



Premium

CREATE THE OPTIMUM INDOOR CLIMATE AND SAVE ENERGY

Create the optimum indoor climate and save energy

AIR CURTAINS FOR DOORS AND ENTRANCES

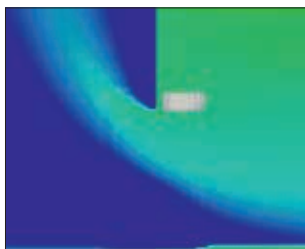
An open door is an inviting entrance for customers and visitors and retailers know this better than anyone. However, an open door also lets in dust, moisture, smells, wind and insects, and you end up with an unnecessarily high energy bill on the door mat. You can solve this problem easily by installing an NHS air curtain. Do you have a specific question about an air curtain in your building? Would you like to talk to an experienced specialist? Please contact us. We will deal with your questions professionally and quickly.

What is an air curtain?

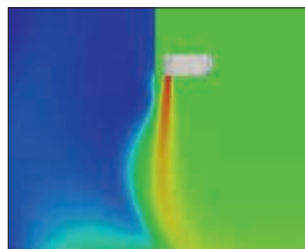
An air curtain is a controlled airflow that reduces the natural air exchange between rooms. An air curtain is situated in a door opening or entrance and keeps rooms with different climates separated when the door is open. For example a cold store of a company or the indoor and outdoor climate of a supermarket, warehouse, bank, hospital or office building.

Why have an air curtain?

The most important objective of an air curtain is to reduce air exchange to create a controlled, healthy and comfortable climate. In addition, you can use a heating or cooling element to heat or cool air locally.



A large amount of heat is often lost near doors without an air curtain.



The airflow of an air curtain works like an invisible door that keeps the climate of two different rooms separate from each other.

How does an air curtain work?

A heated airflow stops the colder air from outside. The airflow also heats the very small amount of cold air that manages to penetrate despite the airflow. This produces a comfortable indoor climate and a thermally neutral climate separation without draught. When it is warmer outside than inside? In those situations it works the other way around - with an unheated or cooled airflow, the air curtain makes sure the warm air stays out.

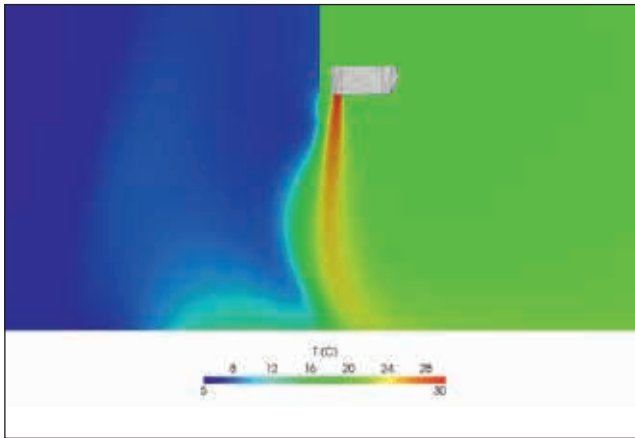
Benefits:

- Minimum energy loss and consumption
- 70% to 80% energy savings compared to open door
- Optimum thermal comfort for a pleasant climate for shopping or other purposes
- Improved air quality for visitors and employees
- Healthier environment and less sickness absence because of protection against draught
- Reduced exchange of dust, moisture, smells and fewer insects inside the building
- Warm, refreshing or cooling airflow

