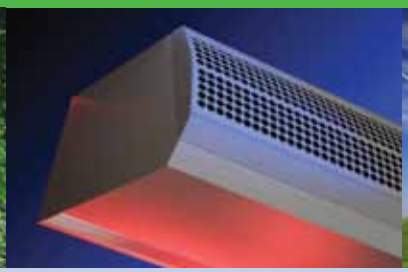
biddle
CLIMATE SOLUTIONS

Comfort air curtains combined with Daikin DX systems






Comfort Air Curtains
Models CAV & CITYQ

Ideal climate concept: low-energy & comfortable

An optimal shop or working climate depends on different factors, such as ventilation, heating and/or cooling in the area. But also weather conditions and separation between indoor and outdoor climate are playing an important role in an 'open door policy'. Daikin DX heat pump and heat recovery systems take care of efficiently heating, cooling and/or ventilating the interior space, while the Biddle comfort air curtains guarantee the optimal climate separation at the open doorway.

Two leading businesses in the climate sector, Biddle and Daikin, have joined forces in developing a unique “plug and play” climate concept for shops and public buildings. The unique and innovative climate concept provides the ultimate low-energy and optimal indoor climate throughout the year, much to the delight of both employees and customers.

Advantages of the climate concept:

- *Extremely low energy consumption*
- *Short payback time*
- *Optimal comfort*
- *Low installation costs*
- *Low noise level*
- *Long life*

Integration means saving

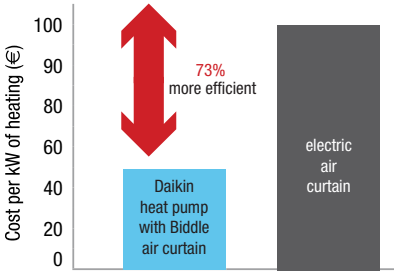
The climate concept is an integration of Biddle comfort air curtains and Daikin DX heat pump and heat recovery systems. With these two organisations going together, customers are guaranteed huge energy savings, low installation costs and optimal comfort throughout the year.

Innovative and reliable

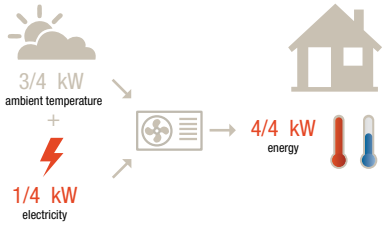
Both Biddle and Daikin have many years of international experience in successfully producing and marketing high-quality climate equipment used in the retail trade and in public buildings. Both companies are known for using high-quality components, resulting in reliable and innovative climate products with a long service life.

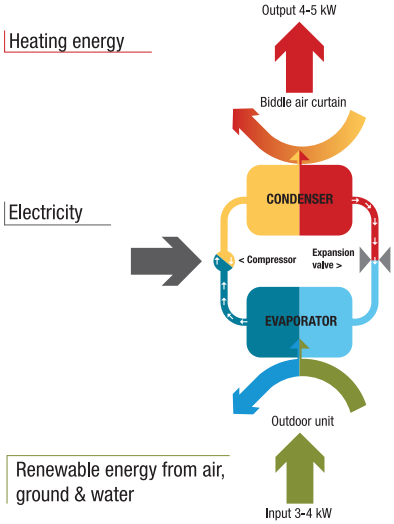
Environmental awareness

Both Biddle and Daikin are closely committed to environmental issues. That is the reason why much time and effort has been put into designing energy-saving climate products in recent years. Any negative impact on the environment has also been taken into account during the manufacturing process. The resulting effect on Biddle has been the development of energy-saving air curtain technologies. The combination of Biddle air curtains with Daikin's low-energy DX heat pump and heat recovery systems has been a big leap forward in meeting the demand for environmentally friendly products.



The combination of low-energy Biddle comfort air curtains with the efficient Daikin systems provides a substantial energy saving of up to 73% compared with electric air curtains.





Efficient operation of the heat pump.

Advantages of an integrated solution

The integrated Biddle & Daikin solution have the following attractive benefits:

• Open door policy
Using a customer-friendly open door policy in shops and public buildings means wasted energy, as hot air inside escapes through the open door. Biddle air curtains prevent such waste of heat through optimal climate separation in the doorway. Not only will it result in substantial savings on energy, but at the same time it will have a welcoming effect on customers entering the building.

• Maximum comfort from patented Biddle Technologies
No matter the weather conditions, visitors as well as staff will experience maximum indoor comfort throughout the year. That is the result of air curtain technologies developed by Biddle: the Rectifier and Constant Air Velocity technology (see page 4 and 5).

• Short payback time
The installation costs of this advanced system can be recovered within 18 months through energy savings.

• Simple installation through “plug & play“
The installation of the products is quick and easy through “plug & play”.
No additional systems are required when using this unique climate concept.
The considerably shorter installation time helps reduce costs.

• Very efficient and low CO_2
The steady shop climate as a result of efficient climate separation restricts the loss of heat through the doorway and also makes the Daikin systems more efficient. The efficiency of a Daikin heat pump can save up to 40% compared with a high-efficiency central heating boiler and even up to 73% compared with an electric air curtain.

The Biddle rectifier is a purpose-built outlet grille to create an airflow without turbulence.

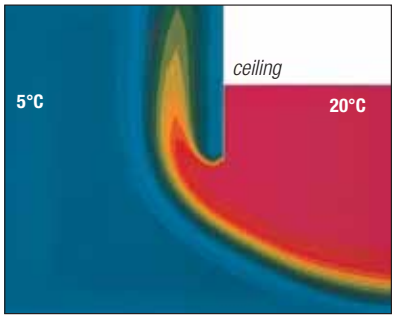


Fig. 1: Open door without an air curtain: large waste of energy.

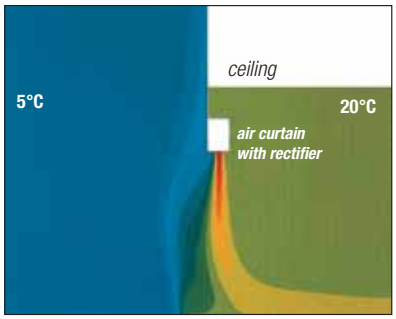


Fig. 2: Open doorway with air curtain and rectifier: little turbulence and efficient climate separation, no waste of energy.

Source: TNO research "Energy analysis of an air curtain", 1995.

Open door without an air curtain

An exchange of air caused by different inside and outside air temperatures is taking place in an open doorway. As a result, hot inside air escapes and is replaced with cold outside air (see fig. 1). In addition, mechanical extraction and a differential pressure between inside and outside may cause an extra ventilation flow, so that cold air will enter the room.

Energy-saving air curtain technologies

Biddle has put much time and effort into the design of the air discharge pattern of its air curtains in order to increase the comfort and improve the climate separation. Two patented and energy-saving technologies have been combined: the **Rectifier** and the **Constant Air Velocity technology.**

Patented rectifier for little turbulence

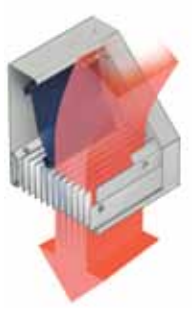
An air curtain without a rectifier will have to blow the air at high speed to reach the floor. This will cause excessive noise and high energy consumption. The Biddle air curtain with patented rectifier in the air outlet grille will extract inside the room the heated air that wants to escape through the open door. The rectifier is discharging the heated air in an almost laminar stream to the floor, and the heated air is subsequently flowing back into the room (see fig. 2). The rectifier minimises any turbulence this may cause. As a result, no energy is wasted and the heated air is fed back to the indoor climate. The incoming cold air is warmed up in such a manner that people do no longer consider it to be draught.

High comfort and efficiency

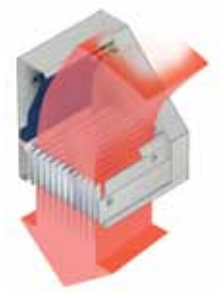
The shielding operation of an air curtain - Biddle calls it the strength of the air curtain - depends on the right combination of air velocity, outlet temperature and the width of the air stream. The required air velocity depends, among other things, on the turbulence of the air stream. Application of the patented Biddle rectifier in the discharge grille makes the air stream just about laminar and far less air volume is required than in the case of conventional air curtains. As well as producing more comfort less energy is consumed. If the air curtain is too strong or not strong enough, the efficiency will drop as part of the heat escapes from the indoor area.

Consequences of high-speed discharge velocity

In certain circumstances where more heat capacity is required, e.g. in winter, the speed of the air curtain is often increased to produce extra air volume and a greater discharge velocity. However, the increased speed also produces more turbulence and hot air will bounce back from the floor, so that much energy is wasted to the outside air. Higher speed will also increase the noise level. That is the reason why Biddle developed the Constant Air velocity technology. It consists of an advanced valve system which can adapt the width of the air discharge opening to the current circumstances.



