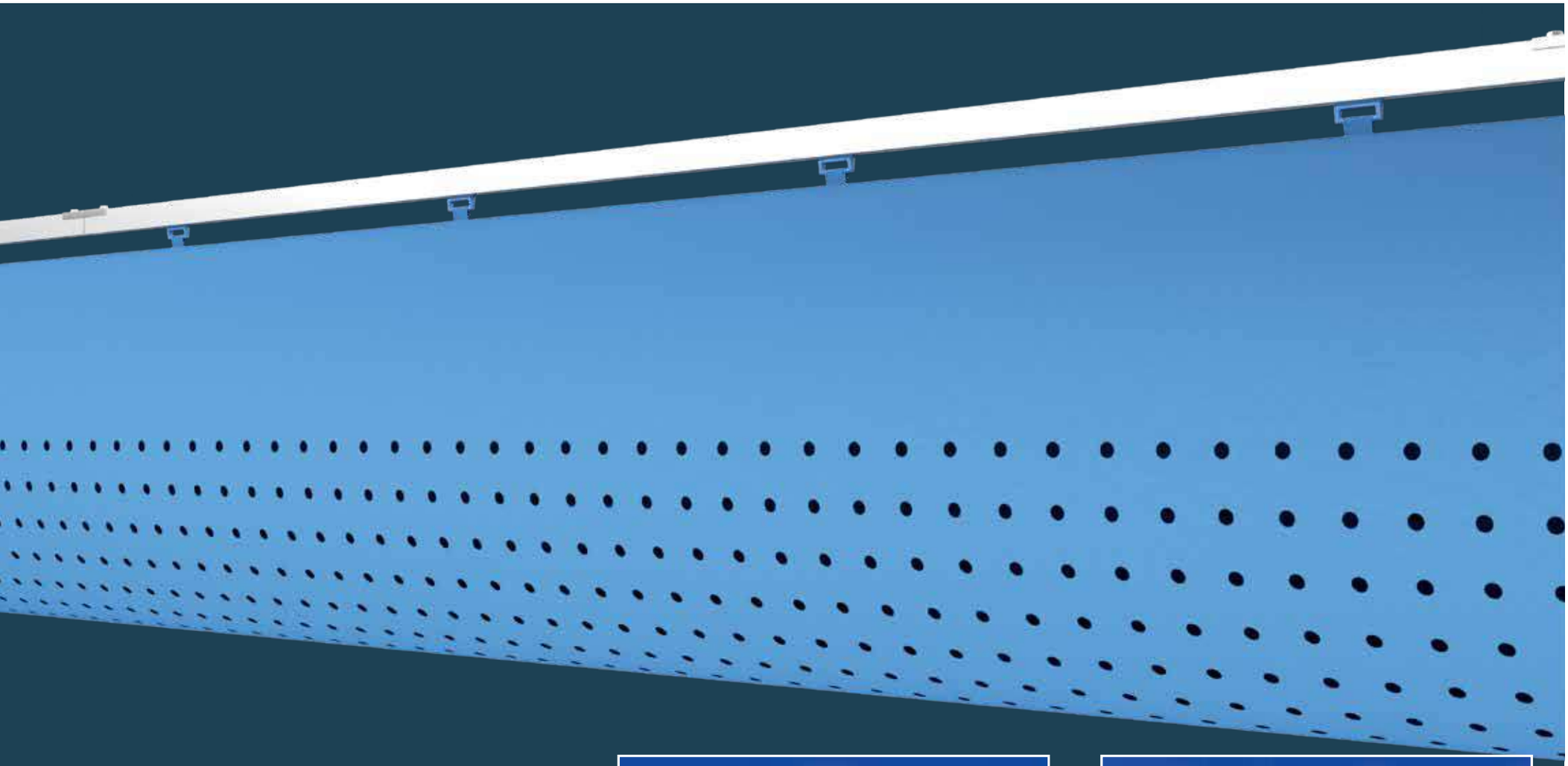
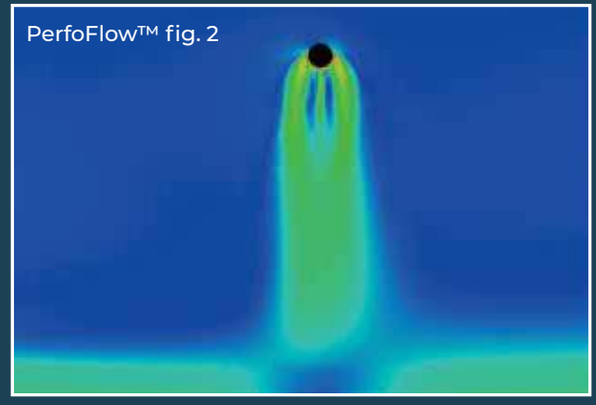
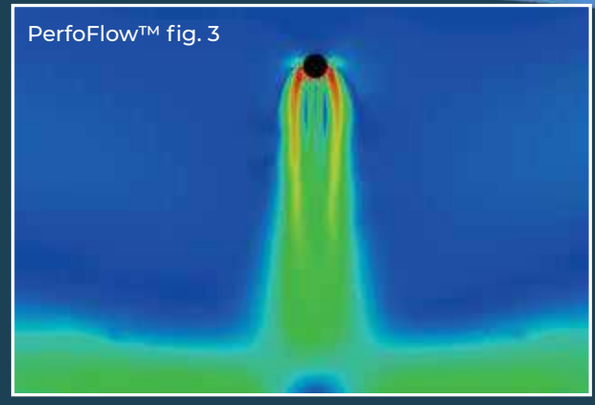






Perforation size impact on air pattern

Air diffusion with perforation of Ø 5 mm [≈0.2 in] holes located at 180˚ over 6 o'clock position. Cooling at ΔT of -6K.

Air diffusion with perforation of Ø 10 mm [≈0.4 in] holes located at 180˚ over 6 o'clock position. Cooling at ΔT of -6 K.

SonicFlow™

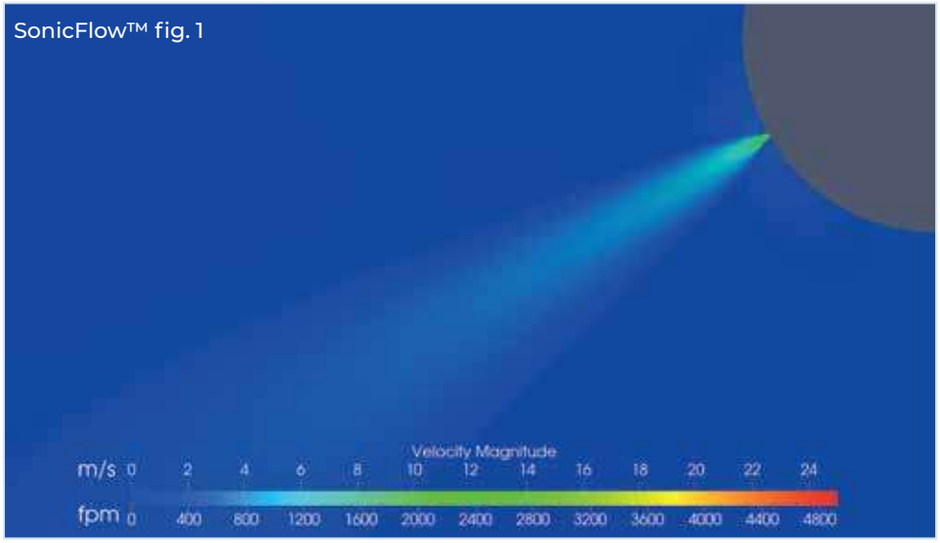
SonicFlow™ is a directional flow model where the air exits the duct via rows of laser-cut perforations.

Multiple rows of SonicFlow™ can be specified for a duct, with each row or number of rows pointing in a specific direction.

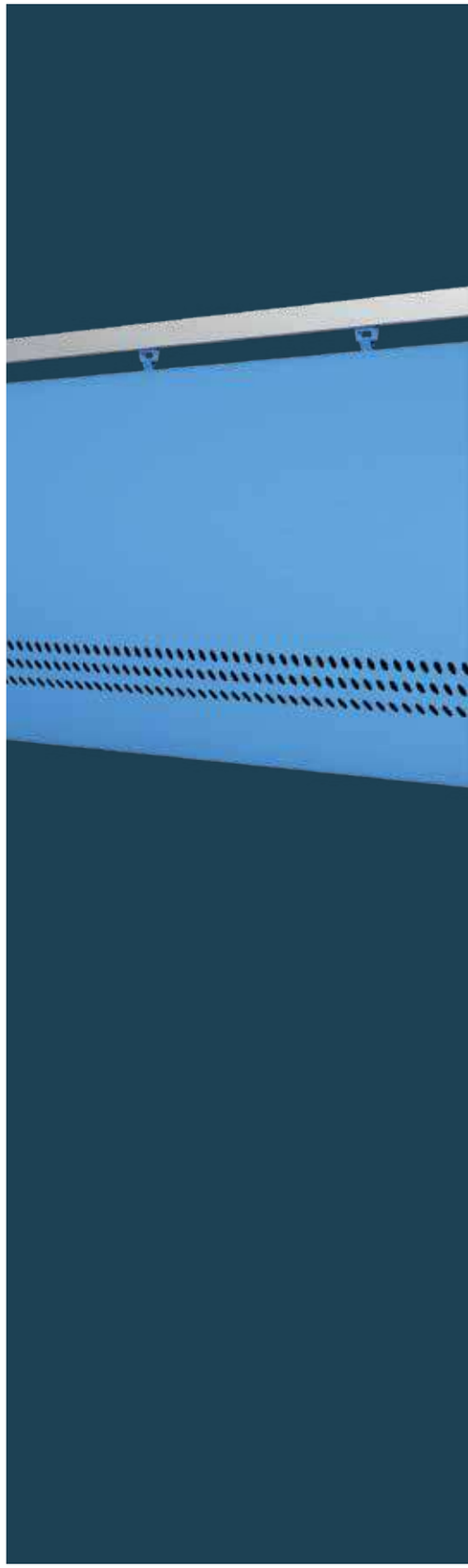
The throw depends on the static pressure inside the duct, the size of the orifices as well as the spacing of the orifices.

