

# OUR PRODUCTS

DuctSox Products are Fabric Ductwork and Diffuser Systems used for heating, cooling, or ventilating. They are a cost effective, aesthetically attractive alternative to metal ductwork and diffusers. Each DuctSox System is 100% custom made, starting from the engineering design to the manufactured product. DuctSox designs can be simple, straight systems or have very intricate layouts.

DuctSox offers the best products, design, and sales support in our industry. We strive to lead through a commitment to quality, service, and innovation. DuctSox products have also been accepted within key industry organizations such as ASHRAE, Underwriters Laboratories (U.S. & Canada), International Code Council, and many building authorities throughout the world.

2012

2013

2014

#### INNOVATIONS

1980

Air Permeable Fabrics

1994

1996

#### **USDA APPROVAL**

Microbe-X

High-Throw (Orifices)

**Fittings** 

Stainless Steel V-Track

Stat-X First Patent H-Track Mesh Vents

1998 Screen Printing Flow Straightener

Sedona

**UL-CLASSIFICATION** 

2000 TufTex

ICC-AC-167 (UL-2518)

2002

Sonic Venting DuraTex Verona Gripple Drop Supports

3D Drawings

2004

2006

08

#### **ADJUSTABLE FLOW DEVICE**

Sedona-Xm FinalFilter 10 Year Warranty Coronado (patterns)

3X1 SUSPENSION

Laser Cut Vents

4x2 Suspension LabSox CFD Analysis

**CLEANROOM CLASS FABRICS** (RX)

Displacement Ventilation UnderFloorSox

ChemSox 4-Color Personalization

SimpleSox U-Track Glider for Cable or Track

SkeleCore Energy Study

Fixed Nozzles
SKELECORE FTS

Hoops (IHS) KitchenSox

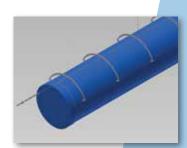
Adjustable Nozzles

OvalSox SKELECORE PULL-TIGHT













## APPLICATIONS

Food Processing

Industrial

Warehousing



Gymnasiums

Grocery



Classrooms

**Convention Centers** 

Stadiums/Arenas

Waterparks

#### **FITNESS CENTERS**

**Data Centers** 

Churches/Auditoriums

#### **LABORATORIES**

**Pharmaceuticals** 

Office Settings

**Acidic Production** 

**Recording Studios** 

#### LARGE OFFICE BUILDINGS

Kitchens

Medical

Aerospace

Crop Science













## FABRIC VS. METAL

Considering the many benefits of engineered textile systems over conventional metal duct and diffusers, more and more are considering a DuctSox Air Dispersion System for their open ceiling applications.

Precise Design Control
Uniform Air Dispersion
Minimal Balancing
No Condensation
Quiet
Efficient

Lower Cost
Easy to Ship
Lightweight
Easy Installation
Flexible
Hygienic

Clean Appearance
Colorful / Personalization
Comfortable Environment
Improved Productivity
Available Recycled Content
Performance Guarantee

#### **FABRIC**

Custom engineered air dispersion system



#### FABRIC IS MORE EFFICIENT THAN METAL

Extensive energy study by lowa State University confirmed DuctSox with linear vents brought the temperature of the space up 24.5% faster than equivalent metal. For more information, scan:



# PRODUCT FAMILIES

TRADITIONAL DUCTSOX



#### CRITICAL ENVIRONMENTS



#### UNDERFLOOR AIR DISTRIBUTION





# TRADITIONAL DUCTSOX

#### CONFIGURING A DUCTSOX SYSTEM

There are **FIVE KEY ELEMENTS** to consider when configuring a DuctSox System.

SHAPE/SUSPENSION/FABRIC RETENTION

2 LAYOUT/FITTINGS

3 AIR DISPERSION

4 FABRIC

5 OPTIONS

Further detail on each is explained in the pages that follow.

#### ENGINEERING, DESIGN, AND LAYOUT CRITERIA

Besides the Key Elements of configuring a DuctSox System, there is additional criteria/information needed to ensure that it is engineered and designed correctly to provide the best performance possible. Typical information required includes the following;

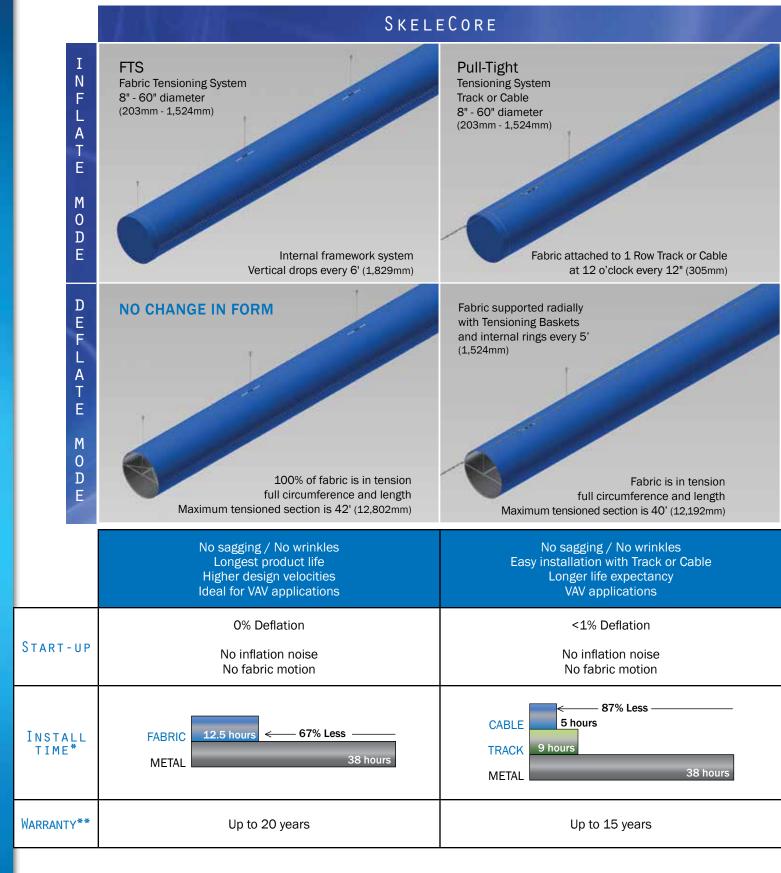
- VOLUME OF AIR AT THE INLET OF THE DUCTSOX
- ▶ STATIC PRESSURE AT THE INLET OF THE DUCTSOX
- AIR THROW MODELS
  - High-Throw
  - Comfort-Flow
  - Low-Throw