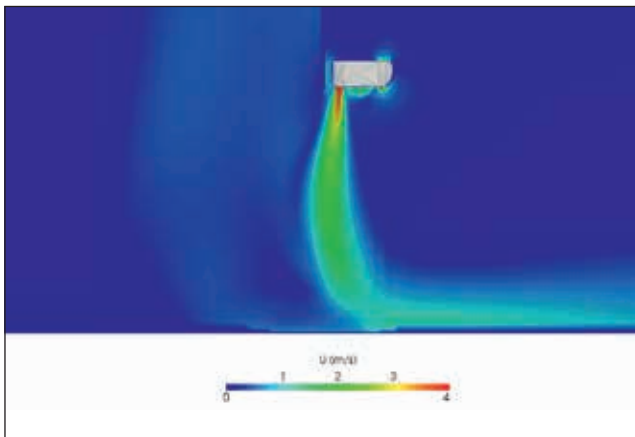
About NHS Air Curtains

NHS Air Curtains produces and supplies a range of low-maintenance and energy-saving air curtains. With customised work from our own production workshop and a wide range of standard products, we create a specific solution for any situation. You can count on short lead times and rapid delivery, often immediately from stock. If you need to talk to us, your dedicated contact person is almost always available. We're pleased to assist!

An image of an air curtain



A thermographic image proves the clear separation of warm and cold air.



A thermographic image shows the progress of the air speed in metres per second.

Why is the right discharge temperature important?

The right discharge temperature produces an efficient and energy-saving climate separation. If the discharge temperature is too high ($>40^{\circ}\text{C}$), the airflow struggles to reach floor level and there is still air exchange. Furthermore, an airflow that is too warm also heats up the entrance too much and that disturbs the indoor climate and wastes energy. A discharge temperature that is too low ($<28^{\circ}\text{C}$) also disrupts effective operation. Together with an insufficiently strong airflow, it produces a temperature at floor level that is too low, causing a draught.

Extra tips:

- Prevent a discharge temperature that is too high with a discharge-air temperature control. NHS Air Curtains can supply it as an accessory or incorporate it into the air curtain.
- An air curtain works in the best possible way when the effective part of an air curtain, the airflow, has at least the width of the door opening and can be felt right down to floor level. If the airflow does not reach the floor, cold air can enter, whilst warm air escapes outside and that creates a draught.
- Install air curtains flush with the door opening to prevent air exchange and energy loss through the sides.
- Install air curtains exactly above the door opening. The shorter the distance to the floor, the less energy required.
- Be sure that the airflow is not interrupted by obstacles, such as an automatic door or a roller door.
- Adjust the discharge angle of the air curtain with the settings of the discharge fin. For example when you need to heat during winter, you tilt the discharge fin slightly outwards. When you cool in summer, you tilt it slightly inwards.
- For optimum low-energy consumption, opt for a semi-automatic or fully automatic control. This uses a few parameters to adjust the operation of an air curtain to changing conditions. For example, consider adjusting the size of the airflow during cold weather or putting the air curtain on stand-by or switching it off when the door is closed.



Premium

CREATE THE OPTIMUM INDOOR CLIMATE AND SAVE ENERGY

How do you create a warm welcome for customers and visitors with an open door and without your employees out in the cold! An air curtain produces a warm airflow in winter and a refreshing or even cooled airflow in summer. Whatever your climate or situation, with an NHS Premium air curtain you create an optimum indoor climate and you save energy.

Premium air curtains

NHS Air Curtains has a Premium series of low-maintenance air curtains for optimum user convenience. The air curtains have a sleek and minimalist design and can be fitted in plain sight. The air intake is hidden behind a beautifully designed front panel that - if fitted the other way around - can take in air from below. This makes it possible to fit an air curtain flush against the ceiling. The most popular colour for an air curtain is traffic white, or rather RAL9016.

Upon request, we can supply air curtains in any RAL colour of your choice. Besides the Premium series that can be mounted in plain view, we also have models that can be recessed or built into suspended ceiling. Take a look at all our models on page 6 of this brochure.

High quality and low maintenance

All the components of the air curtain, including the front panel, the heating battery and the fans, comply with the highest quality standards and produce an optimum performance. Weekly or monthly time-intensive maintenance is not required*. When you purchase a Premium air curtain, you receive a standard five-year guarantee.

For any door width and doors of up to three metres tall

The air curtains are available in three different capacities for door heights of up to three metres. The five length sizes are easy to combine, so you can create an effective air curtain for any door width. Air curtains are commonly installed horizontally, but if the door is very tall and in some other situations, vertical mounting may be a better solution.