Low fan speed, low air velocity, air valve is halfway open.



High fan speed, air valve is entirely open to retain the low air velocity.

Patented CA technology

When the Biddle air curtain with the patented CA technology (Constant Air velocity) is set at a higher speed the discharge width increases automatically, allowing the wider air stream to produce more air volume at the same constant air velocity. Since the air will not bounce back from the floor, all this hot air will be used on heating up the cold air from outside. This will save energy and provide more comfort inside the area. As an additional advantage, the low discharge velocity generated by the air curtain will maintain a comfortable passage to people walking in and out.

The rectifier technology is being used in:
model CAV and model CITYQ

Advantages:
- high passage comfort thanks to low discharge velocity
- up to 90% return on climate separation
- heat supply is added to the indoor space

The Constant Air velocity technology is being used in:
model CAV

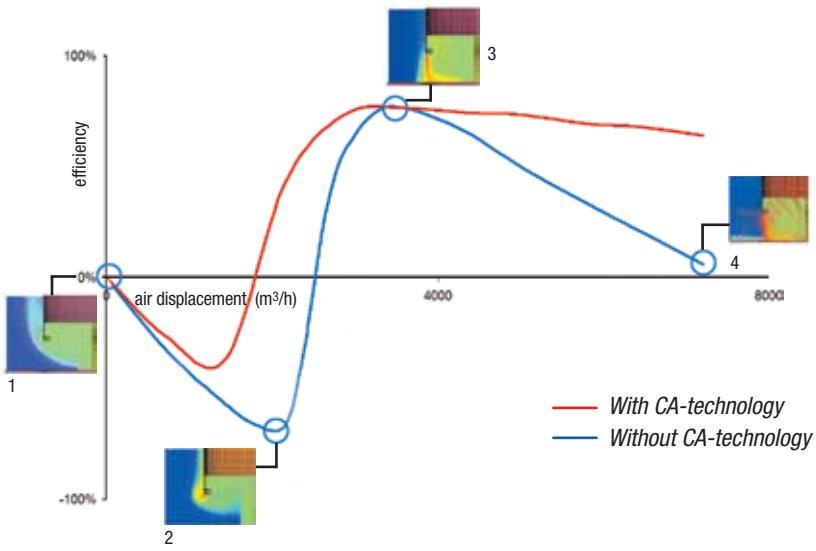
Advantages:
- very energy-efficient
- optimal indoor comfort in any situation and under all weather conditions

Optimal operation of air curtains

Effective climate separation depends on the correct air velocity in combination with the rectifier technology (see figure 3).

Figure 3:

1. *Open door without an air curtain: large waste of energy as hot air inside escapes through the open door.*
2. *Open door with weak air curtain: air velocity too low; large waste of energy as hot air inside escapes through the open door.*
3. *Open door with Biddle air curtain: optimal climate separation, hot air will be used for heating indoor space.*
4. *Open door with too strong air curtain: much turbulence, air stream hits the floor, large waste of energy and heat.*



Two climate systems

Daikin VRV system

Two different systems are offered within this Biddle & Daikin energy-conscious climate control concept: model CAV and model CITYQ.

1. Integrated air curtain – air conditioning system

- Biddle comfort air curtain, model CAV
- Daikin VRV system (heat pump and heat recovery system)

This climate system provides heating, cooling, ventilation and climate separation in one integrated and low-energy unit for retailers and public buildings. The integration of model CA with the VRV system gives optimal climate separation in the open doorway and guarantees a comfortable indoor climate all year round.

Biddle comfort air curtain integrated in the VRV system

Many lights and appliances used inside the areas create more and more demand for cooling. The VRV heat recovery system uses the recovered 'free' hot air, for heating purposes (e.g. for the air curtain in the open doorway) thus allowing simultaneous cooling and heating. Several indoor units can be connected to one single VRV heat recovery system, resulting in lower costs and less installation time.

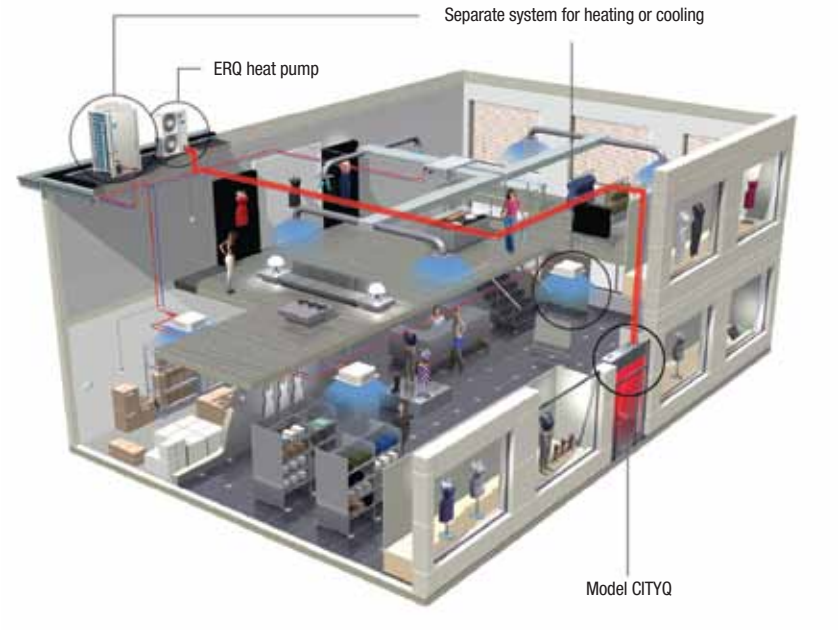
The process of simultaneously heating and cooling allows for the extracted warm air to be used for the air curtain, and so reducing the power consumption by up to 75%.

Daikin ERQ heat pump

2. Stand-alone air curtain – heat pump

- Biddle comfort air curtain, model CITYQ
- Daikin ERQ heat pump

This combination is used if only an air curtain is required. The Biddle air curtain is connected to the Daikin ERQ heat pump, which supplies the required energy for heating.



Biddle comfort air curtain in combination with ERQ heat pump.

The ERQ heat pump extracts energy from the ambient air. This energy source is sustainable and free. Heat pumps require only a small amount of electricity to convert the ambient air into comfortable heat.

Much energy can be saved by connecting the air curtain to a heat pump rather than, for example, to a central heating boiler. That is because a heat pump can substantially reduce the cost of heating. This efficient way of generating and displacing heat can save up to 40% compared with a high-efficiency central heating boiler and even up to 73% compared with an electric air curtain.

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CLIMATE SOLUTIONS

Integrated: Comfort air curtain, model CAV

Type code
CAV S-200-DK-80-F*

CAV = CA with VRV system

Types
S = Small (200-240 cm)
M = Medium (220-280 cm)
L = Large (250-330 cm)
XL = Extra Large (300-380 cm)

Unit width (cm)
100-150-200-250

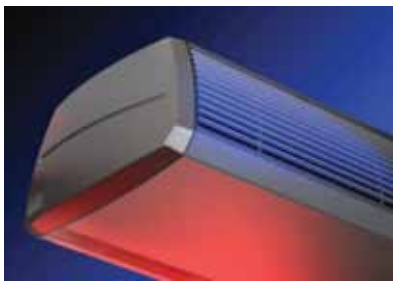
Refrigerant
DK = R410A

Capacity index**
80-100-125-140-200-250

Models
F = free hanging
R= recessed
C= cassette

* *The type code is made up of letters and numbers from the above specification. For instance, one of these combinations is **CAV S-200-DK80-F**.*

** *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*



Model CAV can be used under any circumstances, but can be particularly useful in demanding situations, where there is changing weather conditions or an exposed site. Model CAV is also a good choice if high demands are made on the operation and the appearance of the air curtain.

Features model CAV
- Can be used in combination with VRV system (heat pump and heat recovery)
- Fitted with Rectifier and Constant Air Velocity technology
- Ready to use, plug & play
- Controls and operation are partly via the VRV system and partly via the air curtain
- Modern and stylish design
- User and maintenance friendly
- Flexible suspension system for quick assembly
- Washable filters

Model CAV, fitted with the Rectifier and CA technology, is available in four capacities. The higher the capacity of an air curtain, the higher it can be mounted. All units are available in four sizes. Wider doors may require a series of units installed in line. The air curtain does not allow for external controls to be connected.

Type	Installation-height[1]	Door-width[2]	Refrigerant	Models
CAV S	200-240 cm	100-150-200-250 cm	R410A	free hanging (F) cassette (C) recessed (R)
CAV M	220-280 cm			
CAV L	250-330 cm			
CAV XL	300-380 cm			

[1] *Distance from the floor to the bottom of the unit.*
[2] *Door widths of > 2.5 metres may also be covered by installing multiple air curtains in line.*

Standard delivery
Model CAV comes standard with grilles, air filters and suspension brackets for ceiling assembly. Recessed models (model R) are fitted with duct connection spigots. Biddle has developed a control unit to operate the air curtain. Additional accessories are also available.

