter (design dependant).
  - 2. Size, quantity, and location of orifices to be specified and approved by manufacturer.
  - 3. Inlet connection to metal duct via worm gear band as supplied by manufacturer.
  - 4. Lengths to include required zippers as specified by manufacturer.
  - 5. Fabric system shall include connectors to accommodate suspension system listed below.
  - 6. Any deviation from a straight run shall be made using a gored elbow or a take-off port. Normal 90 degree elbows are 5 gores and a radius of 1.5 times the diameter of duct diameter.

6. Any deviation from a straight run shall be made using a gored elbow, a Tee joint, or a take-off port. 90 degree elbows are 5 gores and a minimum radius of 1.5 times the diameter of the fabric duct.

**C. DESIGN PARAMETERS:**

1. Fabric air diffusers shall be designed from 0.25" water gage minimum to 3" maximum, with 0.5" as the standard.
2. Fabric air diffusers shall be limited to design temperatures between 0 degrees F and 250 degrees F.
3. Design CFM, static pressure and diffuser length shall be designed or approved by the manufacturer. (1,000 to 1,800 Feet Per Minute recommended inlet air flow velocity).
4. Do not use fabric diffusers in concealed locations.
5. Use fabric air distribution only for positive pressure air distribution.
6. No fabric return air (negative pressure) components are possible.

**D. SUSPENSION HARDWARE: (choose one of following four suspension systems)**

1. **Cable:** System shall be installed using a cable system including:

- A. Single row of cable located 2.5" above top-dead-center for diameters less than 30 inches
- B. Double row at 2 & 10 o'clock locations required for systems of 26 to 48 inches in diameter.
- C. 3-point suspension at 2, 10, & 12 o'clock for duct diameters 48 inches or larger.

Hardware to include cable, thimbles, cable clamps and turnbuckle(s) as required. System attachment shall be made using nylon snap clips spaced 36 inches. Two turnbuckles are supplied for each cable run over 100 feet long.

Component options include either:

1. 1/8"X 3/16" Vinyl-clad Steel Cable (Standard)
2. 3/16" Stainless Steel Cable (Optional)

Fabric-to-Cable attachment:

- A. Webbed Nylon Snap Hooks on 24" centers

2. **Lite-Trak® Rail System with Vertical Suspension Cables:** System shall include:

- A. Single run of aluminum rail duct run located 1 5/8 inches above top-dead-center
- B. Double Rail system 1 5/8 inches above the 10 and 2 o'clock locations of duct system. Double Rail is required for systems of 26 to 46 inches in diameter.
- C. 3-point suspension at 2, 10, & 12 o'clock for duct diameters 48 inches or larger.

Hardware to include 10 foot sections of Lite-Trak® aluminum rail, Rail Splices, Hanger Clips, 1/16"Ø galvanized Steel suspension cables cut to length & terminated, and Cable Locks. Factory mitered Rail sections and connecting Elbow Splices are supplied for systems with Elbows.

3. **Lite-Trak® Rail System Rigid (seismic) Mounted with 3/8" Threaded Rod**

Hardware to include 10 foot sections of Lite-Trak® aluminum rail and Rail Splices plus 3/8" Jam nuts, 3/8" Hex head Bolts, and 3/8" Extension Collars for every seven feet of rail length.

4. **Lite-Trak® Rail System with Ceiling-Mounted or Wall Bracket Plate:** System shall include aluminum Flush-Mount system located 1 5/8 inches above top-dead-center of diffuser system. Ceiling mounting plate assemblies are supplied for every seven feet of rail length. Q-Sox does NOT supply Wall Brackets.

Fabric-to-Rail attachment:

- A. Webbed DELRIN® Gliders are positioned every 24" along the fabric duct length for all Rail systems and will promote easy sliding movement in the lower channel of the Lite-Trak® aluminum rail.
- B. Continuous cord for single rail suspension available for duct diameters less than 24 inch diameter.

**PART 3 - INSTALLATION**

**3.01 INSTALLATION OF FABRIC AIR DISPERSION SYSTEM:**

- A. Install chosen suspension system in accordance with the requirements of the manufacturer. Illustrated Instructions for installation shall be provided by the manufacturer along with suspension hardware.

**3.02 CLEANING AND PROTECTION:**

- A. All HVAC equipment and ducting shall be protected during construction and cleaned before any fan is turned on. Filters of the specified efficiency must be in place when the fans are running and changed as necessary throughout construction. New filters shall be installed prior to fabric-to-sheet metal connections. Equipment must be tested prior to completion and assigning to owner.
- B. Clean external surfaces of foreign substance which may cause corrosive deterioration of facing.
- C. If fabric ducts become soiled during installation, they should be removed and cleaned following the manufacturers standard terms of maintenance.