

# THERMOVENT

## air curtains

for factory doors and gates



## MOUNTING INSTRUCTIONS



SEPTEMBER 2018

# 1. The problems without air curtains

## Problem

Factory doors with through traffic to the outside area cause high energy costs due to harmful air exchange.



## Consequences of the harmful air exchange

The heavy cold air of the outside flows to the inside at the bottom of the opened door.

At the same time the lighter warm and humid inside air leaves the warm store through the top of the door opening.

(fig 1.). This cold air needs to be heated again, thus extra energy is consumed for heating.

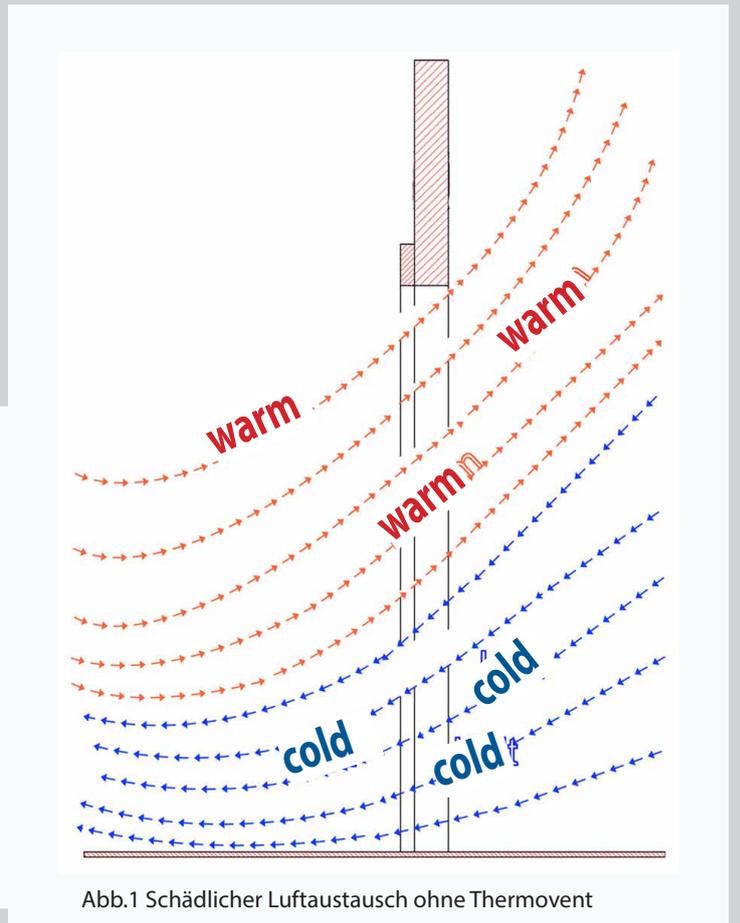
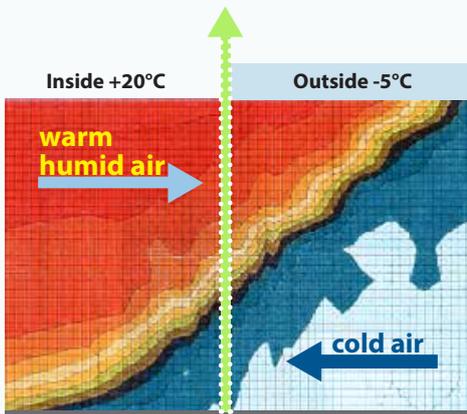


Abb.1 Schädlicher Luftaustausch ohne Thermovent

### Open door in a factory (without air curtain or strip curtain)



## 2. The solution by the use of air curtains

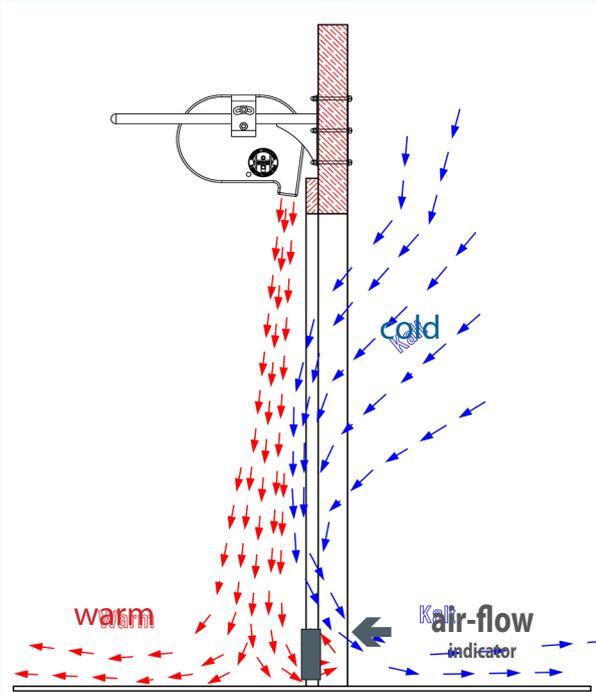


fig.2 With THERMOVENT protected door opening

**THERMOVENT air curtains solve these problems effectively.**

The installation is above the door (fig 3.).

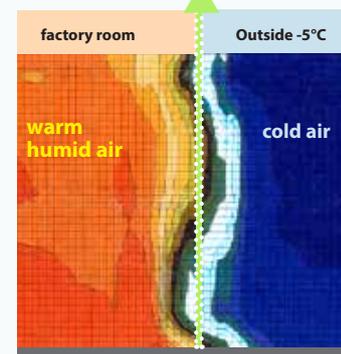
Opening the factory door the THERMOVENT will automatically start.

The specially formed airflow covers the whole door opening.

Cold and warm air are effectively separated by an invisible air barrier (fig.2).

Cold air cannot penetrate, warm air cannot escape (fig 2.).

Thermography of air temperatures at an open factory room door, which is sealed off by an air curtain system.



## 3. The proof of function



### Function control

Warm and cold air are effectively separated by an invisible door of wind.

Warm air can not flow out and cold air can not flow in.

The smooth functioning of the THERMOVENT is provided with the provided air-flow indicator.

The air flow indicator is placed on the threshold of the door.

The air velocity and the discharge angle of the system must be adjusted that the air-flow indicator no longer or only very slowly rotates.

Now you can be sure that there is no unwelcome air interchange.

## The special advantages of THERMOVENT air curtains

### 1. Air curtain in cantilever construction for mounting on large gates.

The housing of the air curtain system can be mounted cantilevered over a distance up to 6 meters. During assembly, the system is placed on two brackets, which are mounted next to the door opening. On the brackets, the air curtains can be pushed in an optimal position up to one meter to the door opening. So they are suitable for extra-wide door openings of factory doors and gates.



### 4. High operating safety.

Whenever the door is opened, a proximity switch activates the air curtain just when the door is removed from the switch. So the fans are already powered up when the door is fully opened. This is a special switch. It is completely sealed without any moving parts. It is totally waterproofed and works with an operating current of only 12 volts. It is a security switch, which cannot cause any electrical accidents.



### 3. The control of air velocity and air volume.

When adjusting the air curtain the discharge angle and the air speed will be set.

The air speed and thus the air flow is electronically controlled in all our blowers.

It can very easily be adjusted continuously via the rotary knob on the plug-in electronic.

### 5. Fast and easy service

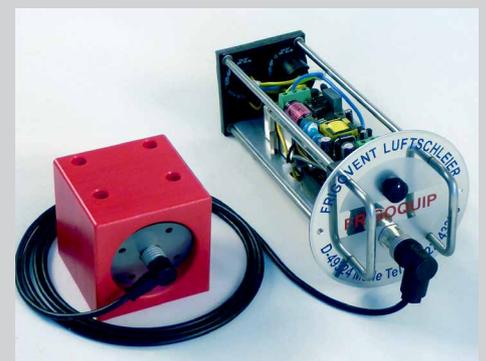
The system is controlled electronically.

There is an insert with the entire electronic and all critical control components:

The control of the fan speed, the circuit of the fan through contactless relay, the generation of the safety power for the proximity switch and the waterproof connector for this switch. In case of a fault this plug-in electronic may be withdrawn by the operator and quickly replaced by a new one.

This eliminates a time-consuming troubleshooting and a quick repair is guaranteed.

Thus a 24 hour service is possible.



