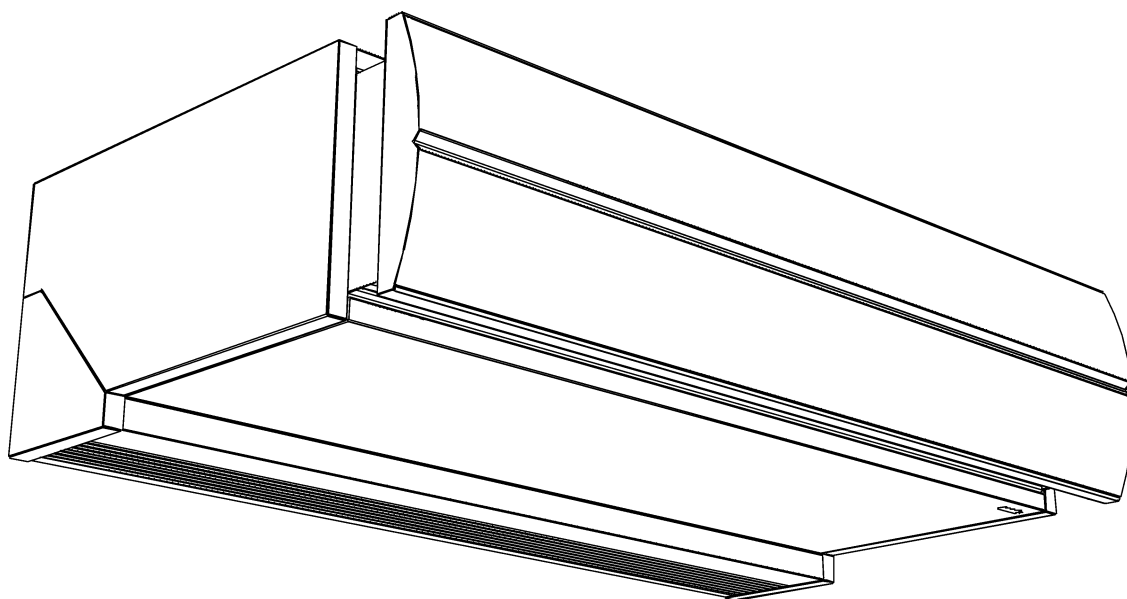


Installation, Operating And Maintenance Manual

Comfort Air Curtain

Model DF₂



Version 1.1
Original Manual

English



Biddle

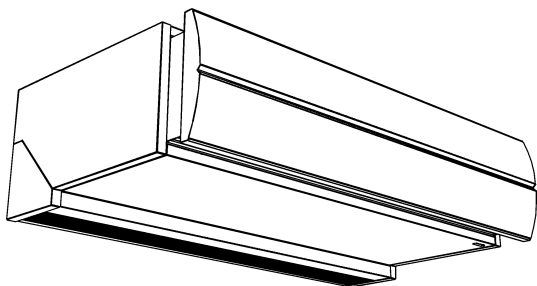
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I Introduction

I.1 About this manual



This manual describes the installation, operation and maintenance of the Model DoorFlow₂ Comfort air curtain. The manual also provides instructions and information about servicing.

I.2 How to read this manual

I.2.1 Designations used in the manual

The following symbols are used in the manual:



Note:

Refers to an important section in the text.



Caution:

If you do not carry out the procedure or action correctly, you may cause damage to the unit.

Follow the instructions precisely.



Warning:

If you do not carry out the procedure or action correctly, you may cause physical injury and/or damage.

Follow the instructions precisely.







Danger:

Is used to designate actions that are not permitted.

Ignoring this prohibition may lead to serious damage or to accidents resulting in physical injury.

1.2.2 Symbols used on the unit and in the manual

The following symbols indicate possible risks or hazards. The same symbols will also be found on the unit.

SYMBOL	DESCRIPTION
	 <p>You have accessed a section of the unit containing components which carry a voltage.</p> <p>Access restricted to qualified maintenance staff only.</p> <p>Caution is required.</p>
	 <p>This surface or component may be hot. Risk of burns on contact.</p>

1.2.3 Related documentation

In addition to this manual, the following documentation is also supplied with the unit:

- wiring diagram for installation and servicing.

This manual should be read in consultation with the manuals of the Daikin components (outdoor unit, indoor unit, control panel, etc.) that also form part of the system.

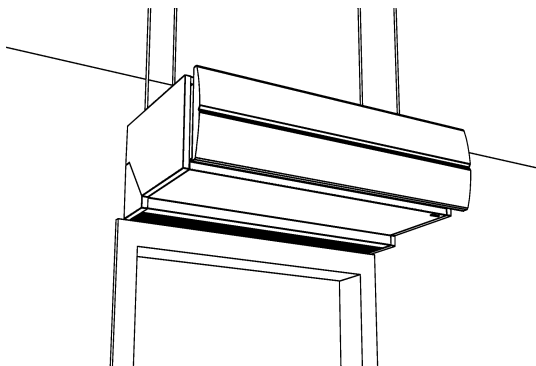
1.3 About the unit

1.3.1 Application and operation of the air curtain

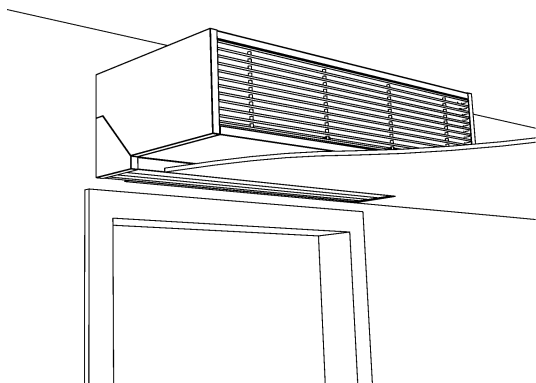
The air curtain is designed to separate indoor and outdoor climates. The unit draws air from the room and discharges it, either heated or not, across the width of the doorway. The air curtain removes the undesired effects of an open door by either reducing the exchange of indoor and outside air, by heating the entering air, or a combination of the two.