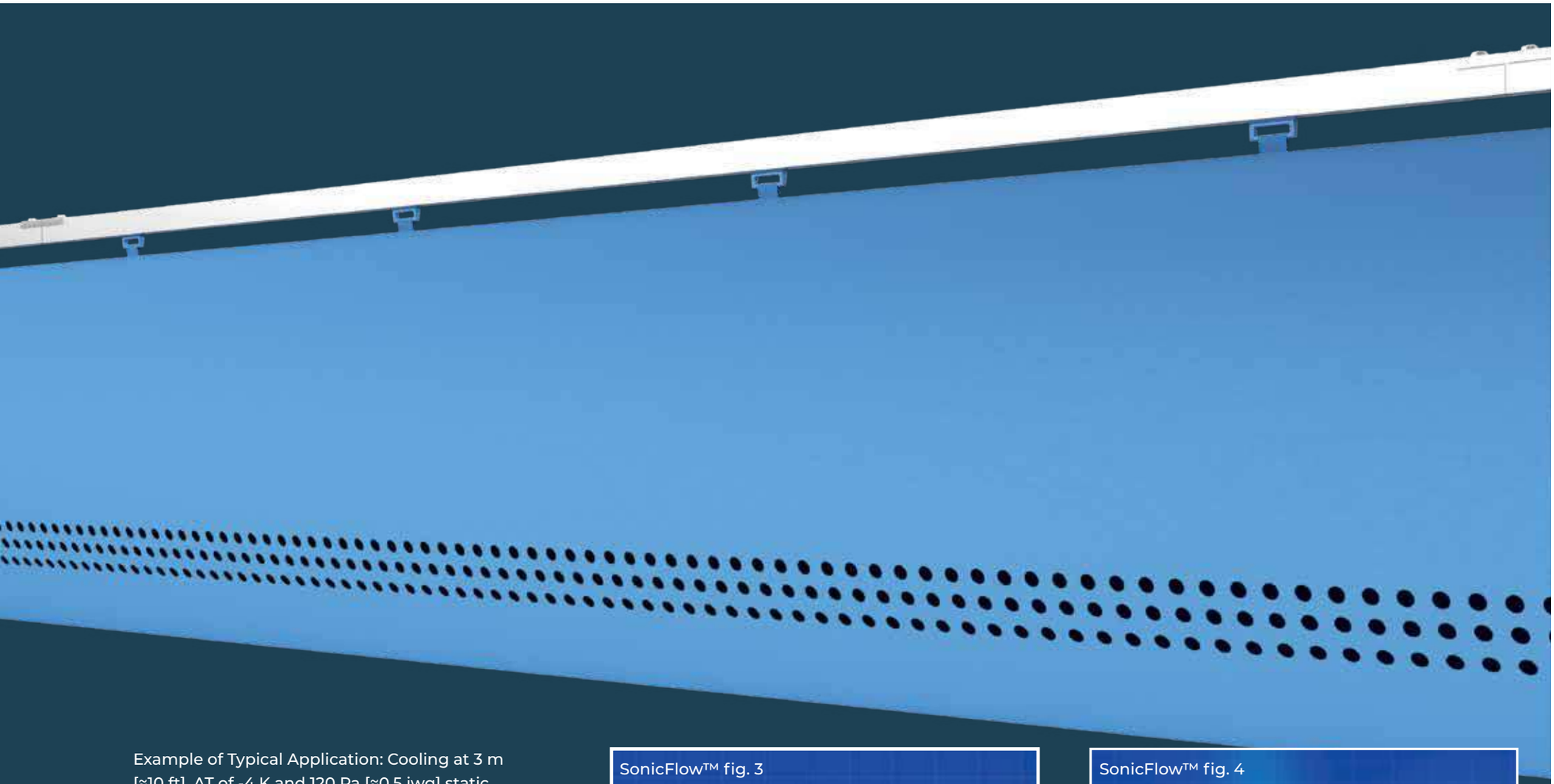
There are many different applications in which SonicFlow™ is ideal as the primary flow model. It is often used in retail or sports applications, where a medium ceiling height calls for directional throws to create proper induction without causing drafts.

Air discharge through SonicFlow™ orifice at 120 Pa [≈0.5 iwg].

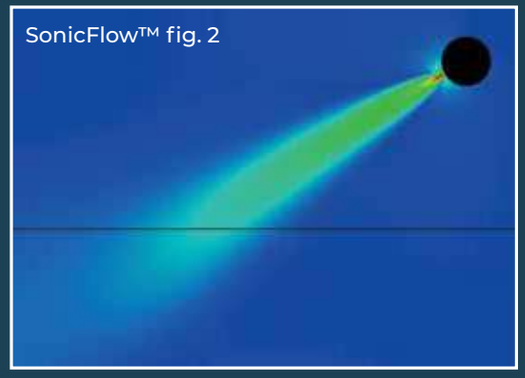


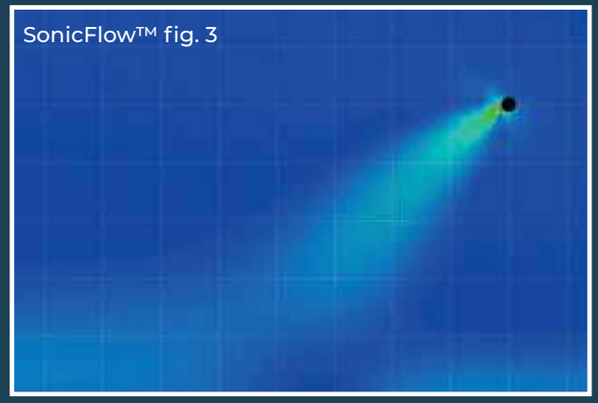
With SonicFlow™, the air exits at discharge velocity, which decreases with traveled distance from the duct and depends on the static pressure inside the duct. Fig. 2 shows an example of a CFD simulation with SonicFlow™ at 3 m [≈10 ft] above floor level. The occupied zone is indicated by the black line 1.8 m [≈6 ft] above floor level. Figs. 3 and 4 show the differences in airflow patterns between cooling and heating in scenarios with identical parameters.

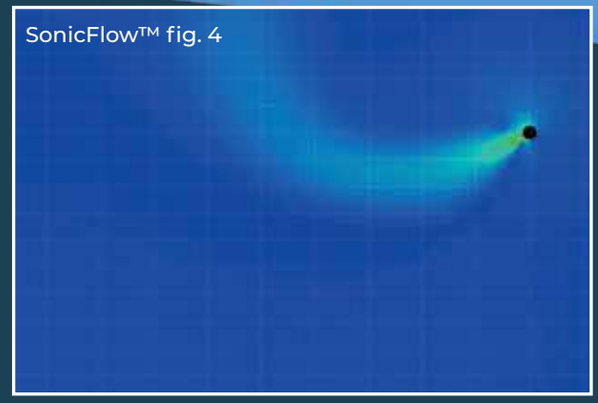




Example of Typical Application: Cooling at 3 m [≈10 ft], ΔT of -4 K and 120 Pa [≈0.5 iwg] static pressure. Air enters the occupied zone at required direction and velocity. The occupied zone is indicated by the black line 1.8 m [≈6 ft] above floor level.







ΔT impact on air pattern

Air pattern in theoretical space: Impact of cooling at ΔT of -6 K and 120 Pa [≈0.5 iwg] static pressure.

Example: Air pattern in heating with ΔT of +6 K and 120 Pa [≈0.5 iwg] static pressure in a theoretical medium to large space.

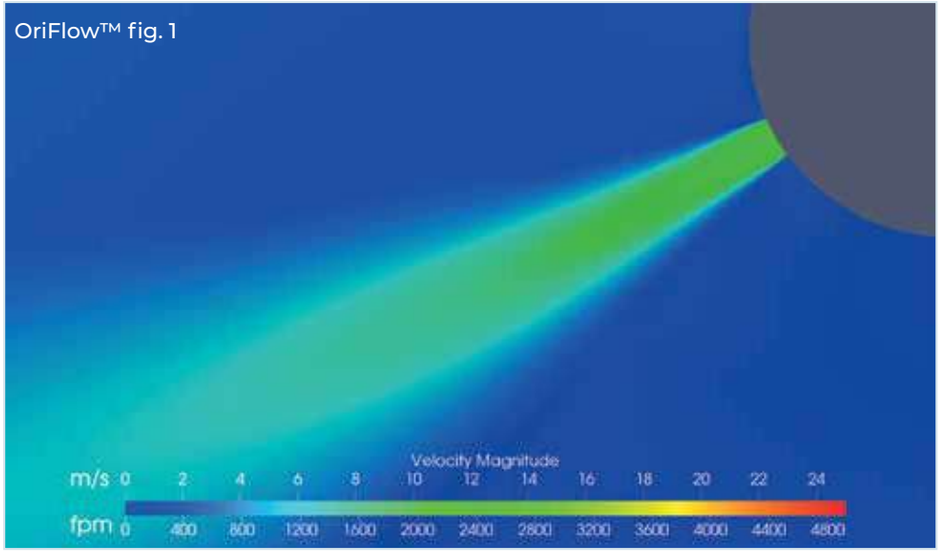
OriFlow™

OriFlow™ is a directional flow model, where the air exits the duct via rows of laser-cut orifices. Multiple rows of OriFlow™ can be specified for a duct.

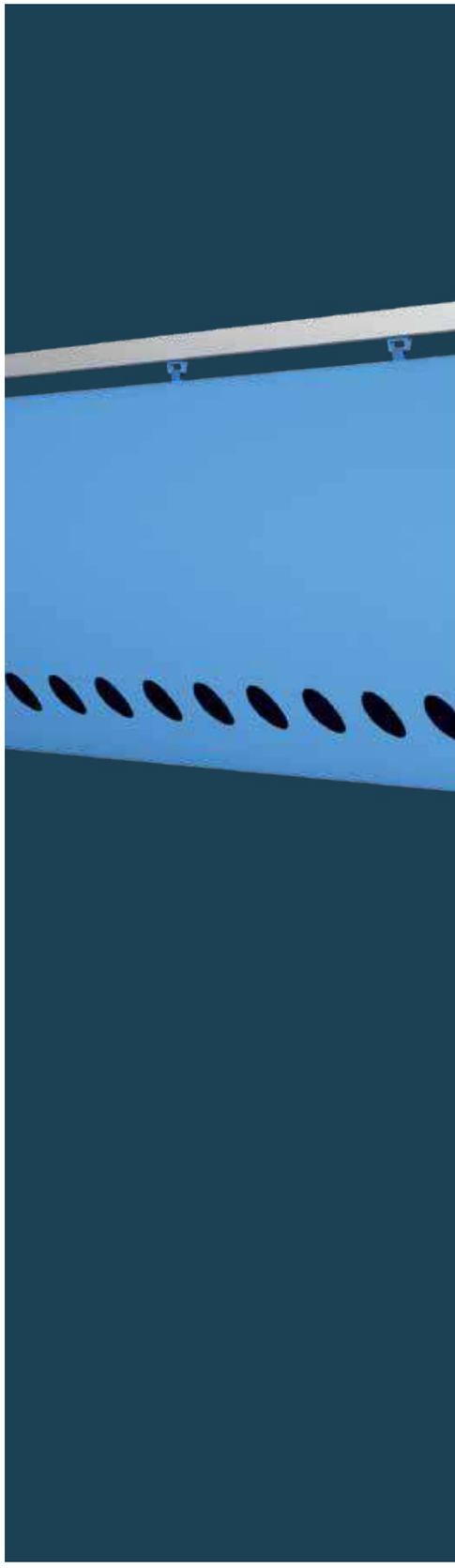
The throw depends on the static pressure inside the duct, the size of the orifices as well as the spacing of said orifices.