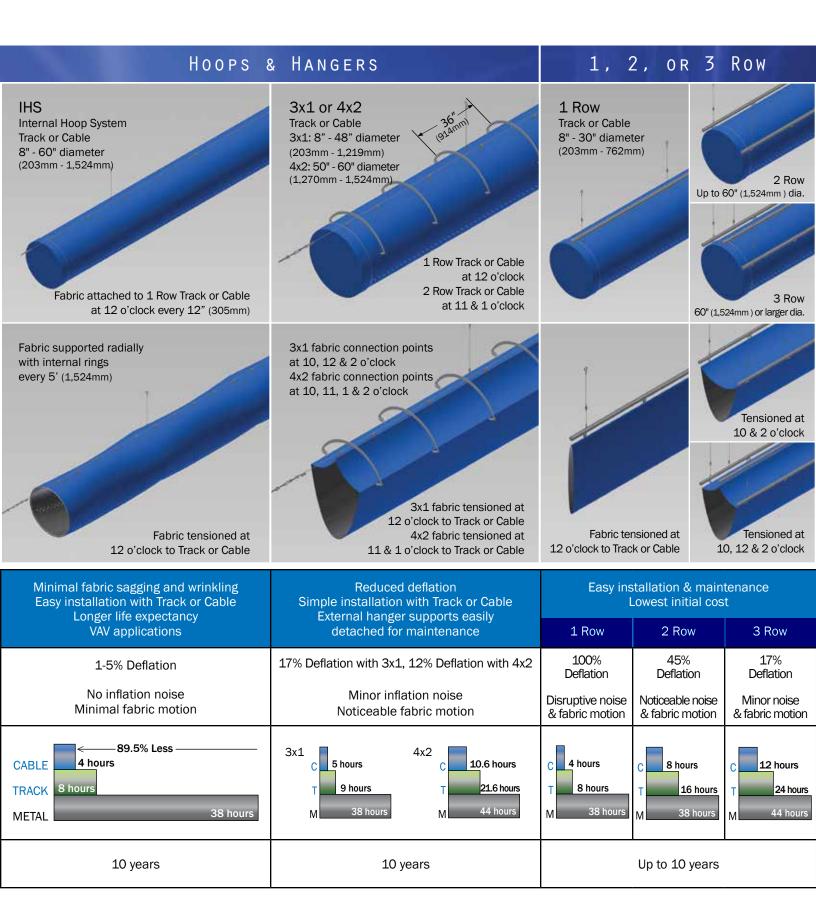
#### ▶ AIR DISPERSION REQUIREMENTS BASED ON APPLICATION NEEDS

- · Heating, cooling, and ventilation
- Supply-side air, air makeup, air destratification, and air displacement
- Uniform air dispersion
- Spot heating and cooling
- Versatile and multiple airflow designs
- Terminal velocity
- **▶** CONDENSATION
- ▶ HANGING HEIGHT
- DESIGN LAYOUT
- **▶** NOISE
- ▶ INSTALLATION REQUIREMENTS AND LIMITATIONS
- ▶ COST

To ensure proper system design, DuctSox Inside Sales and Engineering staff are available for assistance. Or, review the DuctSox Design Manual at www.ductsox.com.

# SUSPENSION/FABRIC RETENTION SYSTEMS



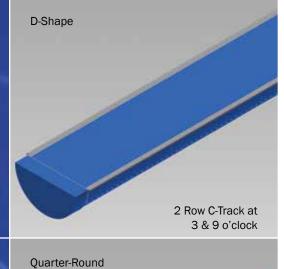


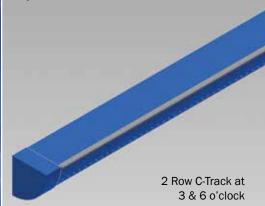
<sup>\*</sup> Installation time (hours of labor) based on a single length of 100' (30,480mm) of 24" (610mm) diameter DuctSox compared to an uninsulated spiral metal duct and diffusers. 4x2 and 3 Row systems evaluated with 50" (1270mm) diameter.

For more information on installation, please review the DuctSox installation estimator at www.ductsox.com.

<sup>\*\*</sup> Warranty varies based on fabric selection, suspension/retention, and design criteria.

# SURFACE MOUNT





## For applications with finished ceilings or specialty airflow requirements

1-5% Deflation

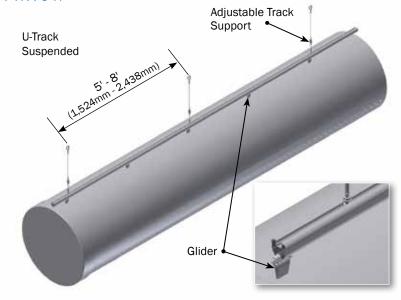
Minimum noise & fabric motion



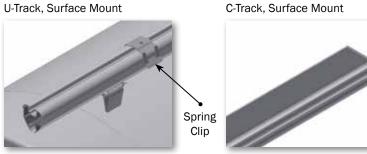
Up to 10 years

# SUSPENSION HARDWARE

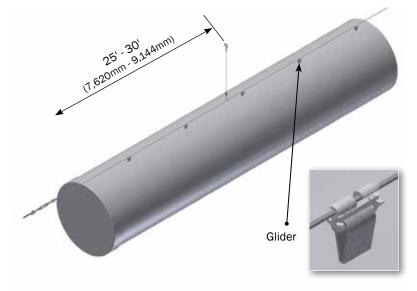
# TRACK



U-Track, Surface Mount



TENSION CABLE





For many years, Textile Air Dispersion Systems excelled at providing superior "Function" features and benefits, but fell short in terms of "Form." SkeleCore technology changes that, providing the ultimate in both Function and Form.