Mounting methods

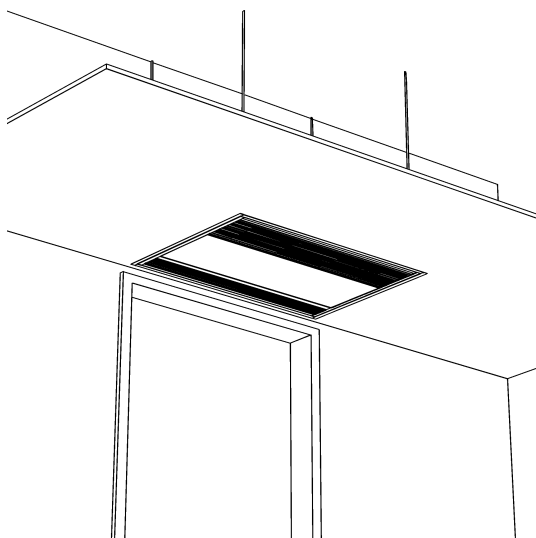
The free-hanging model (type F) is designed for free, visible installation above the door.



The recessed model (type R) is designed for integration into a false ceiling or into a cove, with the inlet opening possibly at some distance from the unit.



The cassette model (type C) is designed for installation above a false ceiling, with the inlet opening close to the unit and with easy access to the unit.



Other versions and intended use

Upon request, we can supply versions for non-standard applications.



Warning:

Applications other than those described above are deemed to be 'usage other than for the intended purpose'. Biddle is not liable for damage or loss resulting from usage other than for the intended purpose. Usage for the intended purpose also entails observance of the instructions in this manual.

1.3.2 Type designation

Type designations, when combined, form a unit type code, e.g.:

DF₂ S-100-W-F
DF₂ M-150-E-C

DF₂ L-200-A-R

Different combinations may arise.

Explanation of the type code

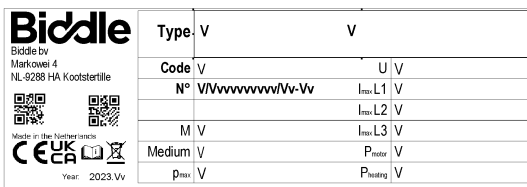
TYPE CODE ELEMENT	DESIGNATION	MEANING
product series	DF ₂	air curtain
capacity	S	small
	M	medium
	L	large
length	100, 150, 200, 250	discharge length (cm)
heating type	W	hot water
	E	electrical
	A	ambient
model	F	free-hanging model
	C	cassette model
	R	recessed model

1.3.3 Type plate

The type plate is located on the top of the unit.

Designations on the type plate

DESIGNATION	MEANING
Type	complete type code of the unit
N ^o	serial number, production week and year
M	weight of unit
Medium	medium
P _{max}	maximum permissible operating pressure
U	power supply voltage
I _{max}	max. current
P _{motor}	max. power consumption by fans
P _{heating}	For electrically heated models: max. power consumption by heating element



1.3.4 CE (and UKCA) declaration

The unit is compliant with the applicable CE standards. For the UK market, the unit is also compliant to the applicable UKCA standards. The Declaration(s) of Conformity can be found on the website.

1.3.5 Modifications and changes

Without our approval, no changes or modifications may be made to the unit that could adversely affect safety. The CE (and UKCA where appropriate) declaration is no longer valid if the unit has been modified or changed in any way.

1.3.6 Components and accessories

For all models (optional):

- control panel (can be used for multiple units)
- control cable – Type RJ4
- door contact switch
- BMS connectivity module (Modbus or Bacnet)

For water-heated models (Type W):

- **optional:**
2 port valve for water-side control (sold separately)

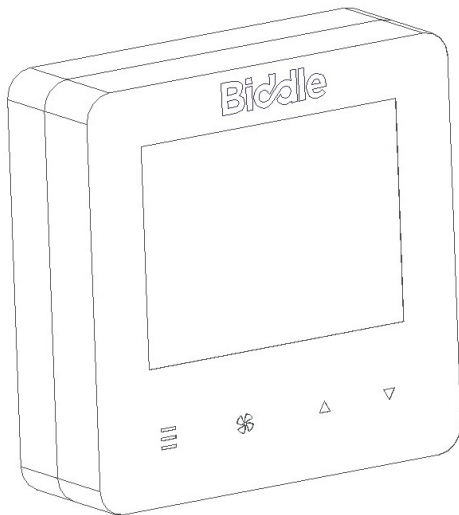


Note:

The unit is fitted with a three-way valve as standard.

For recessed models (Type R):

- telescopic discharge duct (supplied)
- **optional:**
inlet grille for installation in alcove (supplied separately)



1.4 Restrictions on use

1.4.1 Field of application

- The unit may only be used indoors.
- The unit is suitable only for dry and non-dusty environments.

- The unit is not to be used in an environment where corrosive or chemically aggressive gases or vapours are present.
- The unit is suitable for ambient temperatures from 0°C to 40°C.

These restrictions also apply to the control unit and/or control panel.

I.4.2 Required skills

- You must be technically qualified to install, maintain or service the unit in accordance with local legislation, regulations and standards.
- For operation in daily use, no special skills are required.
- The product is installed, such that children of less than 3 years should be kept away unless continuously supervised. Where this is not possible and higher water temperatures are used Biddle recommend the unit's casework should be tested to ensure that it doesn't become too hot with the potential to cause burns. Children aged from 3 years and less than 8 years shall only switch on/off the appliance provided that it has been placed or installed in its intended normal operating position and they are supervised or have been given instruction concerning use of the appliance in a safe way and understand the hazards involved. Children aged from 3 years and less than 8 years shall not plug in, regulate, clean the appliance or perform user maintenance (as stated in EN 60335-2-30 clause 7.12). Where operation of the product is to be limited to certain persons only, Biddle recommend installing the controls in a suitable locked cupboard or similar.
- This product can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the product in a safe manner (as stated in EN 60335-1 clause 7.12)



Danger:

Do NOT attempt to install, maintain or service the unit unless you are adequately qualified to do so.