## High quality components- maintenance-free and safe in operation

### 6. An optimum laminar flow of air separates the cold outdoor air from the warm indoor air.

A heating of the air flow is not necessary. THERMOVENT can be mounted on both sides of the door opening.

We recommend mounting on the warm side of the wall. The blower sucks the warm air from the hall and blows it through the air nozzles and through the air rectifier to the ground.

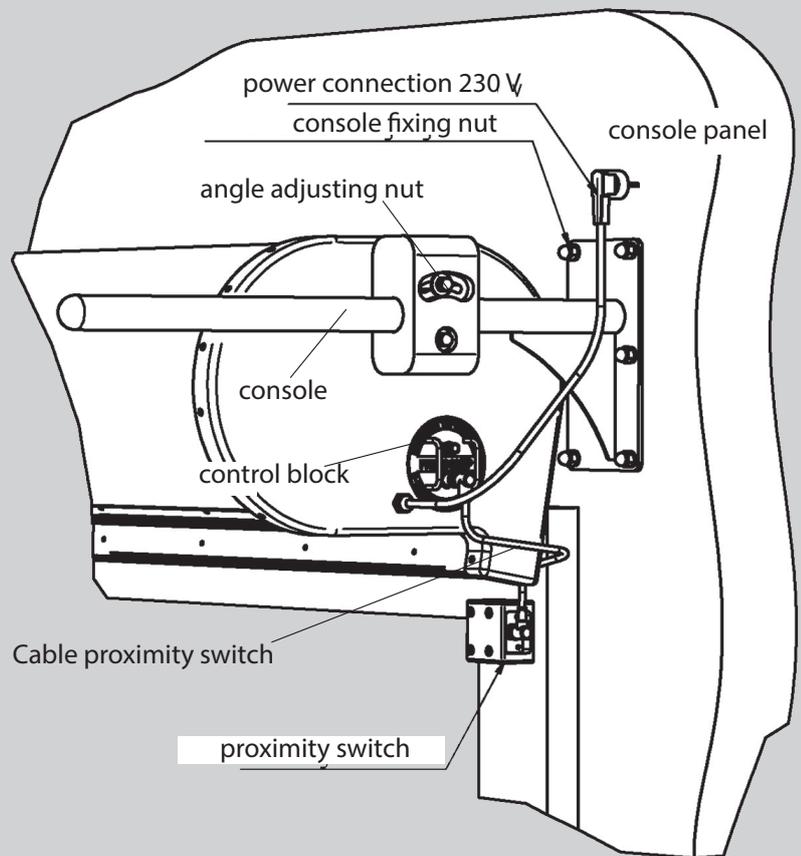
This flow of air separates the hot air, which will go out of the building and the cold air will enter. When the airflow hits the ground, it divides so that the warm air remains inside and the cold air remains outside.

The air flow is generated by radial blowers, compressed in the pressure chamber and then accelerated through a nozzle and distributed over the entire system width.

At the nozzle outlet you can find an air rectifier composed out of hundreds of small blowpipes, the air is blown through this.

Thus, a special, laminar and turbulence-free air flow is generated, which does not mix with the entrained air masses.

The systems are corrosion resistant and suitable for outdoor use.



### 7. Very long life, quiet, maintenance-free and reliable.

The system is made corrosion-resistant and sound-insulated. The outlet nozzle and the housing consists of a modern sandwich, core material - plastic with painted aluminum surfaces. Very good properties with respect to insulation, corrosion and stability.

The load-bearing parts of the units are made out of solid plastic - milled from one solid block

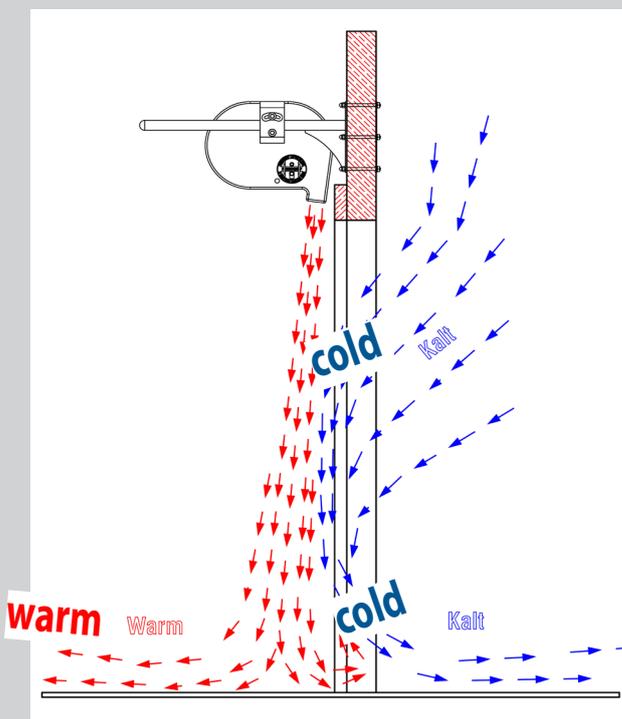
The consoles are completely and made of stainless steel.

The systems are protected against moisture - protection classes: IP 44 and IP54.

The housings of type A and B blowers are made out of stainless steel. The impellers consist of fiber reinforced plastic.

All EC fans are of the new Generation and are equipped with DC motors without start-up delay.

All other parts of the units as well as all the screws and brackets are made of stainless steel.



# The installation

## Installation

When it is about avoiding warm air losses when doors are open, an air curtain must be installed in the building above the gate.

The air curtain sucks in the warm air from the upper part of the building and blows it to the floor. The air flow drags the warm air that wants out and the cold air that wants in with it.

When the air flow hits the floor, it splits, so the warm air stays in the building and the cold air stays outside.

Outdoor installation is necessary when the air curtain is used as insect barrier.

It is also possible to mount two systems laterally of the door opening - one air curtain inside and one air curtain outside.

When space is limited, air curtains can also be installed horizontally blowing next to a door opening, which then blow against each other or with narrower door openings - against an impact wall.

The unit consists of:

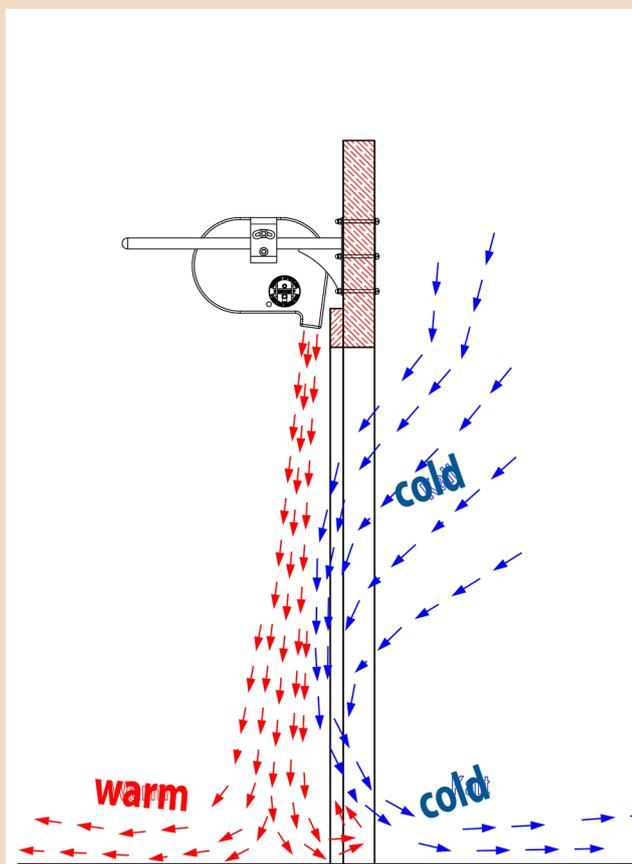
- Nozzle with fans and control unit.
- Two stainless steel brackets.
- Watertight proximity switch with cable and connector.
- Fixings for clamp mounting at a panel wall or alternatively fixing material for mounting at masonry.
- Windmill for functional testing.

1. Preferably mounting the system centrally the door opening by the two consoles.
2. The unit must be pushed on the consoles with the blowers towards the door.
3. The proximity sensor turns the system on, when the door moves away from the switch. The sensor must be placed so, that the blowers of the air curtain start to run, when the door moves to open.

