FAQ

AirDIV
Air Distribution in Vehicles

Weight

Do fabric ducts offer some weight reduction?

Using our fabric ducting & diffusers for air distribution in vehicles can save up to 80 % of weight in comparison to metal alternatives. Some manufacturers use plastic ducting. Their weight is a little closer to ours, but fabrics are still much lighter. Moreover, against the plastic ducting, the fabric ones meet the highest fire-resistant requirements.

Noise

Are fabric ducts spreading noise similarly to metal alternatives?

As we know, metal ducts act as echo chambers from the HVAC fans, rail noise, and other sources. This state is highly undesirable.

The main difference between metal and fabric ducts is that fabrics don't convey and reflect noise. So, there is no echo. Furthermore, we offer insulated ducting which works as a silencer. The main advantage of flexible material is that there is no noise transfer - it means lower noise in farther places (cabins...).

Tight spaces

We have very tight physical space for air distribution in the vehicle, could fabric ducts help us in some way?

Yes! Fabric is very tolerant in tight spaces; doesn't need an exact fit since it is flexible by nature and design. This is a great advantage for designing and mounting! We only have to avoid too big constraints that would increase too much pressure loss of the duct. Otherwise, it just fills the space after inflated. For very small diameters (< 100mm) there is a risk of improper inflations – that must be considered individually.

Air quality

Do fabric ducts have some good effects on air quality?

The shapes of our fabric ducts are designed to not allow the accumulation of dust and moisture. Further hygiene benefits also come from the easiness of washing the ducts. Fabric ducting can be easily removed and washed in a washing machine. It is 100% clean after that. You can also use a vacuum cleaner to clean them from dust. We could also offer the customer an antibacterial fabric.

Pressure loss

How do you defend against the pressure loss due to friction between the air and the material?

Fabric behaves the about same way as metal ducting; friction pressure losses are about the same. In some shaped pieces (adapters, reducers) pressure loss can occur but it won't be different than conventional ducting. Every application can be tested in real conditions to measure airflow and pressure loss.

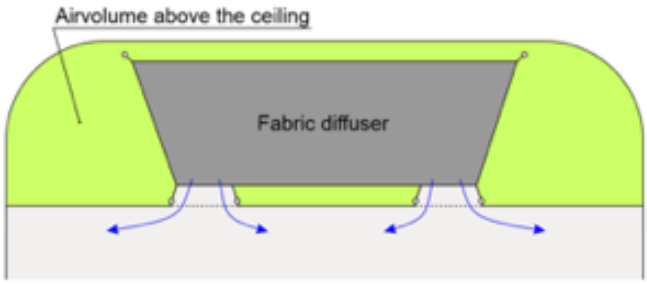
Condensation

How do you deal with the risk of condensation?

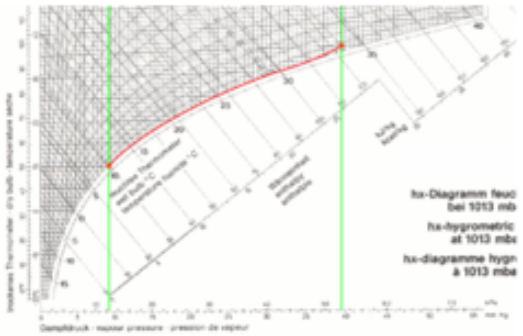
We can calculate the risk of condensation based on real exact input data. It depends on more aspects:

- Thermal conductivity of used material (polyester -> λ = 0,1 – 0,2 W/m.K.)
- Air velocity in the duct (part of the design)
- Insulation (is used or not)
- The tightness of space between the roof and false ceiling

If the space above the ceiling is tight, there is only a limited volume of moisture (water vapor in the air). The moisture will condensate on the colder surface of the fabric duct:



Volume above the ceiling		
A (estimation)	*mm*	2000
B (estimation)	*mm*	200
S	*m2*	0,4
Fabric diffuser		
A (estimation)	*mm*	850
B (estimation)	*mm*	140
S	*m2*	0,12
Air volume of the space		
Length	*m*	1
V	*m3*	0,28
m	*kg*	0,3372



Moisture		
x1 (35°, 95%)	*g/kg*	34
x2 (10°, 100%) extreme	*g/kg*	8
for length	*m*	1
m water	*g*	8,8
thickness of water film	***mm***	**0,004**

Warranty

How long warranty do you offer for your fabric ducts?

We are entering into an individual warranty agreement with every customer. You don't have to worry about quality. We have more than 10 years-old real projects without any complaints about their present quality.

Fire resistance

Are fabric ducting & diffusers fire resistant? Are your materials certificated?

All our materials have been tested for the fire resistance according to European standard EN 45545 with good results. Some of them meet the requirements in HL2 or the highest HL3 level. Check fabric datasheets of individual fabrics.