DurkeeSox®

The expert in air dispersion industry world wide

PRODUCT INTRODUCTION

www.durkeesox.com

DURKEESOX AIR DISPERSION SYSTEM

A flexible air dispersion system in HVAC/R industry, made of special high-tech fabric and replacing traditional air ducts, air valves, diffusers and insulation.

Global Durkeesox®

INDIA • Whirlpool india Workshop
INDIA • Tent LALLOOJI & SONS
PHILIPPINES • NESTLE
MALAYSIA • ABLT office
THAILAND • Panya Complex
INDONESIA • Carrefour Makassar store
VIETNAM • Cold Room（D&F Food）
SINGAPORE • Deep-Freeze Cold Room
HONGKONG • Garden packing room
TAIWAN • Electrical Factory
SOUTH KOREA • Busan Indoor ski room

CHINA • 2008 Olympic Committee Reception
CHINA • 2008 Olympic Games Dining-room
CHINA • Shanghai World Expo
CHINA • 2010 Asian Games Stadium
CHINA • Water Cube
CHINA • Carrefour
CHINA • IKEA
CHINA • Metro
CHINA • Tesco
CHINA • Vanguard
CHINA • Lotus

CHINA • Danone Food
CHINA • Kraft Food
CHINA • Yili Liquid Milk
CHINA • Shuanghui Meat Food
CHINA • Haagen-Dazs
CHINA • Neptunus Pharmaceutical
CHINA • Sony-Ericssion
CHINA • Bayer Lab
CHINA • Snecmas
CHINA • IVECO Auto
CHINA • Ports

FABRIC AIR DISPERSION SYSTEM LEADING BRAND IN ASIAN MARKET

DurkeeSox® is a subsidiary of US registered DURKEE INTERNATIONAL INDUSTRY Ltd, a multi national high–tech enterprise, with a focus on HVAC/R industry. As a manufacturing & servicing oriented organization, DurkeeSox has established two manufacturing centers (China and USA), 3 sales and service centers (China, Asia and America). Being a world renowned fabric air dispersion system supplier, DurkeeSox has become a dominant leading brand in the great Asian market.

As an advocate of precise air distribution conception for years, and armed with leading technology, high–tech fabric material, DurkeeSox insists on using global top–level manufacturing technology and standard to produce the highest quality fabric air dispersion system products. It has acquired many national and regional standard quality certificates, such as, international QA system ISO9001：2000、ISO14001、OHS18001,North American UL AJIJ and Ac167 products certification, European EN testing and China NFTC testing.

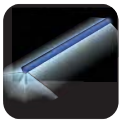
So far DurkeeSox air dispersion system has been widely used in supermarket,public facilities, food,electronic and logistics etc industry in all Asia, Europ, and North / South America. It’ s been consistently approved by countless renowned clients, including Beijing Olympics, Carrefour, Kraft and Shanghai world Expo, all these successful applications have made DurkeeSox an international brand.

Driven by our strong and energetic team where any innovative ideas can promptly transfer into new products, our ongoing effort will strive for the optimum solution.

we supply fabric air duct products and application services for well-known organizations globally

USA • Yoga Studio
USA • Quick Step Plant -Floor factory
USA • Hotel Atrium top level -Hotel lobby
USA • U-Hual Durham Storage -Warehouse
USA • Swimming Pool of Country Club
CANADA • SDM Distribution Center -Warehouse
CANADA • Baking Workshop of Kraft Food
CANADA • Classroom of Elementary School
NEW ZEALAND • Laboratory, Christchurch
HUNGARY • Assambly workshop
SOUTH AFRICA • Mauritius LE Bricolage Supermarket

WHY USE



DurkeeSox system disperses airflow through fabric permeation and designed multi–row orifices to form a tridimensional air dispersion effect with great comfort, overall even airflow and precise air throw.

EVEN & COMFORTABLE

Multiple colors are available to be in harmony with any indoor decoration, Meanwhile, the system as well as the color could be customized and individually designed.

AESTHETIC

Cooling air is permeated through fabric forming an air layer around fabric duct to result in no temperature difference between inside and outside, no insulation is required to prevent condensation.

CONDENSATION FREE

Owing to the convenient dismantlement and installation, DurkeeSox system is very easy to clean, Improved IAQ meets higher healthy and environment–friendly requirements.

HYGIENIC & HEALTHY

DurkeeSox system uses flexible material operating in lower velocity, it does not generate noise or transmit resonance. Quiet system improves the environmental quality.

QUIET

10 DISTINCTIVE FEATURES COMPARE WITH CONVENTIONAL DUCTWORK

LIGHT WEIGHT

DurkeeSox is very light weighted only 1/40 of traditional metal duct, especially fits for applications of new or renewing buildings without roof load requirements.

QUICK INSTALLATION

Specialized cable or track suspension system, simple and quick, installation period is 1/10 or less of metal duct system, Greatly shorten the construction period, and no more material wasted on jobsite.

RELIABLE QUALITY

Introduce large laser production line and system simulation platform into DurkeeSox system, all products are manufactured in our factory, to ensure high pressure resistance, tiny passive permeability, etc basic properties.

GREEN

Employ environmental friendly synthetic fabric, green manufacturing, installation, and operating procedure , convenient remove, storage and recycle. Meanwhile, large space laminar flow model makes DurkeeSox system energy saving.

ECONOMICAL

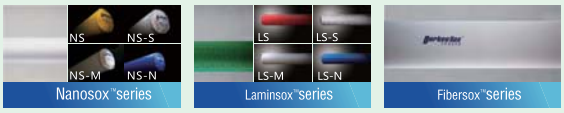
Simpler DurkeeSox design could replace the whole traditional ductwork including air ducts, valves, diffusers and insulation materials, lightweight, easy transportation and installation to reduce overall cost.

WHY US

Comprehensive product line up

1 Full range of fabric material

Three major series, Inherent permanent fire resistant, coated fire resistant, and fire proof series, with variations of regular, antistatic and anti microbial emphasize.



2 Complete duct profile

In addition to common round, half round, and quarter round shaped fabric ducts, the new large half round, and patented rectangular shape are added to the product line up to deliver large airflow in a height constraint building.

3 Versatile fittings

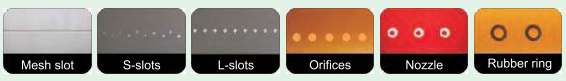
On top of regular fittings (inlet, end cap, elbow, T–connector), New fittings, such as square to round, Y inlet, beveled end cap, tension ring, wall pass–through and expansion segment and more are introduced to fit various applications.

4 System components

Innovative and patented PAD (Pressure Adjustment Device), ACD (Airflow Control Device), and FAF (Fabric Air Filter) complete the system.

5 Outlets

Airflow can be discharged through fabric permeation, mesh slot, s–slot, linear slot, orifice, nozzle, and ring.



Premium fabric material

1 Superior fire resistant NanoSox™

Powered by nano technology, the superior permanent fire resistance performance of NanoSox™ does not degrade after repeated laundering.

2 Advanced antimicrobial and antistatic technology

Integrated antimicrobial and antistatic agent assure system performance throughout the service life.

3 Nonflammable Fibersox™ material

Nonflammable Fibersox™ is made of non–organic fire proof material. It is classified under nonflammable class A type, to meet the most stringent fire safety requirement.

4 Unique micro permeability technology

Permeability as low as 0.5 cfm/ft2 (9m3/m2/h) can be achieved to ensure minimum air permeation in high pressure large systems, while still maintain condensation free.

