



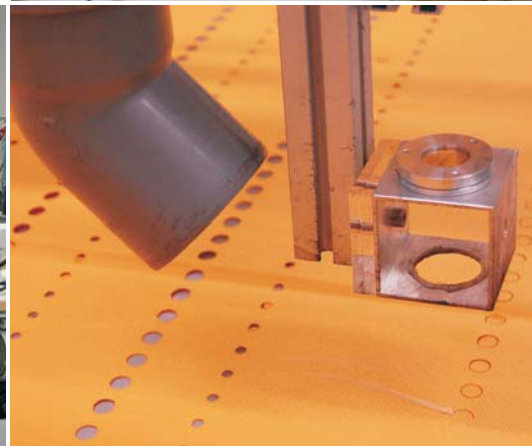
TAILOR-MADE AIR DISTRIBUTION

TEXTILE AIR DISTRIBUTION SYSTEMS



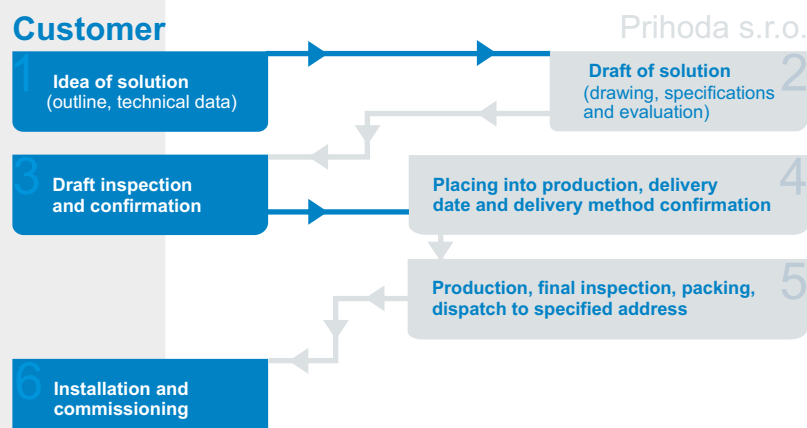
Basic information

The textile air distribution systems are designed for the specific distribution of air from air-conditioning, heating, cooling or filtration units into precise locations within a room or space. The air distribution is provided through fabric with perforated holes of various sizes which are placed in the fabric in a purposeful manner. Thus, very interesting technical effects may be achieved and solutions to very difficult requirements may be provided. The used textile fulfils the fire-safety, hygienic, durability and aesthetic requirements. In order to achieve the required air-flow speed, it is important to determine the number, size and direction of the perforated holes. Each job order is dimensioned and proposed as an original design based on the input conditions. The specially developed assembly material, which is included in the delivery, facilitates quick and easy installation or disassembly. The correct diffuser shape and length are chosen based on the site of installation. The dimension is chosen based on the air flow. The incoming air temperature, suspension height and working sites' placement influence the direction and size of the perforated holes in the fabric. The advantages of textile diffusers are utilised to the maximum extent due to the experience and creative imagination of our technicians.



Each job order requires an individual approach and starts from the technical solution draft. The typical work-flow of a job order follows:

Job order processing system



Textile air distribution systems

What is and what is not textile air distribution system

At first sight it looks as a ducting but this is not all the truth. Textile distribution system does not serve only for transposition of a certain air flow from point A to point B. First of all, it is designed for its distribution along the entire route, whilst the flow is zero at the end of it at the point B. Use as a duct is possible but it is not a typical case.

Textile air distribution system is not just a duct, but a device for convenient air distribution. Rather than a duct it is a special diffuser.

What is and what is not Prihoda s.r.o.

It is a medium-sized, hundred-percent Czech company that is fully specialized in production of textile air distribution systems. Since its establishment in 1994 its production volume keeps growing, along with the quality of products and services. The results of last three years classify the company Prihoda among the biggest world manufacturers. Not only the company manufactures duct in metres, but provides its customers with solutions of tailor-made air distribution systems. Starting from discussion on capacities through necessary calculations to the delivery of the distribution system designed.

The company Prihoda s.r.o. is not just a manufacturer of textile duct but also provides solution of air distribution system anywhere, if needed.



Why choose textile air distribution system instead of the traditional sheet metal one

There is number of reasons. From significantly lower costs on the delivery and assembly through the possibility of perfect cleaning, to interesting appearance and technical variability. Almost with every installation intended in the traditional manner we are able to offer an alternate solution. Even though different in a number of details, it will always bring certain benefits to the user, and fulfil technical requirements.