Easy installation

Horizontal air curtains are easy to mount with M8 stud fixings or wall brackets that can be ordered separately. Vertical air curtains are supplied with consoles for fixing to the floor or on top of each other. Due to the risk of tilting, it is important to anchor the top air curtain to the wall or the ceiling.

* Our LW and DX air curtains have a filter that is easy to clean.

Heating and cooling methods

Hot water

Air curtains that are heated by hot water have a heat exchanger that is connected to the central-heating network. We equip air curtains with a heating battery as standard, which is suitable for hot water of 60/40 °C (W). Air curtains are also available with a heating battery for low temperatures of 45/35 °C (LW).

For optimum energy savings it is always important to adjust your air curtains properly with your central-heating boiler, city or district heating, heat pump or other sources of sustainable energy. The hot-water air curtains are secured against loosening by metal plates around the 3/4" connections.

Electric

Our electric air curtains (E) automatically adjust the control of heat and ventilation. It goes without saying that these air curtains have a safety circuit.

Direct expansion

Air curtains for direct expansion (DX) are suitable for the refrigerant R410A. These air curtains operate as an evaporator with a stand-alone heat pump or integrated into a VRF climate-control system.

Ambient

Our air curtains that screen off cold areas such as cold stores do not have a heating battery (A).

Good to know!

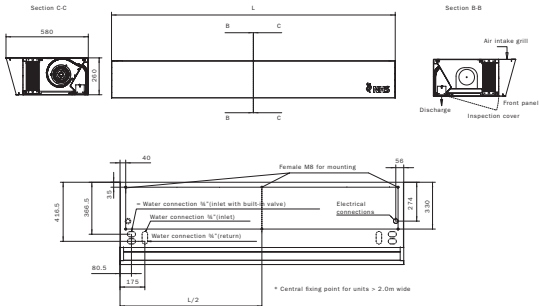
- An air curtain with a heat pump is the most energy-efficient heating method. It is approximately 73% more efficient than an air curtain with electric heating.
- The energy costs of an electric air curtain are around 53% higher than those of an air curtain that works on the basis of hot water from a central-heating boiler.

Models



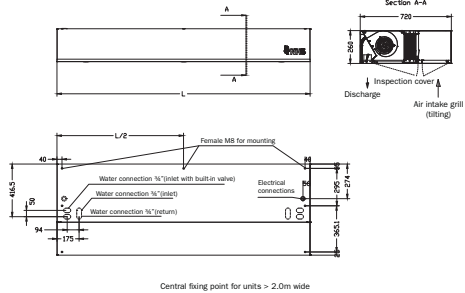
Premium V

Vertical standing air curtain for mounting in plain view, with air intake at the front and the back.



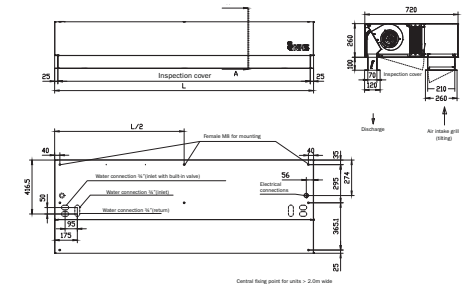
Premium

Wall or ceiling mounted in plain view with air intake top and bottom.



Premium GVP

For mounting in plain sight or for recessing into a suspended ceiling (GVP), with visible bottom and air intake from below.



Premium BVP

Built-in above the suspended ceiling (BVP), with just the air intake and discharge opening visible and with air intake from below.

Control

Manual operation

With manual operation you select the speed of the airflow. However, there is a chance that your air curtain does not operate properly in line with the conditions at that time. The air that you have heated or cooled may still flow away through doors and entrances.

Standard functions:

- Five settings for the airflow speed.
- Three settings for the heating capacity of an electric air curtain.
- Summer-winter function (230 V) with control by a magnetic valve or pump.
- You can use one control to control several air curtains. Convenient for large and wide entrances where several air curtains are required.
- Partial or full integration into a building-management system or retail scheme. For example, switch the air curtain on or off through the building-management system or operate it with a 0-10 V signal.