5 Best industry warranty

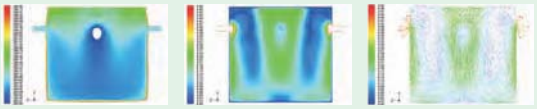
Exceptional product series are backed by unmatched industry warranty. A 15 years, 10 years, and 8 years limited warranties come with NanoSox™, LaminSox™ and FiberSox™series.

OUTSTANDING 4X5 FEATURES DIFFERENTIATE US FROM COMPETITORS

Professional design and installation

1 World leading air dispersion system technology

With the large space airflow lab and modern CFD computer simulation technology, DurkeeSox engineers can tackle the most complicated and most demanding project with precision and confidence.



CFD computer assistant simulation

2 Detailed design manual and iCase application gallery

Accompanied with thousands client iCase application gallery, the new DurkeeSox system design manual is easy to follow and easy to find reference project designs to achieve optimum solutions.

3 iSox design software

Unique iSox CAD design software makes the precision system design a breeze.

4 3X3 project service system

All projects are recorded in the dynamic customer service program at DurkeeSox technology & service center. Three phases of pre–installation design services and three service procedure during and after installation ensure the highest quality standard and best service.

Before installation | During installation | After installation

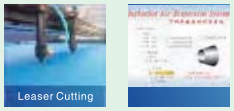
5 Full installation manual & specialized tools

Extensive work flow pictures in the detailed installation instruction, along with proprietary tool (cable tightener) quickly turn a novice installer to professional in no time.

Advanced production

1 Large scale laser automatic production line

The introduction of one of the largest automatic laser fabric system production lines, brings highest precision manufacturing to the industry.



2 System field test platform

All finished product under go system field test in the system field test lab, to ensure system perform as per customer request and system design.

3 Comprehensive product quality assurance systems

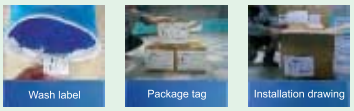
DurkeeSox is the only manufacturer certified under ISO 9001, ISO14001, OHS18001, and UL AJIJ / AC167 (Underwriter Laboratory).

4 Precise and fast delivery

With efficient management and streamlined production and logistic department, DurkeeSox boasts the shortest product lead time to meet the approaching dead lines.

5 Clear product labeling and tracking system

All finished products, components and packages are systematically labeled and grouped for easy handling and installation. All production information is traceable with component product serial number.



WHERE TO USE

APPLICATIONS

APPLICATIONS


Outdoor scene


Roof condensation free


Auditorium air dispersion


On game

DURKEESOX USED IN CHINA WUHAN SPORT CENTER SWIMMING POOL

DurkeeSox system was successfully applied on Wuhan Sports Center of 34,000 square meters (Swimming & diving Pool), the major game venue of China 6th national city games and the largest indoor swimming pool with power sunroof. The interior walls are decorated with aluminum composite panels. The original designed metal air duct system was facing some difficult challenges: The roof of the swimming pool is glass structured, very easy to bring condensation issue; power sunroof leaves no space to install metal ducts; hundreds of adjustable diffusers are necessary and airflow is not optimum. The customer ultimately decided to choose DurkeeSox system in both swim competition center and training center.

In the actual application, we placed 3 ducts above the swimming pool to effectively prevent sunroof condensation. And another 6 ducts of total 120m long with multi–row orifices were mounted along two sides of arc walls, 10% airflow permeates through fabric, 90% was dispersed to both the walls for condensation prevention and auditorium for their comfort. Moreover, micro–permeability fabric ducts could guarantee itself condensation free.

DurkeeSox system applied in this project is the highlight for applying for LUBAN AWARD (Chinese supreme architecture design award), and has earned us a good reputation as expert in sports facilities from then on.

APPLICATIONS IN SPORTS FACILITIES

FEATURES

Even & comfortable airflow, anti–corrosive, no condensation and cost efficient.


ASIAN GAMES STADIUM


ASIAN GAMES STADIUM


ASIAN GAMES STADIUM


UNIVERSITY SPORTS CENTER


OLYMPICS GYMNASTICS MUSEUM


GYMNASIUM


GYMNASIUM


OLYMPICS TENNIS COUNT


TENNIS COURT


TENNIS COURT


BADMINTON COURT


BADMINTON COURT


BADMINTON COURT

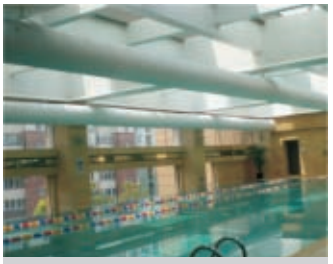

OLYMPICS TABLE TENNIS COURT


SWIMMING POOL


SWIMMING TRAINING CENTER


WATER CUBE


OLYMPICS DIVING CENTER


SWIMMING POOL


SWIMMING POOL

LARGE STADIUMS MID–SIZED BALL COURTS SMALL BALL HALLS SWIMMING POOLS

WHERE TO USE

APPLICATIONS


Outdoor scene


Athlete main restaurant


Staff dinning-room


Restaurant kitchen


Global famous athletes

The successful application in main restaurant of Beijing Olympic village

----Durkeesox is the global exclusive supplier of fabric air distribution system for 2008 Beijing Olympics

2008 Beijing Olympics, a global prominent event, Green Olympics is a key prerequisite for designing and constructing the Olympic Games' facilities, where strict ecological standards and systematic guarantee systems will be established. The total construction area of the village is about 21,000M^2, DurkeeSox system solution successfully won the bid, becoming the only supplier of fabric air dispersion system for 2008 Beijing Olympic game.

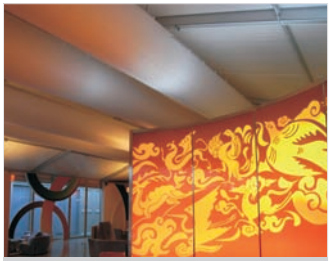
Aiming at requirements from BOCOG and jobsite (temporary tent, large area, low space, no insulation on roof, dense occupancies), DurkeeSox system made of permanent fire resistant fabric "NanoSox" with "s-slot" was arranged at lower height (3 meter from the floor) to make air distribution more even &comfortable and energy saving.

By almost three months operation for Beijing Olympics and Paralympic Games, DurkeeSox system sustained cruel testing, gained consistent good reputation from both China and abroad. The nature of safe & energy saving, green & environmental-friendly, recycle, quick installation and easy to remove, was greatly approved by officers of BOCOG. Our system was successfully installed in another 23 reception halls following main restaurant.

APPLICATIONS IN PUBLIC FACILITIES

FEATURES

Directional air dispersion, even & comfortable airflow, further air throw, improved air quality, easy to clean and maintain.