SkeleCore technology has changed the way fabric systems are designed. In the past, designing a fabric duct system began with selecting fabric, color, and ventilation layout. The suspension system was just an afterthought since it offered little aesthetic contribution to the total design. Today, however, it is typically chosen early on and it dictates most of the other design decisions.

- Will the AHU (fan) cycle during times of use?
- Are fabric wrinkles, bunching, and sagging visible in the deflate mode?
- Will the supply airflow be controlled by variable air volume (VAV) equipment?
- Is this a temporary-use application?
- Is fabric noise and movement during start-up tolerable?

With DuctSox, there are a variety of Suspension/Fabric Retention Systems to choose from. You decide what's important: Function, Form, or both.

#### SHAPE

Before selecting how the DuctSox System will be suspended, the Shape must first be decided. This is based on your application needs. DuctSox are available in Cylindrical, Oval, D-Shape, or Quarter-Round.







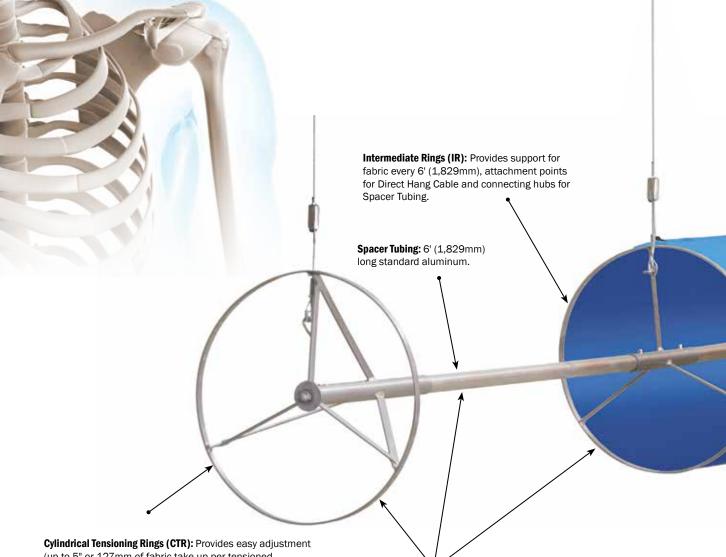


Whether horizontal, vertical, or angled, Cylindrical DuctSox are available in a variety of suspension and retention systems. For applications where the DuctSox will be mounted against a flat surface (wall, ceiling, or both), the Surface Mount products feature flexibility for shape, configuration, and inlet position (end, top, back).

# SKELECORE

INTERNAL FRAMEWORK SYSTEM

SkeleCore is the next generation of Textile Air Dispersion Systems! SkeleCore utilizes an Internal Framework System to provide aesthetic enhancement and improved performance characteristics. There are two SkeleCore models to choose from, including FTS (Fabric Tensioning System) and Pull-Tight. A significant benefit of both is that the fabric system is tensioned the full circumference—360 degrees of tensioning!



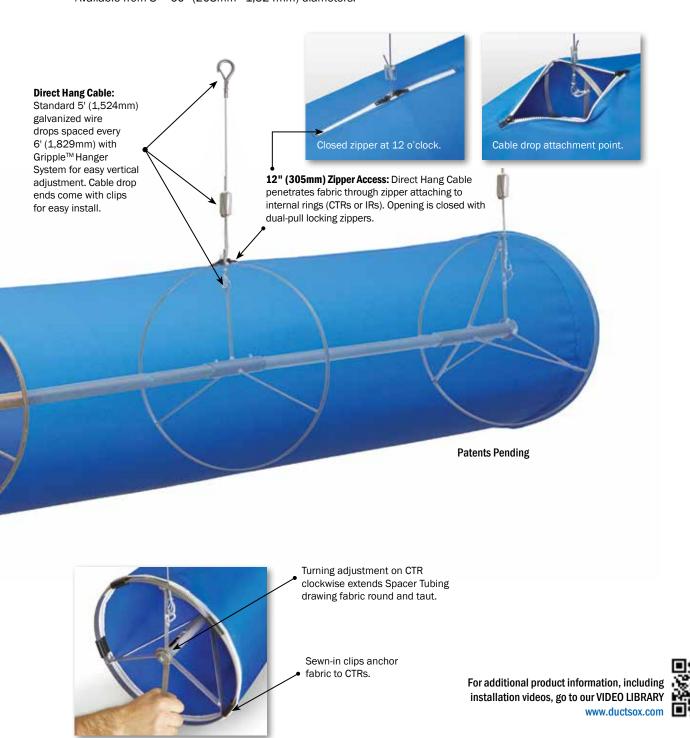
(up to 5" or 127mm of fabric take-up per tensioned section), attachment points for textile duct and Direct Hang Cable, and connecting hubs for Spacer Tubing. (Tensioned sections can be as long as 42' or 12,802mm.)

Internal framework produces minimal pressure loss as determined by an independent thirdparty testing laboratory.

Adjustment points at all CTRs.