4. The nozzle must be adjusted so that the air flow meets the floor in front of the door at an angle of 5 to 10 degrees.
5. The air flow is to be set with the potentiometer so that it just reaches the ground. The speed of the air flow should be kept relativ low.
6. The THERMOVENT air curtain is optimally adjusted, when no outside air enters and when no warm air escapes. To check this, the windmill must be set in front of the threshold of the door directly under the air flow of the air curtain. When the system is switched off, you can see how the impeller of the windmill is turning moved by the inflowing cold air.

If you switch on the air curtain and turn up the potentiometer you can see the impeller rotating more slowly until it finally stops. When the impeller stops, the nozzle and the air speed are correctly adjusted.

7. Don't install air curtains in combination with strip curtains or swing doors.
8. The nozzle of the air curtain should be about 10% wider than the door opening.



## Function and regulation of the air volume

### How does an air curtain work?

An air curtain system is a device that prevents an exchange of air through a wall opening, without any physical barrier.

There is an air curtain blower with an air collection box and a discharge nozzle. A door out of moving air.

The system is equipped with a particular air rectifier in the outlet nozzle. There are hundreds of small blowpipes.

The air flow generated by the radial fans is directed through the blow tube rectifier.

It is completely laminar, homogeneous and free of turbulences.

The beam is narrow and extends far.

This jet of air is blown at right angles to the inflowing or surrounding air.

The air jet must be so strong that it reaches to the floor and tears the incoming or adjacent air with it.

The blown air forms a core beam. The entrained air forms on each side of the core beam a sub-beam. The air volume of the secondary beams are larger than the air amount of the core jet.

The central stream and the secondary beams hit the ground and divide, so that the air volumes of the core jet and the entrained air quantity of the secondary beams will stay where they came from.

The air volumes of the inner side beam remain inside and the air volume of the outer side beam outside.

The air volumes of the core beam remain within the range in which they were drawn.

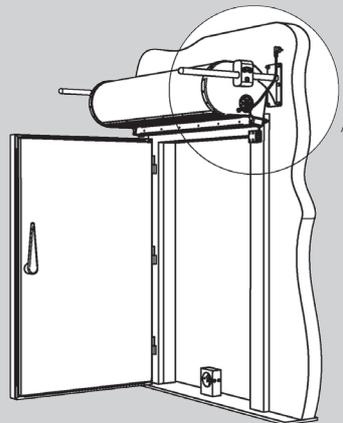
It is important that the core beam is laminar and turbulence-free.

Then the air of the secondary beams can not mix with the core jet.

Thus, the entrained air volumes in the secondary beams of each other remain separate and the air curtain can be as fully effective.

The neighboring air volumes, air currents or the greater weight of the air (cold air is heavier) can push aside the air jet of the system.

To correct this, the blow-off nozzle is pivotable such that the discharge angle of the air jet can be pivoted up to 15° to both sides.



### How is the optimal amount of air controlled?

In the corporate sign on the right cap of the plant is the plug adapter for the hand switch or for the proximity switch and the rotary knob to control the air volume and air velocity. The knob is secured on some models, so you can adjust it using only a screwdriver. By turning the knob you can adjust the air speed continuously.

The amount of air flows at a speed of about 15 m/sec from the nozzle.

The speed slows down the more the air flow approaches the ground.

If the air speed is too low, the air flow does not reach the ground.

If the air speed is too high, it collides heavily on the ground, which leads to disturbing turbulence.

The air flow must be regulated so that it extends to the ground.

The supplied windmill is placed directly under the air flow.

When air curtain is switched off, the wind turbine rotates.

At operating doors it is powered by cold air flowing into.

If you turn on the system and increase the air speed, you will see that the wind turbine will slow down and eventually stop

When the wind turbine has stopped it is confirmed that there is no air exchange even in the weakest part of the air flow - namely on the ground.

## Is the discharge angle set correctly ?

### How can you see, that the discharge angle of the air flow is adjusted correctly?

If the discharge angle of the system is set incorrectly, the air is blown into the room, which needs to be sealed, or will be drawn from this space.

As a result, the air pressure changes in the room.

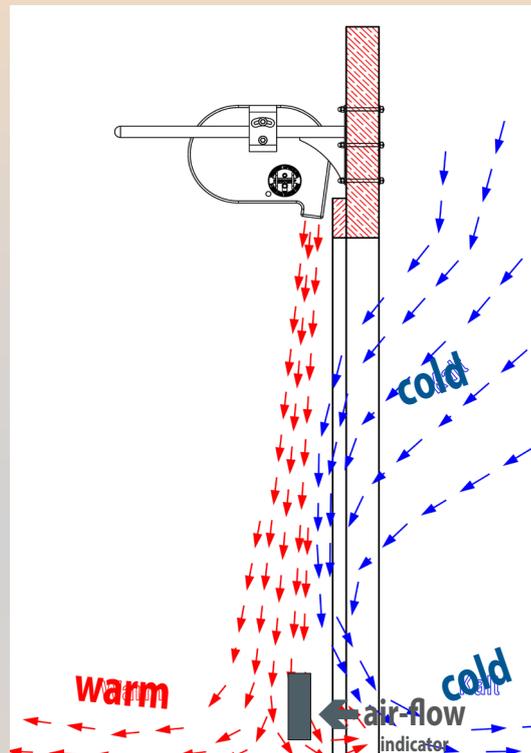
At short intervals there are pressure equalizations in the weakest area of the air curtains that is just above the ground.

You can observe this well, because in this case the windmill alternately turns at short intervals - right and left.

The wind turbine does not reach the rest position.

It changes its direction of rotation

with the always alternately for pressure equalization flowing air. To set the system optimally, the discharge angle must be changed until the Windmill reaches the rest position.



### **CORRECT**

The impeller of the mill does not move. The air velocity and the discharge angle are optimal. Warm air cannot escape. Cold air cannot enter the cold room.

## How is the discharge angle set correctly

### How can you adjust the correct discharge angle of the air stream?

The central stream of the air curtain system widens the further it approaches the ground.

To prevent that the core stream blows into the sealed door opening, the outlet nozzle is pivotable.

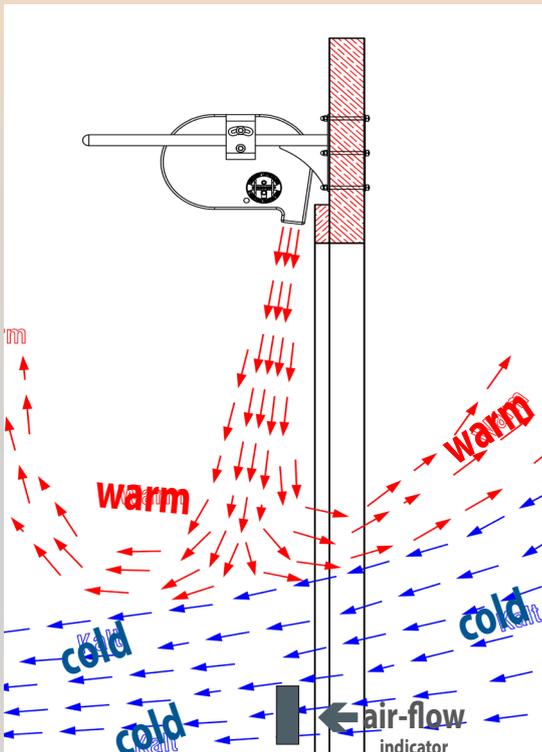
In the normal position, the outlet nozzle is so positioned that it is blown at an angle of  $7.5^\circ$  to the outside.

If this angle is insufficient, the system may be swung.

For this, the air curtain system is pivotally stored in the consoles.