COCACOLA RECEPTION


GE RECEPTION

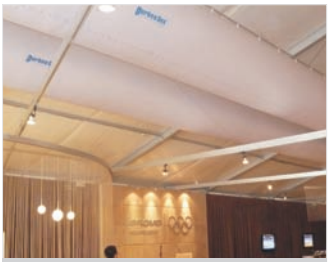

ADIDAS RECEPTION

SAMSUNG RECEPTION

PANASONIC RECEPTION


VISA RECEPTION


BANK OF CHINA RECEPTION


LENOVO RECEPTION


IOC RECEPTION


Beijing Olympic Committee


BC EXPO

EXHIBITION


SHANGHAI WORLD EXPO


SHANGHAI WORLD EXPO


BUS STATION


OFFICES OF EIFFEL


EFFEM FOOD OFFICE


CARGILL ALKING OFFICE


CONFERENCE HALL


SPORTS CENTRE

Exhibition & Reception Office Conference Hall Transportation

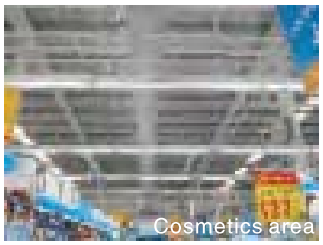
WHERE TO USE

APPLICATIONS

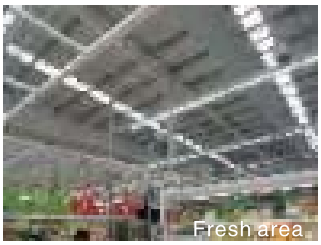
APPLICATIONS


Outdoor scene


Appliances


Cosmetics area


Cds area


Fresh area

Durkeesox system is successfully applied on one of the largest supermarket chains in the world--Carrefour

Carrefour, one of the largest supermarket chains, with business operations in many countries all over the world, features diverse structure styles in various countries, such as, Carrefour china store is typically low space with restricted room, on the contrary, Southeast Asia store is higher and larger space, both of them pose high demand on aesthetics and short installation period. The former used traditional metal air duct system shared the problems of poor air distribution effect, bad air quality, etc, and the cleaning of the ducts annually was a great burden. Especially in China, due to the new national hygienic code of annually compulsive cleaning of AC ventilating system in public places, Carrefour started to seek innovative air dispersion system, DurkeeSox's quick installation, easy maintenance and cost efficient in cleaning grabbed all the sights of Carrefour, from 2008, our system has applied in all its Asian stores.

By application from Carrefour, Durkeesox was abundantly applied to Metro, Vanguand, Zhongbai storage, Tesco, Lotus, etc large supermarket chains, became the dominant fabric air duct system supplier for Asian large supermarket chain market.

COMMERCIAL APPLICATIONS

FEATURES

Directional air dispersion, even & comfortable airlow,improved air quality, easy to clean and maintain.


METRO


TESCO


VANGUARD


VANGUARD


CARREFOUR THAILAND


CARREFOUR THAILAND


CARREFOUR MALAYSIA


CARREFOUR INDONESIA


CARREFOUR CHINA


CARREFOUR CHINA


CARREFOUR CHINA

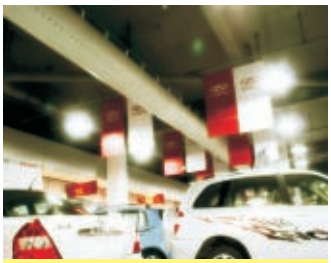

CARREFOUR CHINA

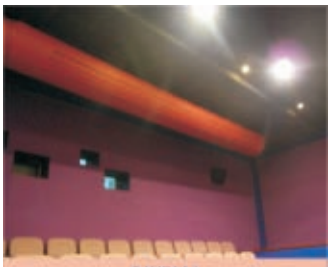

RT–MART


CHAROEN LOTUS


CHAROEN LOTUS


SHOPPING MALL


AUTO STORE


CINEMA


CASUAL DINING


ENTERTAINMENT PLACES

Supermarkets Shopping Mall Store Theatre Entertainment Places

WHERE TO USE

APPLICATIONS


Outdoor scene

DurkeeSox's Application in Kraft Food

Kaft Food is one of the world's largest food companies, with business operations in 145 countries.
Kraft Nabisco Food (Suzhou) Co., Ltd., the solely owned subsidiary of U.S. Kraft Nabisco International Co.,is located in Suzhou Industry Zone. The facility covers an area of 50,000 square meters with 28,817 square meters of production workshop which accommodates eight production lines. For traditional system delivers air through diffusers , unable to meet requirement of keeping low air velocity in large cooling capacity, along with more problems, such as increasing roof load, high cost in cleaning and maintenance.

DurkeeSox system employs large air permeability fabric to introduce an environment of large air coverage area, low airflow velocity, even air dispersion without draught to prevent the biscuit chippings and powders from blowed off and guarantee building occupants's comfort. The ductwork is cleaned in three months interval due to easy dismantlement, clean and reinstallation to meet sanitation and cleanness requirement.

DurkeeSox was successfully installed in phase one project, Kraft has since become one of regular clients of DurkeeSox, following the installation in phase two and phase three project.

It's worth mention that, Durkeesox system does not only have incomparable advantages in solid food industy, but also prominent advantages in AC system of other food industries and various factories.

INDUSTRIAL APPLICATIONS

Ideal air exchange, even & comfortable airflow, easy to clean & maintain , quick installation,and no roof load requirement.


DANONE FOOD


KRAFT FOOD


NESTLE PHILIPPINES


YILI LIQUID MILK


LIQUID DAIRY PRODUCT


BEVERAGE


MEAT PROCESSING


HALWANI FOOD

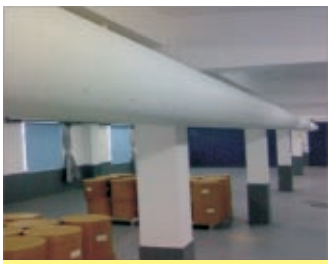

WALL'S


HAAGEN-DAZS


SONY-ERICSSION


WHIRLPOOL INDIA


TOBACCO WAREHOUSE


PHARMACEUTICAL

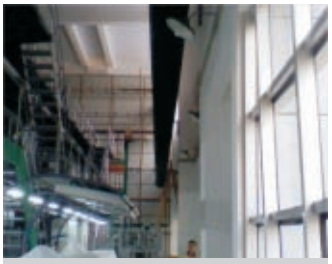

BAYER LAB


CHANGCHAI MOTOR


SNECMAS


IVECO AUTO


MENG JIE TEXTILE


PRINTING

Food Electronics Tobacco Chemical & Pharmaceutical Mechnical Textile & Printing

HOW TO SELECT

Nanosox™ Inherent Permanent Fire Retardant Series

CLASSIFIED UL R25940/08CA28788

15 Years Warranty

TOP GRADE

Nanosox™ is made of permanent fire retardant fabric from Nanotechnology which does not degrade after repeated laundering to stay in premium fire safety performance. It features more high physics properties, such as: high pressure resistance & tensile strength, precise & stable permeability, antimicrobial antistatic etc., Has become a star product series in supreme quality and full application fields. Nanosox™ is patented by Durkeesox and certificated by many national and international standard organizations.

NS / General

Constructed of Nanosox™ fabric in various permeability. Typically applied on all kinds of heating & cooling places with general comfort requirement.

NS–M / Anti Microbial

Made of permanent antimicrobial Nanosox™ fabric which guarantees both permanent antimicrobial and fire resistant performance. Mainly applied on food, pharmacy, clean room etc. industries of cleanness demanding.

NS–S / AntiStatic

An combination of Nanosox™ fabric in diverse permeability and inherent antistatic fibre to dissipate static build–up.Typically used in electronic, chemical, precision manufacturing etc industries of static sensitive environment.

NS–N / Non permeable

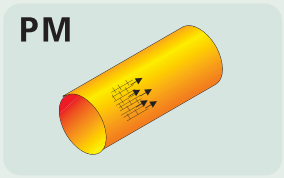
Made of non–permeable Nanosox™ fabric. Commonly used in industrial workshop, warehouse etc. heating and ventilating area where features a high and large space. Meanwhile, it is also applicable to light refrigerating places.