The following accessories are always supplied :
- Two plastic side panels, one on the left and one on the right side of the overall unit (free hanging model F only)
- Control panel with LCD screen, available as a stand-alone unit or linked to the Biddle building management system
- Three low-voltage cables with two plugs: 2 x 5 m and 1 x 25 m

Optional accessories are :
- Outside air temperature sensor
- Wall bracket set (standard or design)
- Threaded rod cover

For full installation, various Daikin parts are required. These parts are also supplied by Daikin.

Stand-alone: comfort air curtain, model CITYQ

Type code
CITYQ S-200-DK-80-F*

CITYQ = CITY with ERQ heat pump
Types
S = Small (200-240 cm)
M = Medium (220-280 cm)
L = Large (250-330 cm)

Unit width (cm)
100-150-200-250

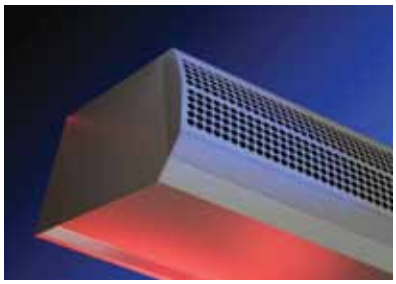
Refrigerant
DK = R410A

Capacity index**
80-100-125-140-200-250

Model
F = free hanging
R= recessed
C= cassette

* *The type code is made up of letters and numbers from the above specification. For instance, one of these combinations is **CITYQ S-200-DK80-F**.*

** *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*



Model CITYQ works well in steady state situations, such as sheltered shopping streets. In such situations there will be little need for the air curtain to respond to changing circumstances and in most cases it will be able to operate on a fixed speed. CITYQ is an excellent climate solution at a favourable price/quality ratio.

Model features CITYQ
- Can be used in combination with ERQ heat pump
- Fitted with Rectifier technology
- Ready to use, plug & play
- Controls and operation via ERQ
- Plain and neutral design
- User and maintenance friendly
- Flexible suspension system for quick assembly
- Washable filters

Model CITYQ is available in three capacities. The higher the capacity of an air curtain, the higher it can be mounted. All air curtains are available in four sizes. Wider doors may require a series of units installed in line. The air curtain does not allow for external controls to be connected.

Type	Installation-height[1]	Doorwidth[2]	Refrigerant	Models
CITYQ S[3]	200-240 cm	150-200-250 cm	R410A	free hanging (F) cassette (C) recessed (R)
CITYQ M	220-280 cm	100-150-200-250 cm		
CITYQ L	250-330 cm			

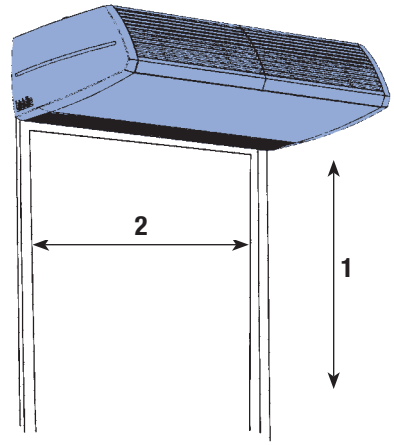
[1] *Distance from the floor to the bottom of the unit.*
[2] *Door widths of > 2.5 metres may also be covered by installing multiple air curtains in line.*
[3] *CITYQ S-100 is unavailable.*

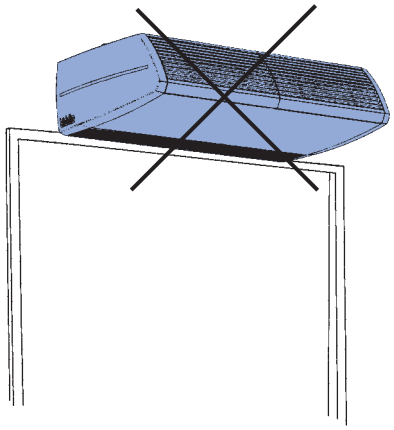
Standard delivery
Model CITYQ comes standard with suspension brackets for ceiling assembly. Recessed models (model R) are fitted with duct connection spigots.

Accessories
- Wall mounting brackets

For full installation, various Daikin parts are required. These parts are also supplied by Daikin.

Selection comfort air curtains





To prevent air leakages on either side, the air curtain should also be at least as wide as the doorway.

Biddle attaches high value to the right selection of an air curtain to ensure an optimal performance, and has innovative software available to select an air curtain based on the conditions applicable in a certain situation. The selection table can be used as an indication.

An air curtain is selected properly if the airstream has enough strength to reach the floor and sufficient capacity to heat up entering cold outside air to a comfortable temperature. Additionally, the unit must be able to properly screen off the entire width and height of the door opening. The air curtain type to be selected depends on:

1. Door height (1) and door width (2)
It is important for the distance between the air curtain and the door to be as small as possible. The air curtain should also be at least as wide as the doorway, or else air leakages will occur on either side.

2. Natural convection caused by temperature differences
The difference between inside and outside temperature is of great importance for the selection of the appropriate air curtain.

3. Extra air stream through natural or mechanical ventilation
Natural or mechanical ventilation also influence the performance of an air curtain, so the ventilation flow through a door opening should be taken into account when selecting an air curtain.

4. Building design
Also the aspects such as location and layout of a building may greatly affect the required capacity of the air curtain.

Favourable situation: indoor shopping centre or entrance with revolving door.
Normal situation: little direct wind exposure, no open doors on opposite sides of the building, single-storey building.
Unfavourable situation: corner building, building on a square, multi-storey building and/or open stairwell.

Selection table

Installation-height	*Door width*							
	Up to 100 cm		*Up to 150 cm*		*Up to 200 cm*		*Up to 250 cm*	
Favourable								
Up to 240 cm	S[2]		S		S		S	
Up to 280 cm	M	100	M	150	M	200	M	250
Up to 330 cm	L		L		L		L	
Up to 380 cm	XL[1]		XL[1]		XL[1]		XL[1]	
Normal								
Up to 220 cm	S[2]		S		S		S	
Up to 250 cm	M	100	M	150	M	200	M	250
Up to 300 cm	L		L		L		L	
Up to 350 cm	XL[1]		XL[1]		XL[1]		XL[1]	
Unfavourable								
Up to 220 cm	M		M		M		M	
Up to 250 cm	L		L		L		L	
Up to 280 cm	L	100	L	150	L	200	L	250
Up to 300 cm	XL[1]		XL[1]		XL[1]		XL[1]	
Up to 320 cm	XL[1]		XL[1]		XL[1]		XL[1]	

[1] *Type XL is only available in combination with model CAV.*
[2] *CITYQ S-100 is unavailable.*

Technical data CAV S-100 /-150

Basic data					CAV S-100	CAV S-150
max. door width:	1.0 / 1.5 m	weight	model F	kg	61	73
max. door height:	2.0 - 2.4 m		model R		61	88
room temperature:	20°C		model C		59	83
		electrical supply		V	230	230
		max. heating capacity		kW	7.7	9.3
		refrigerant			R410A	R410A
		capacity index[1]			80	80
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	16
		max. power, motors		kW	0.2	0.3
		max. current, motors (1 phase)		A	0.9	1.35

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV S-100				CAV S-150			
selection data	**speed**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
tapping voltage, fans	V	105	130	160	230	105	130	160	230
air displacement	m^3/h	490	670	880	1230	740	1000	1310	1850
outlet temperature	°C	43	42	40	38	40	39	37	35
heating capacity	kW	3.8	4.8	6	7.7	4.9	6.1	7.5	9.3
noise level at 3 m	dB(A)	30	36	42	50	32	38	44	52

CAV S-200 /-250

Basic data					CAV S-200	CAV S-250
max. door width:	2.0 / 2.5 m	weight	model F	kg	89	101
max. door height:	2.0 - 2.4 m		model R		108	137
room temperature:	20°C		model C		102	129
		electrical supply		V	230	230
		max. heating capacity		kW	12.1	16.8
		refrigerant			R410A	R410A
		capacity index[1]			100	140
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	19
		max. power, motors		kW	0.4	0.5
		max. current, motors (1 phase)		A	1.8	2.25

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV S-200				CAV S-250			
selection data	**speed**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
tapping voltage, fans	V	105	130	160	230	105	130	160	230
air displacement	m^3/h	990	1340	1750	2470	1240	1670	2190	3080
outlet temperature	°C	40	38	36	34	41	40	38	36
heating capacity	kW	6.3	7.9	9.7	12.1	8.7	10.9	13.3	16.8
noise level at 3 m	dB(A)	33	39	45	53	34	40	46	54