1.4.3 Application limitations with water heating

Application limitations for units with water heating

Heating medium		water with max. 20% glycol
Maximum water temperatures	W2	90/70 °C
	W4	70/50 °C
Max. discharge temperature	types S/M	55 °C
	type L	45 °C
Maximum operating pressure		8 bar

1.5 Safety instructions

1.5.1 Safety in use



Warning:

Do not put any objects into the inlets and outlets.



Warning:

Do not obstruct the unit's inlets or outlets.



Warning:

The upper surface of the unit becomes hot during operation.



Caution:

In exceptional situations, water may run out of the unit. Therefore, do not place anything under the unit that could be damaged as a result.

1.5.2 Safety issues relating to installation, maintenance and servicing



Danger:

The unit may only be opened by qualified technical staff.



Warning:

Perform the following actions before opening the unit:

1. Switch the unit off, using the control panel.
2. Wait until the fans have stopped.



**Danger:**

The fans may continue rotating for a while.

3. Allow the unit to cool down.

**Caution:**

The heat exchanger or the heating elements, can get very hot.

4. Disconnect the mains supply (remove plug from the power socket or turn off at the isolation switch).
5. **For water-heated models:**
isolate the water connections.

**Warning:**

The fins of the heat exchanger are sharp.

2 Installation

2.1 Safety instructions



Warning:

Installation activities may only be performed by technical staff qualified for this purpose.



Warning:

Before starting installation: read the safety instructions.

See also:

1.5 "Safety instructions" on page 9

2.2 Inspection on delivery

- Check the unit and the packaging to ensure that they have been delivered in good order. Notify the supplier and, if possible, the driver immediately if any shipping damage is detected.
- Ensure that all components are present. Notify supplier of any missing parts immediately.

2.3 General working method

2.3.1 Sequence of operations

Biddle recommends working as follows when installing the unit:

1. Hang the unit up.
2. **For models with water-heating (type W)** : connect the unit to the central heating system.
3. Install the Daikin components in accordance with the relevant Installation manual(s).
4. Connect the unit to the mains supply.
5. Install the optional control panel and any required connections to external controls.

6. Complete the installation of the unit.
7. Connect the unit to the Daikin system.
8. Switch the mains supply on and check that the unit is working properly.
9. Connect the unit to any building management systems (if required).
10. Download and install the app from the Google Play Store or Apple App Store and link to the unit (if required).

General instructions

Some parts of this section only apply to certain models. Where this is the case, it will be indicated. If no specific model is referred to, then the description applies to all models.



Note:

Make sure that you perform all installation operations that are applicable to your unit.

Check the type plate and consult the manual if in doubt about the model or type of your unit.



Note:

During the installation period, protect the unit against damage and penetration of dust, cement, etc. You can, for instance, use the packaging for protection.

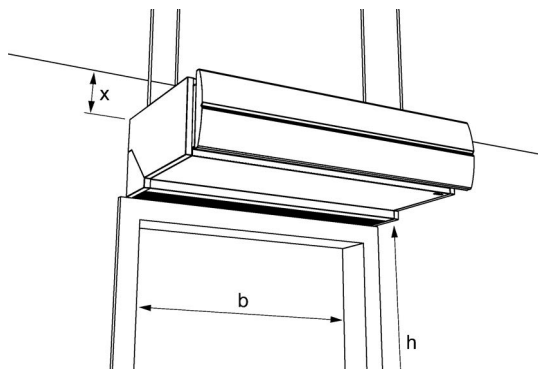
See also:

- 1.4 "Hanging the unit up" on page 3
- 1.5 "Connecting the unit to the central heating system" on page 7
- 1 "Connecting the mains supply" on page 1
- 1.7 "Installing the control panel and external controls" on page 12
- 1.8 "Finishing the unit" on page 24
- 1.9 "Power on and check operation" on page 26

2.4 Hanging the unit up

2.4.1 Determining the location of the unit

- Make sure that the structure from which the unit is about to be suspended can bear at least 4 times the weight of the unit. The unit's weight is indicated on its type plate.



- Note the following dimensions:
 - The unit must be at least as wide as the door opening (dimension b).
 - Position the unit as near to the doorway as possible.
 - Position the unit as close to the top of the door as possible.



Warning:

The minimum installation height (dimension h) is 1.8 m.

- **If the unit is mounted against the ceiling:** Make sure that air can enter the unit freely above the unit.



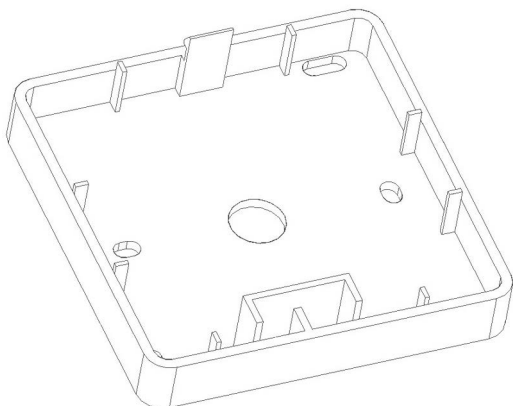
Warning:

The top of the unit may get hot. The unit should be placed with at least 25 mm ceiling clearance (dimension x).