# SKELECORE" FABRIC TENSIONING SYSTEM FTS

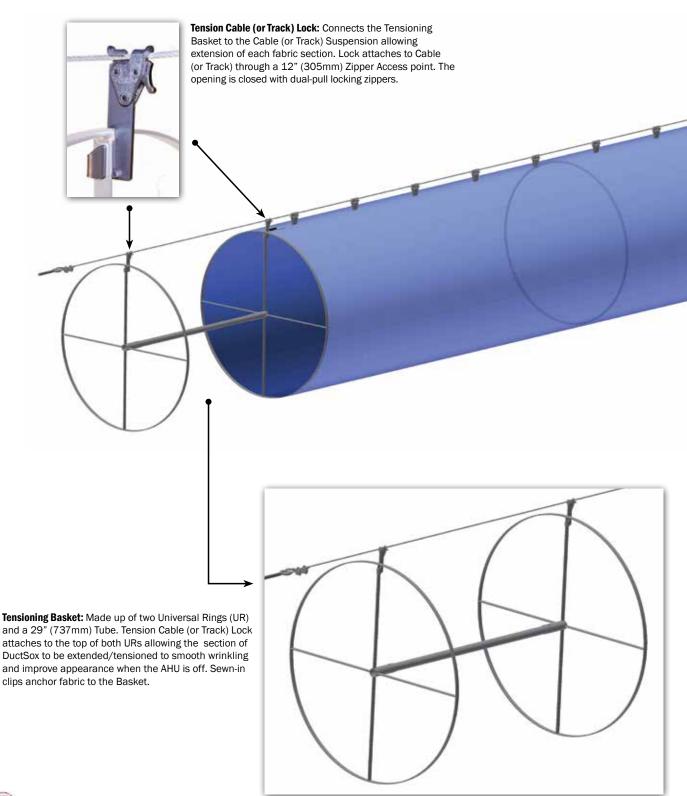
SkeleCore FTS stands alone as the only fabric duct/diffuser system that provides "internal" cylindrical tensioning to keep the fabric round and taut at all times. It maintains the same appearance with or without any air pressure in the duct and improves aesthetics by eliminating fabric sag and wrinkling. SkeleCore FTS is ideal when higher aesthetic value is desired, when cycling is frequent, or when systems are designed with variable air volume (VAV). It eliminates disruptive tendencies such as motion and noise upon AHU start-up, especially in hard start applications. SkeleCore FTS also features a unique metal-to-metal Direct Hang Cable method which is the SAFEST suspension in textile ducting. Fabric longevity is extended by minimizing system movement. Available from 8" - 60" (203mm - 1,524mm) diameters.

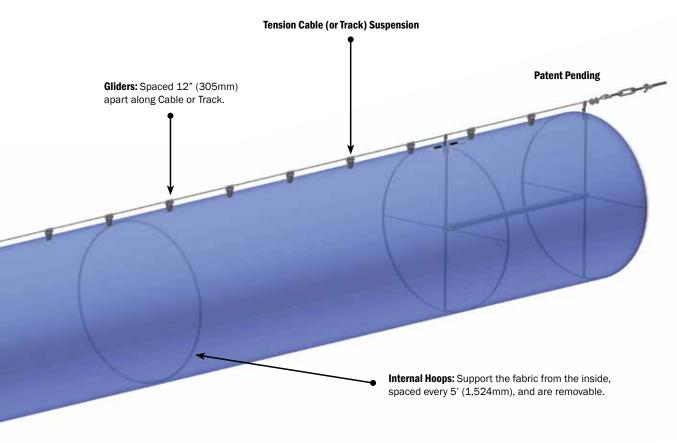


# SKELECORE"

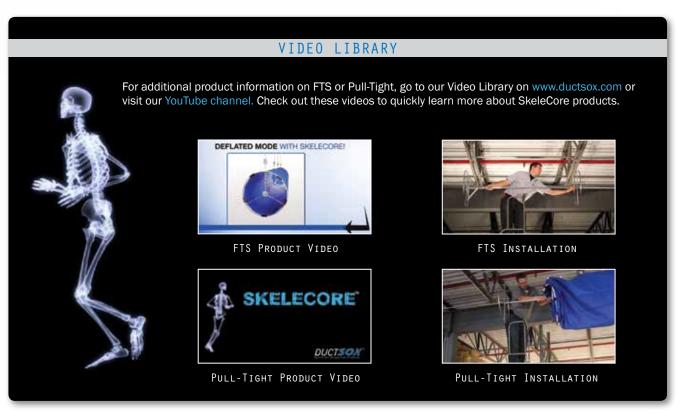
PULL-TIGHT

SkeleCore Pull-Tight utilizes a combination of Internal Hoops and Tensioning Baskets to help maintain fabric shape and retention. Different from FTS, Pull-Tight is suspended from a 1 Row Tension Cable or Track Suspension System and is tensioned "externally" utilizing a Tension Cable (or Track) Lock. Pull-Tight improves start-up performance and aesthetics when compared to multiple row, horizontal suspension systems. Available from 8" - 60" (203mm - 1,524mm) diameters. NOTE: Only one row of Cable or Track is required for ALL sizes.



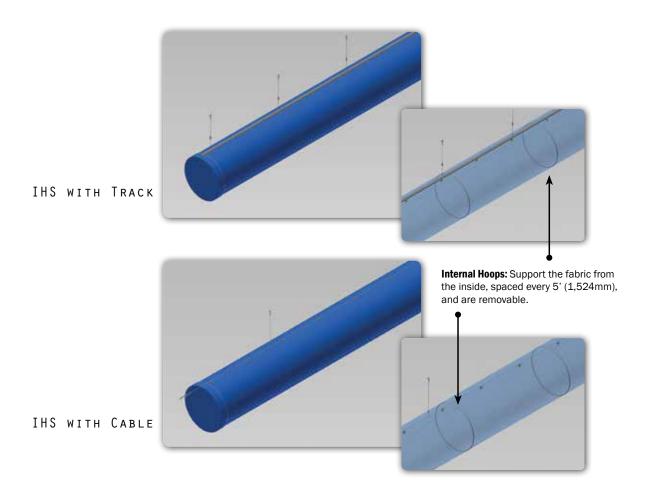






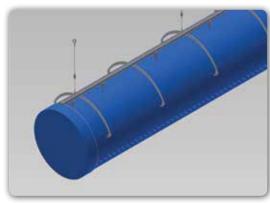
# HOOPS (IHS)

Hoops (IHS or Internal Hoop System) utilizes Internal Hoops to help maintain fabric shape and retention. The fabric is tensioned at 12 o'clock to Track or Cable. IHS improves start-up performance and aesthetics when compared to half round and multiple-point suspension systems. Available with Track or Cable from 8" - 60" (203mm - 1,524mm) diameters.