Money will be spared on investment, since traditional distribution systems and, first of all, diffusers, are very expensive.

The problem with unequal air distribution that is characteristic for traditional systems, will be solved. Thanks to uniform dispersion, occurrence of draughts will be prevented at some places and lack of air at other places.

Installation will be done very quickly. Taking the simplicity of suspending into account, the system can be installed during normal operation of the plant.

Handling large and heavy metal tubes is avoided at all.

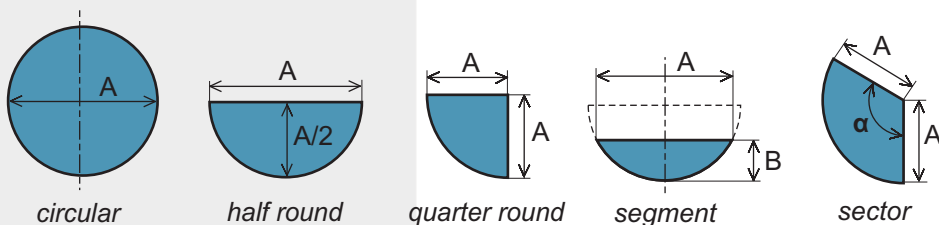
The interest of any user of an air-conditioning device should be cleanliness of air duct. Air, treated in an expensive manner (filtered, cooled, heated or moistened, as the case may be) should not be contaminated by passing through a dirty ducting. Textile air distribution system can be cleaned fast, cheap and yet perfectly. Cleaning of ducts of solid materials is expensive, time consuming and imperfect.

Correctly designed and installed textile diffusers, made of top quality materials, will become a significant and interesting element of a building interior. The architect can choose out of a wide spectrum of colours and shapes.

This solution is not temporary only, but represents an adequate alternative of traditional distribution systems. Our medium materials have a 10-year warranty and more than a 15-year anticipated service life.

Sections and installations

We distinguish 5 different cross sections of the diffuser:

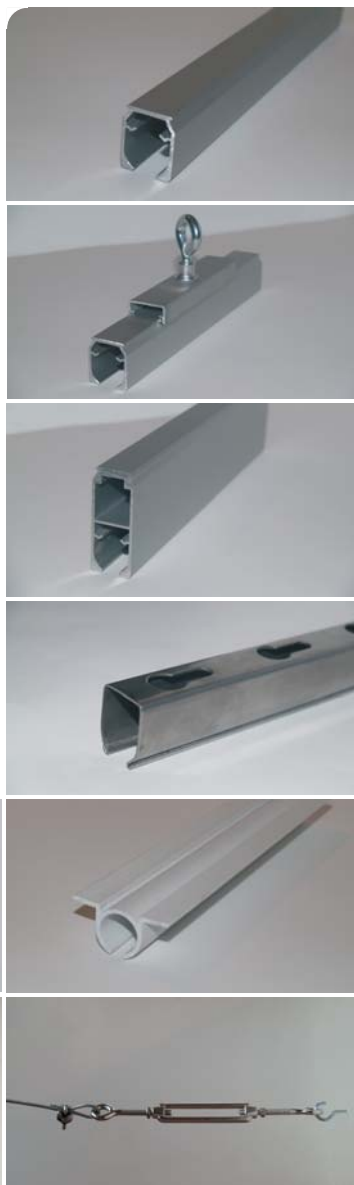


Basic series of A and B values:

100, 125, 160, 200, 250, 315, 400, 500, 630, 710, 800, 900, 1 000, 1 120, 1 250, 1 400, 1 600, 1800, 2000

Installation

Delivery usually contains an assembly material kit. Company Prihoda developed unique suspension systems, suitable for applications at all sorts of conditions. We are mainly proud of our complete system of aluminium profiles, consisting of a basic profile in two designs, a connector of parts, a suspension hanger and a tensioning system, built in the profile. The complexity of our suspension systems enables finding a suitable way of installation for any application. From the easiest assemblies on plastic-coated wires to aluminium or stainless profiles. For metal parts there is a galvanized or stainless variant.