CAV M-100 /-150

Basic data					CAV M-100	CAV M-150
max. door width:	1.0 / 1.5 m	weight	model F	kg	66	79
max. door height:	2.2 - 2.8 m		model R		66	93
room temperature	20°C		model C		68	88
		electrical supply		V	230	230
		max. heating capacity		kW	8.9	10.6
		refrigerant			R410A	R410A
		capacity index[1]			80	80
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	16
		max. power, motors		kW	0.28	0.42
		max. current, motors (1 phase)		A	1.24	1.86

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV M-100				CAV M-150			
selection data	**speed**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
tapping voltage, fans	V	115	130	160	230	115	130	160	230
air displacement	m^3/h	750	890	1230	1530	1120	1330	1840	2290
outlet temperature	°C	41	40	38	37	38	37	35	34
heating capacity	kW	5.3	6.1	7.7	8.9	6.7	7.5	9.4	10.6
noise level at 3 m	dB(A)	33	37	45	51	35	39	47	53

CAV M-200 /-250

Basic data					CAV M-200	CAV M-250
max. door width:	2.0 / 2.5 m	weight	model F	kg	97	119
max. door height:	2.2 - 2.8 m		model R		117	144
room temperature	20°C		model C		111	136
		electrical supply		V	230	230
		max. heating capacity		kW	13.7	19.3
		refrigerant			R410A	R410A
		capacity index[1]			100	140
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	19
		max. power, motors		kW	0.56	0.7
		max. current, motors (1 phase)		A	2.48	3.1

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV M-200				CAV M-250			
selection data	**speed**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
tapping voltage, fans	V	115	130	160	230	115	130	160	230
air displacement	m^3/h	1490	1770	2450	3050	1870	2215	3060	3810
outlet temperature	°C	37	36	34	33	39	38	36	35
heating capacity	kW	8.6	9.7	12.1	13.7	11.8	13.4	16.8	19.3
noise level at 3 m	dB(A)	36	40	48	54	37	41	49	55

CAV L-100 /-150

Basic data					***CAV L-100***	***CAV L-150***
max. door width:	1.0 / 1.5 m	weight	model F	kg	83	108
max. door height:	2.5 - 3.3 m		model R		83	141
room temperature:	20°C		model C		81	118
		electrical supply		V	230	230
		max. heating capacity		kW	15.3	22.8
		refrigerant			R410A	R410A
		capacity index[1]			125	200
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	19
		max. power, motors		kW	0.75	1.13
		max. current, motors (1 phase)		A	3.3	4.95

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV L-100				***CAV L-150***			
selection data	***speed***	***1***	***2***	***3***	***4***	***1***	***2***	***3***	***4***
tapping voltage, fans	V	105	130	160	230	105	130	160	230
air displacement	m^3/h	1330	1730	2210	2990	2000	2600	3320	4490
outlet temperature	°C	40	38	37	35	40	38	37	35
heating capacity	kW	8.7	10.6	12.5	15.3	13.1	15.9	18.8	22.8
noise level at 3 m	dB(A)	42	46	51	57	44	48	53	59

CAV L-200 /-250

Basic data					***CAV L-200***	***CAV L-250***
max. door width:	2.0 / 2.5 m	weight	model F	kg	137	166
max. door height:	2.5 - 3.3 m		model R		155	196
room temperature	20°C		model C		151	190
		electrical supply		V	230	230
		max. heating capacity		kW	28.8	30.5
		refrigerant			R410A	R410A
		capacity index[1]			250	250
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	22	22
		max. power, motors		kW	1.5	1.88
		max. current, motors (1 phase)		A	6.6	8.25

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV L-200				***CAV L-250***			
selection data	***speed***	***1***	***2***	***3***	***4***	***1***	***2***	***3***	***4***
tapping voltage, fans	V	105	130	160	230	105	130	160	230
air displacement	m^3/h	2670	3470	4430	5980	3330	4340	5530	7480
outlet temperature	°C	39	38	36	34	37	35	34	32
heating capacity	kW	16.9	20.3	24	28.8	18.6	22.1	25.8	30.5
noise level at 3 m	dB(A)	45	49	54	60	46	50	55	61

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CLIMATE SOLUTIONS

CAV XL-100 /-150

Basic data					CAV XL-100	CAV XL-150
max. door width:	1.0 / 1.5 m	weight	model F	kg	69	102
max. door height:	3.0 - 3.8 m		model R		86	146
room temperature:	20°C		model C		84	123
		electrical supply		V	230	230
		max. heating capacity		kW	17.2	25.7
		refrigerant			R410A	R410A
		capacity index[1]			125	200
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	19
		max. power, motors		kW	1.4	2.1
		max. current, motors (1 phase)		A	6.1	9.15

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV XL-100				CAV XL-150			
selection data	**speed**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
tapping voltage, fans	V	105	130	160	230	105	130	160	230
air displacement	m^3/h	1610	2160	2800	3650	2420	3250	4190	5480
outlet temperature	°C	39	37	35	34	39	37	35	34
heating capacity	kW	10	12.3	14.7	17.2	15.1	18.6	22	25.7
noise level at 3 m	dB(A)	47	52	56	61	49	53	58	63

CAV XL-200 /-250

Basic data					CAV XL-200	CAV XL-250
max. door width:	2.0 / 2.5 m	weight	model F	kg	130	162
max. door height:	3.0 - 3.8 m		model R		164	204
room temperature	20°C		model C		160	198
		electrical supply		V	230	230
		max. heating capacity		kW	32.2	33.8
		refrigerant			R410A	R410A
		capacity index[1]			250	250
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	22	22
		max. power, motors		kW	2.8	3.5
		max. current, motors (1 phase)		A	12.2	15.3

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CAV XL-200				CAV XL-250			
selection data	**speed**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
tapping voltage, fans	V	105	130	160	230	105	130	160	230
air displacement	m^3/h	3230	4330	5590	7310	4030	5410	6990	9130
outlet temperature	°C	38	36	35	33	36	34	32	31
heating capacity	kW	19.3	23.6	27.8	32.2	21.1	25.4	29.6	33.8
noise level at 3 m	dB(A)	50	55	59	64	51	56	60	65

Technical data CITYQ S-150

Basic data					CITYQ S-150
max. door width:	1.5 m	weight	model F	kg	66
max. door height:	2.0 - 2.4 m		model R		88
room temperature	20°C		model C		83
		electrical supply		V	230
		max. heating capacity		kW	9.0
		refrigerant			R410A
		capacity index[1]			80
		diameter pipes	liquid	mm	9.52
			gas	mm	16
		max. power, motors		kW	0.35
		max. current, motors (1 phase)		A	1.26

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CITYQ S-150	
selection data	**speed**	**1**	**2**
tapping voltage, fans	V	130	190
air displacement	m^3/h	1235	1746
outlet temperature	°C	37	35
heating capacity	kW	7.1	9.0
noise level at 3 m	dB(A)	39	49

- CITYQ S- 100 is not available

CITYQ S-200 / -250

Basic data					CITYQ S-200	CITYQ S-250
max. door width:	2.0 / 2.5 m	weight	model F	kg	83	107
max. door height:	2.0 - 2.4 m		model R		108	137
room temperature	20°C		model C		102	129
		electrical supply		V	230	230
		max. heating capacity		kW	11.6	16.2
		refrigerant			R410A	R410A
		capacity index[1]			100	140
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	19
		max. power, motors		kW	0.46	0.58
		max. current, motors (1 phase)		A	1.68	2.1

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CITYQ S-200		CITYQ S-250	
selection data	**speed**	**1**	**2**	**1**	**2**
tapping voltage, fans	V	130	190	130	190
air displacement	m^3/h	1646	2328	2058	2910
outlet temperature	°C	37	35	38	36
heating capacity	kW	9.2	11.6	12.7	16.2
noise level at 3 m	dB(A)	40	50	41	51

CITYQ M-100 /-150

Basic data					**CITYQ M-100**	**CITYQ M-150**
max. door width:	1.0 / 1.5 m	weight	model F	kg	57	73
max. door height:	2.2 - 2.8 m		model R		66	93
room temperature:	20°C		model C		68	88
		electrical supply		V	230	230
		max. heating capacity		kW	9.2	11
		refrigerant			R410A	R410A
		capacity index[1]			80	80
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	16
		max. power, motors		kW	0.37	0.56
		max. current, motors (1 phase)		A	1.64	2.46

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CITYQ M-100		**CITYQ M-150**	
selection data	***speed***	***1***	***2***	***1***	***2***
tapping voltage, fans	V	160	230	160	230
air displacement	m^3/h	1223	1605	1835	2408
outlet temperature	°C	39	37	35	34
heating capacity	kW	7.7	9.2	9.3	11
noise level at 3 m	dB(A)	44	50	46	51