See also:

1.3.3 "Type plate" on page 6

2.4.2 Mounting the optional remote control



1. Identify a suitable place for the wall controller to be mounted. This should be away from direct sunlight in a place where tampering is not likely to affect the operation of the unit. If the sensor in the wall controller is being used to control the heating, then ensure it's sufficiently exposed to the room temperature.
2. Install the control cable between the unit and where the wall controller is to be positioned.
3. Open the casing.
4. Affix the back of the casing to the wall using 2 screws over the cable.
5. Plug the cable into the connector on the back of the wall controller.
6. Close the casing.
7. Terminate the other end of the cable into the top of the unit.

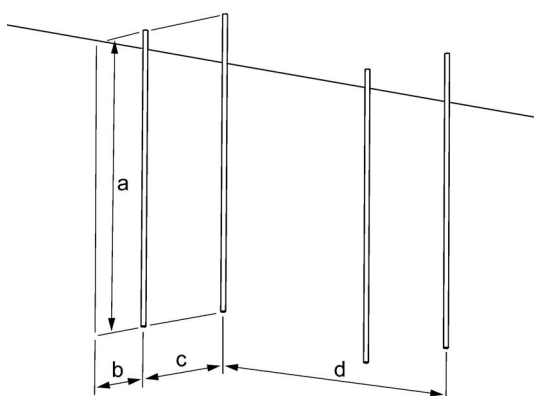


Note:

Leave approximately 20cm of slack in the cable above the unit to make serving the unit easier in the future.

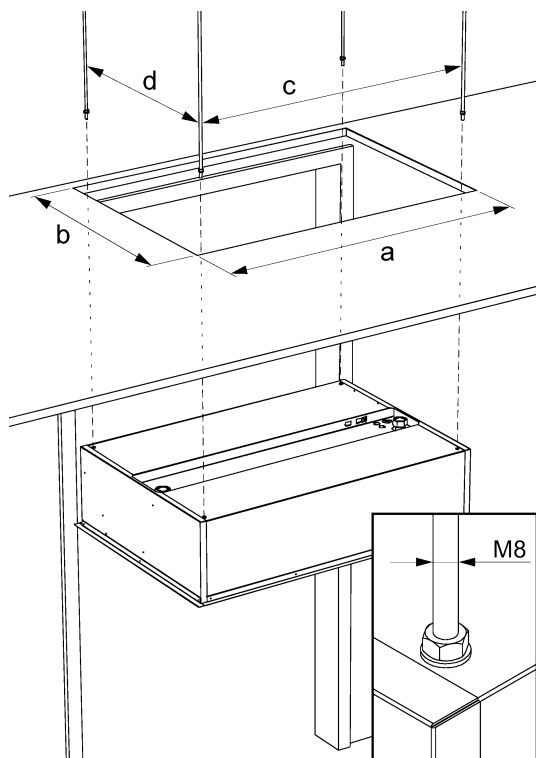
2.4.3 Suspending and securing the unit

1. Position the four M8 screw threads. Make sure the threaded rods are perpendicular.



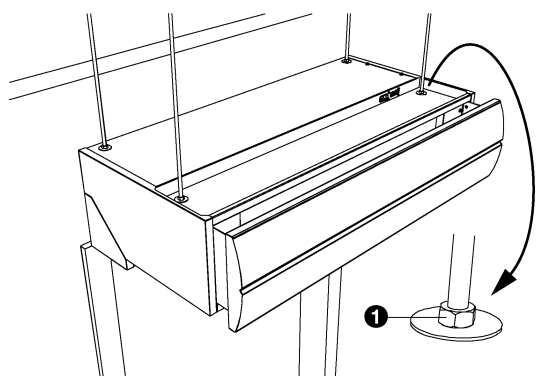
Dimensions for free-hanging and recessed units

SIZE	TYPE	DIMENSIONS
a	all DF ₂ F, R	as needed
b	all DF ₂ F, R	35 mm
c	all DF ₂ F, R	290 mm
d	DF ₂ 100-F, 100-R	896 mm
	DF ₂ 150-F, 100-R	1396 mm
	DF ₂ 200-F, 200-R	1896 mm
	DF ₂ 250-F, 250-R	2396 mm



Dimensions of hole and suspension for cassette model

SIZE	TYPE	DIMENSIONS
a	DF ₂ 100-C	1012 mm
	DF ₂ 150-C	1512 mm
	DF ₂ 200-C	2012 mm
	DF ₂ 250-C	2512 mm
b	all DF ₂ C	705 mm
c	DF ₂ 100-C	937 mm
	DF ₂ 150-C	1437 mm
	DF ₂ 200-C	1937 mm
	DF ₂ 250-C	2437 mm
d	all DF ₂ C	641 mm

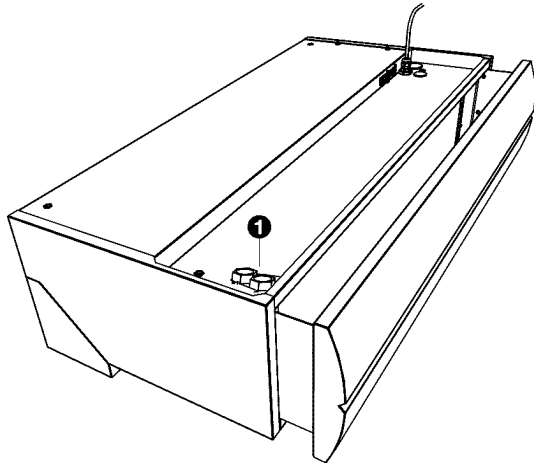


2. Screw a lock nut **1** onto each threaded rod.
3. Attach the unit to the threaded rods.
4. Secure the unit by tightening the lock nuts **1**.

2.5 Connecting the unit to the central heating system

See also:

1.2.2 "Opening the unit" on page 2



2.5.1 Special points



Caution:

The central heating system's supply and return pipes must be attached to the correct corresponding connectors ❶. On the unit, the directions are indicated with arrows.

- Keep the connectors ❶ in place by using pliers when connecting the pipes.
- Insert an isolation valve and a bleed valve on both pipes close to the unit.