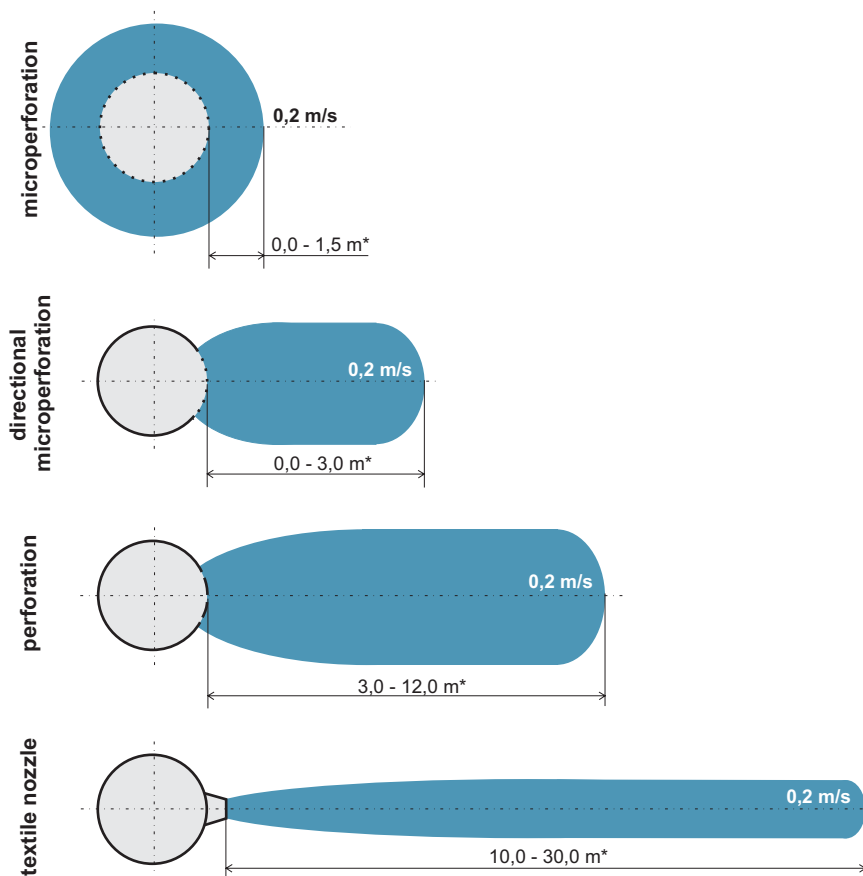
Installation options

Installation number	Cross section scheme
0	without mounting material and hooks
1	
2	
3	
4	
5	
6	
7	
8	
9	



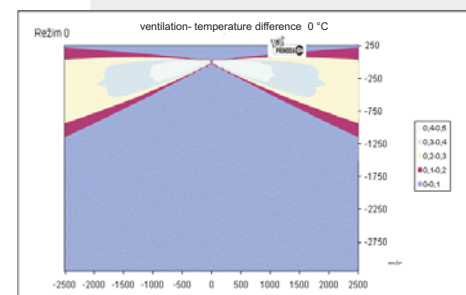
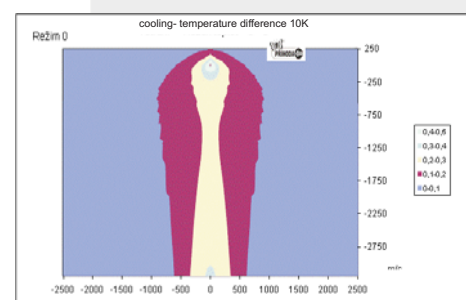
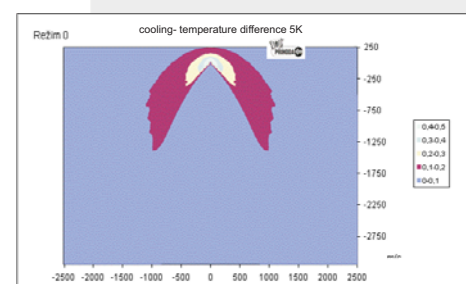
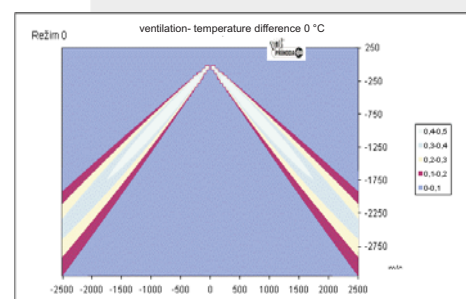
Airflow reach

Using the textile diffusers of company Prihoda, air can be draughtlessly dispersed, partially or fully directed or transferred to a large distance. It all depends on the selected size of the holes, their directing and overpressure in the diffuser. For longest airflow reaches textile nozzles will be used.