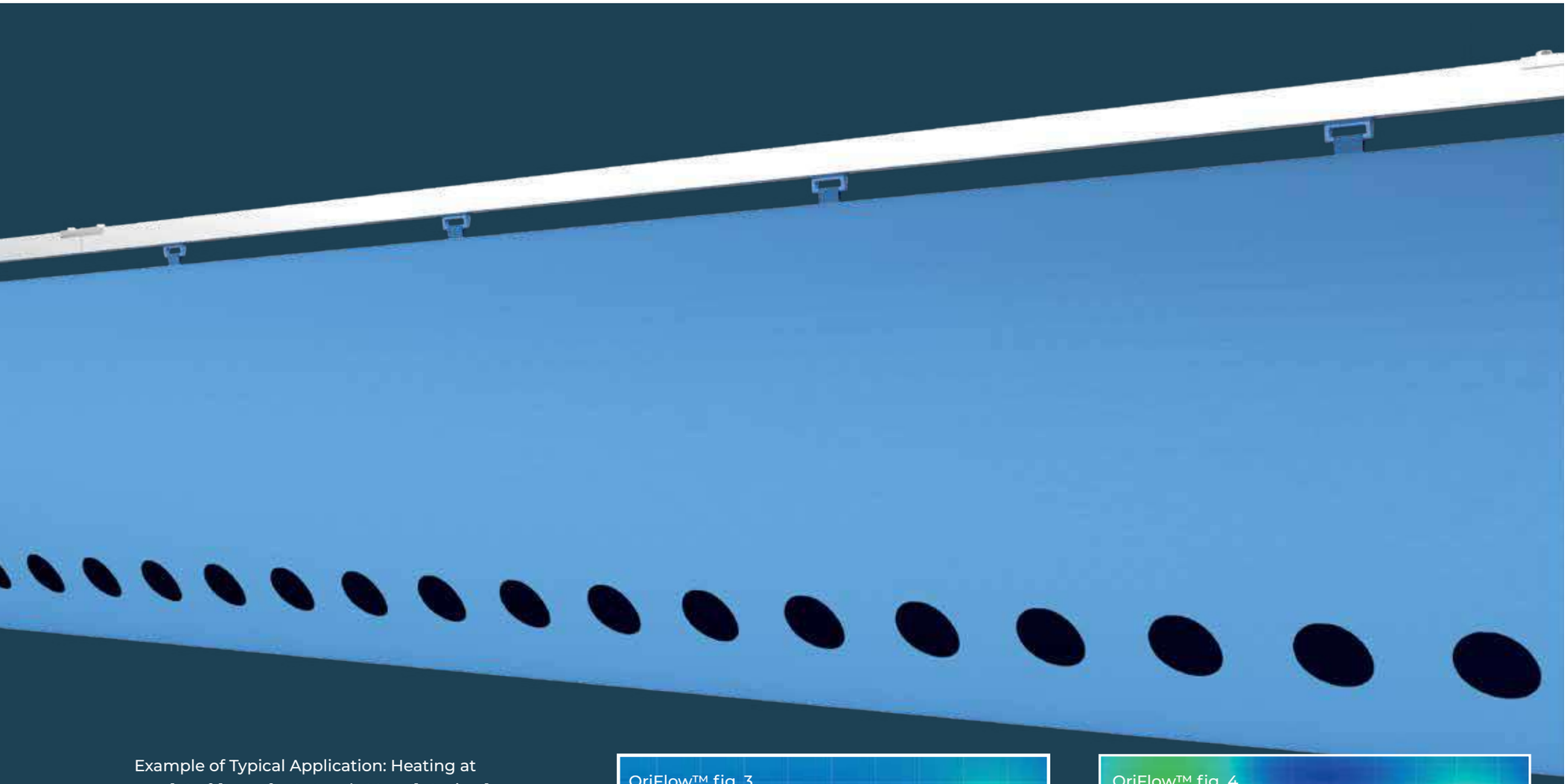
OriFlow™ is often used in applications where there is a need for directional air with a medium to high velocity to ensure proper mixing, but with lower requirements for precision. Typical applications include warehouses, distribution centers or industrial applications with higher ceiling heights.

Air discharge through OriFlow™ orifice at 120 Pa [≈0.5 iwg] static pressure.

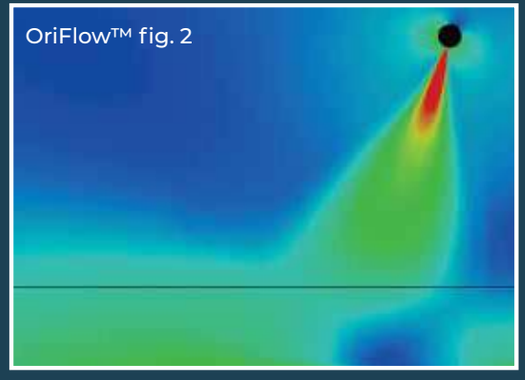


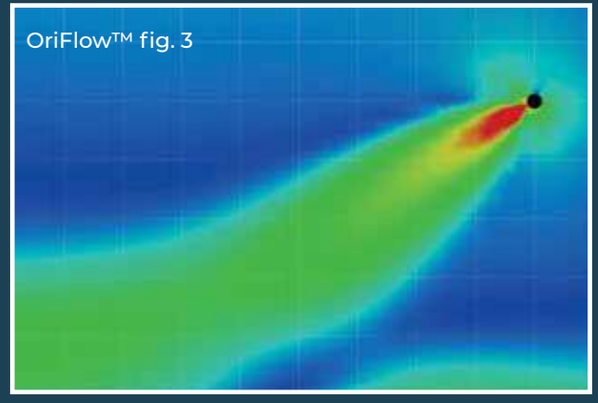
With OriFlow™, the air exits at discharge velocity, which decreases with traveled distance from the duct and depends on the static pressure inside the duct. With a properly designed air dispersion system, OriFlow™ is strong enough to ensure heating in medium to high installation projects.

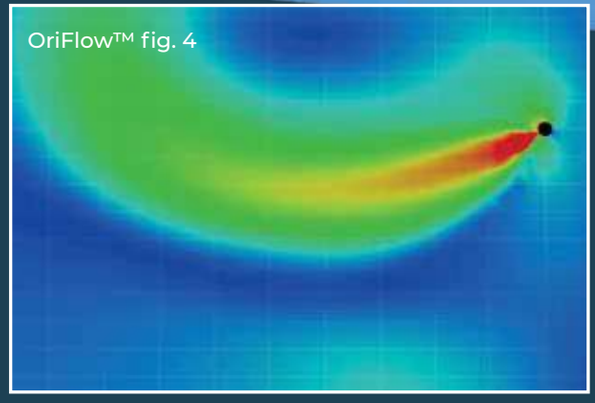




Example of Typical Application: Heating at 7 m [≈23 ft], ΔT of +10 K and 120 Pa [≈0.5 iwg] static pressure. Hot air reaches the occupied zone, regardless of high ΔT and installation height. The occupied zone is indicated by the black line 1.8 m [≈6 ft] above floor level.







ΔT impact on air pattern

Example: Air pattern in cooling with ΔT of -6 K and 120 Pa [≈0.5 iwg] static pressure in a theoretical large space.

Example: Air pattern in heating with ΔT of +6 K and 120 Pa [≈0.5 iwg] static pressure in a theoretical large space.

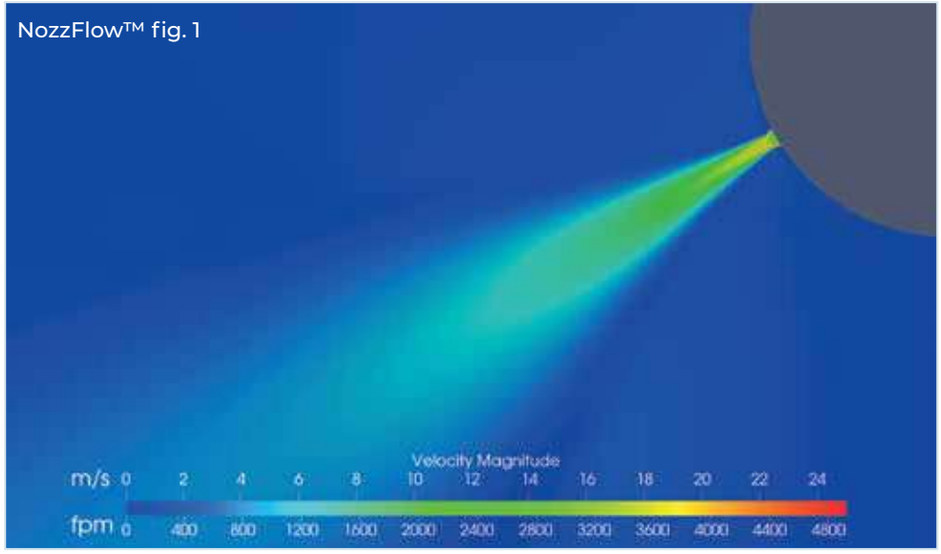
NozzFlow™

NozzFlow™ is used in applications where a very precise directional airflow is needed.