CITYQ M-200 /-250

Basic data					**CITYQ M-200**	**CITYQ M-250**
max. door width:	2.0 / 2.5 m	weight	model F	kg	94	108
max. door height:	2.2 - 2.8 m		model R		117	144
room temperature:	20°C		model C		111	136
		electrical supply		V	230	230
		max. heating capacity		kW	13.4	19.9
		refrigerant			R410A	R410A
		capacity index[1]			100	140
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	19
		max. power, motors		kW	0.75	0.94
		max. current, motors (1 phase)		A	3.28	4.1

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CITYQ M-200		**CITYQ M-250**	
selection data	***speed***	***1***	***2***	***1***	***2***
tapping voltage, fans	V	160	230	160	230
air displacement	m^3/h	2446	3210	3058	4013
outlet temperature	°C	34	33	36	35
heating capacity	kW	12.1	13.4	16.8	19.9
noise level at 3 m	dB(A)	47	53	48	54

CITYQ L-100 /-150

Basic data					CITYQ L-100	CITYQ L-150
max. door width:	1.0 / 1.5 m	weight	model F	kg	76	100
max. door height:	2.5 - 3.3 m		model R		83	141
room temperature	20°C		model C		81	118
		electrical supply		V	230	230
		max. heating capacity		kW	15.6	23.3
		refrigerant			R410A	R410A
		capacity index[1]			125	200
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	16	19
		max. power, motors		kW	0.75	1.13
		max. current, motors (1 phase)		A	3.3	4.95

[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

		CITYQ L-100		CITYQ L-150	
selection data	**speed**	**1**	**2**	**1**	**2**
tapping voltage, fans	V	130	190	130	190
air displacement	m^3/h	2056	3100	3084	4650
outlet temperature	°C	37	35	37	35
heating capacity	kW	11.9	15.6	17.9	23.3
noise level at 3 m	dB(A)	43	53	45	54

CITYQ L-200 /-250

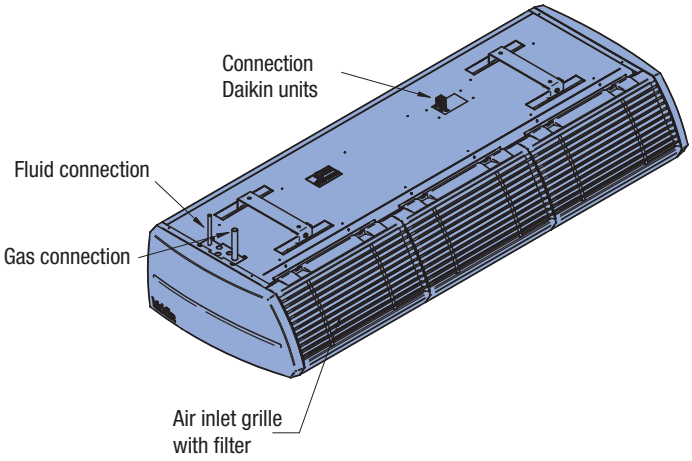
Basic data					CITYQ L-200	CITYQ L-250
max. door width:	2.0 / 2.5 m	weight	model F	kg	126	157
max. door height:	2.5 - 3.3 m		model R		155	196
room temperature:	20°C		model C		151	190
		electrical supply		V	230	230
		max. heating capacity		kW	29.4	31.1
		refrigerant			R410A	R410A
		capacity index[1]			250	250
		diameter pipes	liquid	mm	9.52	9.52
			gas	mm	22	22
		max. power, motors		kW	1.5	1.88
		max. current, motors (1 phase)		A	6.6	8.25

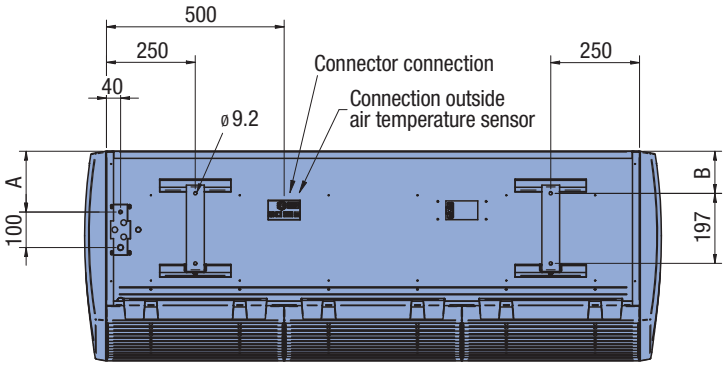
[1] *To determine the correct Daikin outdoor unit, you need to add together the capacity indexes of all the indoor units.*

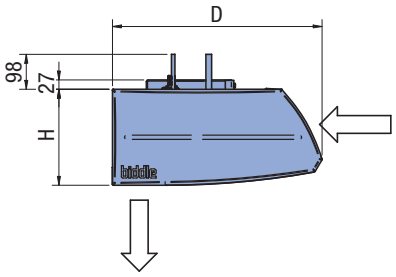
		CITYQ L-200		CITYQ L-250	
selection data	**speed**	**1**	**2**	**1**	**2**
tapping voltage, fans	V	130	190	130	190
air displacement	m^3/h	4112	6200	5140	7750
outlet temperature	°C	37	34	34	32
heating capacity	kW	22.8	29.4	24.6	31.1
noise level at 3 m	dB(A)	46	56	47	57

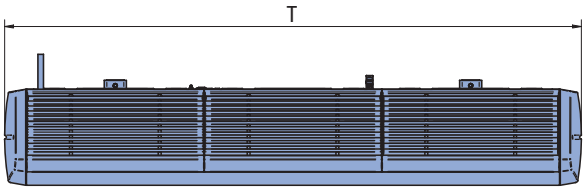
Dimensional sketches CAV (F)

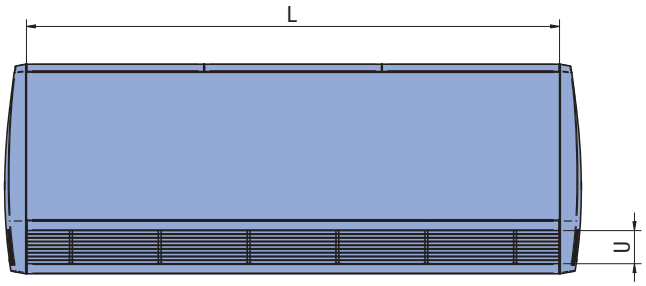
Free-hanging model











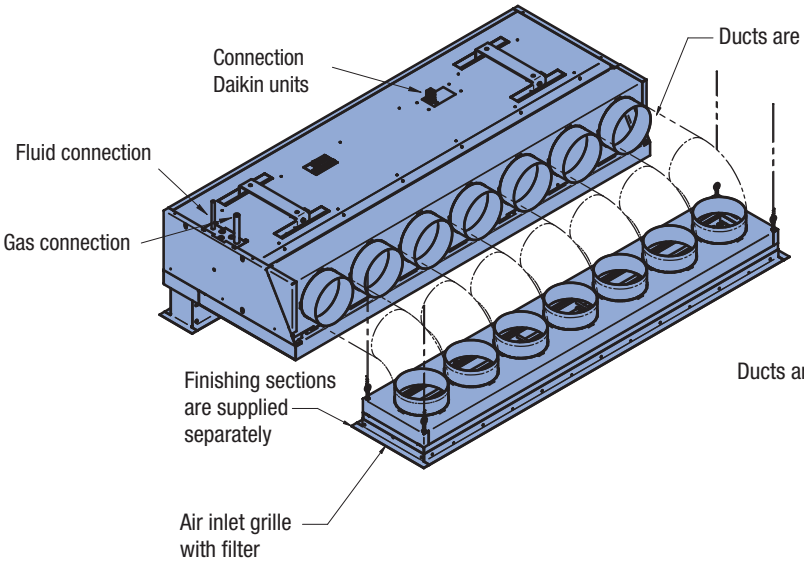
Type	L	H	D	U	A	B	T
CAV S/M	1000-1500	270	590	93	171	119	1123-1623-2123-2623
CAV L/XL	2000-2500	370	774	124.5	245.5	200	1153-1653-2153-2653