*The airflow reaches vary in dependance on static pressure in the diffuser

Examples of outputs from software



For any case of air distribution, company Prihoda s.r.o. has at disposal a calculation method that supports selection of the right technical solution. Our genuine software counts airflow reaches at various temperature conditions, and presents the results by means of graphic presentation of airflow images. See the examples on this page on the right. All the calculation methods are based on numerous verifications and new measurements and tests.

Examples of application



Food processing industry

Historically first textile air distribution systems were used in food processing industry. Sanitary regulations require that all food processing devices must be easily and perfectly cleanable. Out of all the air distribution system options, this condition is only met by textile diffusers. After washing they are perfectly clean, and if disinfection is added, also those germs that would resist the antibacterial treatment, are killed. Fabrics made of endless fibres, developed specially for the Prihoda's textile diffusers, are very flat and thus do not allow sedimentation of impurities. This is what makes them different from the diffusers made of staple fibres that successively fill with dust and can represent a sanitary risk.



Supermarkets and gathering areas

To mainly high halls we can offer an air distribution system through a row of larger holes or textile nozzles, as the case may be. In any case, accurate air directing and distribution as the customers wish will be possible. Experience from practice confirm that a textile air distribution in a supermarket is a substantially better (more uniform) air distribution system than the traditional systems. In addition, the costs on this are lower. A matter of course is the possibility of various colour versions or different distribution for various zones. For instance, for the cooled and heated section of the supermarket. Fire resistance of our fabrics conforms to the requirements of European standards.



Food stores, low-temperature worksites

In large stores, textile air distribution systems provide uniform air distribution, thus ensuring maintenance of stable temperatures. This is usually the essential requirement for storage of foodstuffs. If people have to work in an environment with low temperature, then they are usually very sensitive to draughts. Inconvenient air distribution might cause higher sickness rate. Textile diffusers disperse air without causing draughts, and create acceptable climate.

Chemical, textile and electrotechnic industry

Textile air distribution systems are a perfect solution for any industrial branch. They provide uniform (draughtless) air distribution at unbeatably low costs, or enable air directing according to the request of the end user. More than 60 suspension variants bring a possibility of choosing a convenient solution for any situation, taking in consideration the construction of ceiling and other installations in the particular plant. In a contaminated environment, fabrics with larger holes need to be used (perforation, no microperforation).



Examples of application



Pools, sports halls and fitness centres

Installations at various sport yards are very typical for textile air distribution systems. For large sports halls is available a wide choice of directed distribution possibilities. On the contrary, cooling air dispersion at minimum speed will not be perceived negatively by fitness centre customers. There are often low rooms where air distribution is always difficult. Semicircular textile diffusers on ceiling are the best solution in terms of both price and function. Specific environment of swimming pools is almost predetermined for installation of textile diffusers. The fabrics used, including installation material, are fully resistant to damp environment. Combination of different colours revives interior.



Kitchens

Space in kitchens is usually narrow, and their extreme load with heat and vapours calls up the need of extremely intense ventilation. Textile diffuser disperses air uniformly, without creation of draught. Any directing of airflows is usually totally useless. The material used is resistant to vapours and its maintenance is (also thanks to small dimensions and low weight) very easy. Comparing the prices of stainless ceiling, the costs of our solution are much lower! Use of non-textile distributions systems opposes the requirement on easy and perfect cleaning that is necessary for sanitary reasons.

Offices, night clubs, cinemas, etc.

Higher aesthetical demands can be satisfied by colourful and shape variability of textile air distribution systems. Correctly manufactured and perfectly installed semicircular textile diffusers become an elegant part of interior. In terms of function, air dispersion from those ceiling semi-cylinders equals to cooling ceilings or beams. Comparing to those solutions, the price difference is huge even in case of best equipped textile diffusers. Unlike the traditional diffusers, embedded in soffits, our solution does not cause any local heat discomfort. Experiences prove significantly higher satisfaction of workers in uniformly cooled offices.