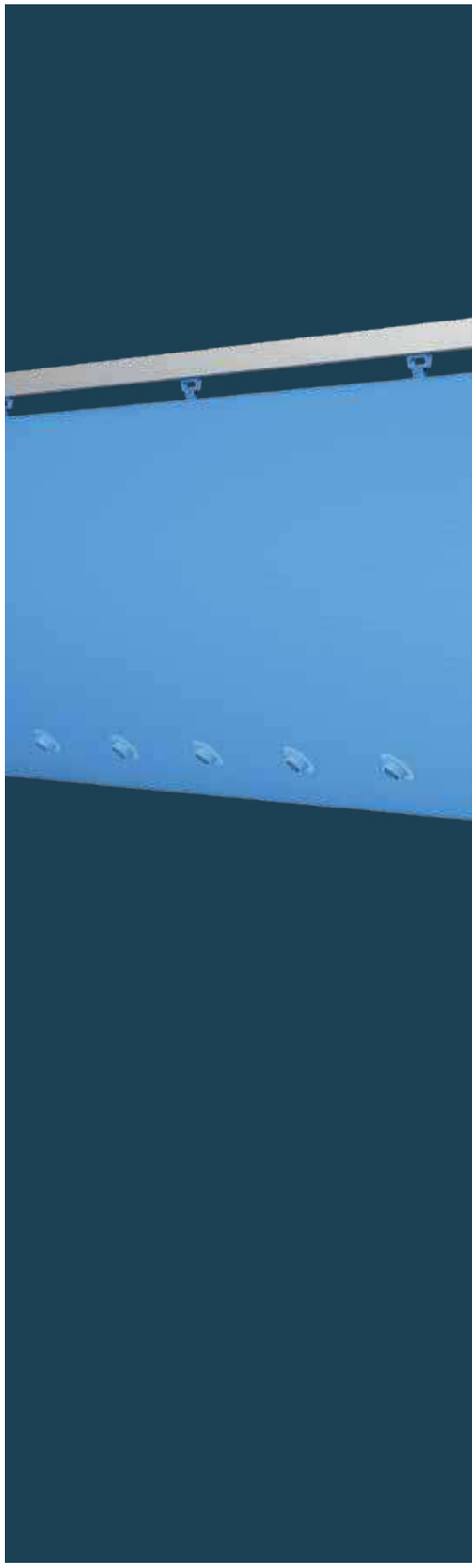
The discharge coefficient is almost equal to 1, due to the conical shape of the nozzle. This also results in higher discharge velocities than equivalently sized orifices, and longer, more precise directional throws.

Typically, NozzFlow™ is used in applications where there is a need to distribute air precisely with a medium to high velocity, such as process air in industrial refrigeration projects, pools, or applications with warm air distribution. The conical nozzle has a high discharge coefficient and the perpendicular air supply makes the airflow very predictable even at longer throws.

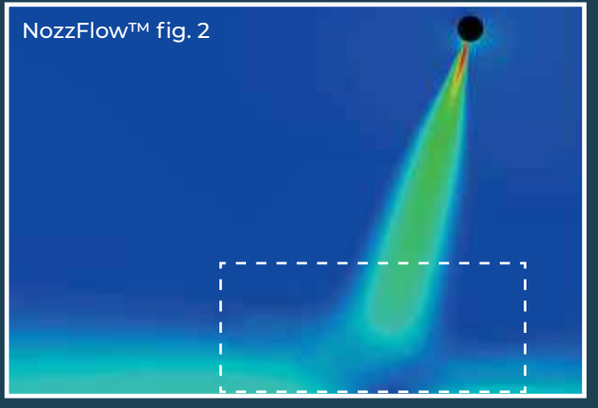
Air discharge through NozzFlow™ nozzle at 120 Pa [≈0.5 iwg] static pressure.

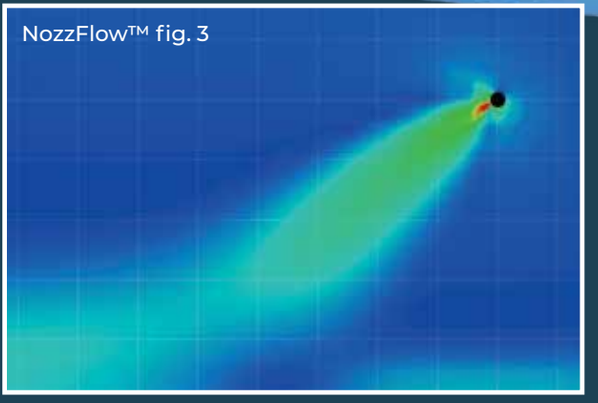


The flow is accelerated due to the conical shape of the nozzle. The acceleration rate depends on the static pressure inside the duct. The characteristics of NozzFlow™ makes it possible to precisely direct the air exactly where it is required.



Example of Typical Application: Spot cooling at 7m [23 ft], ΔT of -7 K and 120 Pa [≈0.5 iwg] static pressure. The air is delivered exactly where it is required – marked by the highlighted box.





ΔT impact on air pattern

Example: Air pattern in cooling at ΔT of -6 K and 120 Pa [≈0.5 iwg] static pressure.

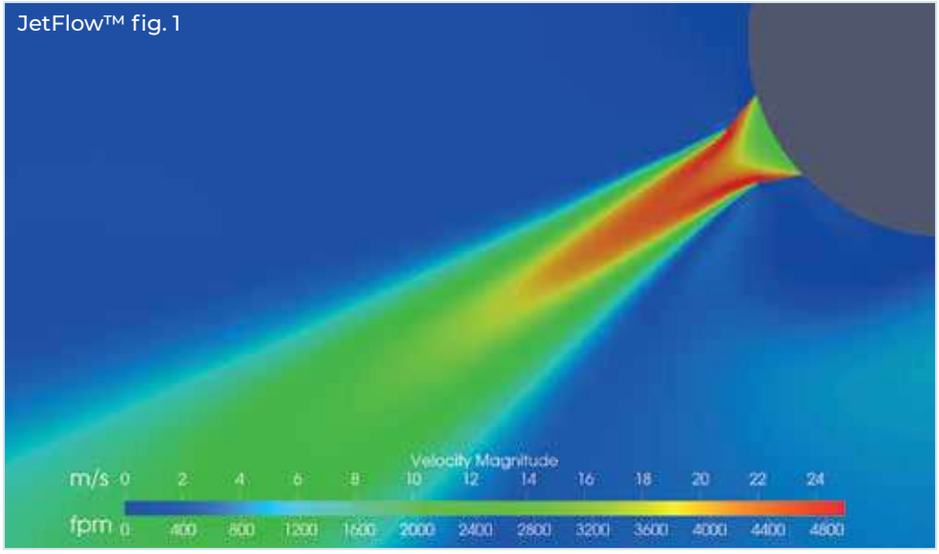
JetFlow™

JetFlow™ can generate exceptionally long throws with perpendicular directionality, which enable a high level of precision. The supply air is accelerated through the reduced diameter of the jet, which is why JetFlow™ offers exceptionally high discharge coefficients compared to equivalently sized orifices.

As a primary flow model, JetFlow™ is often used in applications with a need for long throws with precise directionality, such as stadiums, arenas, large industrial facilities and very high storage facilities – all with a demand for exact throws with predictable temperature gradients and terminal velocities.

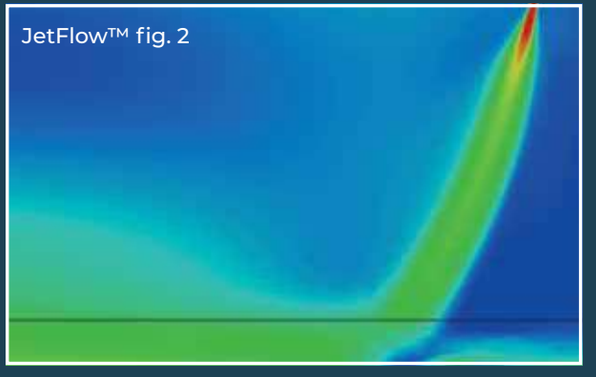
Jets are tailored in matching fabric. Jets are zipped in place, and if need be they can be capped at a later point.

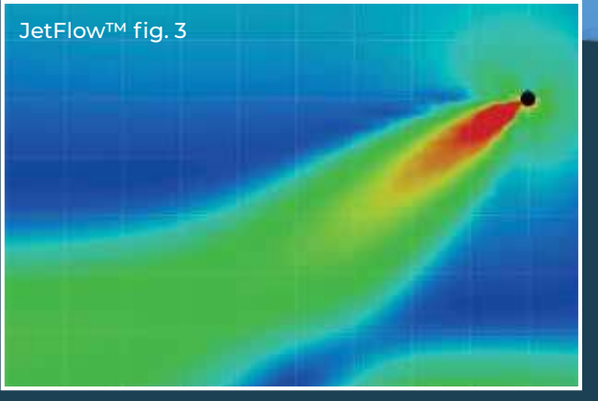
Air discharge through JetFlow™ jet at 120 Pa [≈0.5 iwg] static pressure.



The flow is accelerated due to the conical shape of the jet. The acceleration rate depends on the size of the jet and the static pressure inside the duct. As the discharge coefficient is very close to 1.0, it is possible for the supply air to penetrate the space with high precision at very long throws.

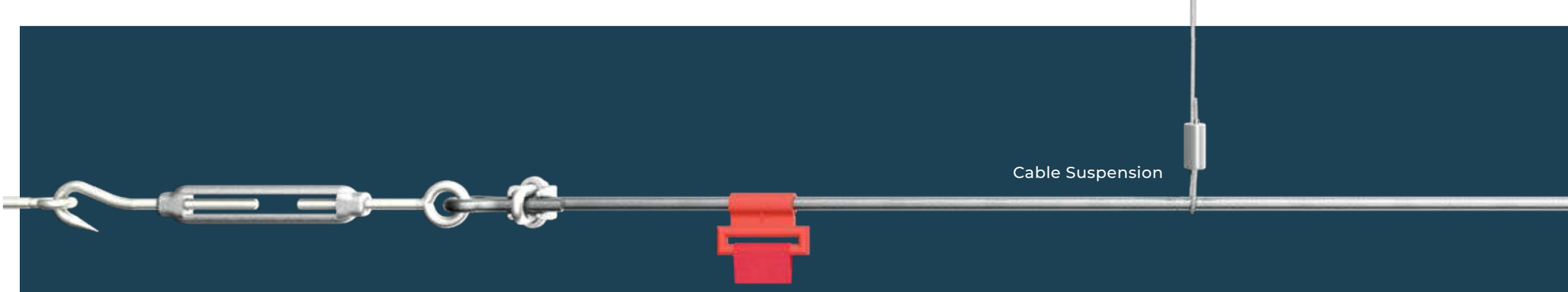
Example of Typical Application: Heating at 15 m [≈50 ft], ΔT of +10 K and 120 Pa [≈0.5 iwg] static pressure. Hot air reaches the occupied zone even in very high installations. The target zone is delineated by the black line 1.8 m [≈6 ft] above the floor.