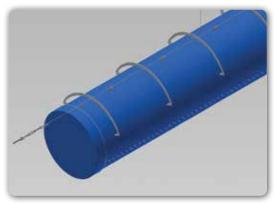


#### HANGERS

Hangers are available in either 3x1 or 4x2, depending on diameter, and can be used with Track or Cable. The 3x1 Hangers attach at the 12 o'clock position, while D-Clasps connect the duct at 10 & 2 to each Hanger end. The fabric is tensioned at 12 o'clock to the Track or Cable. Available in 8" - 48" diameter (203mm - 1,219mm). The 4x2 Hangers are made for larger diameters, attached at 11 & 1 o'clock with D-Clasps attached similarly to 3x1. The fabric is tensioned at 11 & 1 o'clock to the Track or Cable. Available in 50" - 60" diameter (1,270mm - 1,524mm).



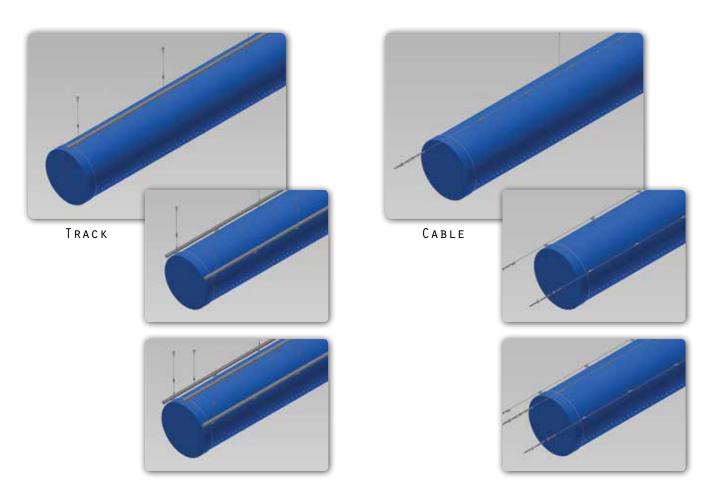
HANGERS WITH TRACK



HANGERS WITH CABLE

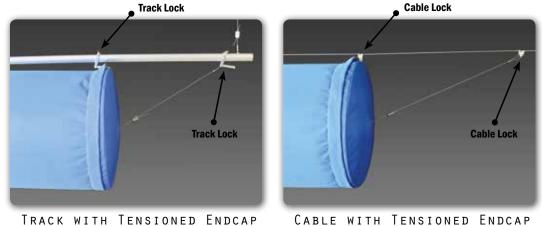
# 1, 2, or 3 Row

The most basic of DuctSox Suspension Systems is 1, 2, or 3 Row Track or Cable. Gliders are spaced every 24" (610mm) along the length to ensure proper support of the DuctSox System. Supporting hardware components are available in galvanized, 316 Stainless Steel, aluminum, or impregnated cable (for pool environments). 1 Row is available in 8" - 30" diameter (203mm -762mm), 2 Row is available up to 60" (1,524mm) diameter, and 3 Row is available for 60" (1,524mm) or larger diameter.



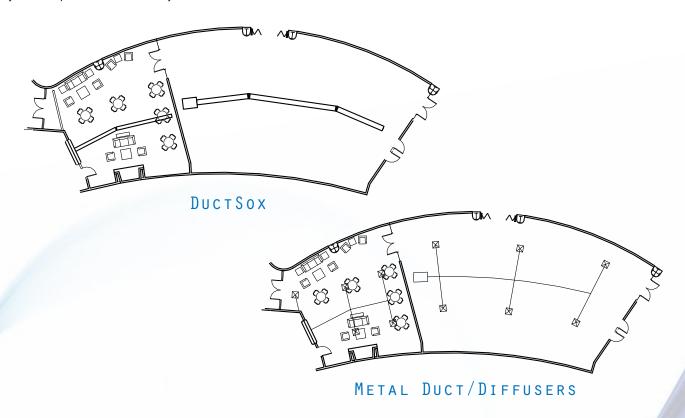
#### TENSIONED ENDCAP

The Tensioned Endcap is an option available for 1 Row Track or Cable Suspension Systems ONLY. The Tensioned Endcap allows an installer to pull on the Endcap around its full circumference and anchor it to the Track or Cable. This improves the appearance of the Endcap and the length of the duct up to 50' (15,240 mm). Available from 8" - 30" (203mm - 762mm) diameters. (Not available for stainless steel cable, impregnated cable, or cord-in attachment.) NOTE: For maximum aesthetics and tensioning of the entire DuctSox (especially for lengths longer than 50' or 1,270 mm where intermediate tensioning is required), see SkeleCore FTS or Pull-Tight.