Automatic or semi-automatic

Do you want to be sure of the correct settings? You prefer not to worry about your air curtain? NHS Air Curtains has developed an innovative control - automatic or semi-automatic depending on the accessories you choose. It is a complete control system, suitable for all types of air curtains - from hot water and electric to hybrid and unheated. Depending on your choice of air curtain and accessories, different additional functions are available.



Additional functions (accessories):

- To be used with an outside temperature sensor. On the basis of the outside temperature, the control automatically determines the correct setting. An air curtain is only used when it is really necessary.
- To be connected to a door contact or sensor, which ensures that an air curtain only works when the door is opened or when movement is detected. After an adjustable period of time, it is switched off automatically.
- To be used with an integrated or external room thermostat. A water-heated air curtain requires a magnetic valve for this purpose. With automatic control of the heat supply and the room temperature, ensuring the room temperature remains constant.
- Control with fully integrated control of heat pump and air curtain, in function of the chosen heat pump. This can be in our control or in the control of the heat-pump manufacturer.
- Frost-protection thermostat in case of partial outside air intake to prevent the heating battery from freezing.
- With a timer, the air curtain switches on or off automatically.



Technical data

Hot water 80/60 and 60/40 °C (W)

Type	Air volume	Heating capacity 80/60 °C	Water-side resistance 80/60 °C	Amount of water	Heating capacity 60/40 °C	Water-side resistance 60/40 °C	Amount of water	Water connections	Electrical connections fans (rated power)			Sound pressure	Weight
	m³/h	kW ¹	kPa	m³/h	kW	kPa	m³/h	"	Volt	kW	A	dB(A) ²	kg
maximum recommended fitting height < 2,3 m*													
1-100 W	1400	9,4	1,1	0,2	7,0	2,0	0,3	3/4	230	0,33	2,40	52	42
1-150 W	1800	12,1	1,1	0,3	10,3	3,3	0,5	3/4	230	0,33	2,40	52	47
1-200 W	2700	18,4	2,0	0,4	15,5	5,6	0,7	3/4	230	0,50	3,60	53	63
1-250 W	3600	24,0	2,6	0,5	20,7	7,9	0,9	3/4	230	0,66	4,80	54	91
1-300 W	4500	30,2	3,3	0,6	25,8	10,1	1,1	3/4	230	0,83	6,00	55	106
maximum recommended fitting height < 2,6 m*													
2-100 W	1800	12,2	2,2	0,3	8,2	2,6	0,4	3/4	230	0,33	2,40	56	42
2-150 W	2700	18,4	3,1	0,4	13,6	5,3	0,6	3/4	230	0,50	3,60	57	51
2-200 W	3600	24,5	3,9	0,6	18,8	7,8	0,8	3/4	230	0,66	4,80	58	67
2-250 W	4500	30,0	4,3	0,7	24,0	10,3	1,0	3/4	230	0,83	6,00	59	95
2-300 W	5400	36,6	5,3	0,8	29,2	12,6	1,3	3/4	230	0,99	7,20	60	110
maximum recommended fitting height < 3,0 m*													
3-100 W	2700	18,2	7,3	0,7	10,6	4,1	0,5	3/4	230	0,50	3,60	58	46
3-150 W	3600	24,4	6,6	0,7	16,3	7,3	0,7	3/4	230	0,66	4,80	59	55
3-200 W	5400	36,3	11,1	1,0	24,3	12,4	1,1	3/4	230	0,99	7,20	60	75
3-250 W	6300	42,1	10,5	1,1	29,8	15,1	1,3	3/4	230	1,16	8,40	61	104
3-300 W	7200	48,9	11,2	1,2	35,1	17,5	1,5	3/4	230	1,32	9,60	62	123

Hot water 45/35 °C (LW)