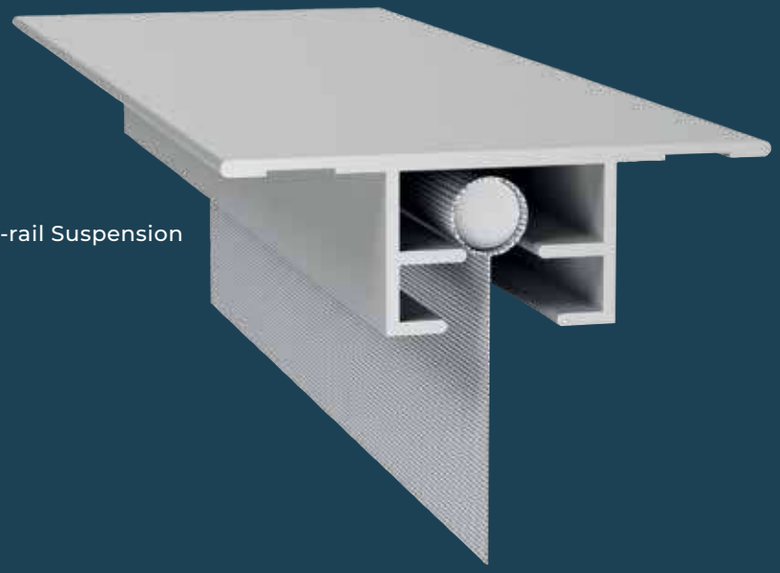


ΔT impact on air pattern

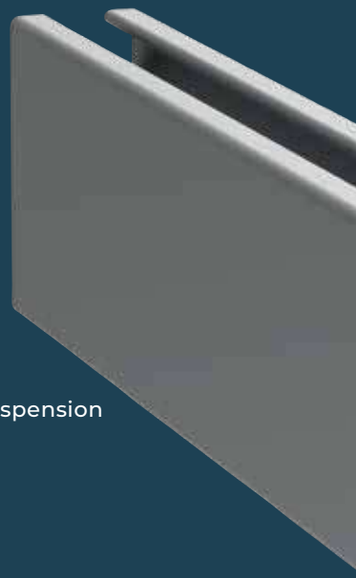
Example: Air pattern in cooling, ΔT of -6 K and 120 Pa [≈0.5 iwg] static pressure.



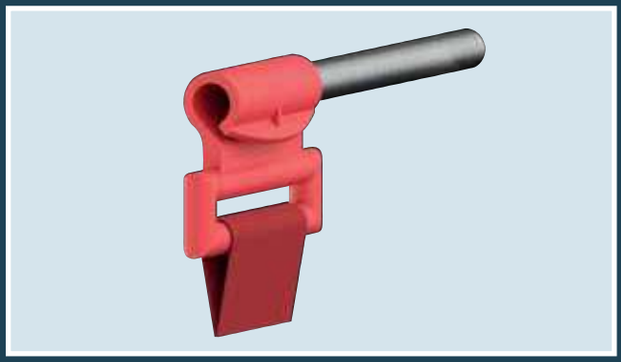
Cable Suspension

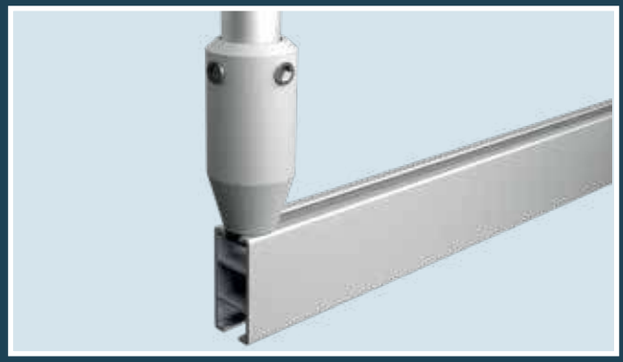


T-rail Suspension



H-rail Suspension





SUSPENSION SYSTEMS

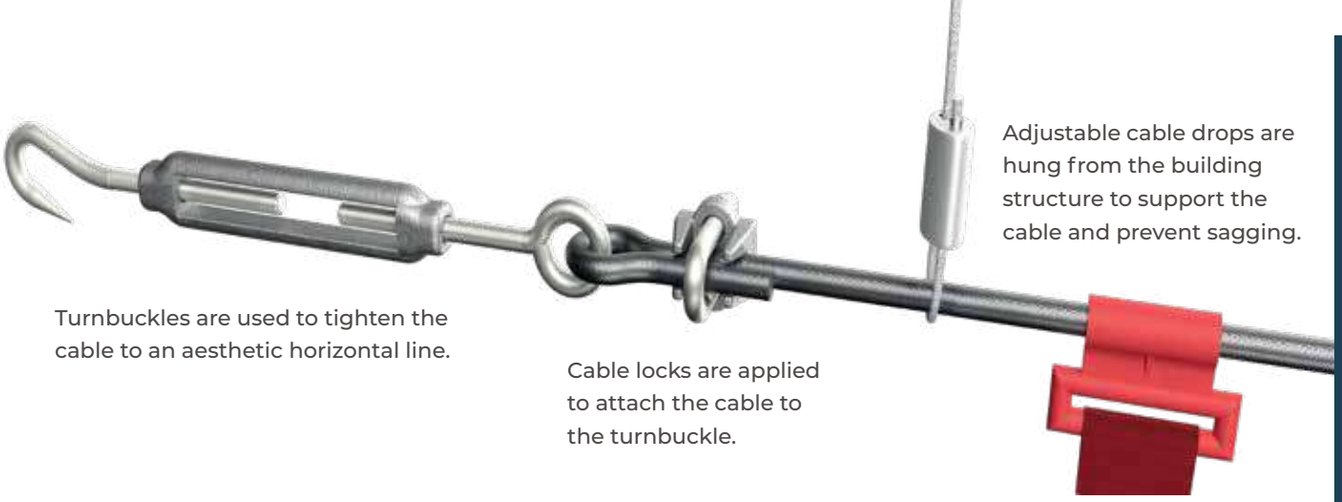
FabricAir provides a wide variety of suspension systems guaranteed to meet the challenges of any installation condition. There are three basic suspension systems: Cable, H-rail and T-rail.

The easy installation solution enables significant time and cost savings. The suspension types can be combined to create the ideal solution for each application.

Our suspension types are made from anodized aluminum or coated stainless steel making them suitable for corrosive environments. In projects with a high risk of corrosion, make sure a third-party advisor specifies the appropriate alloy to ensure against stress corrosion cracking.

For non-standard suspension solutions please contact your local FabricAir office. Contact information is found on the back of this brochure.

By combining suspension types, the custom dispersion system will suit any project regardless of its complexity, supporting vertical drops, bypassing existing piping and light fixtures, etc.