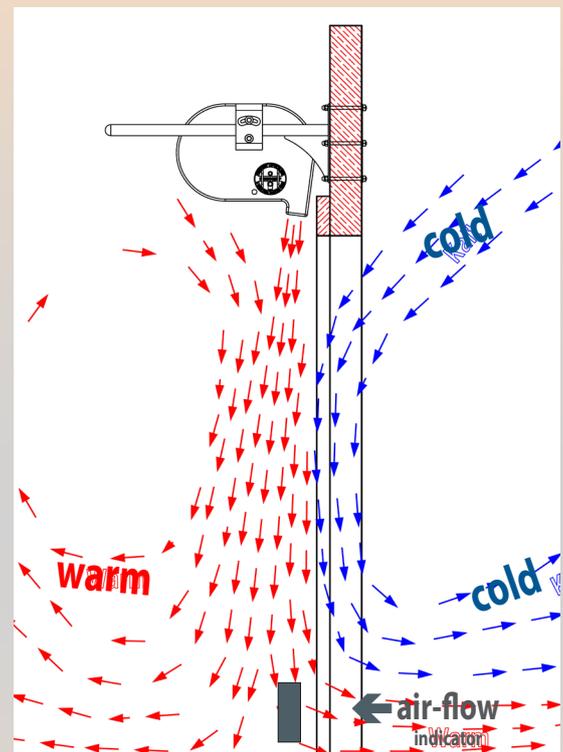
By carefully loosening a cap nut in the connection pads on the two end caps the system can be moved

so that the discharge nozzle can be infinitely rotated by approximately  $15^\circ$  to the inside or outside.



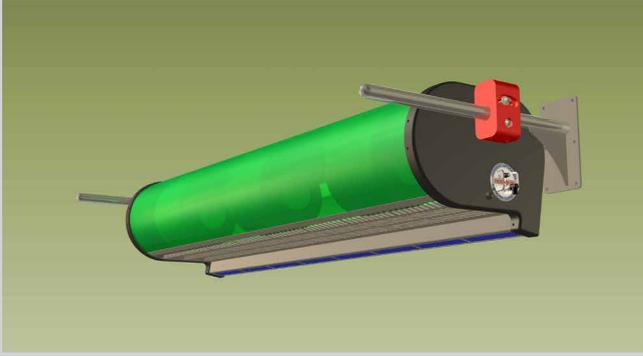
#### WRONG

The air speed is too low. The airflow does not reach the floor. Cold air flows in. Warm air flows out. The air speed must be increased !



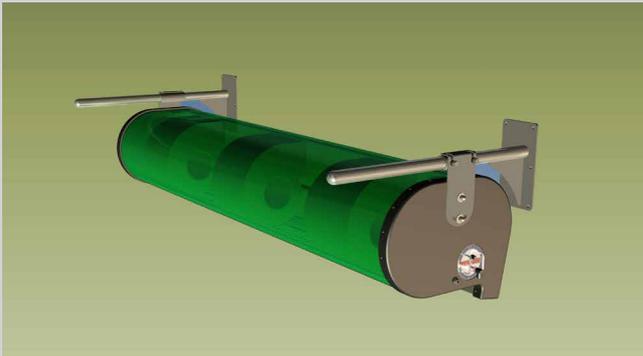
#### WRONG

The air velocity is too high. Ineffective and disruptive air turbulences are occurring. Reduce air speed!



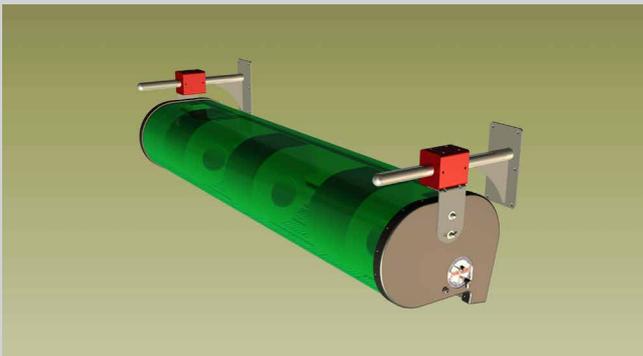
### **Rear wall assembly with normal construction width**

The THERMOVENT is mounted with two stainless steel panels with solid polyamide blocks on the warm side of the wall above the door opening. This is the normal type of installation.



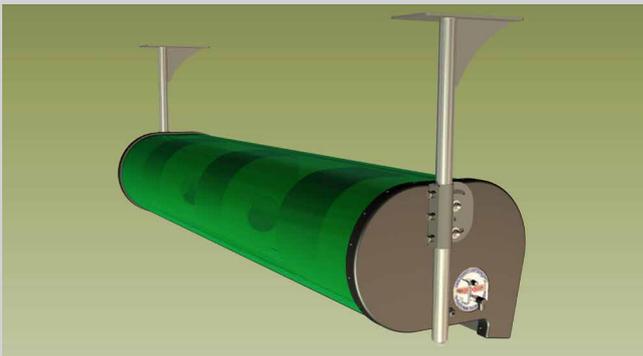
### **Rear wall assembly with reduction of the construction width**

The THERMOVENT is mounted with two stainless steel brackets on the wall above the door opening. These consoles take up less space in the construction width - but need more space in the height.



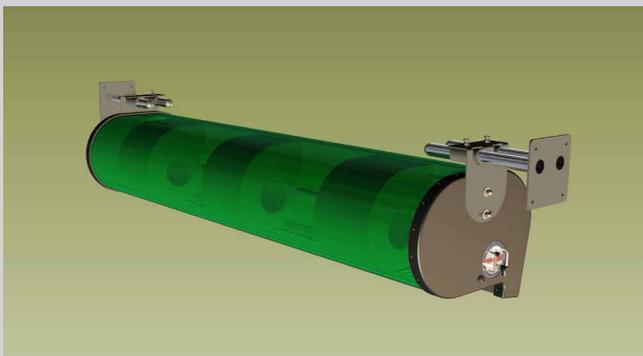
### **Rear wall assembly Variable console distance**

The THERMOVENT is mounted with two stainless steel brackets with solid polyamide blocks preferably on the warm side of the wall above the door opening. If you can not mount the brackets in the right distance, it can be corrected by shifting the angle brackets below the polyamide blocks.



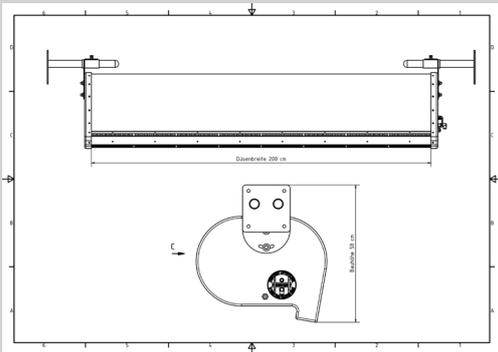
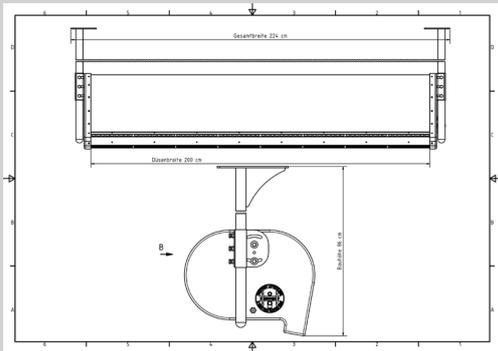
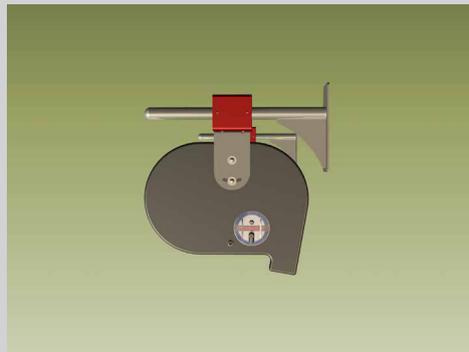
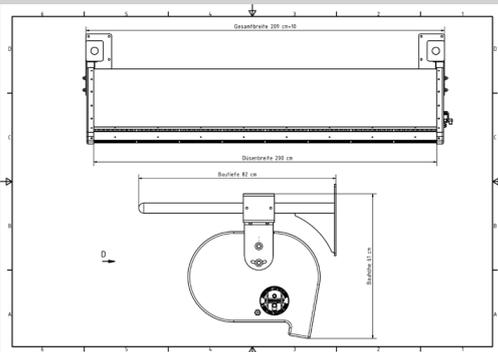
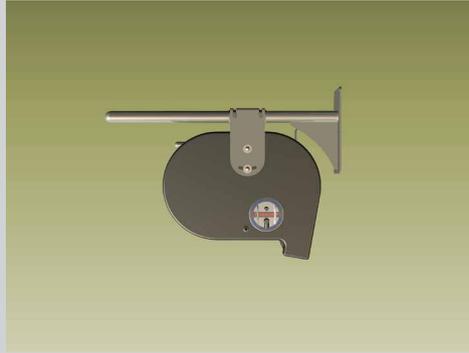
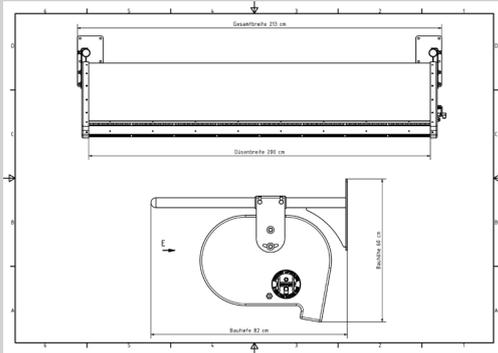
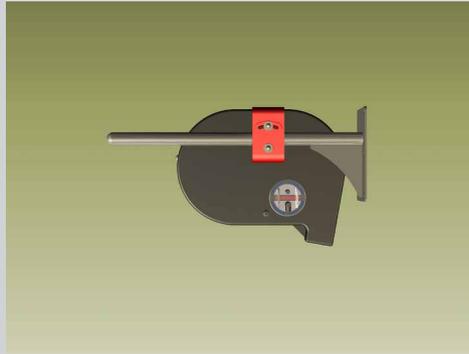
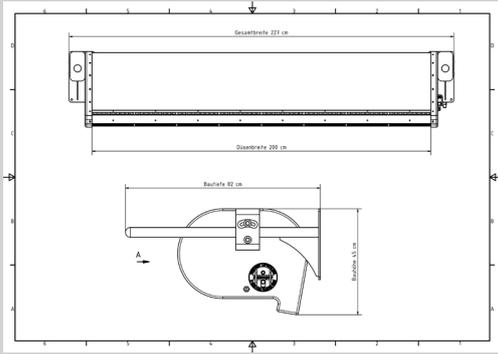
### **Ceiling mounting with mounting under the ceiling**