Type	Air volume	Heating capacity 45/35 °C	Water-side resistance 45/35 °C	Amount of water	Water connections	Electrical connections fans (rated power)			Sound pressure	Weight
	m³/h	kW	kPa	m³/h	"	Volt	kW	A	dB(A) ²	kg
maximum recommended fitting height < 2,3 m*										
1-100 LW	1400	7,1	7,1	0,6	3/4	230	0,33	2,40	52	42
1-150 LW	1800	9,9	7,0	0,9	3/4	230	0,33	2,40	52	47
1-200 LW	2700	14,8	9,7	1,3	3/4	230	0,50	3,60	53	63
1-250 LW	3600	19,6	12,5	1,7	3/4	230	0,66	4,80	54	91
1-300 LW	4500	24,4	15,5	2,1	3/4	230	0,83	6,00	55	106
maximum recommended fitting height < 2,6 m*										
2-100 LW	1800	8,5	9,9	0,7	3/4	230	0,33	2,40	56	42
2-150 LW	2700	13,5	12,0	1,2	3/4	230	0,50	3,60	57	51
2-200 LW	3600	18,3	14,3	1,6	3/4	230	0,66	4,80	58	67
2-250 LW	4500	23,2	16,9	2,0	3/4	230	0,83	6,00	59	95
2-300 LW	5400	28,0	20,0	2,4	3/4	230	0,99	7,20	60	110
maximum recommended fitting height < 3,0 m*										
3-100 LW	2700	11,3	16,3	1,0	3/4	230	0,50	3,60	58	46
3-150 LW	3600	16,5	17,4	1,4	3/4	230	0,66	4,80	59	55
3-200 LW	5400	24,5	24,2	2,1	3/4	230	0,99	7,20	60	75
3-250 LW	6300	29,6	26,4	2,6	3/4	230	1,16	8,40	61	104
3-300 LW	7200	34,6	29,5	3,0	3/4	230	1,32	9,60	62	123

Electrical (E)

Type	Air volume	Heating capacity electric 400V3~	Max. current consumption 3-phase incl. fans	Electrical connections fans (rated power)			Sound pressure	Weight
	m ³ /h	kW	A	Volt	kW	A	dB(A) ²	kg
maximum recommended fitting height < 2,3 m*								
1-100 E	1400	3/6/9	16	230	0,33	2,40	52	42
1-150 E	1800	4/8/12	20	230	0,33	2,40	52	47
1-200 E	2700	6/12/18	30	230	0,50	3,60	53	63
1-250 E	3600	6/12/18	31	230	0,66	4,80	54	91
1-300 E	4500	8/16/24	40	230	0,83	6,00	55	106
maximum recommended fitting height < 2,6 m*								
2-100 E	1800	3/6/9	16	230	0,33	2,40	56	42
2-150 E	2700	4/8/12	21	230	0,50	3,60	57	51
2-200 E	3600	6/12/18	31	230	0,66	4,80	58	67
2-250 E	4500	6/12/18	32	230	0,83	6,00	59	95
2-300 E	5400	8/16/24	42	230	0,99	7,20	60	110
maximum recommended fitting height < 3,0 m*								
3-100 E	2700	5/10/15	25	230	0,50	3,60	58	46
3-150 E	3600	7.5/15/22.5	37	230	0,66	4,80	59	55
3-200 E	5400	10/20/30	50	230	0,99	7,20	60	75
3-250 E	6300	12/24/36	60	230	1,16	8,40	61	104
3-300 E	7200	15/30/45	74	230	1,32	9,60	62	123

The electrical air curtains just need to be fitted with a 400V3N supply - 230V3~ possible upon request - the 230V fans are connected internally in the factory.