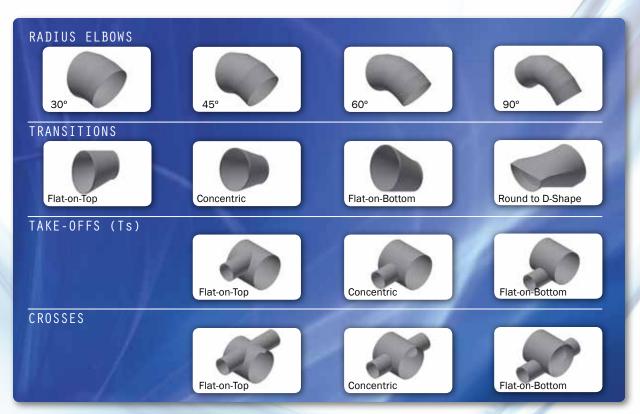
#### LAYOUT

Because the entire DuctSox System is a diffuser, air dispersion and distribution are combined allowing simple and efficient layouts compared to metal duct systems.



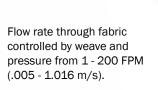
#### FITTINGS

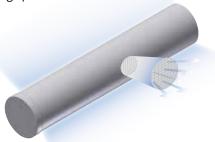
Not every application is a straight line of DuctSox. To accommodate this, we offer a variety of standard fittings (as shown below). We also offer custom fitting configurations.



#### AIR-POROUS FABRIC

Supply air is delivered exclusively through porous fabric.







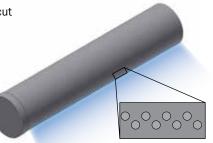


Ideal for cooling only; food processing, displacement, or critical environments.

#### LINEAR VENTS

- Delivers airflow through precision cut orifice patterns
- Vent size referenced by airflow per linear foot

Unlimited flexibility in designing vent size and location for optimum airflow control.



Airflow throw up to 90 ft. (27,432mm)

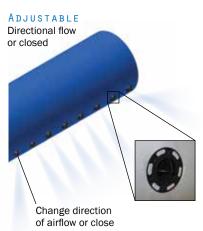


Most common method for heating and cooling; high entrainment from outlets provide uniform temperature and less drafts, creating a comfortable environment.

#### Nozzles

Provides jet-type airflow. Type, location, and quantity based on airflow requirements. Available in a variety of colors.





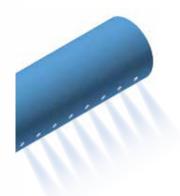
Airflow throw up to 60 ft. (18,288mm)



Common choice for spot cooling, heating, or ventilating. Directional Nozzle helpful for airflow control to create a more comfortable environment.

#### ORIFICES

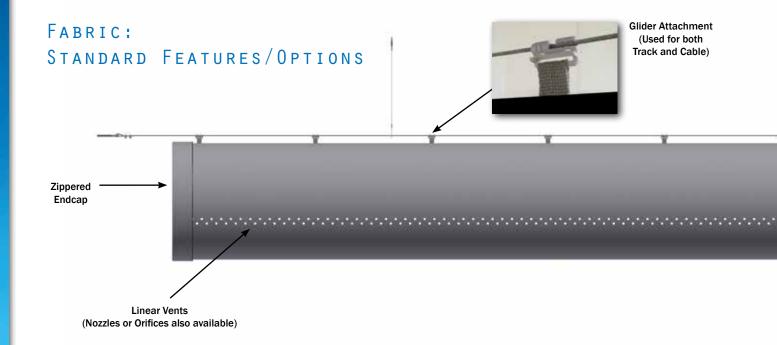
- Orifice sizes: ½" 5" (12.7mm 127mm) diameter/SG outlets 2" or 3" (51mm or 76mm) diameter
- Orifice size and orientation based on required air throw distance



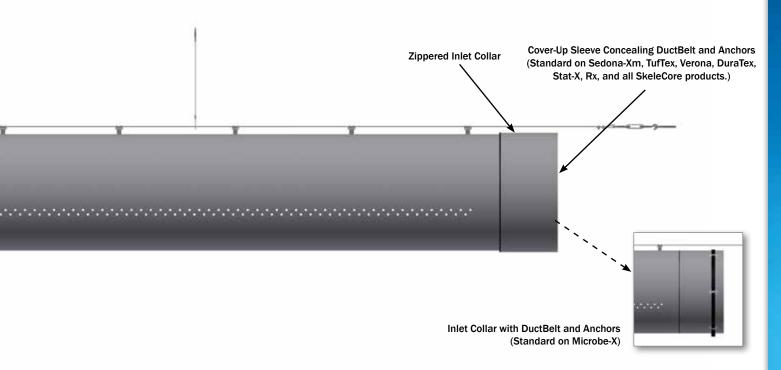
Airflow throw by orifice size & pressure, up to 150 ft. (45,720mm)



For heating and cooling, Orifices are ideal for areas requiring extended and precise throw such as recreation, arenas, convention centers, retail, industrial, warehouses, or spot cooling.