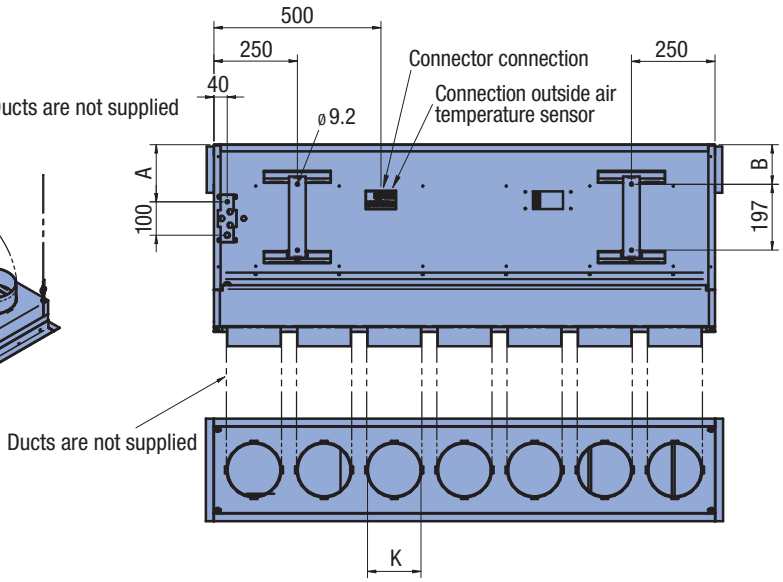
Notes

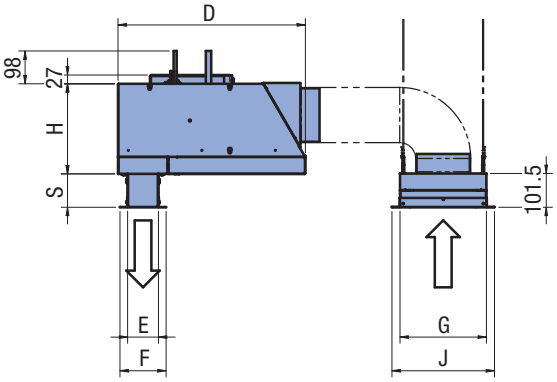
- *All dimensions are in mm.*
- *The units of 1000 mm wide have a separate electronic module.*
- *The units of 2500 mm wide have 3 suspension brackets.*
- *By removing the end panels, the units are easy to interlink.*

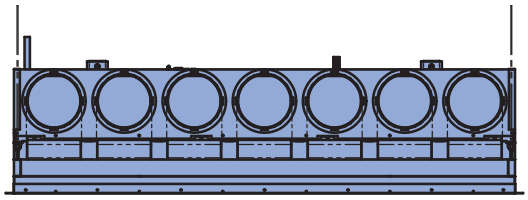
Dimensional sketches CAV (R)

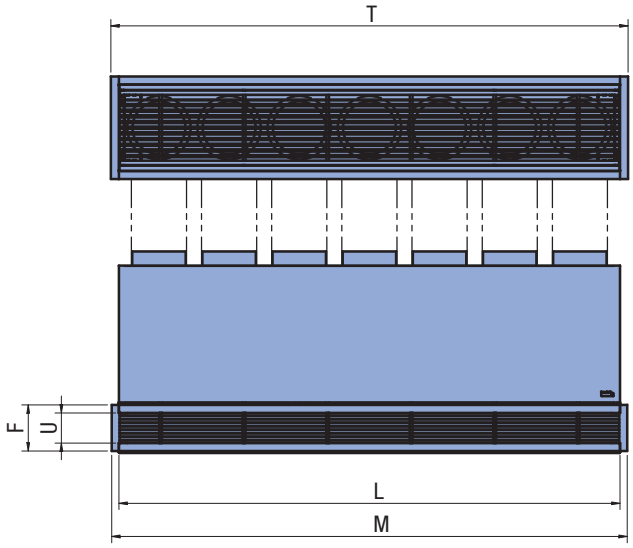
Recessed model











Number of ducts per unit

Type	100	150	200	250
CAV S/M	5	7	10	12
CAV L/XL	3	5	6	8

Number of inlet grilles per unit

Type	Number	Length of inlet grille
CAV 100/150	1	1000/1500
CAV 200/250	2	1000/1250

** 1 outlet grille per unit*

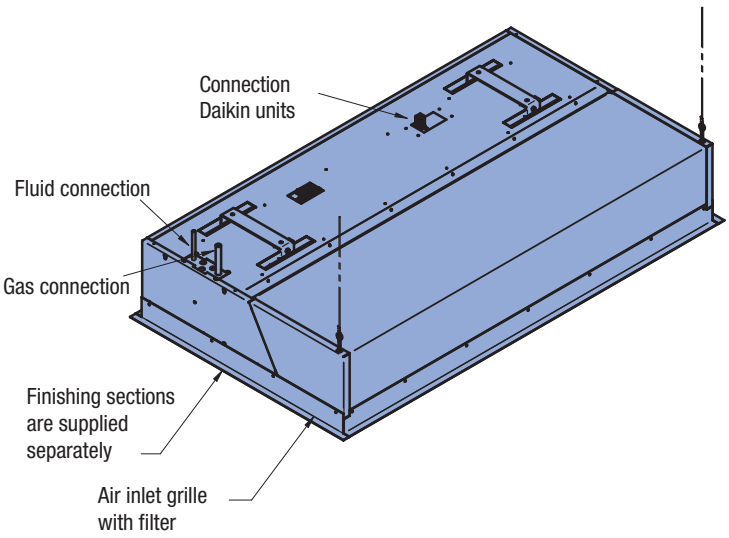
Type	L	H	D	S	U	A	B	E	F	G	J	K	M	T
CAV S/M	1000-1500	270	561	80-125	90	171	119	92	139	260	308	ø160	1044-1544	1048-1548
CAV L/XL	2000-2500	370	745		121.5	245.5	200	123.5	170	360	408	ø250	2044-2544	2048-2548

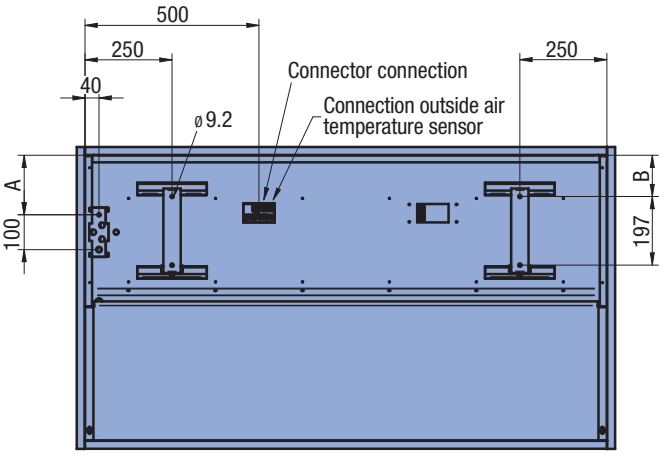
Notes

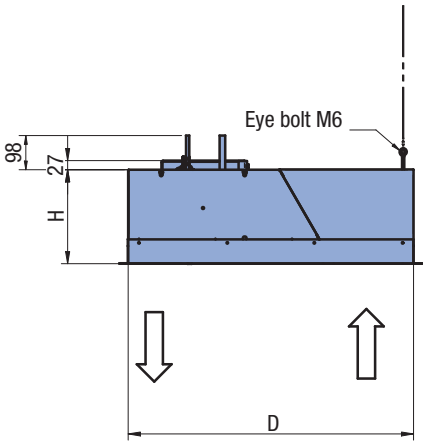
• All dimensions are in mm. • The units of 1000 mm wide have a separate electronic module. • The units of 2500 mm wide have 3 suspension brackets. • Daylight openings (if cover mouldings are used): - for air discharge :(L+8) x (E+8) mm - for air inlet: (L+8) x (G+8) mm. • If the recessed model is to be built into a cove, it is also available in a design that has no inlet air plenum or flexible ducts. To prevent bad air from let in, the cove will need to be air-tight.