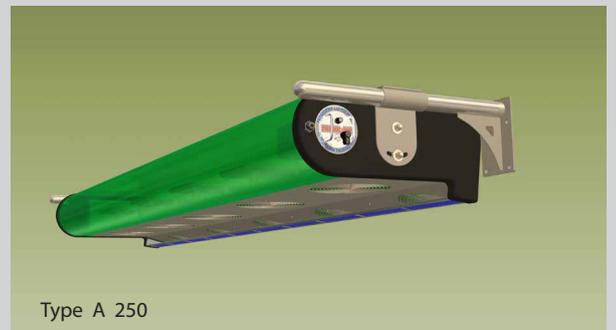
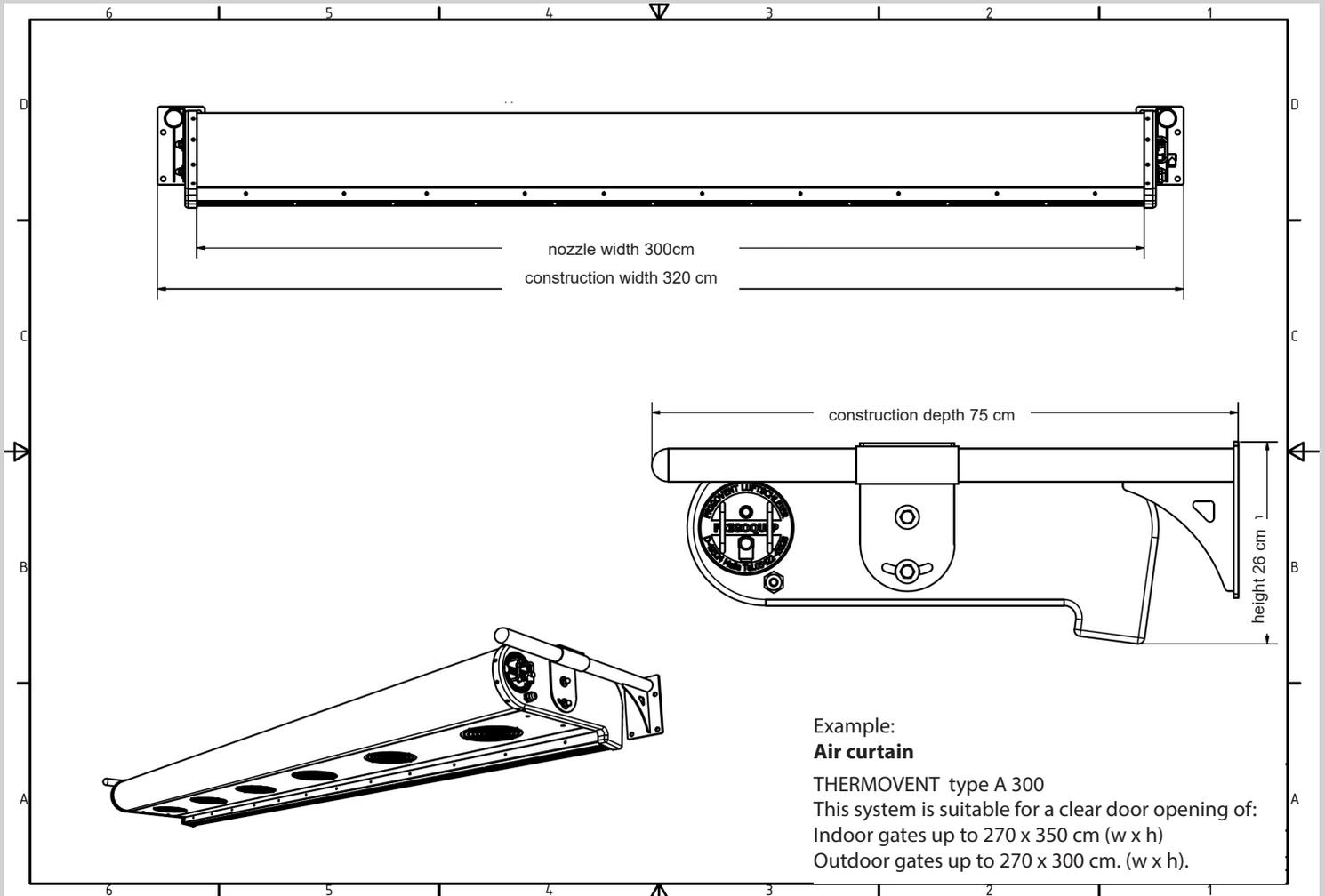
The THERMOVENT is mounted with two stainless steel brackets under the ceiling above the door opening.



### **Side mounting with mounting on the side walls**

The THERMOVENT is mounted with two stainless steel panels with polyamide solid plates on the side walls and in front of the door opening. This type of installation is often used in corridors that are sealed off by air curtains against cold air loss.





**THERMOVENT Type A and type B are suitable for door-widths up to 600 cm and for door-heights up to 350 cm. Very low overall height 26 cm. Especially corrosion resistant housing and blowers. Protecting class IP 54**

#### Execution

The systems are delivered complete and ready to use. A cantilevered housing with fans, outlet nozzle, consoles and electronics rack - mounted fully functional. The housing consists of a sound-proof aluminum plastic composite material. Colour white. Alternatively, we can produce stainless steel housings. The blowers are equipped with electronically commutated energy-efficient EC motors. The housings of the blowers and all remaining components of the air curtain consist largely of stainless steel. Suitable for use in humid environments - Protection class IP 54.

#### Scope of delivery

THERMOVENT air curtain, two stainless steel brackets, stable windmill as an adjustment and proximity sensor with cable and screws. Stainless steel hardware for mounting on a panel wall or alternatively material of stainless steel to fasten at masonry.

#### Assembly

The air curtain can be installed by trained workers. We have several installation teams and install air curtains around the world.