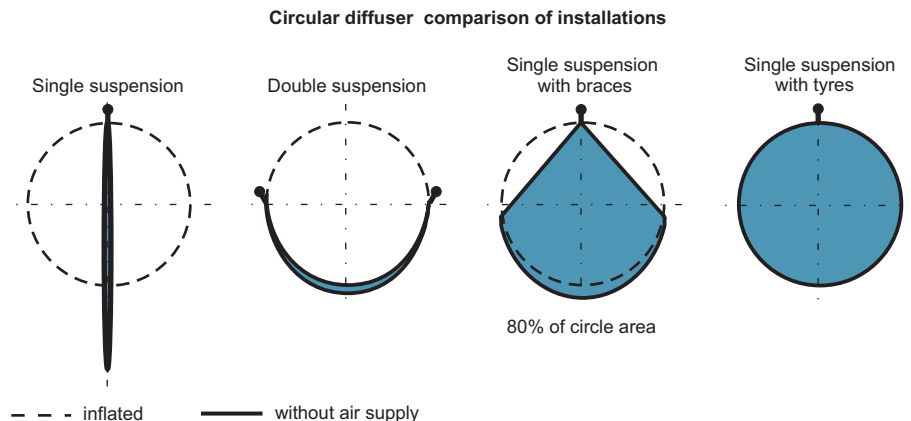


Temporary installations

The convenience of using textile air distribution systems for cooling or heating of large-volume tents or other temporary structures is clearly apparent. Light construction of ceilings can carry textile diffusers weighing from 100 to 400 g/m² without any problems. Assembly is very fast, usually by means of bearing ropes and hooks sewn on the diffusers. Top quality material allows multiple repeated use. Cooling (heating) by means of a single larger source with connected textile air distribution system is much more economic than just cold (heat) blowing to the space. In case of heating without air distribution system the flow is bent upwards and the zone under the ceiling gets overheated which results in enormous heat loss. In cooling, intense airflow causes local undercooling and draughts; on the other hand, insufficiently cooled zones are created elsewhere. Both cases are successfully solved by a rightly designed textile air distribution system.

Frequently asked questions

1/ What does a textile diffuser look like when the fan is switched off?



2/ Can textile diffusers be used for exhausting air ?

Unfortunately not, the shape of diffuser is only held by inner overpressure. Passage of unfiltered air would, in addition, contaminate the fabric very fast. Very limitedly useful are diffusers with reinforcing tyres and well calculated perforation.

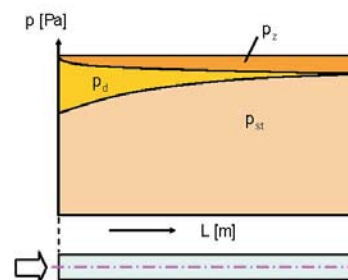
3/ What is the service-life duration of textile diffusers?

This is not a short term solution. Diffusers made from good quality fabrics will last for fifteen years or longer. Light fabrics (approx. 100 g/m²) with maximum permitted number of 50 washing procedures (typically polyethylene foils susceptible to tearing) may have limited durability.

4/ What is the pressure loss of a textile diffuser?

In a well designed diffuser which does not utilise shaped pieces there is an almost constant static pressure throughout. The fabric perforation is calculated based on the average value of the static pressure. In other words, the diffuser is designed based on the fan's external pressure to which it is adapted. Shaped pieces and turbulence equalisers present certain pressure loss which needs to be taken into consideration. Loss caused by friction is usually minimal due to the decreasing air speed inside the diffuser. The minimum utilisable pressure is 50 Pa, with light materials 20 Pa.

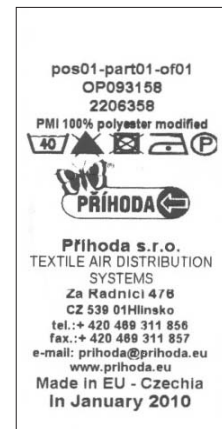
Typical static and dynamic pressure progression inside the diffuser.



5/ What to do with diffusers when they get clogged by contamination?

Diffusers with micro-perforation and even diffusers with larger holes never get completely clogged by contamination (if used with minimum pre-filtration EU3). The maintenance (typically washing in a washing machine) is therefore necessary for hygienic and aesthetic reasons only. Each individual piece separable by a zipper contains a washing-instruction tag which contains sufficient instruction for washing. Our experience has proven that our fabrics made of endless fibres remain internally almost clean even after many years of operation.

Washing-instruction tag



6/ Can textile diffusers get mouldy?