Direct expansion (DX)

Type	Air volume	Heating capacity	Pressure loss	Refrigerant connections	Electrical connections fans (rated power)			Sound pressure	Weight
	m ³ /h	kW ³	bar	mm ⁴	Volt	kW	A	dB(A) ²	kg
maximum recommended fitting height < 2,3 m*									
1-100 DX	1400	7,8	0,037	22/16	230	0,33	2,40	52	42
1-150 DX	1800	11,28	0,050	22/16	230	0,33	2,40	52	47
1-200 DX	2700	16,56	0,074	22/16	230	0,50	3,60	53	63
1-250 DX	3600	22,03	0,096	22/16	230	0,66	4,80	54	91
1-300 DX	4500	27,72	0,116	22/16	230	0,83	6,00	55	106
maximum recommended fitting height < 2,6 m*									
2-100 DX	1800	9,03	0,049	22/16	230	0,33	2,40	56	42
2-150 DX	2700	14,42	0,079	22/16	230	0,50	3,60	57	51
2-200 DX	3600	19,67	0,102	22/16	230	0,66	4,80	58	67
2-250 DX	4500	25,27	0,124	22/16	230	0,83	6,00	59	95
2-300 DX	5400	31,03	0,145	22/16	230	0,99	7,20	60	110
maximum recommended fitting height < 3,0 m*									
3-100 DX	2700	11,22	0,074	22/16	230	0,50	3,60	58	46
3-150 DX	3600	16,91	0,108	22/16	230	0,66	4,80	59	55
3-200 DX	5400	24,55	0,157	22/16	230	0,99	7,20	60	75
3-250 DX	6300	30,66	0,181	22/16	230	1,16	8,40	61	104
3-300 DX	7200	36,74	0,209	22/16	230	1,32	9,60	62	123

* A building with balanced ventilation and a protected location.

¹ At a discharge temperature of 40°C and an air intake temperature of 20°C.

² Measured at 3m from the side.

³ Refrigerant R410A, compressed gas temperature 65°C, condensation temperature 48°C, SC 5K.

⁴ Upon request, the refrigerant connections are adjusted to the external unit that is to be used.

Subject to technical changes.

Technical data

Ambient (A)

Type	Air volume	Electrical connections fans (rated power)			Sound pressure	Weight
		m ³ /h	Volt	kW		
maximum recommended fitting height < 2,3m*						
1-100 A	1400	230	0,33	2,40	52	35
1-150 A	1800	230	0,33	2,40	52	36
1-200 A	2700	230	0,50	3,60	53	48
1-250 A	3600	230	0,66	4,80	54	72
1-300 A	4500	230	0,83	6,00	55	82
maximum recommended fitting height < 2,6m*						
2-100 A	1800	230	0,33	2,40	56	35
2-150 A	2700	230	0,50	3,60	57	40
2-200 A	3600	230	0,66	4,80	58	52
2-250 A	4500	230	0,83	6,00	59	76
2-300 A	5400	230	0,99	7,20	60	86
maximum recommended fitting height < 3,0m*						
3-100 A	2700	230	0,50	3,60	58	39
3-150 A	3600	230	0,66	4,80	59	44
3-200 A	5400	230	0,99	7,20	60	60
3-250 A	6300	230	1,16	8,40	61	85
3-300 A	7200	230	1,32	9,60	62	99