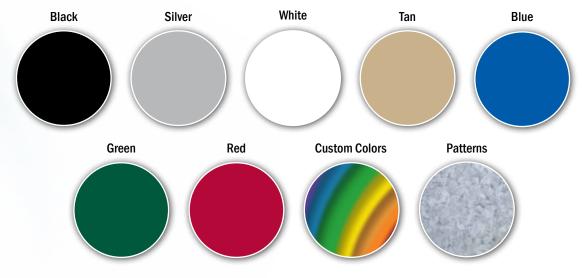


FABRIC TYPE	SPECIFICATIONS	Colors	0 THER			
Sedona-Xm <sup>™</sup>	Weave: Fire Retardant Polyester, Filament/Filament Twill 55% Recycled Content (available upon request) Weight: 6.8 oz/yd² (231g/m²) Porosity: 2 CFM/ft² @ 0.5" w.g. (10.2L/s/m² @ 125Pa) Classified by Underwriters Laboratories in accordance with the requirements of NFPA 90A and UL 2518		Air Porous     Premium Fabric     Active Antimicrobial (up to 30 washes)     Linear Vents, Nozzles, or Orifices			
TufTex™	Weave: Fire Retardant Polyester, Plain Weave, Coated Weight: 8.2 oz/yd² (278g/m²) Porosity: None Classified by Underwriters Laboratories in accordance with the requirements of NFPA 90A and UL 2518  • Non-Porous • Premium Fa • Linear Vents					
Verona™	Weave: Fire Retardant Polyester, Filament/Filament Twill Weight: 6.8 oz/yd² (210g/m²) Porosity: 2 CFM/ft² @ 0.5" w.g. (10.2L/s/m² @ 125Pa) Classified by Underwriters Laboratories in accordance with the requirements of NFPA 90A and UL 2518; UL-C (Canada); BS 5867 Part 2, 1980; GB8624-2006; DIN 4102-1					
DuraTex <sup>™</sup>	Weave: Fire Retardant Polyester, Plain Weave, Coated Weight: 5.5 oz/yd² (186g/m²) Porosity: None Classified by Underwriters Laboratories in accordance with the requirements of NFPA 90A and UL 2518; also available (by request only) to meet BS 5867 Part 2, 1980		Non-Porous     Commercial Fabric     Linear Vents, Nozzles, or Orifices			
Microbe-X™	Weave: Fire Retardant Polyester, Filament/Filament Twill  Weight: 6 & 13: 6.9 oz/yd² (234g/m²) 29: 6.2 oz/yd² (210g/m²)  Porosity: 6, 13, 29 CFM/ft² @ 0.5" w.g. (30.5, 66, 147L/s/m² @ 125Pa)  Classified by Underwriters Laboratories in accordance with the requirements of NFPA 90A and  UL 2518					
Stat-X™	Weave: Filament Polyester with Interwoven ESD Yarns Weight: 2.9 oz/yd² (98g/m²) Porosity: 2.5 CFM/ft² @ 0.5" w.g. (12.7L/s/m² @ 125Pa) Classified by Underwriters Laboratories in accordance with the requirements of NFPA 90A and UL 2518; UL-C (Canada)					
Rx™	Fabric: Rx2 <sup>TM</sup> , Rx6 <sup>TM</sup> , Rx15 <sup>TM</sup> , Rx25 <sup>TM</sup> , Rx50 <sup>TM</sup> , Rx100 <sup>TM</sup> , Rx200 <sup>TM</sup> Weave: Fire Retardant Polyester, Filament, Non-Linting Up to 50% Recycled Content Weight: Varies by Air Permeability: 5.4-7.1 oz/yd² (183-241 g/m²) Classified by Underwriters Laboratories in accordance with the requirements of NFPA 90A and UL 2518		Air Porous     Specialty Fabric     LabSox: D-Fuser or Traditional Models     Active Antimicrobial     Surround Flow or Select Flow     Linear Vents			



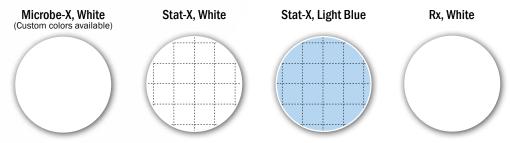
## STANDARD FABRIC COLORS

DuctSox offers seven standard colors for Sedona-Xm, TufTex, and Verona. DuraTex is also available in these colors except green and red. Custom Colors and Patterns are available on some fabrics, but may require a premium charge and additional lead time.



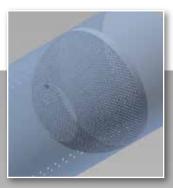
# SPECIALTY FABRIC COLORS

These fabrics are only available in specific color types and patterns.



NOTE: Colors may vary based on texture of fabric or dye lot.

# ADJUSTABLE FLOW DEVICE (AFD)



Airflow control is critical in HVAC air dispersion. The patented zip-in Adjustable Flow Device (AFD) offers variable resistance to balance static regain, balance airflow to branches, reduce turbulence, and reduce abrupt start-ups.

AFD devices come standard with Sedona-Xm and TufTex Systems. The AFD is an option with other fabrics.

Except at the inlet, all AFD's are pre-set from the factory and should not require field balancing. The inlet AFD can be adjusted for airflow turbulence.

#### PLENUM

Direct airflow into branch take-offs where velocity is over 1,200 FPM (6.01m/s).

#### INLET

Cinch to use as flow straightener or balance airflow. All systems with >1,200 FPM (6.01m/s) inlet velocity.

#### MIDDLE

Balances static regain. All systems with an intermediate zipper over 40' (12,192mm) and >1,200 FPM (6.01m/s) inlet velocity.

#### No Pop

 Reduces inflation pop. Single AFD located in last 30% of long run, included for all systems over 100' (30,480mm) and over 5,000 CFM (2,360L/s).

(Typically, systems should not include more than two AFDs in sequence to an endcap.)

# PERSONALIZE IT!

Personalize your DuctSox System with a logo, school name, company name, or slogan. For more information go to **www.ductsox.com**.







	Warranty Period (in years)*					
	SKELECORE FTS	SKELECORE PULL-TIGHT	Hoops (IHS)	HANGERS	1, 2, or 3 Row	Surface Mount
Sedona-Xm, TufTex	20 (pro-rated 11-20)	15 (pro-rated 11-15)	10	10	10	10
Verona, DuraTex	15 (pro-rated 11-15)	10	10	10	10 (pro-rated 8-10)	10 (pro-rated 8-10)

UFSox, Stat-X	5 (pro-rated 2.5-5)
Rx, Microbe-X, LabSox, KitchenSox, ChemSox	1
OvalSox	5 (1 year for Food Processing)

<sup>\*</sup>Application Requirements: Airflow and static pressure per original DuctSox design in accordance with published requirements. Warranty is based on inlet velocities up to 1600 FPM (8.12m/s). For SkeleCore FTS, a 10 year warranty is available for inlet velocities up to 2000 FPM (10.16m/s). Some exceptions may apply.