Mould can form on any kind of material if it is moist and unventilated. This goes for fabrics with antibacterial treatment, too. It is caused by the fact that moulds are not bacteria. Therefore, never store moist diffusers packed-up or do not let them out of operation for long periods of time. Moulds cannot be removed from fabrics by any means.

7/ Can diffusers of square cross-sections be used?

Only if they are supported in a suitable manner. Even after this sort of support, the shape will never be precise. A blown-up fabric always tends to take a rounded shape.

8/ Does the textile diffuser function as a filter at the same time?

If permeable materials are used, the fabric functions as a filter for the part of the transferred air that goes through the fabric. As the fabric contamination gradually increases, the pressure loss grows and the air flow decreases. Therefore, it is necessary to wash the fabric. We consider the utilisation of perforated fabric to be by far the best solution. Although perforated fabrics do not function as filters they do not change the pressure loss value and the number of necessary washing procedures significantly drops. We are a manufacturer of distribution (not filtering) elements.

9/ Why Prihoda s.r.o. does not use plastic nozzles or slots

Use of plastic nozzles or longitudinal slots of sieve can be explained on historical basis. These tools used to enable directing of certain airflow, the nozzles in addition stiffened the burred margins of the holes. When they began to use laser technology that allows cutting of accurate holes with sealed margins, their utilization became useless. Rightly designed rows of holes fulfil the same purpose, whilst being cheaper and nicer. This is the reason why Prihoda s.r.o. need not use either slots or plastic nozzles and yet achieves the same air distribution.

10/ Why Prihoda s.r.o. does not use more permeable fabrics

We use permeable materials to avoid condensation in air distribution with temperature below the dew point of environment. However, we only have material of a single permeability value. It is very low and serves just to prevent condensation. For air distribution we use exclusively holes (perforation or microperforation or a combination of these). Our product portfolio includes also impermeable materials, use of which is often unavoidable.

Micro-perforation

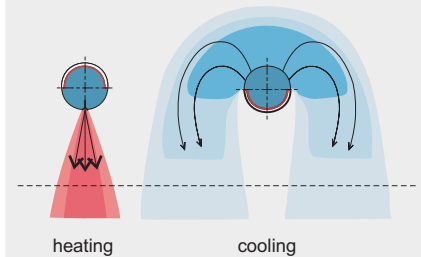
The required air flow through the fabric is achieved by burning an exact number of tiny holes (approx. 0.4 mm) into the fabric. Such fabric, if the air is pre-filtered to EU3 at least, does not change the pressure loss value and requires washing for aesthetic and hygienic reasons only.



Our specialities

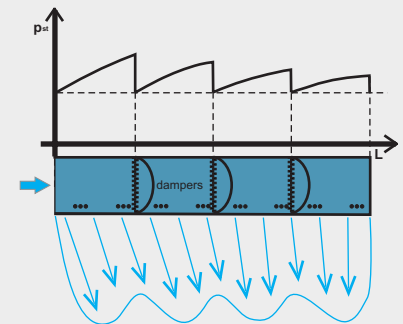
Membrane diffuser

The distribution of warm air into a room requires completely different approach than the distribution of cold air. The membrane diffuser allows the switching between these two operation modes and thus enables effective heating and draught-free cooling.



Sequential perforation, dampers

Tests and measurements proved that the layout of holes influences how the air spreads from the diffuser. We have developed special layouts of perforated holes ensuring more even air distribution. The static pressure progression along the diffuser (and therefore the air output) can be adjusted by utilising textile dampers.



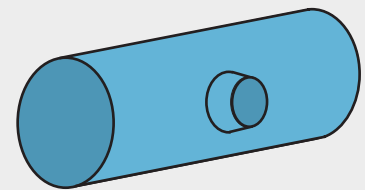
Insulated ducting and noise silencers

Insulated textile ducting is used for passing through areas which are not air-conditioned. Insulation reduces the heat loss and at the same time serves as a noise silencer.



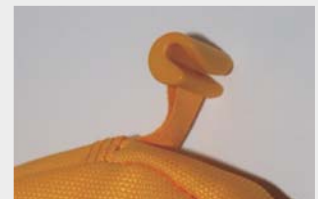
Textile nozzles

A very easy solution to achieve the furthest airflow reaches. Our philosophy is, that textile air distribution must be fully washable and therefore should contain as little non-textile elements as possible. Our textile nozzles are additionally equipped with a damper for potential airflow control, and can be delivered in a design allowing additional modification of directing (by turning).