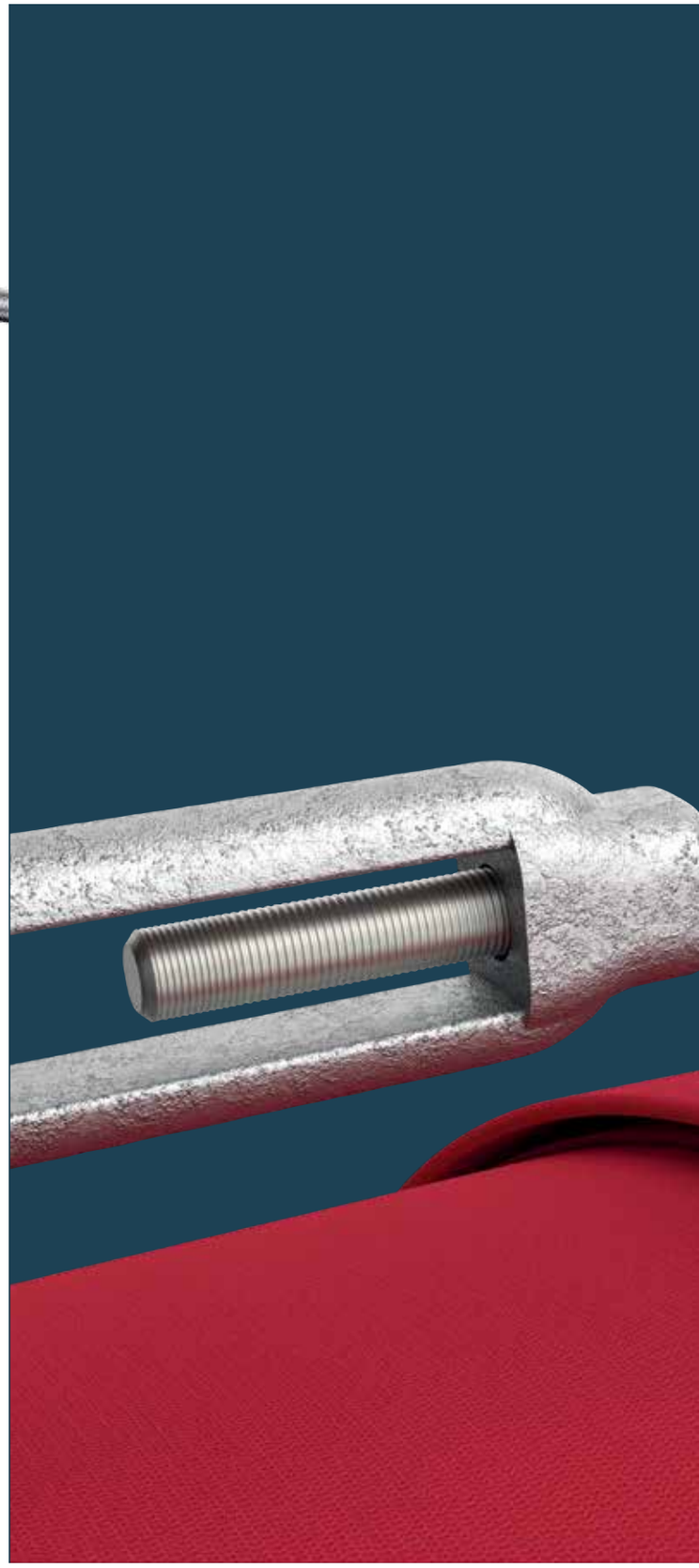
Cable Suspension

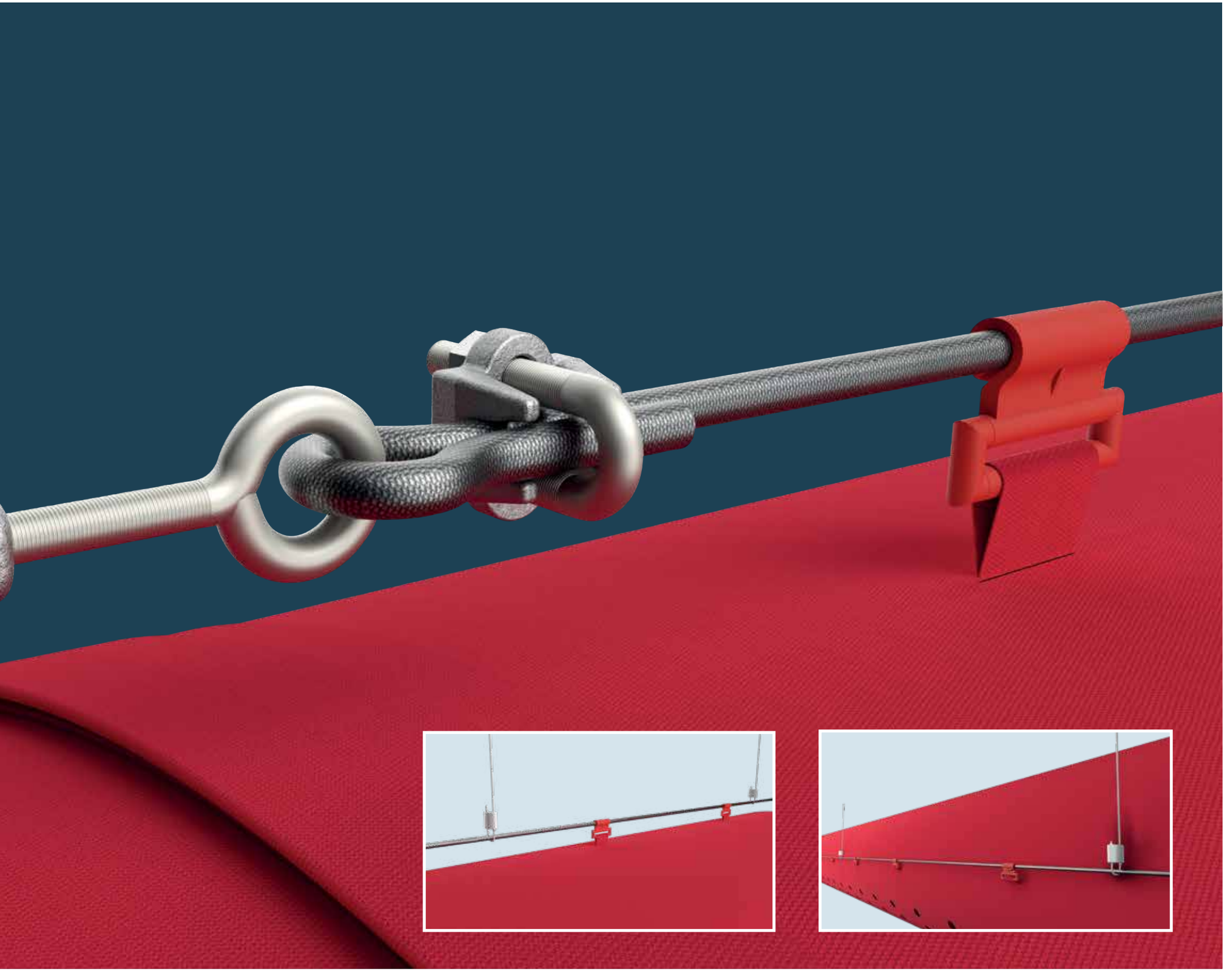
Cable suspension is a cost-effective solution used in single or double configurations. A stretched horizontal cable runs along the top of the duct, supported by intermediate vertical cable drops. The duct is attached using plastic hooks, and the length of the duct straps are manufactured to specification.

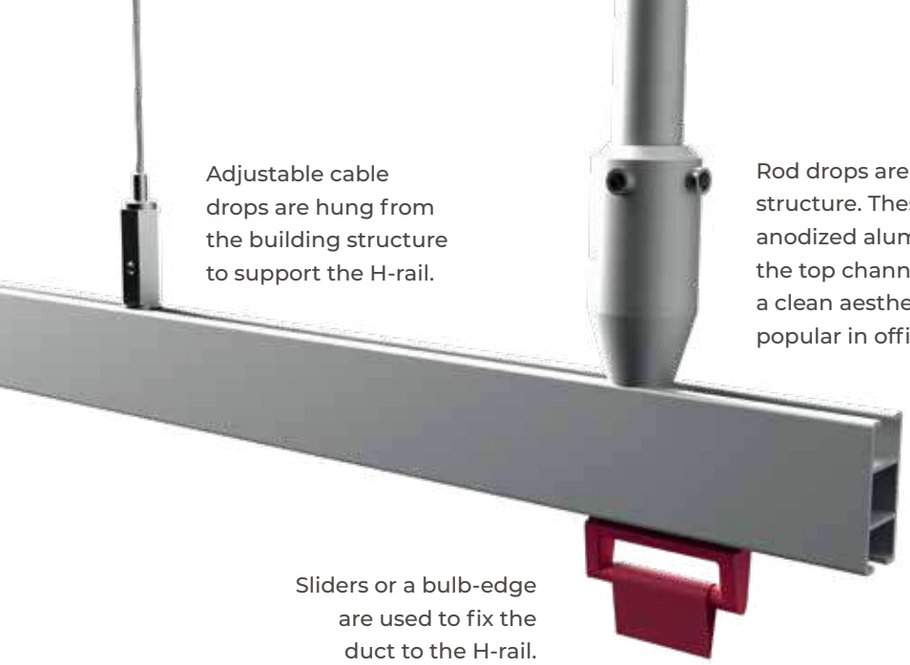
The cable is made from stainless steel or galvanized wire and, unless specifically requested, PVC coated for extra safety.

Stainless steel hardware includes turnbuckles and cable lock. This solution is very beneficial for corrosive or humid environments to ensure system longevity and safety.

The galvanized hardware option also includes turnbuckles and cable locks. Galvanized hardware is perfect in all non-corrosive environments.







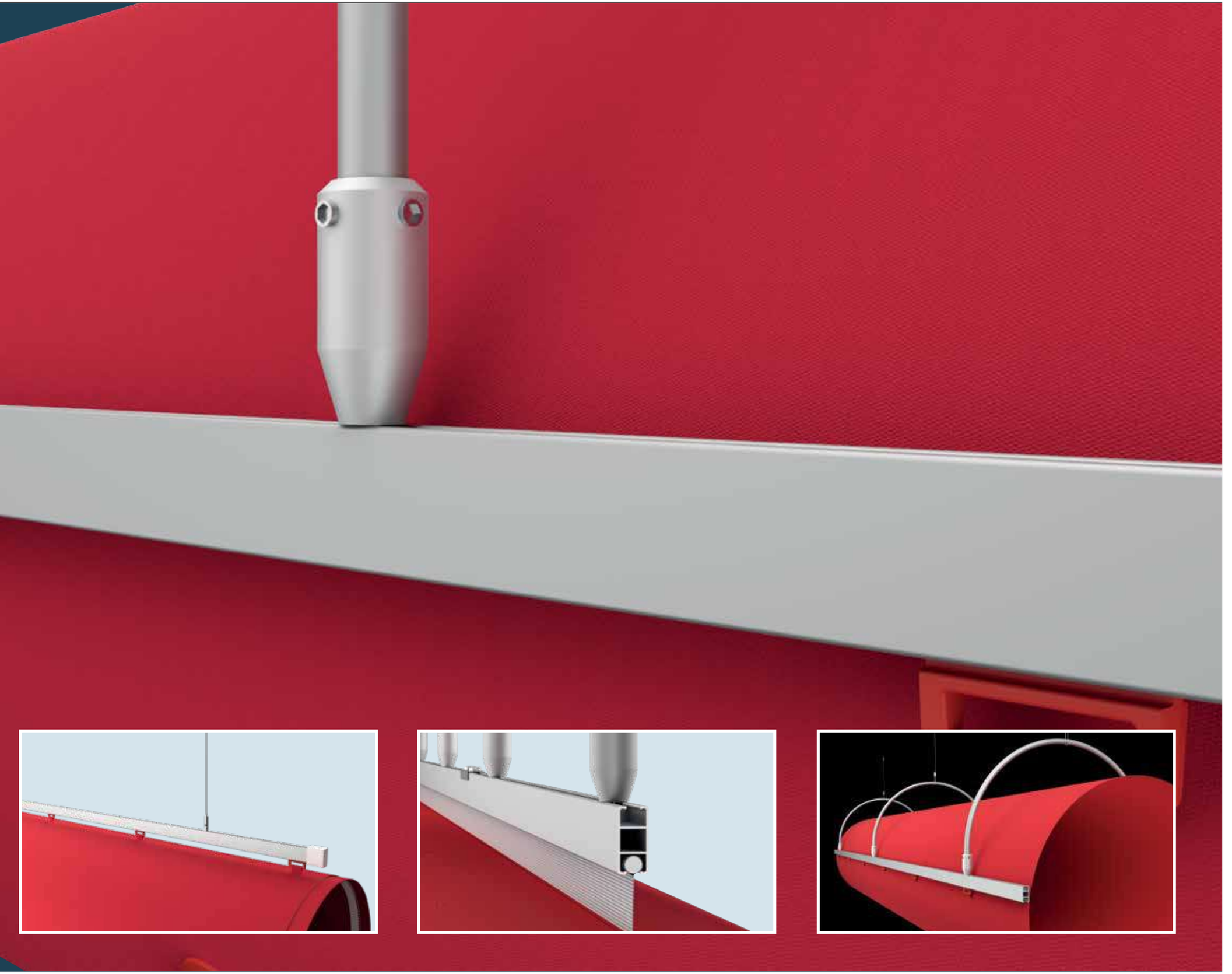
H-Rail Suspension

H-rail is commonly used to suspend complex FabricAir® Dispersion Systems, as these can be bent to suit the elbows. Curved rails are produced by bending our anodized H-rail to the exact angle necessary. H-rail is produced in 2 m [6 ft, 6 in] sections using an extrusion process and then anodized, making it an excellent choice for corrosive environments.

When assembling an H-rail system, the pieces of H-rail are joined together using an assembly joint, fastened to each rail using set screws. The H-rail is suspended using either a cable drop or rod drop from the structure.

H-rail suspension systems use either a single H-rail at the top of the ducts or two H-rails at the sides. The duct will have sliders or a bulb edge to slide into the H-rail.

The assembly joint connects two H-rail sections. As an option the adjustable cable lock can be installed directly in the assembly joint.