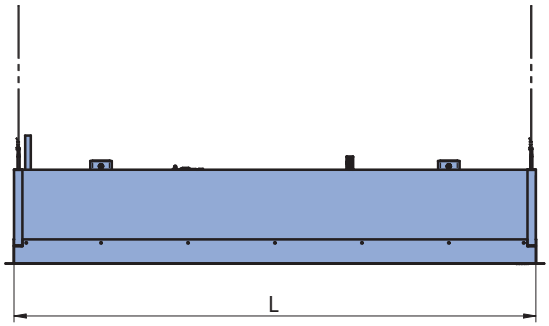
Dimensional sketches CAV (C)

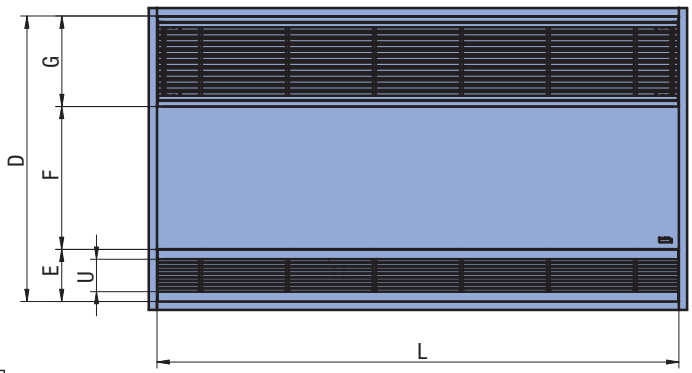
Cassette model











Number of inlet grilles per unit

Type	Number	Length of inlet grille
CAV 100/150	1	1000/1500
CAV 200/250	2	1000/1250

** 1 outlet grille per unit*

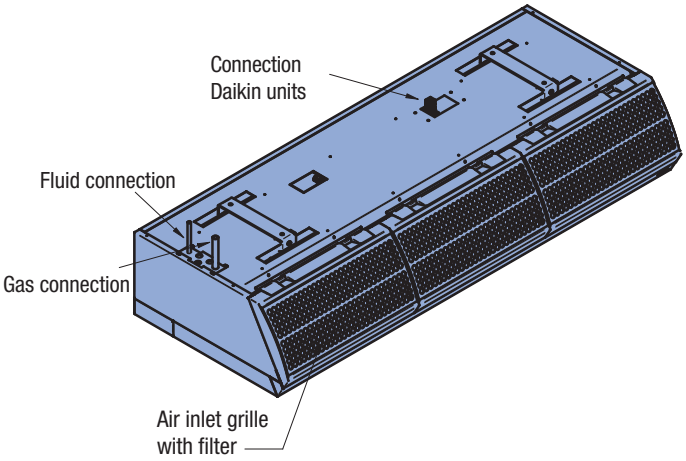
Type	L	H	D	U	A	B	E	F	G
CAV S/M	1000-1500	270	821	93	171	119	150	411	260
CAV L/XL	2000-2500	370	1105	124.5	245.5	200	181.5	563.5	360

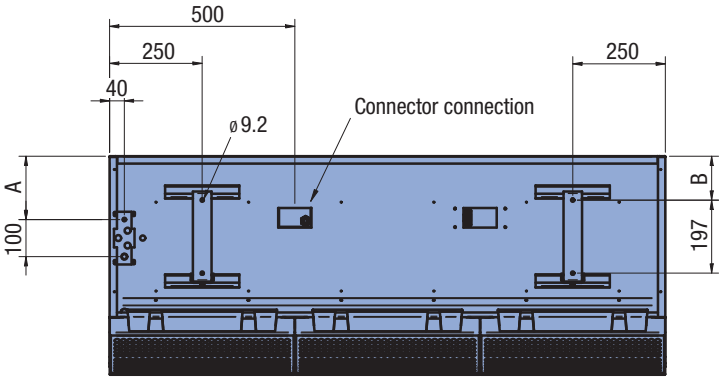
Notes

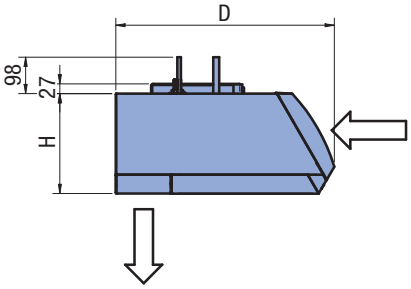
- *All dimensions are in mm.*
- *The units of 1000 mm wide have a separate electronic module. • The units of 2500 mm wide have 3 suspension brackets.*
- *Daylight opening if cover mouldings are used in a suspended ceiling: (L+8) x (D+8) mm.*

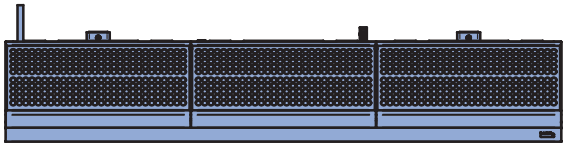
Dimensional sketches CITYQ (F)

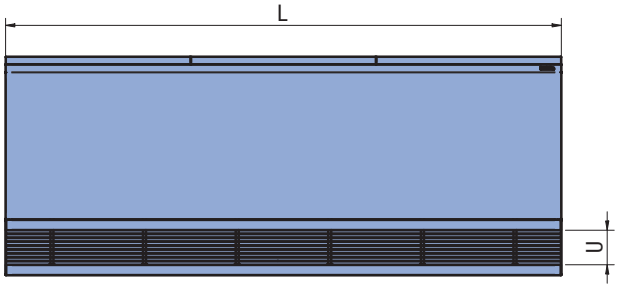
Free-hanging model











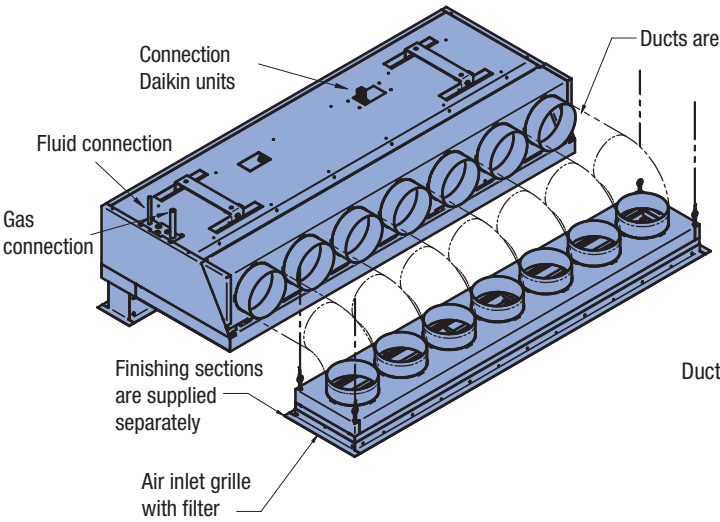
Type	L	H	D	U	A	B
CITYQ S*/M	1000-1500	270	590	93	171	119
CITYQ L	2000-2500	370	774	124.5	245.5	200

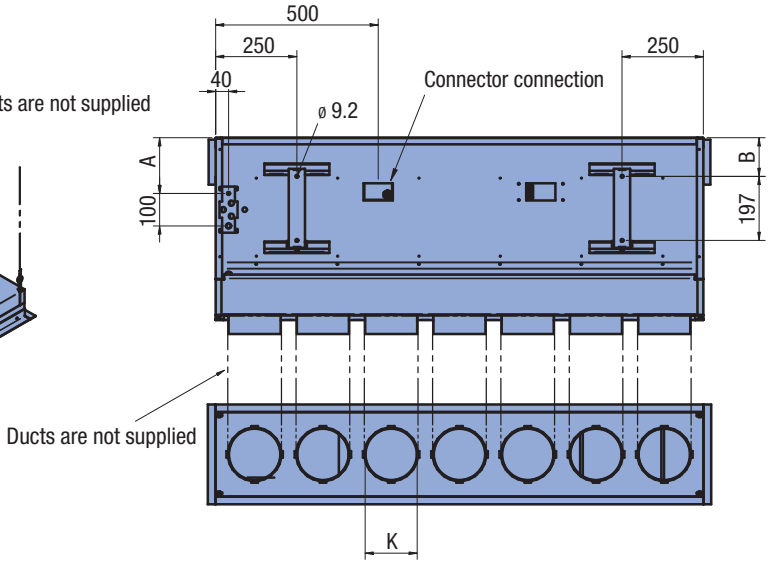
** CITYQ S-100 is not available*

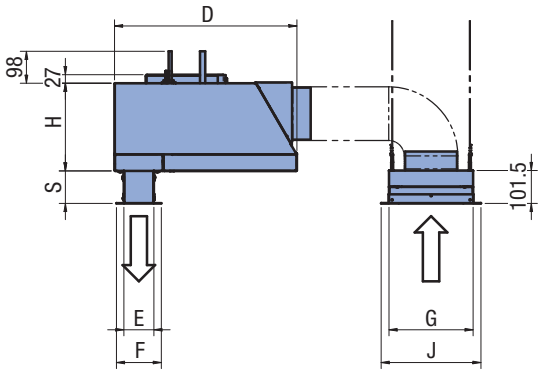
Notes

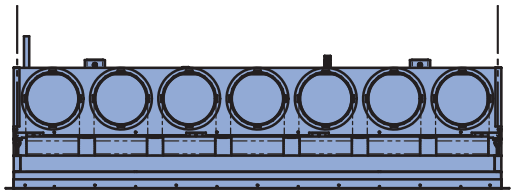
- *All dimensions are in mm.*
- *The units of 1000 mm wide have a separate electronic module.*
- *The units of 2500 mm wide have 3 suspension brackets.*