#### DESIGN & PERFORMANCE WARRANTY

DuctSox Systems that are designed within our performance criteria, based on DuctSox submittal documents, are covered by a 1 year Design & Performance Warranty. We want to ensure the product performs consistently through the entire heating and cooling cycle for the first year of operation. To ensure a DuctSox System is designed correctly, our Inside Sales and Engineering group are available to provide design assistance. Our Design Manual is also available on www.ductsox.com/media-library.

# PRODUCT WARRANTY

Our Product Warranty is for replacement or repair credit based on the amount of the warranty period remaining. The warranty is not available in the form of a cash payment, only as credit towards repair or replacement. The DuctSox Warranty covers materials, fabrication, and performance of the fabric portion of the DuctSox System only. Warranty coverage begins at the time of shipment.

Both the Design & Performance Warranty and the Product Warranty exclude damage to the fabric from improper installation, poor maintenance, abuse, abrasion, caustic chemicals, exposure to high temperature (over 180 degrees Fahrenheit, 82 degrees Celsius), fabric discoloration and shrinkage, or any unauthorized modifications to the DuctSox System. It also does not cover labor, equipment rental, or freight charges incurred as a result of executing the warranty.

The DuctSox Product Warranty is non-transferable.

# CODE COMPLIANCE

Underwriters Laboratories (UL) 2518 is the most comprehensive compliance requirement assembled for the fabric duct industry. They ensure that our products meet a higher level of safety, quality, and performance.

SIASSIFIED BILLINGS FILE R18856

Additional information is available at www.ductsox.com.



# CRITICAL ENVIRONMENTS

# Labson\* Air Dispersion For Critical Environments

Designed specifically for critical environments, LabSox products combine airflow design with specialized permeable fabrics and precisely shaped panels.

- Uniform, low velocity, radially diverging air patterns with minimum turbulence
- Can be easily retrofitted to resolve airflow issues in existing facilities
- Fabric faced products offer noise levels at least 10 NC quieter than metal
- ▶ Highly permeable, antimicrobial treated fabrics
- Modular D-Fuser available in MetalPan or All-Fabric models
- Also available in Round, D-Shape, or Quarter-Round

### APPLICATIONS INCLUDE

Chemistry Labs
Microscopy (TEM, SEM, FIB)
Vivariums

Pharmaceutical
Education
Paint Facilities

Cleanrooms

Laser Research

Displacement Ventilation



# Kitchen **50X**°

KitchenSox offer better air dispersion alternatives for food preparation environments.

- ▶ Airflow through textile eliminates drafts and condensation
- Introduce more supply airflow near hood while maintaining capture
- Reduces dirt deposits on diffuser and adjacent ceiling tiles
- Antimicrobial treated, highly porous textile offers secondary filtration
- ▶ Fabric face can be easily removed for laundering
- Modular D-Fuser available in MetalPan or All-Fabric models
- ▶ Also available in Round, D-Shape, or Quarter-Round



# Lhen **SOX**™

ChemSox was developed for chemically harsh environments such as metal plating, chemical processing, battery manufacturing, and other highly corrosive and caustic industries.

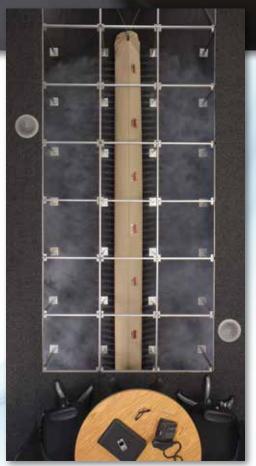
- Recyclable and inert, high density polyethylene (HDPE) fabric to combat brittleness/cracking
- Up to 50% less expensive (materials/installation) than typical ductwork used (metal, aluminum, or stainless)



# under 50 M

UnderFloorSox (UFSox) are a specialty line of DuctSox products designed to distribute and disperse air within the plenum for Underfloor Air Distribution (UFAD) Systems.

- UFSox easily fit into standard raised access floor systems.
  - Lightweight, easy to ship, handle, and install
  - Modular, zip-together sections and fittings
  - Easily reconfigured for future changes
  - · Placed on the floor, secured with retention cables
- Air dispersion through engineered venting and variable endcaps improve thermal distribution of supply air within the plenum.
  - Deliver cool air to perimeter zones reducing effects of thermal decay
  - Low noise. Venting in fabric reduces noise generation within the plenum
  - Uniform dispersion ensures balanced pressurization of the plenum
  - Air porous fabrics eliminate ductwork condensation and reduce temperature gain over extended distances to perimeter zones











Check out our PHOTO GALLERY on www.ductsox.com





























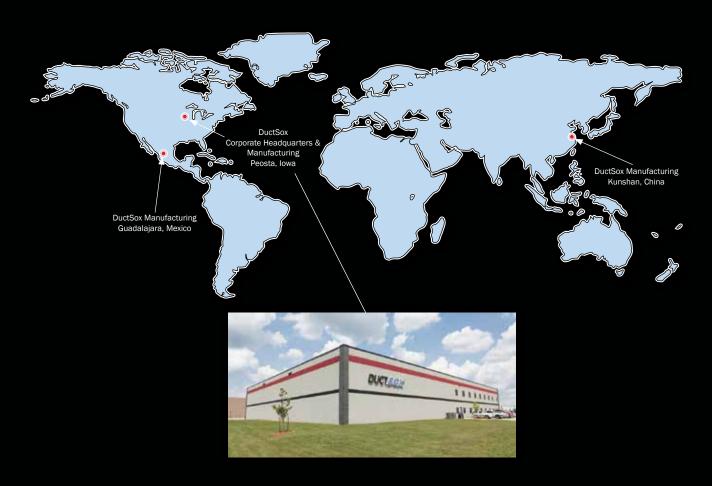


# DUCTSOX CORPORATION

- Leading manufacturer of textile air dispersion products
- ▶ Global manufacturing and distribution
- ▶ Design and installation support



U.S.A. owned and operated





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