Application limitations for units with water heating

Heating medium		water with max. 20% glycol
Maximum water temperatures	W2	90/70 °C
	W4	70/50 °C
Max. discharge temperature	types S/M	55 °C
	type L	45 °C
Maximum operating pressure		8 bar

2.5.2 Frost protection

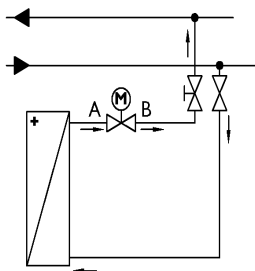
Take the following precautions if you install the unit in a room where frost may occur:

- Ensure constant circulation of the water at the right temperature;
- Add up to 20% glycol to the water when the unit is not in operation during the wintertime;
- Or bleed the system and the unit.

2.5.3 Connecting the water-side control

The unit is fitted as standard with a connected three-way valve inside the unit.

If a two-port valve is opted for (accessory), the valve is supplied separately. In that case, connect the valve as follows:



1. Connect the unit and the two-way valve to the central heating system as shown in the diagram.
2. Connect the valve's plug to the unit's plug.
3. Open the valve manually using the handle (Position 'MAN').
4. Fill and bleed the system.
5. Check the connections for leakage.
6. Return the handle to its starting position (Position 'AUTO').

2.6 Connecting the unit to the mains supply

2.6.1 Special points

For all models:



Warning:

The unit must be earthed.



Warning:

The unit must be connected in accordance with the applicable local requirements.

For water-heated models and models without heating:

- The unit can be switched on and off from the power supply. This requires that the control panel be configured for this purpose.
- ***If, on delivery, the unit is equipped with a mains supply cable with plug:***
Ensure that an earthed power socket is available no further than 1.5 m from the connection side of the unit.
- ***If the unit is not equipped with a power supply cable:***
Connect the unit to the mains using a power cable (not supplied). Maximum ratings are specified on the type plate.

It must be possible to disconnect the unit from the mains supply. You may choose to use either a plugged mains power cable or an isolation switch.

For electrically heated models:**Warning:**

Do not turn unit ON/OFF at its power supply. Use the control panel.

- Connect the unit to the mains using a power cable (not supplied). Maximum ratings are specified on the type plate.
- An isolation switch (not supplied) must be fitted between the unit and the mains supply. This switch must:
 - be all-pole;
 - be able to be isolated and locked off;
 - have a contact separation of at least 3 mm;
 - be positioned no more than 4 m from the connection side of the unit.

See also:

1.3.3 "Type plate" on page 6

2.6.2 Fuse ratings**Warning:**

Each unit must be fused in accordance with the table below.

**Warning:**

Electrical models (type E) must each be individually fused in accordance with the table below.

Fuse ratings

MAXIMUM AMPERAGE ON TYPE PLATE L1, L2 OR L3	MAXIMUM FUSE VALUE A
≤ 10A	16 A
≤ 20A	25 A
≤ 25A	35 A
≤ 35A	50 A
≤ 50A	63 A
≤ 65A	80 A
≤ 80A	100 A
≤ 102A	125 A

**Note:**

A single fuse may only be used for multiple units if they draw a total current of less than 10A.

2.6.3 Connecting the unit

For water-heated models (type W) and models without heating (type A):

1. Insert the plug into the power socket only after installation has been completed.

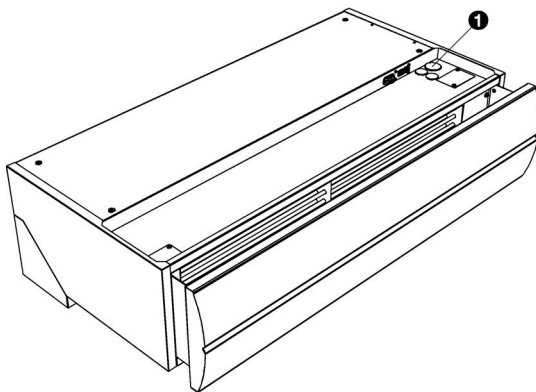
For electrically heated models (type E):



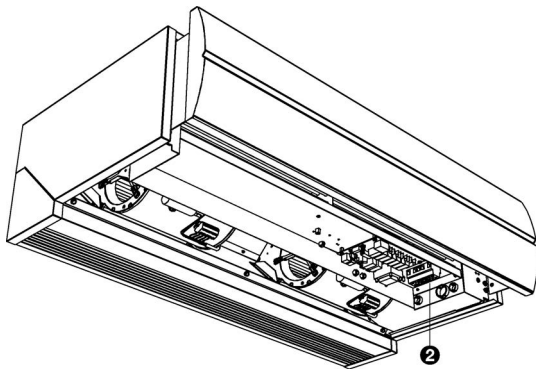
Warning:

Only connect the unit if you are qualified to work on three-phase power systems.

Make sure that the mains supply group with which you are working has been turned off.



1. Fit an isolation switch between the mains supply and the unit, and connect this to the mains supply.
2. Open the unit.
3. Feed the mains power cable through the cable gland ①.



4. Connect the cable to the unit's power terminal ② as shown in the wiring diagram.
5. Connect the mains power cable to the isolation switch.



Caution:



Do not switch on the mains supply yet.

See also:

1.2.2 "Opening the unit" on page 2

2.7 Installing the control panel and external controls

2.7.1 Multiple units operated from a single control panel

- A maximum of eight units may be connected to a single control panel.
- Units are daisy chained using Biddle control cables and connectors  and .
- The total length of the control cables (from the control panel to the last unit connected) may not be any longer than 30 m.
- Configure any one unit as a master. The sequence of the connected units is not important.



Note:

Do NOT remove the external control input bridges on the other units.