Material property & Product Performance Indicators

Property		Items	Index	Results	Code compliance	Testing organization	Remarks
Material property	Fire safety	B	FIGRA, W/s≤120 THR600s, MJ≤7.5	15 2.2	GB 8624-2006 EN13501-1: 2007	NFTC	1、Formal testing
		s1	SMOGRA, m2/s2≤30 TSP600s, m2≤50	0 20			
		d0	Flaming particles or droplets withing 600s Ignition of the filter paper	No No		SGS	
		t1	Smoke Toxity ZA3	ZA3			
		Class1	Calculated Smoke Developed(CSD)≤50 Flame Spread Index(FSI)≤25	20 0	UI723	UL	Formal testing and UL certificate
	Physics property	Tensile strength	＞15N	29N	GB/T 3917.1-1997	CTTC	
		Tear strength	＞500N	1240N	GB/T 3923.1-1997		
		Shrinkage after washing	＜2%	0.5%	GB/T 8630-2002		
		Permeability tolerance CV(%)	＜5%	3.7%	GB/T5453-1997		
	Operational performance	Temperature range	17.8℃(0°F)(24hours);129℃(265°F)(60days) No change of appearance	No change	Ac167 & UI181	UL	Formal testing and UL certificate
		Clean & fibre drop property	No fabric drops	No change	Ac167 & UI181	UL	
		Anti-mold	No Destroying or decomposing after 60days under the testing condition of UI181	No change	Ac167 & UI181	UL	
		Textile health security	PH 4.0-7.5 Formaldehyde content≤20mg/kg Decomposable Aromatic Amine dye≤20mg/kg No abnormal odor	7.4 Accord Unfound None	GB 18401-2003	CTTC	Class A (Baby cloth type)
		NS-M Anti-microbial	>95%	>99%	ASTM E2149		
		NS-S Anti-static		1.0 μ c/m²	GB/T 12703-1991	CTTC	
System performance	Pressure resistance		No change at 1900pa static pressure	No change	Ac167 & UL181	UL	Formal testing and UL certificate
			Appearance no change, no tear, no damage at 2000Pa static pressure	No change	JGJ 141-2004	National center of quality supervision and inspection and testing for air condition equipment	
	Passive permeability	Passive permeability volume at 500Pa	≤ 50 (m3/h-m2)	25			
		Passive permeability volume at 1000Pa	≤ 100 (m3/h-m2)	48			
	Dimension tolerance		≤ 1%	No change			

SYSTEM SELECTION

Airflow Models



Permeability Indicators (cfm/ft² in 0.5w.g.)

	PM	PS	PE	EJ
NS	8 16 24 32	2 4 6	0.5 1	
NS-M	8 16 24	2	0.5	
NS-S	8	2	0.5	
NS-N				0

Note: permeability value in the table 0.5,1,2,4,6,8,16,24,32 is corresponding to metric system unit m3/m2/h (125Pa) : 9,18,36,72,108, 145,290,434,579.

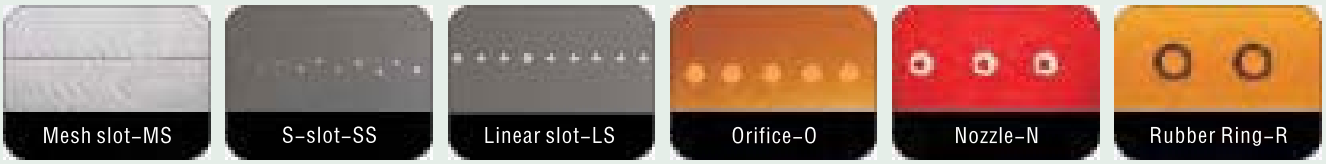
Shape

	O	D	HD	Q	S
NS	●	●	●	●	●
NS-M	●	●	●	●	●
NS-S	●	●	●	●	●
NS-N	●	●	●	●	●

Color

	W	R	Y	BE	BU	LGY	GY	GN	BA	CUSTOMIZE
NS	●	●	●	●	●	●	●	●	●	●
NS-M	●									
NS-S	●				●		●			
NS-N	●	●	●	●	●	●	●	●	●	●

Air Outlet Model



	MS	SS	LS	O	N	R
NS	●	●	●	●	●	●
NS-M	●	●	●	●	●	●
NS-S	●	●	●	●	●	●
NS-N				●	●	●

Nozzle Size：1"、1.5" Rubber Ring Size：2"、2.5"

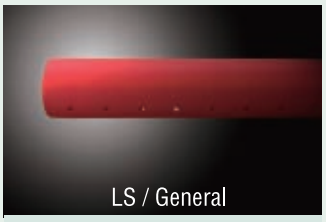
HOW TO SELECT

Laminsox™ Fire retardant series

10 Years Warranty

ECONOMY

Made of Laminsox™ fire retardant fabric with various reliable physics properties, such as: high pressure resistance & tensile strength, precise & stable permeability etc.
Applied in various application environments with less consideration on fire safety .



LS / General

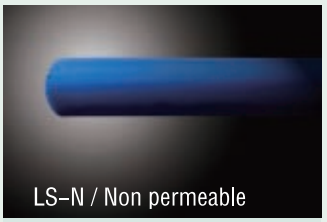
Constructed of Laminsox™ fabric in various permeability. Typically applied on all kinds of heating &cooling places with general comfort requirement.

LS–M / Antimicrobial

Constructed of coated anti–microbial Laminsox™ fabric with diverse air permeability.Normally applied on food, medical etc. Industries of higher cleanness requirement.

LS–S / Antistatic

Constructed of coated antistatic Laminsox™ fabric with different permeability.Typically used in electronic and precision manufacturing etc. Industries of static sensitive environment.



LS–N / Non permeable

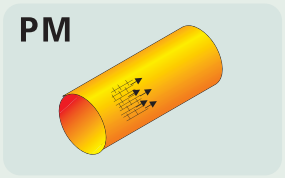
Made of non–permeable Laminsox™ fabric.Commonly used in industrial workshop, warehouse etc. heating and ventilating area where features a high and large space. Meanwhile, it is also applicable to light refrigerating places.

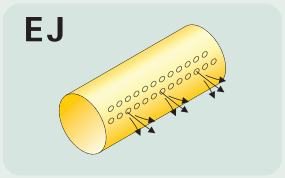
Material property & Product Performance Indicators

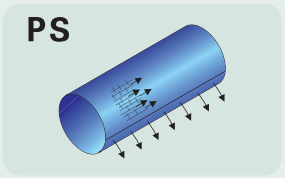
Property	Items		Index	Results	Code compliance	Testing organization
Material property	Fire safety	Class 1	Calculated Smoke Developed(CSD)≤50	30	ASTM E84	UL
			Flame Spread Index(FSI)≤25	20		
	Physics property	Tensile strength	>15N	98.3	GB/T 3917.3-1997	CTTC
		Tear strength	>500N	1470	GB/T 3923.1-1997	
		Shrinkage after washing	<2%	0.2%	GB/T 8630-2002	
		Permeability tolerance CV(%)	<5%	Accord	GB/T 5453-1997	
	Operational performance	Textile health security	PH 4.0-7.5	6.7	GB 18401-2003	
			Formaldehyde content≤20mg/kg	<20		
			No abnormal odor	None		
		LS-M Antimicrobial	>90%	>95%	ASTM E2149	
		LS-S Antistatic		0.7μc/m2	GB/T 12703-1991	
System performance	Pressure resistance		No change at 1900pa static pressure	No change	JGJ 141-2004	UL

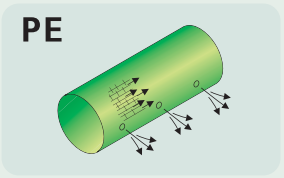
SYSTEM SELECTION

Airflow Models







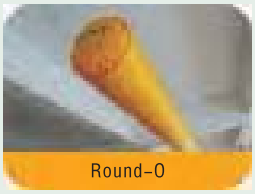


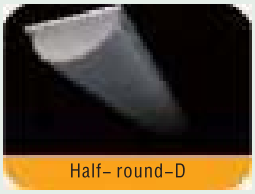
Permeability Indicators (cfm/ft² in 0.5 w.g.)