Suspension systems

We have been constantly dealing with improvement of suspension system that contain tens of original solutions. From a special hook, useful for wires and also in profiles, through a complex system of aluminium profiles to tensioning systems or stiffeners for better look.



Our laundry

Directly at our manufacturing plant we have at disposal a laundry for maintenance of diffusers. Thus we are able to provide constant professional servicing to our customers.



Material

The company Prihoda s.r.o. focuses on the quality of the materials used. In all cases these are special fabrics that passed a long development phase in order to achieve as high utility value for customers as possible. The PMI/NMI fabrics provide all the below listed benefits already in the standard design (without any extra charge).

List of most important qualities of our fabrics

High strength

Our basic PMS/NMS/PMI/NMI fabrics show highest strength. In the texture it is 2100 N/10mm, and 1100 N/10mm in the woof. Thanks to these parameters, their rupture is practically out of the question.

High fire resistance

The PMI/NMI fabrics are certified according to EN 13501-1 with an excellent result. They achieve classification in B-s1,d0 class which means non-spread of fire, minimum development of smoke and no dropping of melted material. The NHE fabrics even conform to the A class requirements.

Negligible outlet of particles

Due to using endless fibres, all our fabrics can be used in the so-called clean rooms up to the class 10000. Laboratory tests demonstrated almost zero outlet of particles from materials in operation.

Antibacterial effect

Special treatment guarantees killing of bacteria that are settled in the fabric. This effect does not vanish even after multiple washing. After ten washing cycles it still conforms to the requirements of relevant standard which means almost a lifetime effect, considering low frequency of washing (see the next point).

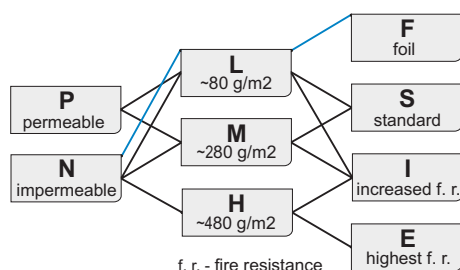
Easy to maintain

Our fabrics made of endless fibres are very practical and do not allow settlement of impurities from the passing air. This air is distributed through the holes, and the textile diffusers remain inside almost clean (in usual environment). They do not require additional maintenance than outer dusting. Washing usually comes only due to sanitary or esthetical reasons.

Permanency of look

Thanks to endless fibres, the look of the fabric does not change even after many washing cycles, unlike materials made of staple fibres. Fabrics made of staple fibres that are intensely contaminated with the amount of settled dust get grey, and more and more fibres come out of the surface. Our PMI/NMI/PMS/NMS's are not devalued by washing in any manner whatsoever.

Designation	Permeability	Weight	Material	Guarantee	Characteristic						
PMS/NMS	yes/no	medium	100% polyester	10 years	●	○	●	●	●	9	●
PMI/NMI	yes/no	medium	100% polyester modified	10 years	●	●	●	●	●	9	●
PLS/NLS	yes/no	light	100% polyester	2 years	●	○	○	●	●	9	●
PLI/NLI	yes/no	light	100% polyester modified	2 years	●	●	○	●	●	9	●
NLF	no	light	100% polyethylene	1 year	○	○	○	○	○	2	○
NHI	no	heavy	100% polyester + 2x PVC + Sb2O3	2 years	○	●	○	○	○	4	○
NHE	no	heavy	100% fibre glass + 2x polyurethane	2 years	○	●	○	○	○	7	○



antibacterial	fire resistance	high strength	washing in washing machine	clean rooms	number of standard colours	special colours
●	●	●	●	●	●	●

Key to label materials

● always ● upon request ○ impossible

How choose a suitable fabric?

When selecting material, bear the following information on mind:

1/ Fire resistance

Our fabrics show 3 levels of fire resistance.

Highest fire resistance (identified with "E" as "excellent" in the specification) means fully inflammable material. In this class, considering the price, we only use fabrics of fibreglasses with polyurethane coating. However, these exist only impermeable and are less strong and more fragile than polyester fabrics of medium weight.

Increased fire resistance (identified with "I" in the specification) means excellent non-flammability and very low smoke development. These materials conform to the requirements for use in an absolute majority of spaces.