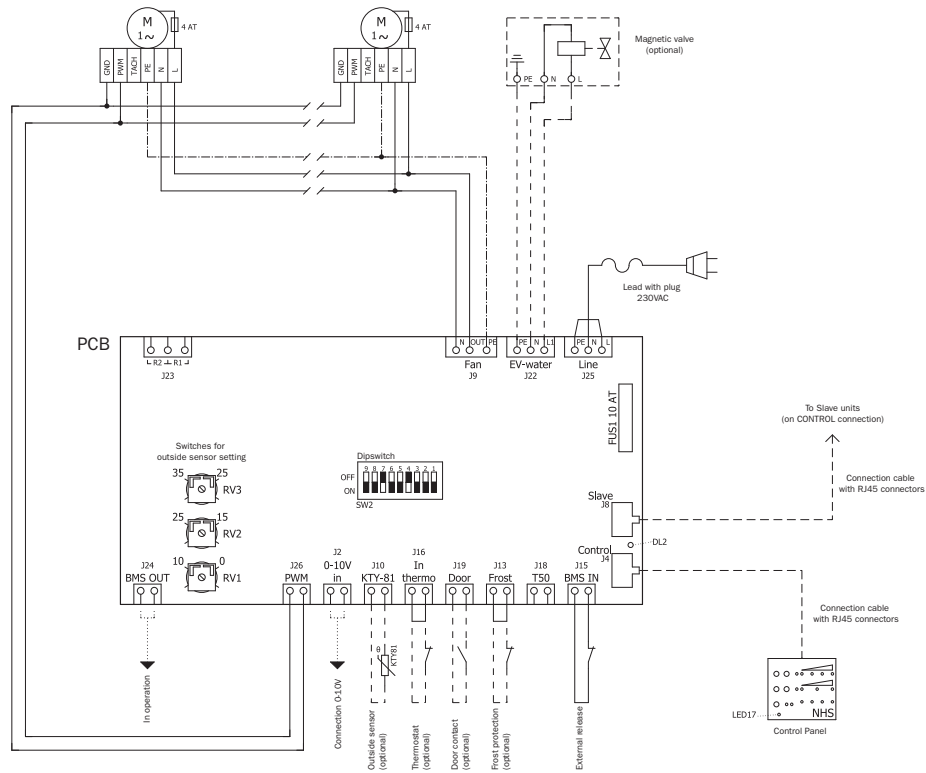
* A building with balanced ventilation and a protected location.

² Measured at 3m from the side.

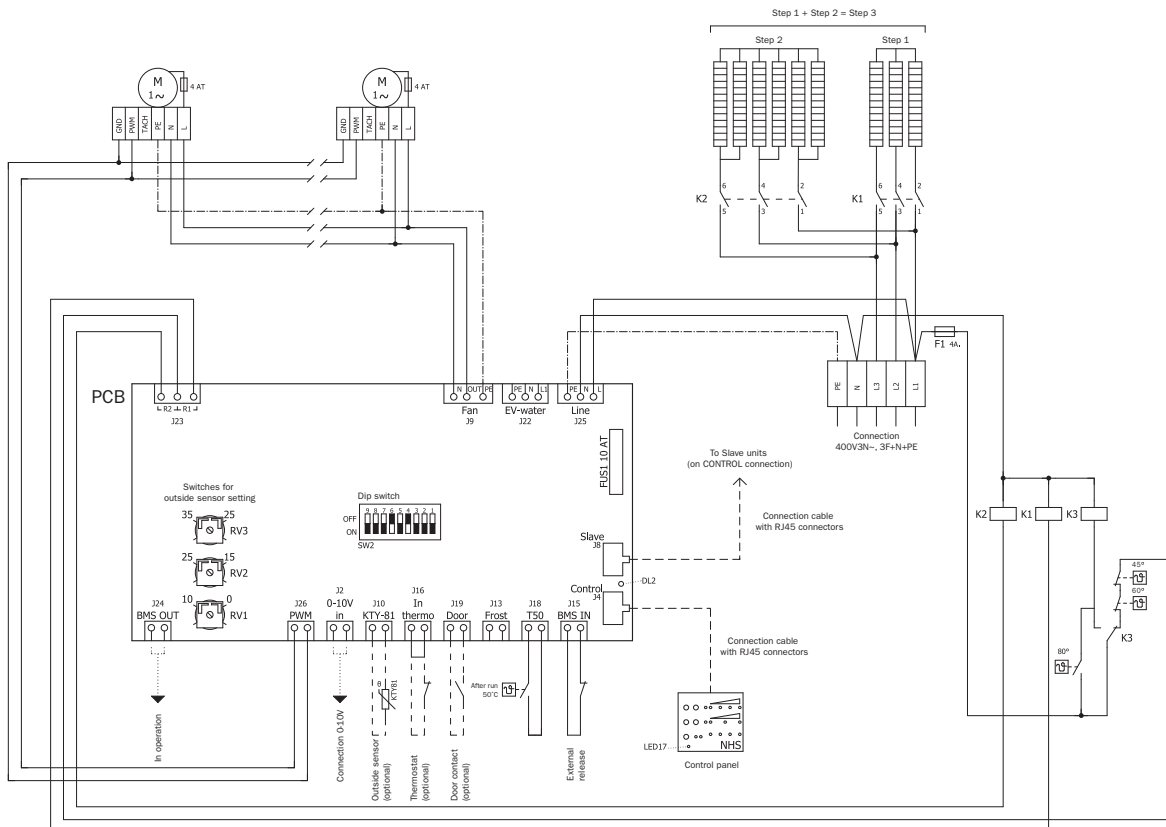
Subject to technical changes.