	PM	PS	PE	EJ
LS	8 16	2 6	0.5	
LS-M	8	2 6		
LS-S	8	2	0.5	
LS-N				0

Note: permeability value in the table 0.5,2,6,8,16 is corresponding to metric system unit m3/m2/h at 125Pa: 9,36,108,145,290.

Shape



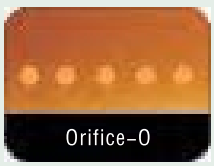


	O	D	HD	Q	S
LS	●	●	●	●	●
LS-M	●	●	●	●	●
LS-S	●	●	●	●	●
LS-N	●	●	●	●	●

Color

	W	R	Y	BE	BU	LGY	GY	GN	BA	CUSTOMIZE
LS	●	●	●	●	●	●	●	●	●	●
LS-M	●	●	●	●	●	●	●	●	●	●
LS-S	●	●	●	●	●	●	●	●	●	●
LS-N	●	●	●	●	●	●	●	●	●	●

Air Outlet Model



	MS	SS	LS	O	N	R
LS	●	●	●	●	●	●
LS-M	●	●	●	●	●	●
LS-S	●	●	●	●	●	●
LS-N				●	●	●

Nozzle Size：1"、1.5" Rubber Ring Size：2"、2.5"

HOW TO SELECT

Fibersox™ Fire proof series

8 Years Warranty

FUNCTION TYPE

Made of Fibersox™ Class A nonflammable material which is mainly used in heating, ventilating and light refrigerating locations with strict fire safety requirement.

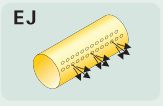
Material property & Product Performance Indicators

Property		Items	Index	Results	Code compliance	Testing organization	Remarks
Material property	Fire safety	A2	FIGRA, W/s≤120	5	GB 8624-2006	NFTC	1、Formal testing
			THR600s, MJ≤7.5	0.9			
			Thermal value, MJ/kg, ≤3.0	1.6			
		s1	SMOGRA, m2/s2≤30	0			
			TSP600s, m2≤50	20			
		d0	Flaming particles or droplets withing 600s	Accord			
		t0	Smoke Toxity ZA1	ZA1			
System performance	Pressure resistance		Appearance no change, no tear, no damage at 2000Pa static pressure	No change	JGJ 141-2004	National center of quality supervision and inspection and testing for air condition equipment	
	Passive permeability	Passive permeability volume at 500Pa	≤ 50 (m3/h·m2)	15			
		Passive permeability volume at 1000Pa	≤ 100 (m3/h·m2)	36			
	Dimension tolerance		≤ 1%	No change			

Shape

O	S
●	●

Airflow Models



Permeability Indicators

(cfm/ft² in 0.5w.g.)

	EJ
FS	0

Note:
Permeability tolerance is ±5%.

Color

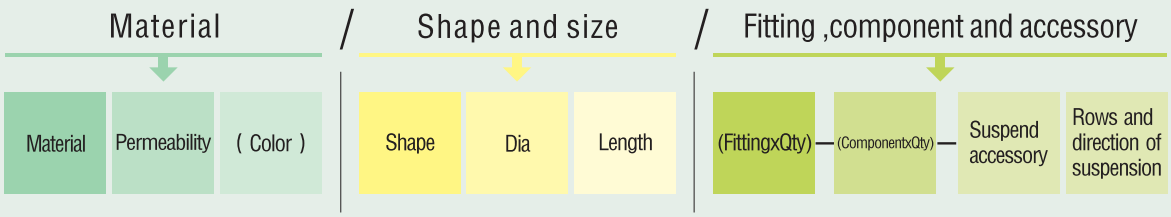
W	GY
●	●

Air Outlet Model

SS	LS	O	N
●	●	●	●

SYSTEM SELECTION

Product identification



Example of Product identification

1、NS01/O20"x65.6'/G2

Nanosox general fabric with permeability of 1cfm/ft2, round, 20" in diameter, 65.6ft long, nozzle, 2 & 10 o'clock double rows cable suspension system.

2、NS-N(GY)/S40"x24"x67.3'/(SR1T5E1V1)-(R)-G3

Nanosox non-permeable fabric, grey, rectangle shape of 40"x24", 67.3 ft long, 1 special square-round fitting, 5 T- connections, 1 elbow, 1 transition, rubber ring, 3 rows cable suspension.

Table of Material selection (1)

Fabric material		Permeability (cfm/ft² in 0.5 w.g)				(Color)									
Material series		PM	PS	PE	EJ	W	R	Y	BE	BU	LGY	GY	GN	BA	Customize
NS	——Nanosox permanent fire resistance general type	8 16 24 32	2 4 6	0.5 1		●	●	●	●	●	●	●	●	●	●
NS-M	——Nanosox anti-microbial type	8 16 24	2	0.5		●									
NS-S	——Nanosox anti-static type	8	2	0.5		●				●		●			
NS-N	——Nanosox non-permeable type				0	●	●	●	●	●	●	●	●	●	●
LS	——Laminsox coated fire resistant general type	8 16	2 6	0.5		●	●	●	●	●	●	●	●	●	●
LS-M	——Laminsox coated antimicrobial type	8	2 6			●	●	●	●	●	●	●	●	●	●
LS-S	——Laminsox coated antistatic type	8	2	0.5		●	●	●	●	●	●	●	●	●	●
LS-N	——Laminsox coated non-permeable type				0	●	●	●	●	●	●	●	●	●	●
FS	——Fiersox proof series.				0	●						●			

Table of shape and size selection (2)

Shape	Duct diameter (Inch)	Length (ft)
Round -O	6,8,10,12,14,16,18,20,22.....60,62,64,66,68,70,72	Per project need
Half- round-D	6,8,10,12,14,16,18,20,22.....48,50,52,54,56,58,60	Per project need
Large half-round-HD	6,8,10,12,14,16,18,20,22.....48,50,52,54,56,58,60	Per project need
Quarter-round-Q	6,8,10,12,14,16,18,20,22.....48,50,52,54,56,58,60	Per project need
Rectangle-S	(22,24,26,28,30,32,34,36.....126,134,146)x(16,18,22,24,26,28,30,32)	Per project need

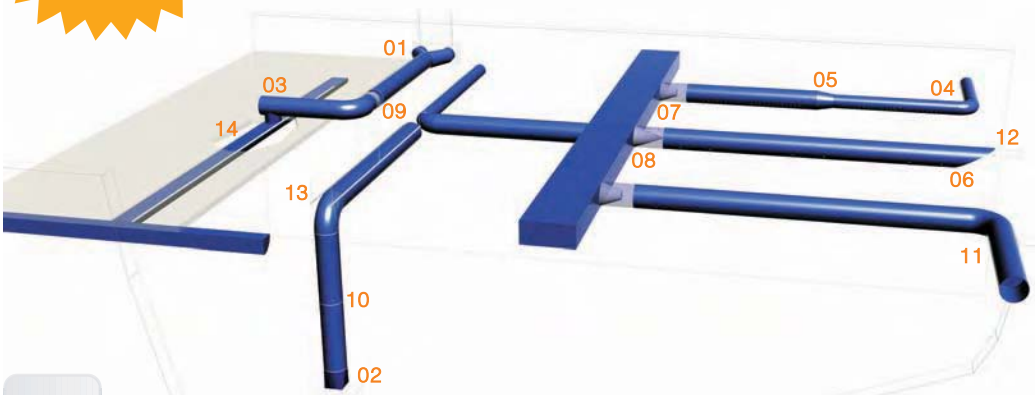
Table of fitting ,component and accessory (3)