Master and slave units

With master and slave units, only the temperature sensor and external controls (connected to IN1 and IN0) on the master device are used. This prevents units from heating up with a wide door while other units are simultaneously discharging unheated air.



Note:

If no master unit is set, the temperature control operates independently for each unit.

See also:

- | *"External control input" on page 1*
- | *"Unit settings" on page 1*

2.7.2 Unit settings



Warning:

Disconnect the unit from the power supply before making any changes.

Several dip switches are located on the unit's control circuit board. These are factory set to suit the unit type. You should set the dip switch 3 to on for the master, and off for the slave units.



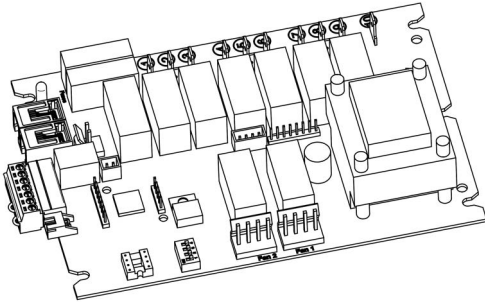
Warning:

For electric heating units: Only dip switch 3 can be set by the installer. Dips 1, 2 and 4 are factory set and should not be adjusted to alternative values.



Warning:

For water and ambient units: Only dip switch 3 and 4 can be set by the installer. Dips 1 and 2 are factory set and should not be adjusted to alternative values.



Standard operation for electric units (dip switches 1 and 2 on, 4 off):

- High heat operates on medium or high fan speed.
- Fan will continue to run on after switching the unit off to allow residual heat to be dissipated.
- Discharge temperature is automatically limited using INI terminals.

Standard operation for water and ambient units (dip switches 1, 2 and 4 off):

- High heat operates on all fan speeds.
- Fan will continue to run on after switching the unit off to allow residual heat to be dissipated.
- Discharge temperature is automatically limited using INI terminals.

For water and ambient units, to enable the doorswitch control, set dip switch 4 to on.. Please refer to 'External control inputs' section.



Note:

Changes made to the dip switches are only put into effect after the power supply to the unit has been cut off.

2.7.3 External control inputs

The inputs are suitable for potential-free switches, which can be connected using a 2-core cable.



Note:

Leave approximately 20cm of slack in the cable above the unit to make serving the unit easier in the future.



Danger:

Do not connect any power supply to the contact. This could damage the circuit board.

Input IN0

A door contact switch or building management system can be connected to input IN0.

- The connector is located on top of the unit with a removable connector block (labelled X73).
- This connector is fitted with a bridge on delivery.

Working of the input

CONTACT CLOSED	CONTACT OPEN
unit operates normally (by remote control)	<ul style="list-style-type: none"> • the fans and heating continue as normal for 15 secs. • then the fans run for another 2 min. at medium speed and the heating is switched off. • finally the fans switch off.

Input IN1

For units without heating and water-heated units only




Note:

On units with electrical heating (type E), IN1 is used by a thermostat.

A door contact switch or weather-responsive control can be connected to input IN1.

- The connector is located on the control circuit board (IN1).
- The function of IN1 is determined by DIP4 in the unit (door contact switch or weather-responsive control).
- This connector is fitted with a bridge on delivery.

Working of the input

DIP 4	FUNCTION INI	CONTACT CLOSED	CONTACT OPEN
ON (ON)	Door contact switch	Door is closed: <ul style="list-style-type: none"> heating switches off after 30 sec. fans switch to low speed after 30 sec. 	Door is open: <ul style="list-style-type: none"> unit operates normally (by remote control)
		 Use IN0 for the door contact switch to switch off the fans when the door is closed.	
OFF	Weather-responsive control	outdoor temperature is lower than setting: <ul style="list-style-type: none"> unit operates normally (by remote control) 	outdoor temperature is higher than setting: <ul style="list-style-type: none"> heating switches off immediately. the fans continue to run at the current speed.

2.7.4 Weather-responsive control (only for water heating units)

To save energy on warmer days, you can use a weather-responsive control that turns off the heating when outdoor temperatures are high.

1. Place an outdoor temperature thermostat with volt free contacts on a north-facing exterior wall.

**Danger:**

Do not connect any power supply to the contact. This could damage the circuit board.

2. Set the outdoor temperature thermostat to the temperature at which the unit's heating is to be switched off.
3. Connect a 2-core cable to the outdoor temperature thermostat.
4. Connect the cable to input INI on the control circuit board in the unit:
 - contact is closed (heating switched on) when the outdoor temperature is lower than the set temperature on the thermostat.

- contact is open (heating switched off) when the outdoor temperature is higher than the set temperature on the thermostat.
5. DIP switch 4 on the control circuit board must be set to OFF(off) (see [Unit settings](#)).

2.7.5 Fault signal output

The unit is fitted with a output for error messages.

This is a potential-free contact. It can be loaded to a maximum of 1A 24V SELV.

On units with electrical heating (type E), this contact is activated if the high-limit thermostat has switched off the unit.

See the Service chapter for details of how to reset the high-limit thermostat.

- The OK-C contact is made when the unit is powered.
- The C-⚠ contact is made when the maximum thermostat has switched off the unit or when the unit is not powered.

2.7.6 Controller Advanced Settings

The controller advanced settings should be set up when the unit is installed. Please change them as required. Long press both 'Up' and 'Down' buttons on the Controller to access advanced settings menu.