Technical data		THERMOVENT		Type A-EC		und		Type B-EC	
<b>TYPE</b>	Blowers	Weight THERMOVENT type A		<b>THERMOVENT type A</b>		<b>THERMOVENT type B</b>			
<b>width of outlet nozzle</b>		THERMOVENT type B is 10% more heavy		suitable for following door heights indoor gates up to 300 cm outdoor gates up to 250 cm depending of windpressure		suitable for following door heights indoor gates up to 350 cm outdoor gates up to 300 cm depending of windpressure			
<b>cm</b>	A B	with packing kg	Weight without packing kg	air power m³/h	Blowers with electronically commutated motors Voltage 230/1N~/50 nominal adsorption KW	Blowers with electronically commutated motors Voltage 230/1N~/50 nominal adsorption KW	air power ³/h	nominal adsorption KW	

THERMOVENT					Type A		Type B	
<b>75</b>	1	2	54	34	<b>1.000</b>	0,15	<b>2.000</b>	0,30
<b>100</b>	2	3	66	43	<b>2.000</b>	0,30	<b>3.000</b>	0,45
<b>125</b>	2	3	79	53	<b>2.000</b>	0,30	<b>3.000</b>	0,45
<b>150</b>	3	4	93	64	<b>3.000</b>	0,45	<b>4.000</b>	0,60
<b>175</b>	3	5	109	76	<b>3.000</b>	0,45	<b>5.000</b>	0,75
<b>200</b>	4	6	121	85	<b>4.000</b>	0,60	<b>6.000</b>	0,90
<b>225</b>	4	6	136	97	<b>4.000</b>	0,60	<b>6.000</b>	0,90
<b>250</b>	5	7	150	108	<b>5.000</b>	0,75	<b>7.000</b>	1,05
<b>275</b>	5	8	164	119	<b>5.000</b>	0,75	<b>8.000</b>	1,20
<b>300</b>	6	9	178	130	<b>6.000</b>	0,90	<b>9.000</b>	1,35
<b>325</b>	6	9	189	138	<b>6.000</b>	0,90	<b>9.000</b>	1,35
<b>350</b>	7	10	203	149	<b>7.000</b>	1,05	<b>10.000</b>	1,50
<b>375</b>	7	11	221	163	<b>7.000</b>	1,05	<b>11.000</b>	1,65
<b>400</b>	8	12	231	170	<b>8.000</b>	1,20	<b>12.000</b>	1,80
<b>425</b>	8	12	246	182	<b>8.000</b>	1,20	<b>12.000</b>	1,80
<b>450</b>	9	13	260	193	<b>9.000</b>	1,35	<b>13.000</b>	1,95
<b>475</b>	9	14	274	204	<b>9.000</b>	1,35	<b>14.000</b>	2,10
<b>500</b>	10	15	288	215	<b>10.000</b>	1,50	<b>15.000</b>	2,25
<b>525</b>	10	15	302	226	<b>10.000</b>	1,50	<b>15.000</b>	2,25
<b>550</b>	11	16	315	236	<b>11.000</b>	1,65	<b>16.000</b>	2,40
<b>575</b>	11	17	331	248	<b>11.000</b>	1,65	<b>17.000</b>	2,55
<b>600</b>	12	18	346	260	<b>12.000</b>	1,80	<b>18.000</b>	2,70

**optional extras**

All curtains are available for 110 Volt for 60 Hz. as well as 50 Hz.

Off and on switch with control lamp instead of proximity switch - for continuous operation of the air curtain.

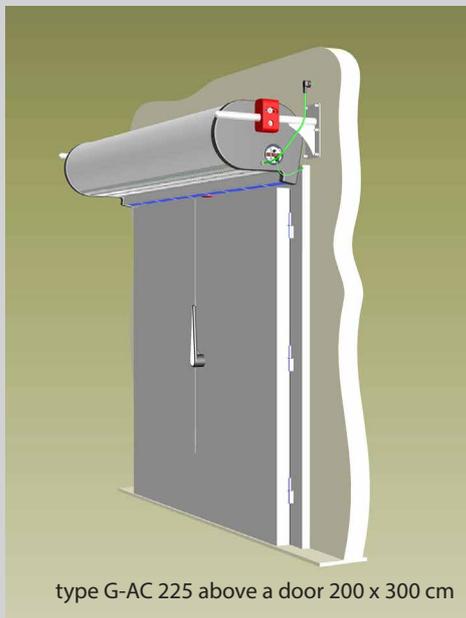
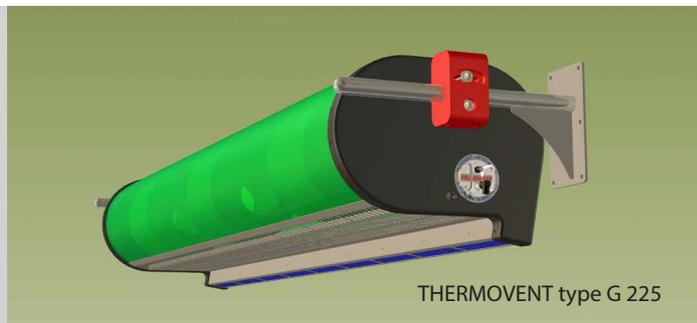
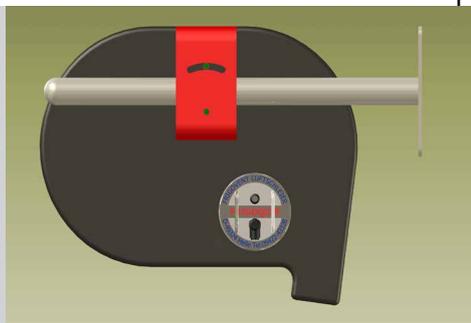
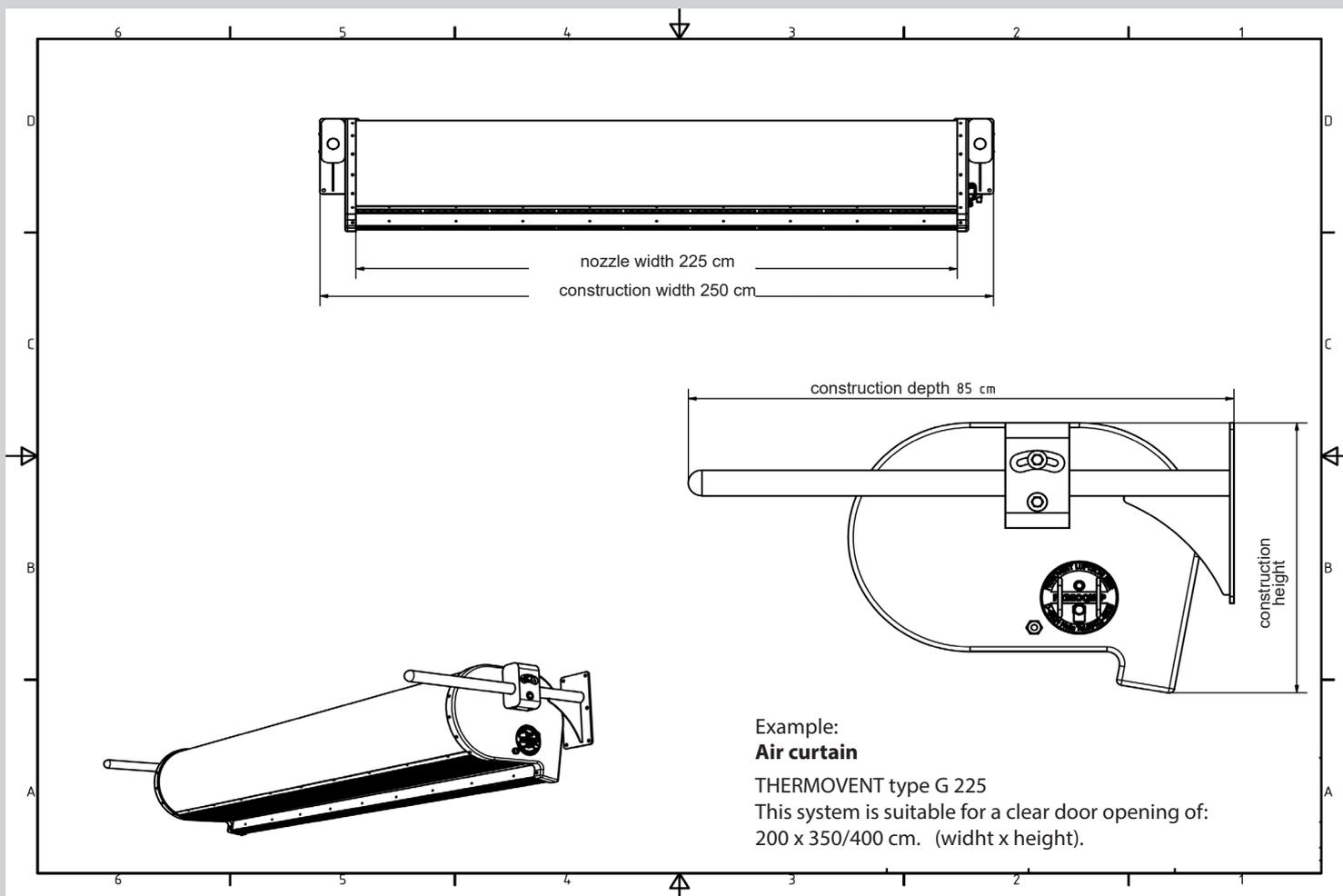
Special consoles - Reduction of the width - Installation under the ceiling - Fixing to the side walls

Side windshield made of soft PVC strips to avoid lateral air intake.