(Fitting)			(Component)		Accessory		
General fitting	Special fitting	Functional fitting	Mesh slot-MS	Ring-R	Suspension accessory	Rows and direction of suspension	
Elbow-E	Y inlet-Y	Tension ring -TW	S-slot-SS	Pressure adjustment device-PAD	Galvanized cable-G	Single row-1	12:00
T-connection-T	Square to round-SR	Expansion segment-ES	Linear-slot-LS	Airflow control device-ACD	Stainless steel cable-S	Double rows - 2	2:00&10:00
Transition-V	Elbow inlet-IE	Through wall segment-TR	Orifice-O	Fabric air filter-FAF	Flush mount track-AF	Three rows - 3	3:00&9:00(39)
	T-connection inlet-IT		Nozzle-N		Suspension track-AH	Multiple rows	

NOTE: ——Table (1), Permeability tolerance is ±5%.
——Table (2), Duct diameter take even number as unit, 2 inch spacing in corresponding with metric unit, such as: 6,8,10,12,.....66,68,70,72 inch to 152,203,254,305.....1676,1727,1778,1829mm. Metric length measured in m, British length measured in ft.
——Table (3), The unmarked fittings, components and accessories are defined as standard: like standard inlet and end, slot and nozzle, 12 o'clock-single row suspension, 2 o' clock and 10 o' clock -double rows suspension.

HOW TO SELECT

GENERAL FITTINGS



01、Y- inlet
02、Square to round inlet
03、T-connection
04、Elbow
05、Transition
06、Bevel end
07、ACD
08、FAF
09、Expansion segment
10、Tension ring
11、Wall pass through
12、Galvanized cable
13、H-track
14、Flush mount track

INLET CONNECTION


Double layer inlet


Single layer inlet

Generally, use single layer or double layer inlet to cover outlet of metal duct, fixed with belt, riveted.
Nanosox™ employs double layer inlet, only fixes the inside layer, the outer layer is used to cover up and easy to remove for washing.

Laminsox™uses single layer inlet.

END


End cap


Fixed end

Nanosox™ uses end cap, joins with duct by zipper, easier to change for washing or extend in the length direction .

Laminsox™employs fixed end, to seam at the end becoming a part of duct.

ZIPPER CONNECTION

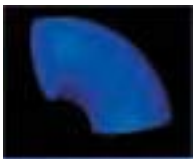

Common zipper


Concealed zipper

Join among straight duct, fittings, and components, similar to conventional used flange.
Nanosox™ uses concealed zipper, covered by sleeve from outside.

Laminsox™ uses common zipper.

ELBOW-E


90°


60°


30°

Standard centerline radius is 1.5 x Dia.
The elbow consists of multiple gores, different curve angles per application requirement.

TRANSITION-V


Bottom flat


Concentrate


Top flat

Connect ducts with different diameter

Bottom flat: more aesthetic
Concentrate: better airflow
Top flat: easier to install

T-CONNECTOR-T


Top flat


Concentrate


Bottom flat

Deliver the airflow to branch ducts which are perpendicular to main duct. Connected by zipper.

SYSTEM SELECTION

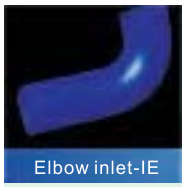
Special fittings

Y-inlet-Y

Connect two outlets of AHU to one duct.

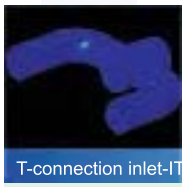
Square to round inlet-SR

Connect square metal duct to round fabric duct.



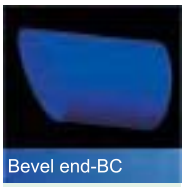
Elbow inlet-IE

Connect fabric duct inlet with elbows.



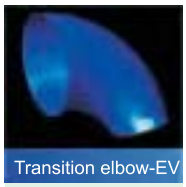
T-connection inlet-IT

Connect fabric duct inlet with T–connection.



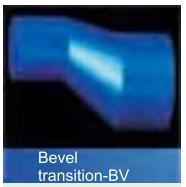
Bevel end-BC

Disperse air in bevel end of duct , Specialized for individual case.



Transition elbow-EV

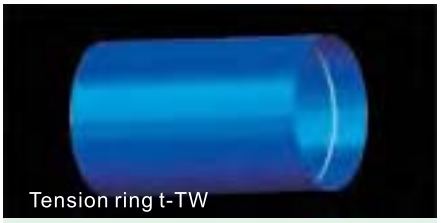
Connect elbows in different diameter.



Bevel transition-BV

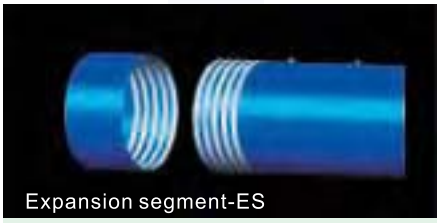
Connect uneven ducts with different diameters.

Functional fittings



Tension ring t-TW

For supporting use, fixed inside duct to produce aesthetic appearance. applied to upright elbows, etc special occasions.



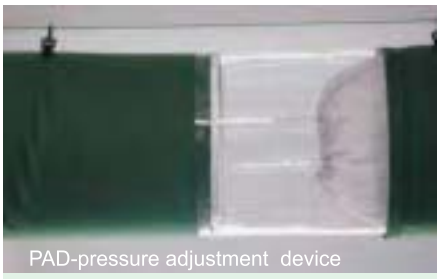
Expansion segment-ES

Connected between two sections, Fold one end in airflow direction, fixed by hasp from outside, contributing to certain flexibility in length.

Wall pass through-TR

A component to resolve through wall problem, employs tension ring and certain length of duct to fix in the hole of wall and seal the gap between.

Component

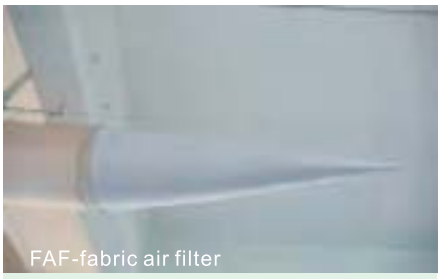


PAD-pressure adjustment device

Connected to DurkeeSox system by concealed heavy–duty zipper, Specially applied to balance air pressure in system. PAD is patent protected. DurkeeSox owns this product patent.

ACD-airflow control device

An airflow control device specialized for DurkeeSox system, used to balance airflow before branch ducts, served as conventional air valve. The same, ACD is patent protected, DurkeeSox own its patent.



FAF-fabric air filter

FAF(fabric air filter) is an unique component introduced in the system to improve IAQ and efficiently prolong system clean and maintenance period.

HOW TO USE

No essential difference between design of DurkeeSox system and traditional metal duct system. Designer could make the layout design according to Durkeesox owned specialized software :isox – design. Meanwhile, Durkeesox engineering technology center is also ready to do the design work professionally for you.

A System layout

DurkeeSox system layout is mainly applied to air supply system. Lay out the system according to requirements of actual situation or AHU location on building and HVAC design(CAD drawing) , space , height and aesthetics, and more.

■ General location layout
— low space location layout: make ductwork layout along wall ,beam ,pole, to save space and improve aesthetics. For workshop application, lay out ductwork along production line or densely occupied area to meet both requirements of production and occupants. For supermarket application, uniformly lay out the system perpendicular to shelves and parallel to lamp area.

—High and large space layout: To match return air, use straight duct as possible to improve indoor air distribution. For workshop, layout shall be along production line, avoid equipments and travelling crane, meanwhile, consider directional air dispersion. For supermarket, layout is perpendicular to shelves or above main walkway. For sports place, layout shall be around auditoria. For grid structure, lay out ductwork inside it. for grid structure with berm, mount ductwork both sides along berm, both save space and convenience installation and maintenance.