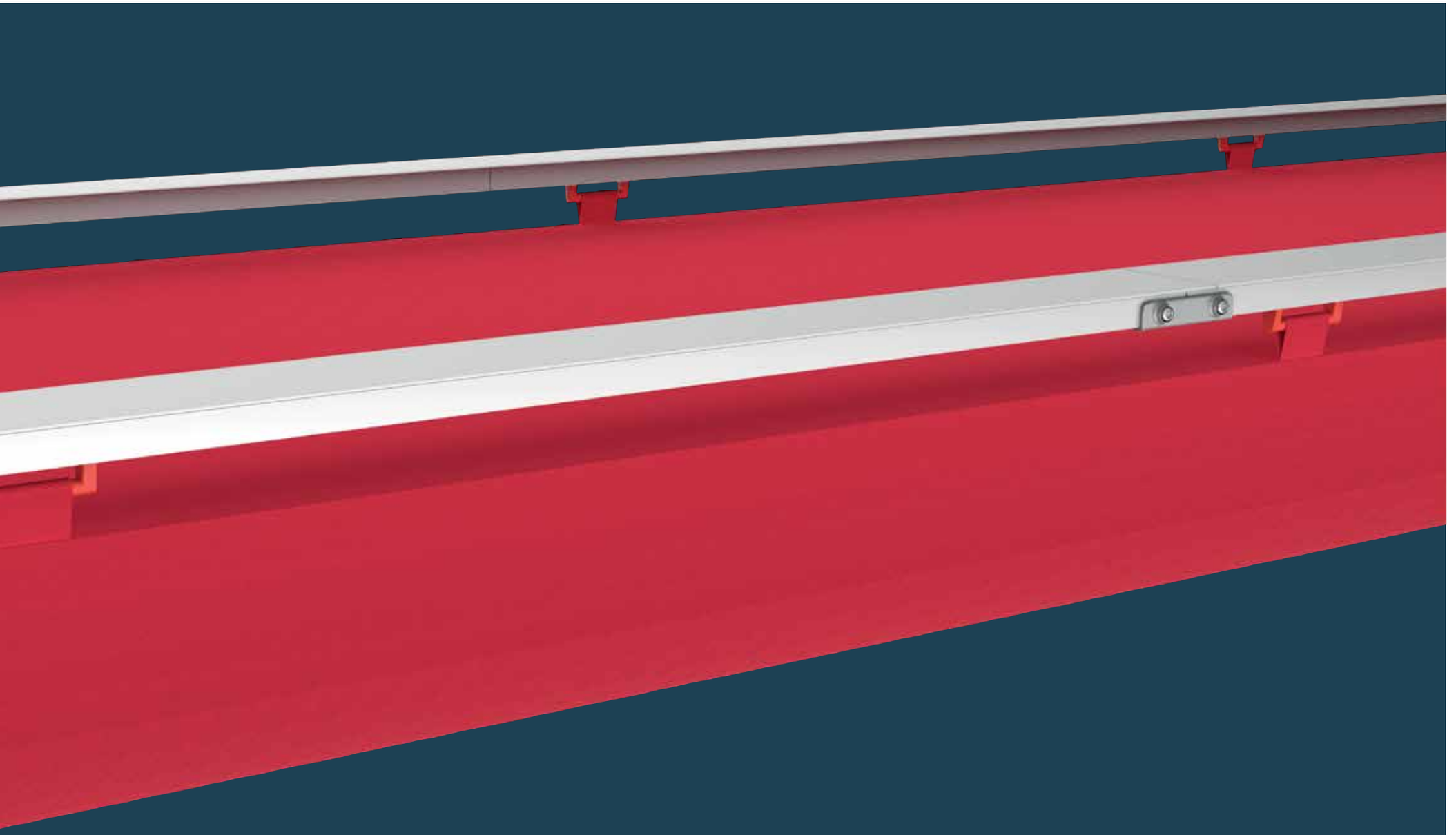


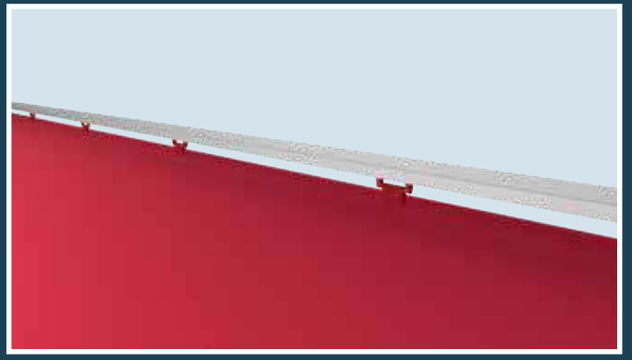
T-Rail Suspension

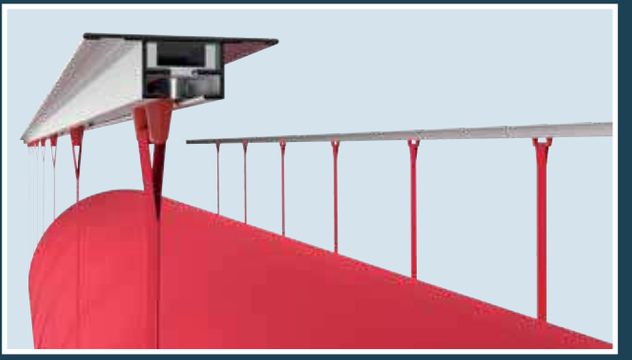
T-rail is attached directly to any type of ceiling or wall. The duct is suspended from the rail(s) using sliders or a bulb edge to slide into the T-rail profile. The height of the duct straps or bulb edge above the duct is manufactured to specification.

Two versions of bulb-edge can be specified; a softer variation which is pressed into the rail (Type 11) and a hard version that slides into the rail (Type 11a).

T-rail is primarily used in a two-rail configuration to suspend D-shaped ducts, half-round and circle sections, although it is also well-suited for mounting round ducts. T-rail is produced in 2 m [6 ft, 6 in] sections using an extrusion process and then anodized, making it an excellent choice for corrosive environments.







Overview: Suspension Types

		Type 1	Type 2	Type 3	Type 4	Type 5
Suspension Method		Cable	Cable	T-rail	T-rail	H-rail
Fixed Directly onto Ceiling				✓	✓	
Material Options	100% galvanized steel	✓	✓			
	100% stainless steel	✓	✓			
	Aluminum/stainless steel			✓	✓	✓
	Aluminum/galvanized steel			✓	✓	✓
Duct Profiles	Round	✓	✓	✓	✓	✓
	D-Shaped / Half-Round					
	Circle Section					
	Rectangular		✓		✓	
Shape retention options (compatible with round duct profile only)	All-in-One	✓		✓		✓
	Internal 360° Hoops	✓		✓		✓
Specialty Duct	FabricAir® VarioDuct™	✓*	✓	✓*	✓	✓*
Installation of Classic Suspension Solutions	Quick installation	☆☆☆☆☆	☆☆☆	☆☆☆☆☆	☆☆☆	☆☆☆
	Elevations	☆☆	☆	☆☆☆	☆☆	☆☆☆
	Horizontal elbows	☆☆☆	☆	☆☆☆	☆☆	☆☆☆☆☆

Contact your local FabricAir office for information about customized suspension solutions.
Find the information on the back of this brochure.

	Type 6	Type 7	Type 8	Type 11	Type 11A	Type 12	Type 13
	H-rail	H-rail	H-rail	T-rail	T-rail	T-rail	H-rail
				✓	✓	✓	
	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓
	✓	✓	✓				✓
				✓	✓	✓	
				✓	✓	✓	
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	✓	✓	✓*				✓
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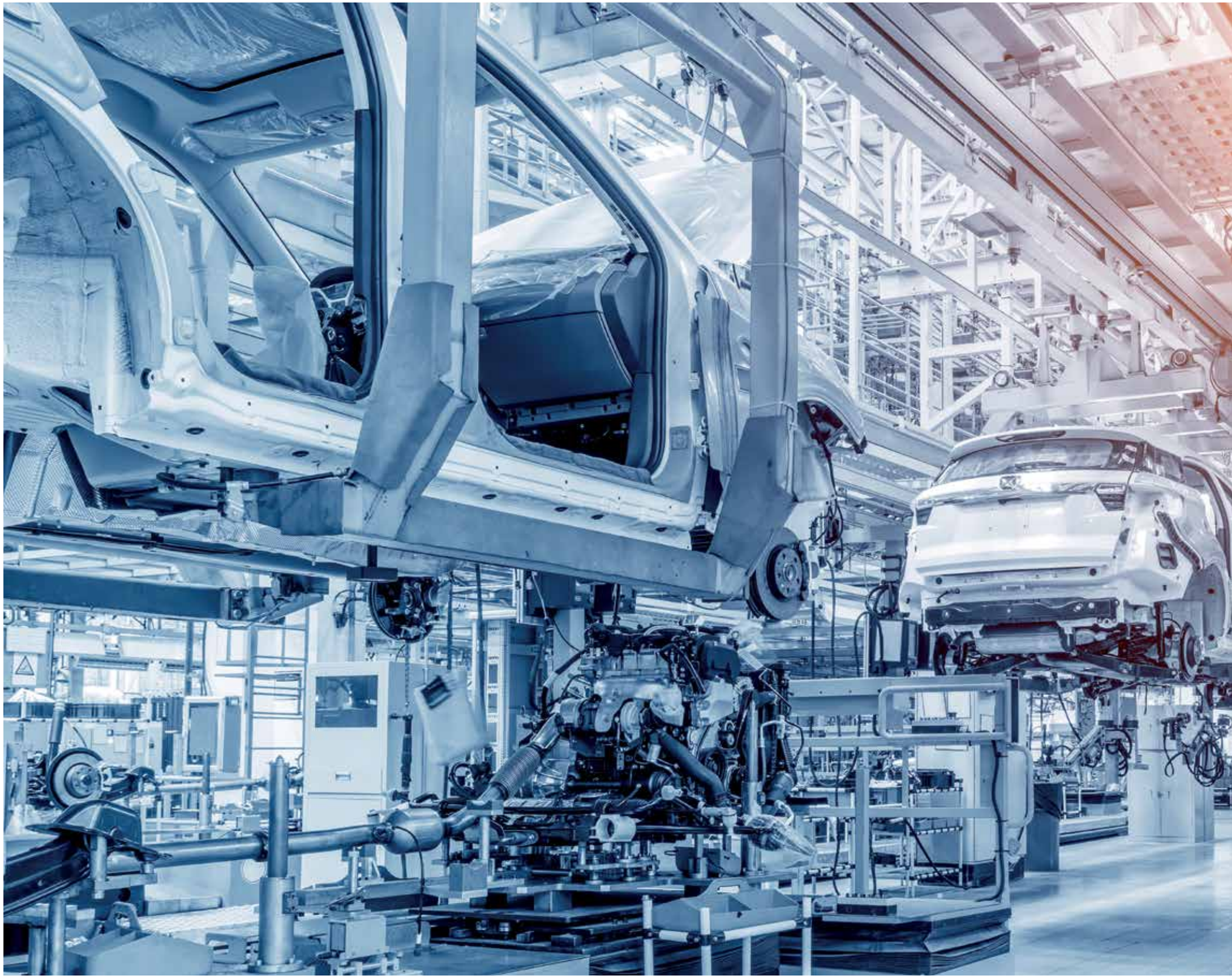
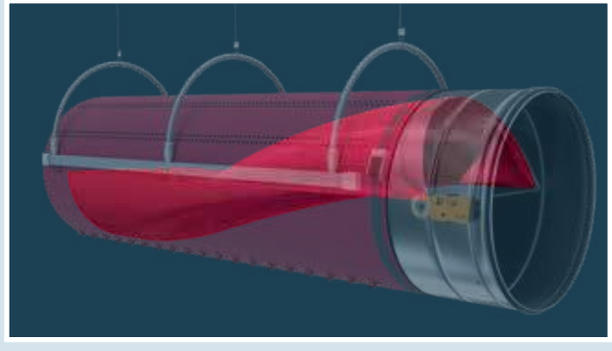
*All-in-One optional