Separate switch box with speed controller and on- and off switch.

Housing made from stainless steel surface matt finished.

Duplex Execution - two air curtains for one door - one curtain outside over the door - one curtain inside. For better performance.



**THERMOVENT type F and G for doors with a width up to 550cm and for doors with a height up to max. 400 cm.**

#### Execution

The systems are delivered complete and ready to use. A cantilevered housing with fans, outlet nozzle, consoles and electronics rack - mounted fully functional. The housing consists of a soundproof aluminum plastic composite material. Colour white or red. Alternatively, we can make a stainless steel housing. The blowers are optionally equipped with electronically commutated energy-efficient EC motors or with normal AC motors. The remaining components of the system consist largely of stainless steel.

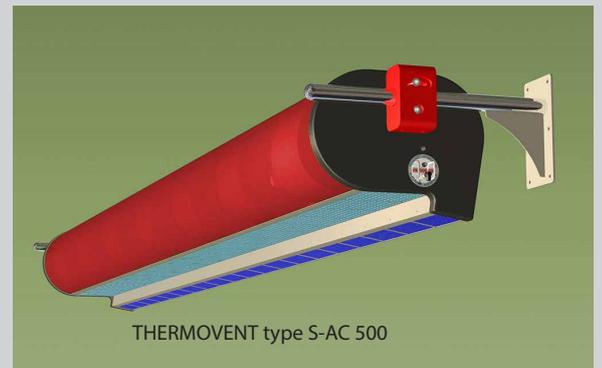
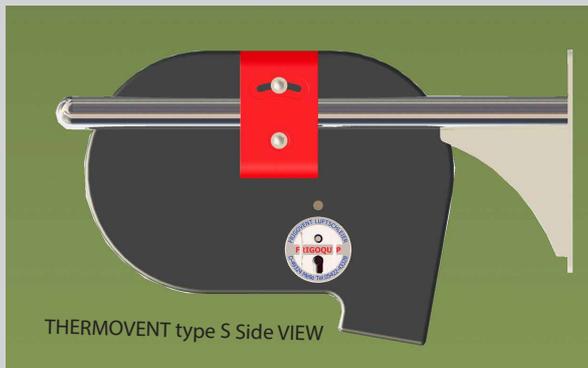
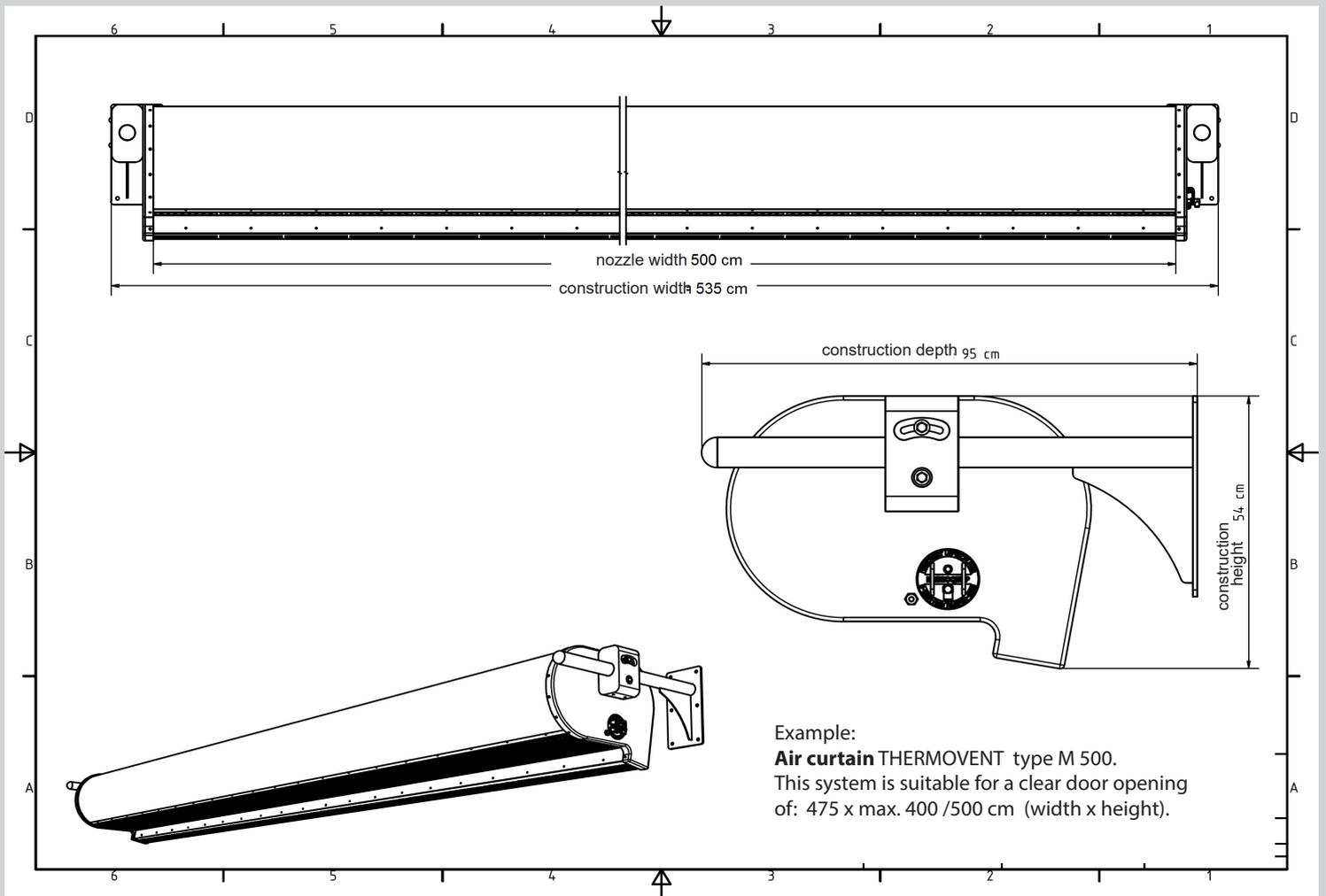
#### Scope of delivery

THERMOVENT air curtain system, two stainless steel brackets, stable wind turbine as an adjustment and proximity sensor with cable and screw. Stainless steel mounting hardware for mounting on a panel wall or alternatively material to fasten at masonry.

#### Assembly

The air curtain can be installed by trained workers. We have several installation teams and install air curtains around the world.