Wiring diagrams

Hot water,
Direct expansion
and Ambient.



Electric



Accessories

Control valves, shut-off valves and magnetic valves



Thermostatic control valve type CITR with TWHV DN20, built-in

Thermostatic control valve (corner valve) CITR with thermostatic head. To control a constant discharge temperature, fully built-in. Special control valve for maximum flow kvs 5.1.



Thermo-electric shut-off valve type MV with TWHV DN20, built-in

230 V, current-free closed, fully built-in. For the water cut-off via summer-winter function or to control the water-flow amounts for building-side control. Special control valve for maximum flow DN 20 kvs 5.1.



Thermostatic control valve type CITR with TWV DN20/25

Thermostatic control valve (two-way valve) CITR with thermostatic head. To control a constant discharge temperature, included separately. Special control valve for maximum flow. Capillary tube length 2 m, DN 20 kvs 5.1, DN 25 kvs 5.1.



Thermostatic control valve type CITR with DWV DN20/25/32

Thermostatic control valve (three-way valve) CITR with thermostatic head. To control a constant discharge temperature, included separately. Special control valve for maximum flow. Capillary tube length 2 m, DN 20 kvs 3.0, DN 25 kvs 6.27, DN 32 kvs 6.44.



Thermo-electric shut-off valve type MV with TWV DN20/25

230 V, current-free closed, included separately. For the water cut-off via summer-winter switch or to control the water-flow amounts for building-side control. Special control valve for maximum flow. DN 20 kvs 5.1, DN 25 kvs 5.1.

Door contacts



Door contact MDC

Magnetic switches NO & NC. Screw fitting or fixed with double-sided tape. Dimensions 64 x 15 x 13.8 mm
Temperature range: -20 to 65 °C. Housing ABS, white.



Door contact RDC

Protection class IP67, end switch with roller lever. Dimensions 31 x 96 mm
Temperature range: -25 to 70 °C. Housing cube: plastic.

Remote control



Infra-red remote control

Infra-red remote control for use with the control panel. For the remote control of the air volume and the summer-winter function of an air curtain. Only possible for warm-water air curtains.

Thermostats



Outside sensor BS

Sensor range from -55 to 150 °C. Protection class IP65. Housing polyamide, colour white.



Electromechanical room thermostat RT

Protection class IP30, setting range 5 – 30 °C with bimetal, pure white (comparable RAL 9010).
Dimensions: 78.3 x 83.4 x 25.5 mm



Frost-protection thermostat VBT, built-in

To protect hot-water heating batteries, with one temperature sensor with a length of 6 metres with a potential-free change-over contact, settings from -10 °C to 12 °C. Protection class IP40.

Cables

VBK05

Protected connection cable 5 m with RJ45 connectors to connect the controller to the PCB or to connect a master and a slave air curtain.



VBK50

Protected connection cable 50 m with RJ45 connectors to connect the controller to the PCB or to connect a master and a slave air curtain.

Mountings



Ceiling mounting PB

Comprising:

- Threaded rod: steel, wire gauge M8, electrogalvanised (1 m).
 - Solid vibration attenuation suspension: steel, wire gauge M8, electrogalvanised, attenuation 20 dB.
- Four required for units of up to 2 m and six for units of up to 3 m.



Wall mounting MB

Bracket, length 480 mm, profile 38/40, galvanised.

Two required for units of up to 2 m and three for units of up to 3 m.



Operating switch



Operating switch WKS-3

3-pin operating switch in surface mounting, included separately. For building-side installation in the supply pipe to the unit.





New Heating Solutions BV

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