■ General location aesthetics design
—The relation between duct diameter and aesthetics at different installation height: Generally, the applicable duct diameter is larger when the installation is higher to reach a perfect combination of aesthetics and effect.

—Arc, closed design: The layout could be in arc, or closed round, Oval to match with architecture style for both more aesthetic appearance and uniform air dispersion.

—Design to match with decoration: mount half–round or Quarter–round duct against ceiling, or open a groove on suspended ceiling, then put DurkeeSox duct inside. For meshed Suspended ceiling, just mount ductwork above it.

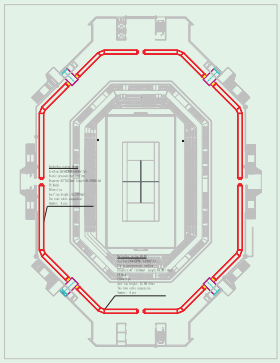
■ Special case design
—Temporary location design: Considering easy installation and dismantlement, track installation is mostly applied. To take reuse into account, maintain the same duct diameter and duct length as possible.

—Anti–condensation design: lay out the ductwork along glass curtain or specially mount one or more ducts to easy–condensation area.

SYSTEM LAYOUT

Use isox design software, we could complete layout design and drawing work more easily and quickly, greatly reduce designer's time.

Isox design software

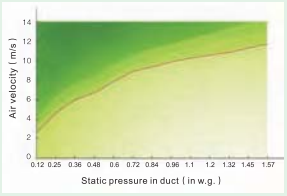


Layout

B Dimension selection

Because DurkeeSox system diameter selection is related to air velocity, static pressure in duct, when static pressure does not match air velocity in duct, the duct might turbulence to affect actual air dispersion effect. Below shown is the schematic of the relation among pressure, turbulence and air velocity we got through experiment.

From the schematic, we could find when the air velocity is bigger, static pressure become smaller, the turbulence will be increasing.(darker the color, bigger the turbulence),it is for sure that turbulence is related to the ratio of air velocity to static pressure in duct, the bigger the ratio is , the bigger the turbulence is. What is more, high air velocity could increase noise from system.



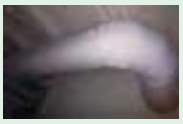
DurkeeSox system diameter takes inch as spec unit, 6"–72",classified by every 2 inches, the duct diameter is determined according to air volume and system inlet air velocity.

Calculation equation: $g = v \cdot \pi \cdot D^2/4$

Where g: air volume per duct system, v: System inlet air velocity,
D: system duct diameter

DurkeeSox system inlet air velocity: to avoid system inlet turbulence and negative pressure, etc.

Round straight duct less than1800FPM



Elbow less than 1600FPM

T-connection less than 1600FPM

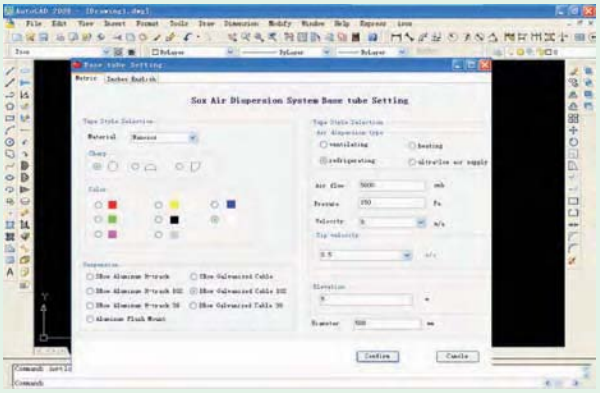
Half-round less than 1400FPM

Large half-round less than 1600FPM

Rectangle less than 1700FPM

If the duct diameter is excessive big, installation space is not enough, it is advised to use rectangle duct or divide the system into several small ducts.

ISOX DESIGN INTERFACE



Use isox software to input each design parameters

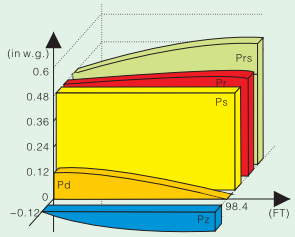
SYSTEM DESIGN

C Air pressure design

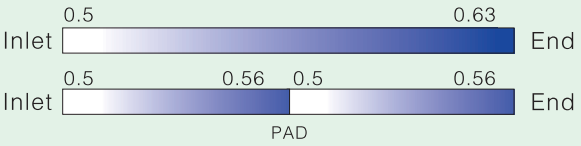
Pressure in DurkeeSox system consists of static pressure, velocity pressure and resistance loss, the direct relation of static pressure regain and resistance loss plays a key role. In most cases, static pressure regain is more than frictional resistance loss in a straight duct.

End static pressure=inlet static pressure+ static pressure regain−pressure loss(Pr=Ps+Prs−Pz), the average pressure is the average of inlet static pressure and end static pressure. The principle is shown in below schematic.

The principle is shown in below schematic.

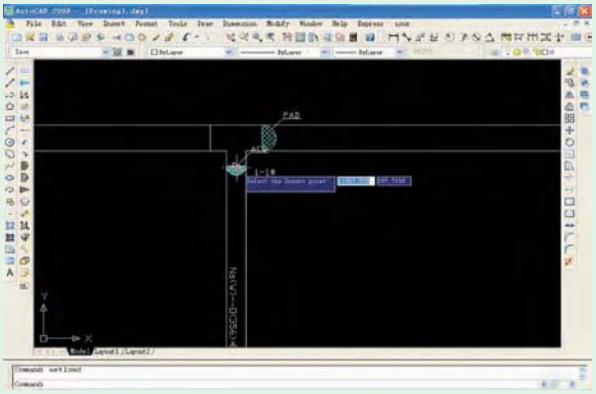


Based on abundant engineering experience , we believe that when pressure difference is less than 10% of inlet static pressure, airflow along the duct is uniform. On the contrary, PAD pressure adjustment device shall be installed to balance the pressure in duct. Shown in below schematic, after balance, maximum pressure difference is in 0.1 w.g., less than 10% of inlet static pressure.



Inlet pressure of complicated system with multi ducts is according to resistance calculation of least favorable loop, meanwhile, consider air dispersion pressure, frictional and local pressure loss from main duct , branch duct.

PRESSURE DESIGN INTERFACE



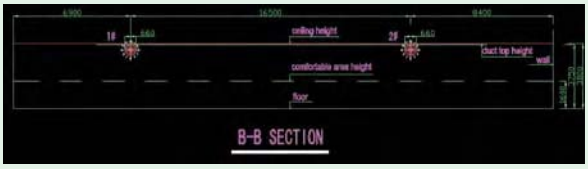
Insert PAD,ACD air valve

D Air dispersion design

Employ DurkeeSox patented design software specialized for fabric air dispersion system to make the detailed design,that is , to determine permeability of fabric, type, dimension, quantity, and direction of orifice or nozzle, which is made by Durkeesox engineering technology center.

A According to cross section of height design, we determine air throw and controlled area.

Generally, we take the middle line of 2 adjacent ducts as the boundary, according to uniform layout principle. Based on actual project situation, in light of air volume from each duct and layout, divide the whole area, try to uniformly distribute the air volume as possible.



B Determine orifices direction

According to divided area, specify the direction of orifices and determine the number of orifice rows .