Technical Data		THERMOVENT		Type F		und		Type G	
<b>TYPE</b>	blowers	weight		<b>THERMOVENT type F-AC</b>		<b>THERMOVENT type G-AC</b>			
<b>nozzle width</b>		THERMOVENT type F THERMOVENT type G They are 10% heavier		with AC-radial blowers suitable for a clear door opening of Indoor doors up to 300 cm Outdoor doors up to 250 cm depending form windload		with AC-radiall blowers suitable for a clear door opening of Indoor doors up to 400 cm Outdoor doors up to 350 cm depending form windload			
<b>cm</b>	pieces	Weight		Voltage 230/1N~/50-60.		Voltage 400/3N~/50-60			
		brut	net	air power	Power consumption	air power	Power consumption		
		kg	kg	m³/h	KW	m³/h	KW		
THERMOVENT				Type F-AC		Type G-AC			
<b>75</b>	1	49	29	<b>1.000</b>	0,15	<b>2.000</b>	0,450		
<b>100</b>	1	55	32	<b>1.000</b>	0,30	<b>2.000</b>	0,450		
<b>125</b>	2	64	38	<b>2.000</b>	0,30	<b>4.000</b>	0,900		
<b>150</b>	2	70	41	<b>2.000</b>	0,30	<b>4.000</b>	0,900		
<b>175</b>	3	80	48	<b>3.000</b>	0,45	<b>6.000</b>	1,350		
<b>200</b>	3	86	51	<b>3.000</b>	0,45	<b>6.000</b>	1,350		
<b>225</b>	3	92	54	<b>3.000</b>	0,45	<b>6.000</b>	1,350		
<b>250</b>	4	101	60	<b>4.000</b>	0,60	<b>8.000</b>	1,800		
<b>275</b>	4	107	63	<b>4.000</b>	0,60	<b>8.000</b>	1,800		
<b>300</b>	5	117	70	<b>5.000</b>	0,75	<b>10.000</b>	2,250		
<b>325</b>	5	123	73	<b>5.000</b>	0,75	<b>10.000</b>	2,250		
<b>350</b>	5	129	76	<b>5.000</b>	0,75	<b>10.000</b>	2,250		
<b>375</b>	6	138	82	<b>6.000</b>	0,90	<b>12.000</b>	2,700		
<b>400</b>	6	144	85	<b>6.000</b>	0,90	<b>12.000</b>	2,700		
<b>425</b>	7	154	92	<b>7.000</b>	1,05	<b>14.000</b>	3,150		
<b>450</b>	7	160	95	<b>7.000</b>	1,05	<b>14.000</b>	3,150		
<b>475</b>	7	166	96	<b>7.000</b>	1,05	<b>14.000</b>	3,150		
<b>500</b>	8	175	104	<b>8.000</b>	1,20	<b>16.000</b>	3,600		
<b>525</b>	8	181	107	<b>8.000</b>	1,20	<b>16.000</b>	3,600		
<b>550</b>	9	191	114	<b>9.000</b>	1,35	<b>18.000</b>	4,050		
<b>575</b>	9	197	117	<b>9.000</b>	1,35	<b>18.000</b>	4,050		
<b>600</b>	9	203	120	<b>9.000</b>	1,35	<b>18.000</b>	4,050		
OPTIONAL									
With EC blowers with electronically commutated electric motors up to 50% lower power consumption									
On and off switch with indicator lamp instead of proximity switch for permanent use of the air curtain									
Special consoles for the reduction of the width, for mounting under the ceiling or at the side walls									
Side windshield made of soft PVC stripes to avoid lateral air intake.									
Separate control box with speed controller and switch instead of switching in the device.									
Housing made of stainless steel surface matt finish.									



## THERMOVENT type M and S for doors width up to 575cm and für doors height up to max. 600 cm.

### Execution

The systems are delivered complete and ready to use. A cantilevered housing with fans, outlet nozzle, consoles and electronics rack - mounted fully functional.

The housing consists of a soundproof aluminum plastic composite material. Colour white or red. Alternatively, we can make a stainless steel housing. The blowers of the type M are optionally equipped with electronically commutated energy-efficient EC motors or with normal AC motors. The Blowers of the type S are always equipped with EC motors. AC blow-

wers run at power immediately but they also consume more electricity. EC blower need 5 seconds longer to build up the air curtain. The power consumption is about 30% less than those of AC-blowers.

Therefore we recommend for doors that are open long, air curtain systems with energy-saving EC fans. The remaining components of the system consist largely of stainless steel.

### Scope of delivery

THERMOVENT air curtain, two stainless steel brackets, a windmill as a help to adjust the system and a proximity sensor with cable and screws. Stainless steel mounting hardware for mounting at a panel wall or alternatively material to fasten at masonry.

### Installation

The air curtain can be installed by trained workers. We have several installation teams and install air curtains around the world.

Technical data		THERMOVENT		Type M		Type S	
<b>Type</b>	blowers	Weight		THERMOVENT type M-AC		THERMOVENT type S-AC	
<b>nozzle width</b>		THERMOVENT type M THERMOVENT type S They are 10% heavier		with AC-radial blowers suitable for a clear door opening of Indoor doors up to 500cm Outdoor doors up to 400cm depending from windload		with AC-radial blowers suitable for a clear door opening of Indoor doors up to 600cm Outdoor doors up to 500cm dependomg from windload	
<b>cm</b>	pieces	Weight		Voltage 400/3N~/50		Voltage 400/3N~/50	
		brut kg	net kg	air power m <sup>3</sup> /h	power consumption KW	air power m <sup>3</sup> /h	power consumption KW
THERMOVENT		Type M-AC		Type S-AC			
<b>100</b>	1	70	41	<b>3.000</b>	0,70	<b>4.000</b>	1,0
<b>125</b>	2	87	54	<b>6.000</b>	1,40	<b>8.000</b>	2,0
<b>150</b>	2	95	58	<b>6.000</b>	1,40	<b>8.000</b>	2,0
<b>175</b>	3	115	74	<b>9.000</b>	2,10	<b>12.000</b>	3,0
<b>200</b>	3	123	78	<b>9.000</b>	2,10	<b>12.000</b>	3,0
<b>225</b>	3	131	82	<b>9.000</b>	2,10	<b>12.000</b>	3,0
<b>250</b>	4	148	95	<b>12.000</b>	2,80	<b>16.000</b>	4,0
<b>275</b>	4	156	99	<b>12.000</b>	2,80	<b>16.000</b>	4,0
<b>300</b>	5	176	115	<b>15.000</b>	3,50	<b>20.000</b>	5,0
<b>325</b>	5	184	119	<b>15.000</b>	3,50	<b>20.000</b>	5,0
<b>350</b>	5	192	123	<b>15.000</b>	3,50	<b>20.000</b>	5,0
<b>375</b>	6	209	136	<b>18.000</b>	4,20	<b>24.000</b>	6,0
<b>400</b>	6	217	140	<b>18.000</b>	4,20	<b>24.000</b>	6,0
<b>425</b>	7	237	156	<b>21.000</b>	4,90	<b>24.000</b>	6,0
<b>450</b>	7	245	160	<b>21.000</b>	4,90	<b>28.000</b>	7,0
<b>475</b>	7	253	164	<b>21.000</b>	4,90	<b>28.000</b>	7,0
<b>500</b>	8	270	177	<b>24.000</b>	5,60	<b>32.000</b>	8,0
<b>525</b>	8	278	181	<b>24.000</b>	5,60	<b>32.000</b>	8,0
<b>550</b>	9	298	197	<b>27.000</b>	6,30	<b>36.000</b>	9,0
<b>575</b>	9	306	201	<b>27.000</b>	6,30	<b>36.000</b>	9,0
<b>600</b>	9	314	205	<b>27.000</b>	6,30	<b>36.000</b>	9,0
OPTIONAL							
EC blowers with electronically commutated motors for up to 50% lower power consumption.							
On-off Switch with indicator lamp instead of proximity switch for permanent use of the air curtain							
Special consoles for the reduction of the width, for mounting under the ceiling or at the side walls							
Side windshield made of soft PVC stripes to avoid lateral air intake.							
Separate control box with speed controller and switch instead of switching in the device.							
Housing made of stainless steel surface matt finish.							





## Mounting an air curtain for protection against insects

An air curtain in order to protect against flying insects should be mounted on the outside of the door.



The blow-off nozzle must face away from the area which needs to be protected. An angle of about 7-10 ° from the vertical is generally optimal. The air flow must be about 4 cm wide at the nozzle and still have a speed of 10 m / sec 3 meters above the ground.

It is very important that the whole door is covered, so that there are no gaps where the insects can fly through.

The gap between the air curtain and wall should be covered and also laterally soft PVC panels should be fastened to the brackets.

The mounting on the inside of the door is optimal to prevent hot air losses. You also have a protection against flying insects, but not a optimal one.

In the case of negative pressure in the building, the air curtain is diverted from the blowing direction.

In the weakest area - in the impact area on the ground - air, dust or even insects are

sucked into the room.

A vacuum inside the building must therefore be avoided.

If air extraction systems are installed, the same amount of air, which is extracted, must be blown back to compensate a negative pressure wall openings or windows can be used, which must also be protected by insect filters.

The air curtain can be mounted vertically or horizontally blowing from both sides. It is the best to mount the air curtain so that it is vertically blowing from top to bottom. So the function is optimal.