Variable	Feature	Explanation	Default	Notes
----------	---------	-------------	---------	-------

01	Flag 01 Reset On Power Up	On restoring power after an electrical interruption all Controller settings are retained. WARNING! – Fans start on their own after power is restored	01	Press Home button to select Flag 01 or Speed button to select Temperature Scale feature. Press Up or Down buttons to change Flag 01 variable value
	Flag 02 Stop Fan on Cold	In Auto mode, if heating, fan stops after fan run-on	00	Press Home button to select Flag 02. Press Up or Down buttons to change variable value
	Flag 03 Never Blow Cold	Air curtain always heats in AUTO mode	00	Press Home button to select Flag 03. Press Up or Down buttons to change variable value
	Flag 04 Room Air Temperature Control	Enables the room air sensor in the Remote Control	00	Press Home button to select Flag 04. Press Up or Down buttons to change variable value. 00 - board sensor active; 01 – controller sensor active
02	Temperature Scale	°C or °F	°C	
03	Manual or Automatic Timer Mode	Manual working (M) or automatic timer (A) control	M	
04	Overheat Protection	Range is 20 °C to 90 °C	40°C	
05	Low Heat Protection	Range is 0 °C to 30 °C	5°C	
06	Starting Temperature Difference	Hysteresis can be set to between 1 °C and 9 °C	2°C	
07	Temperature Compensation	Adjustment can be made between -9 °C and 9 °C	0°C	
08	Maximum Target Temperature	Maximum setting temperature can be set to between 35 °C and 90 °C	35°C	
09	Minimum Target Temperature	Minimum target temperature can be set to between 0 °C and 30 °C	5°C	

10	Screen Backlight Brightness	Range is 1 to 90	20	
11	Version	Check firmware versions	--	Version value depends on Controller firmware
12	Reboot Controller	System reboots	--	Press Up button followed by Home button
13	Factory Settings	Factory settings are reset	--	Press Down button followed by Home button

When feature variable value is changed, press Home button on Controller and power unit OFF and ON to save new variable value.

2.8 Finishing the unit

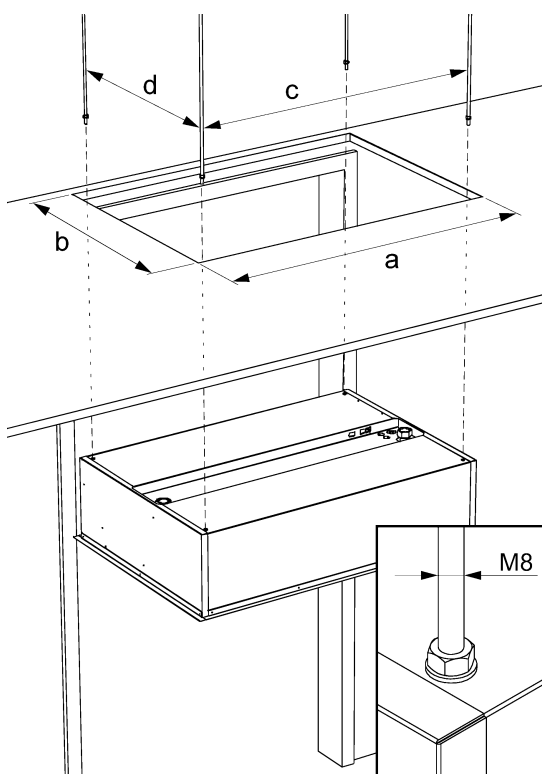
2.8.1 Edge finishing

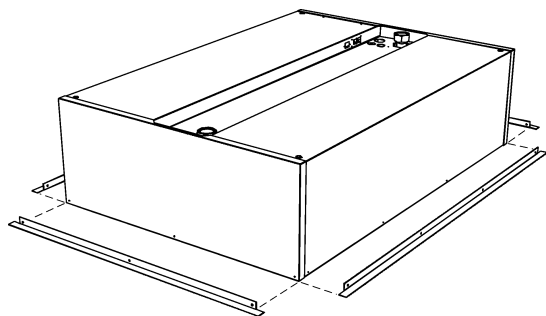
Only for cassette model (type C):

1. Make a hole in the ceiling for the unit.

Dimensions of hole and suspension for cassette model

SIZE	TYPE	DIMENSIONS
a	DF ₂ 100-C	1012 mm
	DF ₂ 150-C	1512 mm
	DF ₂ 200-C	2012 mm
	DF ₂ 250-C	2512 mm
b	all DF ₂ C	705 mm
c	DF ₂ 100-C	937 mm
	DF ₂ 150-C	1437 mm
	DF ₂ 200-C	1937 mm
	DF ₂ 250-C	2437 mm
d	all DF ₂ C	641 mm



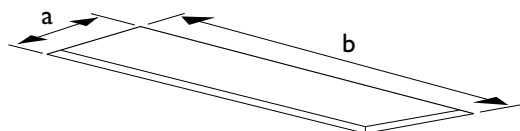


2. Attach the angle sections using the screws supplied along the unit's edges.

2.8.2 Attaching discharge section

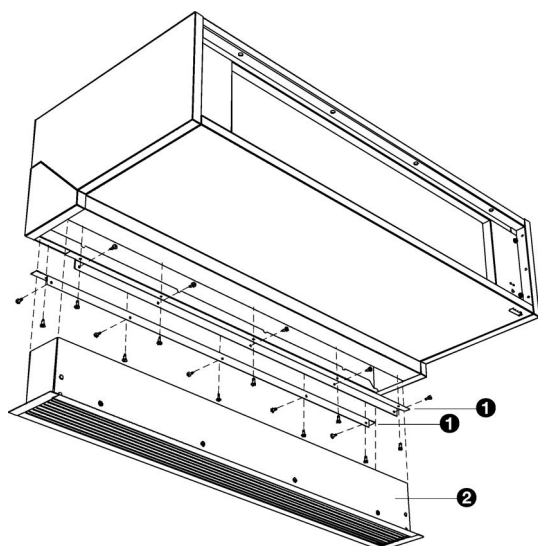
Only for recessed models (Type R):