Raw polyesters or foils (identified with "S" as "standard" in the specification or "F" as "foil") are very little resistant. They can be used in an environment where no fire resistance is required.

2/ Strength and cleanability

Fabrics are divided in 3 categories by weight.

Light (marked "L"). These fabrics weigh between 75 and 100 g/m². Diffusers made of these materials can be well inflated with only 20 Pa of static pressure. On the other hand, they have lower strength and especially resistance to rupture. Except NLF they can be washed in a washing machine.

Medium (marked "M"). These fabrics weigh between 290 a 330 g/m². These show highest strong-hold values and resistance to rupture. Minimum overpressure for inflation is 50 Pa. They can be washed in a washing machine.

Heavy (marked "H"). These are fabrics coated with a PVC or polyurethane layer, and therefore can only be impermeable. They cannot be washed in a washing machine but can be cleaned with a stream of water. This makes them convenient for mostly contaminated environment.

3/ Permeability

Only in permeable materials condensation of water on the surface of diffusers is eliminated during cooling below the dew point of the environment.

4/ Colours

Most of our materials is available on regular basis in 9 colours that approximately correspond with the below colour spectrum. Requirement on a special colour shade usually means a longer delivery term.



Ask for a sample book if you wish to make a precise choice of your colour shade!

5+5 good reasons

5 for textile air distribution system

ECONOMY, SPEED

Cost saving compared to sheet metal system may reach as much as 70%! Take the price of conventional diffusers, transport, installation, setting of the proper air flow, and cost of cleaning into consideration! Assembly and disassembly only take a fragment of time that is needed for the traditional heavy systems!

HYGIENE

Having been washed, possibly with disinfectant, the distribution system is absolutely clean and bacteria-free! Such assurance can never be given with non-textile materials.

ECOLOGY

Textile air distribution systems are environment-friendly due to lower energy consumption for transportation and installation. They are partially manufactured of recycled material, upon request we can arrange return withdrawal of old components.

METHOD

Layout of distribution openings is optional and so is their size. An inexhaustible number of air distribution methods can be achieved beginning from draught-free diffusion up to targeted transfer over a long distance!

AESTHETICS

Various colour and shape combinations may satisfy the needs of an architect and the product then becomes a tasteful part of the building interior.

5 for Prihoda s.r.o.

LOWEST RATE PRICE/QUALITY

We offer the best rate of price and quality in a long-term view. You can compare yourselves our prices and the quality of the products and services we offer. Our very reasonable prices do not mean any compromise on quality. We hold ourselves responsible for the products we deliver, their proper function and long service life are the priority for us.

EXPERIENCE & KNOWLEDGE, TECHNICAL SUPPORT

We only manufacture this product and focus constantly in its improvement. Every impulse gained of thousands of accomplished job orders we will use for our work. Our engineers verify carefully every technical detail in our specialized test room. Every delivery consists of calculation of technical parameters, including pattern of airflows.

INNOVATIONS

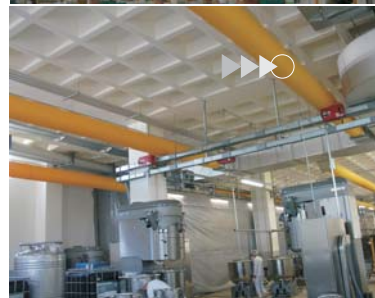
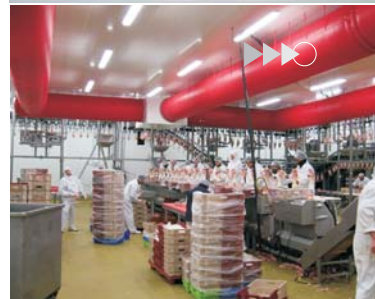
Every year we launch several novelties on the market as a fully natural consequence of the enthusiasm of creative skills of our people. We do not consider anything finished, everything can still be improved.

UNIQUE FABRICS, LONG WARRANTY PERIOD

Throughout our existence we have been making an effort for designing a fabric of the best quality. Our current PMI/NMI materials are very firm, made of endless fibres, antibacterial and have an excellent fire resistance. This all is included in the standard, not any extra equipment. In addition to this, we provide a ten-year warranty.

MICROPERFORATION

This unique technology brought a new quality into our branch. Special laser machines allow us perforate fabrics efficiently in form of very fine holes through which we can achieve the required airflow.



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