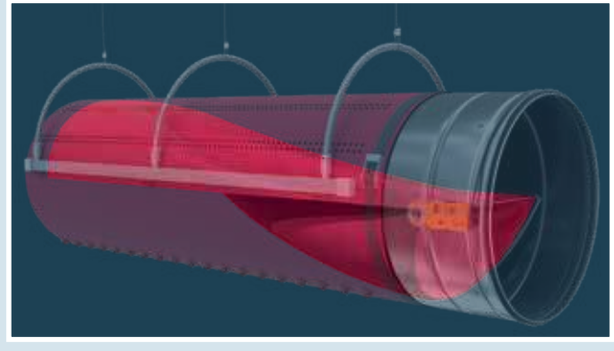


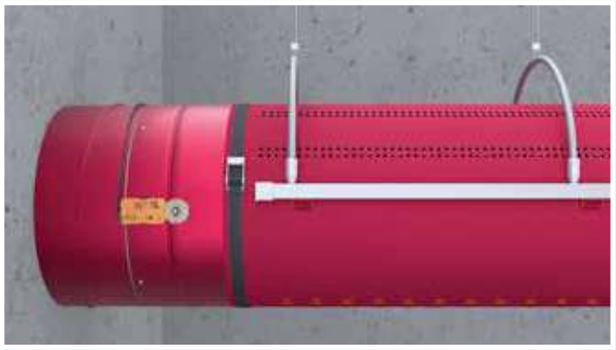
SPECIALTY PRODUCTS

With almost 50 years of experience in innovating the HVAC industry, FabricAir engineers understand that many industries require their own special solutions. In addition to the robust air dispersion systems with an array of duct profiles, FabricAir offers specialty products to create the ideal fit for each application's specific requirements. Whether the application calls for different flow models for cooling/and or heating purposes in a single duct or reducing an evaporator's defrosting time by up to 50%, FabricAir has the smart air solution.

Upper section of the FabricAir® VarioDuct™
is typically designed for cooling.







The color of the damper can be matched to the fabric to create an aesthetically pleasing look.

Lower section of the FabricAir® VarioDuct™ is typically designed for heating.

FabricAir® VarioDuct™

— TWO AIRFLOW SOLUTIONS IN ONE DUCT

The FabricAir® VarioDuct™ provides different flow models for cooling and/or heating purposes. It is tailored with an internal membrane that separates the two airflows.

Depending on which flow pattern location is needed, a damper changes position and moves the internal membrane either up or down covering half of the duct.

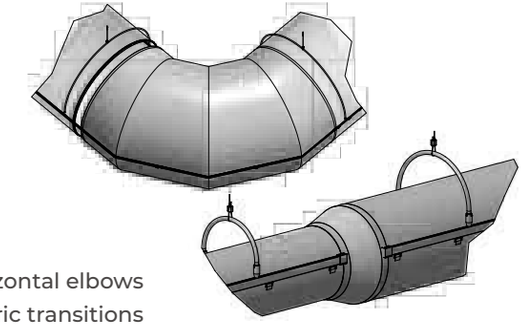
The upper and lower sections can even be designed with their own unique static pressure and air volume to meet the specific requirements and comfort levels of the application.

ΔT may vary from low to high between the two sections. This is customized using differing flow models, thus ensuring a high level of comfort regardless of which section is in use.

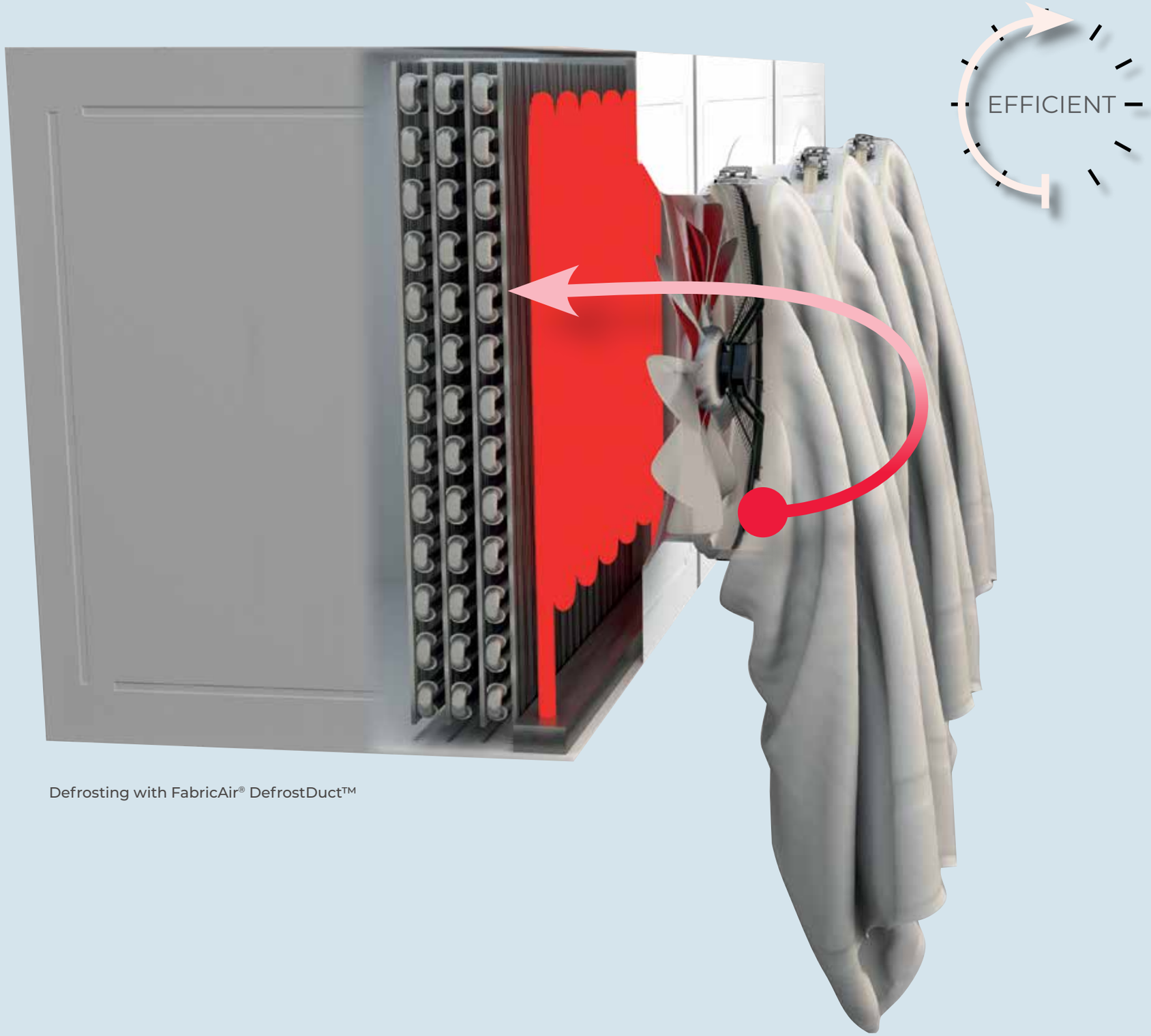
The FabricAir® VarioDuct™ is available for any length of round duct including horizontal bends and concentric transitions. The color of the damper can be matched to the fabric.

ADVANTAGES

- HIGH HEATING AND COOLING CAPACITY
- NO COMPROMISE ON COMFORT LEVEL SWITCHING FROM HEATING TO COOLING
- FULL FLEXIBILITY WHEN IT COMES TO AIR VOLUMES, AIR PRESSURES AND TEMPERATURES
- EASY AND FAST INSTALLATION
- AVAILABLE WITH HORIZONTAL ELBOWS AND CONCENTRIC TRANSITIONS



Also available with horizontal elbows and concentric transitions



Defrosting with FabricAir® DefrostDuct™

FabricAir® DefrostDuct™

— SIGNIFICANTLY REDUCES THE EVAPORATOR'S DEFROSTING TIME

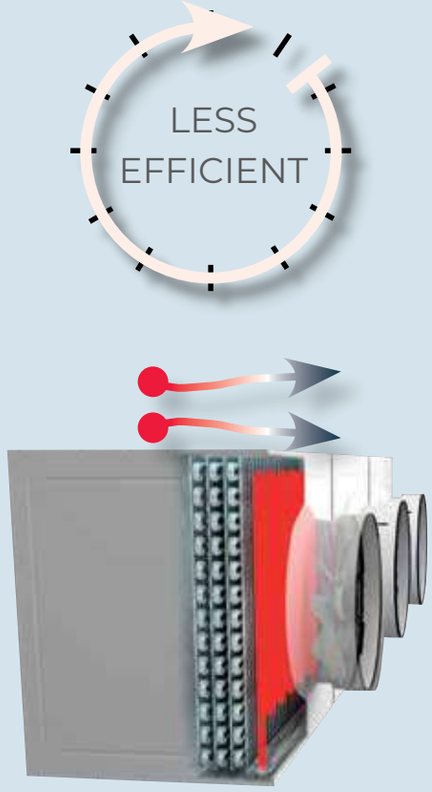
The FabricAir® DefrostDuct™ *reduces* the evaporator's defrosting time by 10 to 50%, thus increasing its efficiency.

When the evaporator reaches its defrost cycle, the FabricAir® DefrostDuct™ collapses, effectively sealing the outlet. By preventing the heat escaping from the air cooler, the efficiency of the defrost cycle is significantly increased.

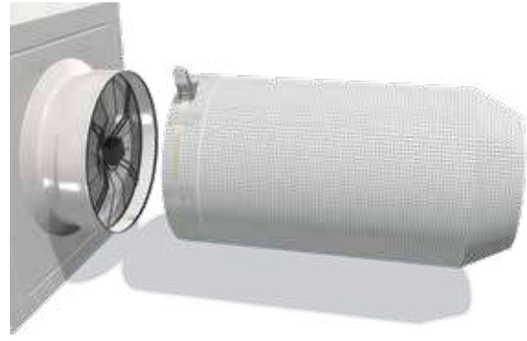
Clever use of materials prevents water droplets caused by the defrosting cycle from freezing on the fabric surface.

ADVANTAGES

- REDUCES DEFROSTING TIME BY 10-50%
- LOW PRESSURE DROP
- SAVES ENERGY
- PRESERVES THE STORED GOODS BETTER
- PREVENTS ROOM TEMPERATURE FLUCTUATIONS
- LONGER THROW LENGTH



Defrosting without the FabricAir® DefrostDuct™



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Innovating the HVAC industry since 1973

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