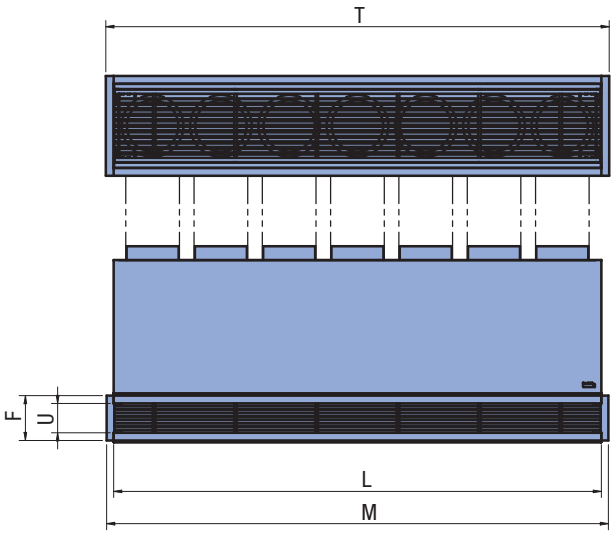
Dimensional sketches CITYQ
(R)Recessed model











Number of ducts per unit

Type	100	150	200	250
CITYQ S*/M	5	7	10	12
CITYQ L	3	5	6	8

Number of inlet grilles per unit

Type	Number	Length of inlet grille
CITYQ 100/150	1	1000/1500
CITYQ 200/250	2	1000/1250

Type	L	H	D	S	U	A	B	E	F	G	J	K	M	T
CITYQ S*/M	1000-1500	270	561	80-125	90	171	119	92	139	260	308	ø160	1044-1544	1048-1548
CITYQ L	2000-2500	370	745		121.5	245.5	200	123.5	170	360	408	ø250	2044-2544	2048-2548

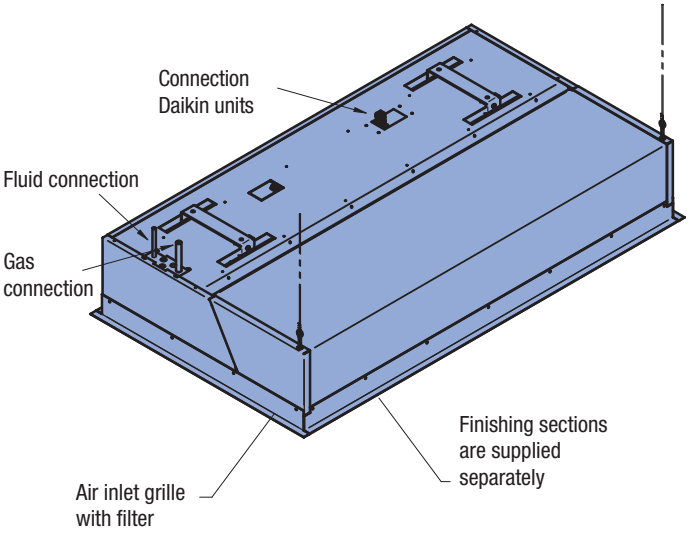
** CITYQ S-100 is not available*

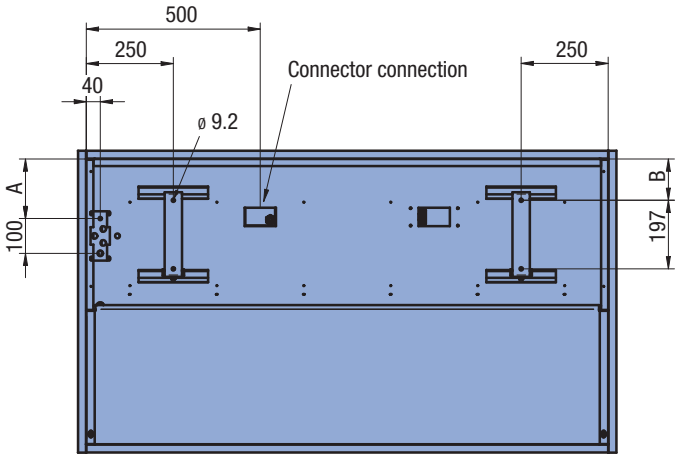
Notes

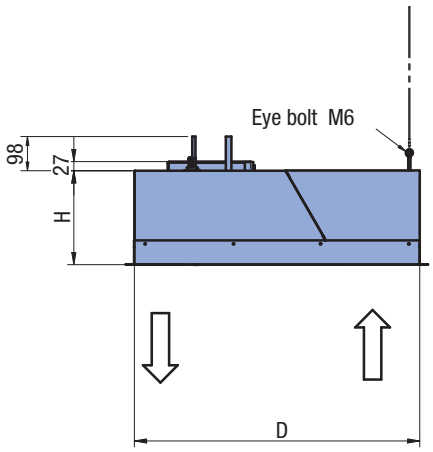
• All dimensions are in mm. • The units of 1000 mm wide have a separate electronic module. • The units of 2500 mm wide have 3 suspension brackets. • Daylight openings (if cover mouldings are used): - for air discharge :(L+8) x (E+8) mm - for air inlet: (L+8) x (G+8) mm. • If the recessed model is to be built into a cove, it is also available in a design that has no inlet air plenum or flexible ducts. To prevent bad air from let in, the cove will need to be air-tight.

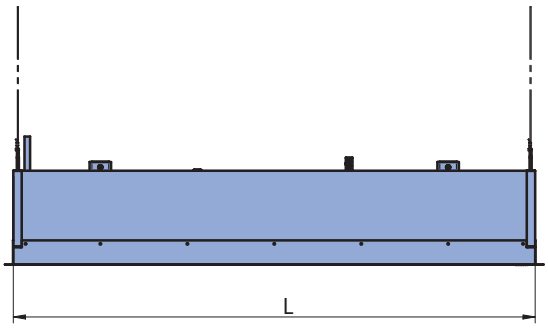
Dimensional sketches CITYQ (C)

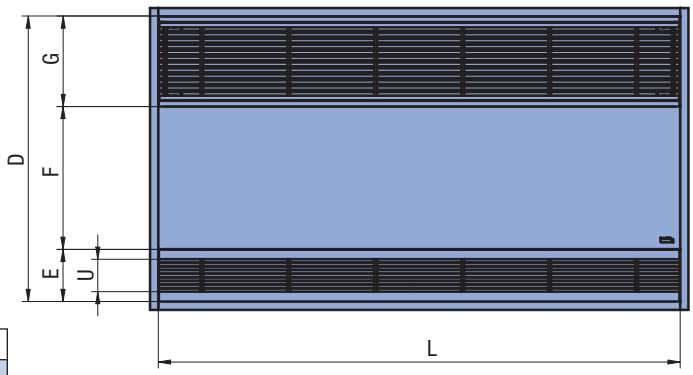
Cassette model











Number of inlet grilles per unit

Type	Number	Length of inlet grille
CITYQ 100/150	1	1000/1500
CITYQ 200/250	2	1000/1250

** 1 outlet grille per unit*

Type	L	H	D	U	A	B	E	F	G
CITYQ S*/M	1000-1500	270	821	93	171	119	150	411	260
CITYQ L	2000-2500	370	1105	124.5	245.5	200	181.5	563.5	360

** CITYQ S-100 is not available*

Notes

- *All dimensions are in mm.*
- *The units of 1000 mm wide have a separate electronic module.*
- *The units of 2500 mm wide have 3 suspension brackets.*
- *Daylight opening if cover mouldings are used in a suspended ceiling: (L+8) x (D+8) mm.*

Specifications

Casing

The casing of the air curtain is made of zincor plate with an inspection panel underneath.

Model CAV: anodised aluminium grilles with fixed blades have been mounted in the plastic inlet covers. The inlet covers, side guards and the casing come in the standard colours white (RAL 9016) and aluminium (RAL 9006).
Model CITYQ: zincor plates with holes have been mounted in the plastic inlet covers. The unit comes in the standard colours of white (RAL 9016) in combination with grey-white (RAL 9002), or entirely in aluminium (RAL 9006).
Other RAL colours for both models are available at an extra charge.

Motor / fan unit

The air curtain comes with two or more (depending on the model) dual-inlet, vibration-free suspended centrifugal fans. Each fan is driven by an external rotor motor on ball bearings, suspended on both sides. The fan casing and the impeller are made of sendzimir galvanised steel plate. The motors have been manufactured according to:

Model CAV: DIN 40050, protection class IP54 (CAV S/L) and IP00 (CAV M) with insulation class F and IP22 (CAV XL) with insulation class B.
Model CITYQ: EN 60-355, protection class IP44 (CITYQ S) or IP 54 (CITYQ M/L) and insulation class F.

The motors have standard thermal contacts. The thermal contact interrupts the electric circuit of the motor if the maximum permissible temperature of the motor is exceeded.

MADE IN HOLLAND

• ISO 9001
• ISO 14001

EUROPEAN PATENT

CE

Please contact Daikin for further information on Daikin systems.

Subject to change without notice

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Integration means savings!

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