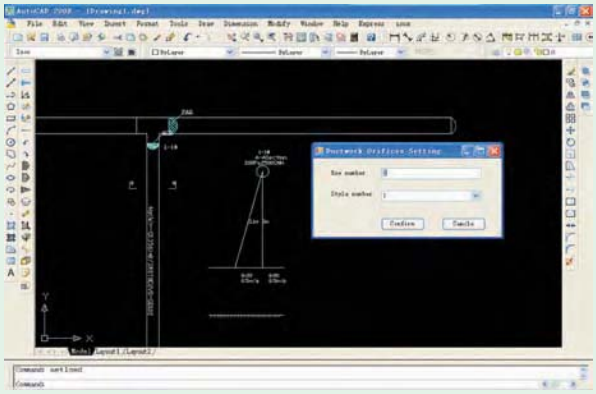
C According to airflow capacity, determine permeated air volume and air volume by orifices.

D Determine size and rows of orifice

Generally,design is completed by the patented specialized software---isox-manufactory, and inputted into automatic production line for manufacturing.

In addition, isox software could help draw standard construction plan of installation and automatically list specification table for each portion of system.

AIR DISPERSION DESIGN



Automatically generate air dispersion sectional view

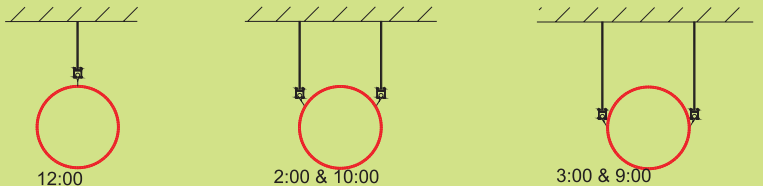
Refer to《Durkeesox Design Manual》

ACCESSORY AND INSTALLATION

Installation of DurkeeSox system is much easier than any conventional air duct system, which consists of 2 styles: cable suspension system and Aluminum track suspension system.
Use DurkeeSox special cable and track installation will contribute to more aesthetic style.

CABLE SUSPENSION SYSTEM

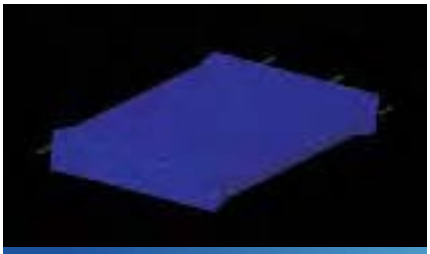
Cable suspension system is more popular due to convenient installation and low cost. Which can be divided as following: By material: galvanized cable, stainless cable
By load capacity: ordinary cable, heavy duty cable
By rows of cables: single row, double rows, multi rows
By suspension direction: 12:00(single row), 2:00 &10:00 or 3:00 & 9:00 (double rows)




Picture of Galvanized cable Suspension


Single-row suspension（GS）


Double-row suspension (GD)


Multi-row suspension（G3）

ALUMINUM TRACK SUSPENSION SYSTEM

Classified as flush mount track and H–track

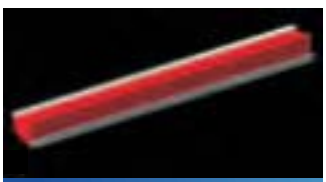
FLUSH MOUNT TRACK

For half–round, large half–round and quarter–round DurkeeSox systems which are mounted against ceiling or wall.

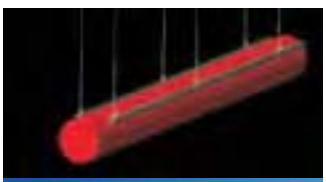
H–TRACK

For suspension type of round DurkeeSox system.


Semi-CircleFlush Mount（D）


1/4 Circle ,Flush Mount（Q）


Single-Row H-track（AH-S）


Double-Row H-track（AH-D）

The major material required to install DurkeeSox system includes: fabric air ducts and its fittings, components and accessories, which are supplied by the manufacturer (shipped with the consignment, including installation drawing, installation manual and assembly drawing, etc.) Other installation auxiliaries required on jobsite, such as, brackets, fastening bolts and mores shall be purchased by the installation contractor.

9 GENERAL QUESTIONS AND ANSWERS

How long is DurkeeSox system's service life ?

DurkeeSox system practical service life depends on application environment, AC system, etc factors. Generally, service life of NanoSox™ exceed 20 years, LaminSox™ 15 years, FiberSox™ 10 years. Our warranty for NanoSox™ is 15 years, LaminSox™ 10 years, FiberSox 8 years.

Does DurkeeSox system meet the fire safety regulation in different countries and regions in global market?

As an end air dispersion system in HVAC, DurkeeSox has passed all kinds of widely recognized international certificates and fire testings include UL product certificate under US NFPA 90A and AC–167, UL fire testing under US ASTM–E84, testing certificate under EN13501–2002 class B1–s1,d0, and China official fire certificate under GB–8624–2006–Class B–s1,d0,t1 and Class A. DurkeeSox system meets or surpasses code regulations on fire safety in all countries and regions .

DurkeeSox system looks nice when inflated, how it looks like when uninflated, not nice?

DurkeeSox system is made of flexible material, it will drop down on shape, but not crumple when no working. To gain a better visual effect when the system does not run, you can choose double rows suspension system, when looked from underside, almost no difference in appearance from what it looks like when fully inflated, a little in oval shape though.

Can DurkeeSox replace all types of air ducts? Could it be used for air return ductwork?

DurkeeSox is made of flexible material, can only work in positive pressure of air supply system and could not be used as air return ductwork, Meanwhile transportation ductwork inside machine room or suspended ceiling is neither optimum application environments.

Would DurkeeSox system have condensation problem without installation material in outside of duct?

Cooling air permeates through fabric to form air layer around duct to result in no temperature difference between inside and outside, radically resolve the condensation problem.

It seems that DurkeeSox system has the good performance on cooling or refrigeration application, How about in heating application? whether the heating air could get down?

DurkeeSox system's air dispersion principle is to apply induction type laminar flow air dispersion, when air flow is ejecting out of the duct openings in high velocity, compared with ordinary AC system, heat exchange with ambient air in the height is rare, the airflow will not dispersed till the air flow reaches destination area, thus little difference between cold air and hot air dispersion. In practical application, AHU if matchs with cold & hot air dispersion mode could archive a better effect.

How long is DurkeeSox air duct product clean and maintenance period?

DurkeeSox clean & maintenance period is variable depends on air dispersion mode, application environmental cleanness requirement, AHU's filter grade, etc factors. Normally recommended maintenance period is every 3 months for refrigeration and food processing applications with clean requirement; For commercial and public places 6 months or a year; for industry facilities and large gymnasium, etc normally takes 1 to 3 years period. In long time serious pollution environment, the color of fabric may becomes darker after washing.

How much is the friction factor of DurkeeSox system? Does DurkeeSox has the large system resistance? Are there any additional requirements on air volume or air pressure of AHU?

DurkeeSox system friction factor is less than 0.024, similar to metal duct, but in practical applications, friction resistance of DurkeeSox system is much less than conventional ducts, due to mostly in round shape, lower average air velocity especially at the middle and end part. For simple straight duct, the system resistance is less than static pressure regain, so the friction resistance could be ignored. For complicated ductwork, the system resistance is only 1/3–1/5 of traditional duct. Thus pressure of traditional air duct is enough for DurkeeSox system. DurkeeSox system could design fabric permeability and orifices to guarantee the designed air supplying volume without any additional requirements on AHU.

Will DurkeeSox system generates noise? How's the noise absorption effect ?

DurkeeSox system does not generate noise and transmit resonance during operating. Pleaser refer to DurkeeSox detailed technical manual. Noise absorption effect depends on different equipments and environment, it could not replace the absorber of AHUs system, although part of noise could be absorbed.

The expert in air dispersion industry world wide

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