1. Make a hole in the ceiling for the discharge.

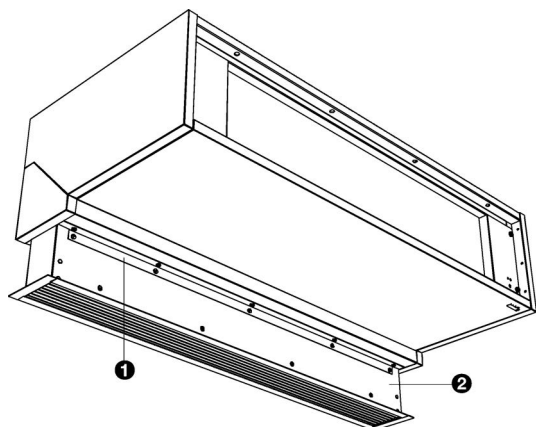


Discharge section hole dimensions

SIZE	TYPE	DIMENSIONS
a	R	90 mm
b	100-R	970 mm
	150-R	1470 mm
	200-R	1970 mm
	250-R	2470 mm



2. Attach the two angle sections ❶ to the unit along the discharge openings' edges using the screws supplied.
3. Extend the telescopic discharge grille ❷ into the unit's discharge opening until it reaches the required height.



4. Attach the discharge duct to the angle sections ❶ using the screws supplied.



Caution:

For the unit to work properly, it is essential that there are sufficient openings in the alcove or ceiling for air to enter the unit.

2.9 Power on and check operation

For all models:

1. Close all access panels.
2. Check the following connections:
 - power supply;
 - control cable(s) between control panel and unit(s);
 - **If applicable:** external controls.
3. Turn on the power supply and/or put the plug in the socket for all connected devices.
4. Start up the air curtain with the control panel.
5. Check that all connected appliances blow air across the entire width of each appliance.

Models with water heating:

1. Check that the heat exchanger and control valve are connected correctly.
2. Make sure that the central heating system is switched on.
3. Turn on the heating with the control panel.
4. Feel whether the blown air stream becomes warm at all connected devices. This may take some time.
5. If necessary, vent the heat exchanger.

For models with electric heating:

1. Turn on the heating using the control panel.

2. Feel whether the blown air stream becomes warm for all connected units, over the entire width of each device.

2.10 App Installation

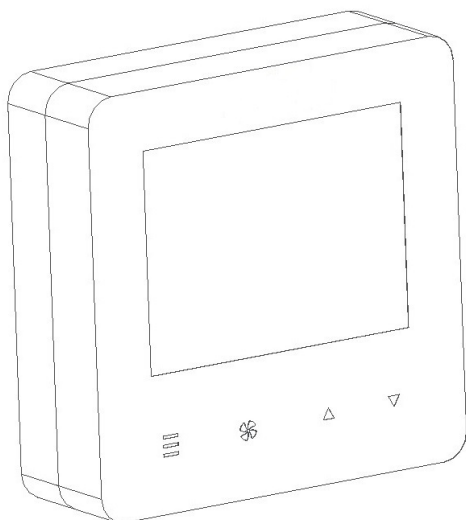
For all models (Optional):

This product can be controlled on an Android or Apple device over Wifi to start/stop the unit, adjust heating outputs, timer settings and lock/unlock the keypad. As part of the installation, the product must connect to the building's 2.4GHz wifi connection and the unit will be linked to a user account. Biddle therefore recommends to only complete this step when the project has been handed over to the end user.

When you wish to connect the unit to the app, please download our manual from the Biddle webpage, the address is available on the back pages of the manual.

3 Operation

3.1 Introduction



This section describes the functions you should know for the day-to-day use of the unit.

The control panel is provided with four touch-buttons. These keys allow the user to make the following settings:

- Switching the unit ON and OFF: button ☰.
- Controlling the fan speed: button 🌀.
- Adjusting temperature or heating: buttons ▲ and ▼.

If multiple units have been connected to a single control panel, then settings apply to all units.

3.2 Switching the unit ON and OFF

- Press button ☰ for two seconds to switch the unit ON or OFF.



Note:


Electrical heated units will continue to run for 2 minutes after being switched off to allow the residual heat to dissipate.

3.3 Controlling the fan speed


- Press button 🌀 to set the fan speed:
 - Low 🌀 ▮
 - Medium 🌀 ▮▮
 - High 🌀 ▮▮▮

3.4 Control temperature or heating

Automatic or manual control



- Press briefly on button  to switch the unit between automatic (**A**) and manual mode (**M**).

Automatic temperature control

This temperature is measured at the unit's air inlet and may deviate slightly from actual room temperature. The air intake temperature is shown on the control panel next to the  symbol

Manual temperature control

In manual mode, heating can be set to full or reduced capacity, or turned off.

- Press button  to reduce the heating setting by one level.
- Press button  to increase the heating setting by one level.



Caution:

The highest heating level will only be switched on at high fan speed.

4 Maintenance

4.1 Cleaning the unit

You can clean the exterior of the unit with a damp cloth and a domestic cleaning agent. Do not use any solvents.



Caution:

Make sure that no water runs into the unit.

4.2 Scheduled maintenance

It is recommended to have the following inspection and maintenance activities performed annually by an installer or other technical expert.

- Check the casing, the suspension or mounting structure, and the securing of the unit.
- Check that the heat exchanger or the electrical heating elements are clean. Settled dust may cause an unpleasant smell.

Carefully remove dust with a vacuum cleaner.

- Check all connections of the cabling.
- Check the operation of the fans.

5 Errors

5.1 Safety instructions



Danger:

All work on the inside of the unit may only be carried out by personnel who are technically qualified to do so.



Warning:

Before you begin: read the safety instructions.

See also:

1.5 "Safety instructions" on page 9

5.2 Resolving simple problems

If you suspect a malfunction, first try to resolve the problem using the table below. You do not need to be an expert for this.

Solutions to simple problems

PROBLEM	PROBABLE CAUSE	SOLUTION
There is a draught.	Air curtain is turned off.	Turn the air curtain on.
	Air curtain is adjusted too low.	Switch the air curtain to a higher operating strength.
	Air curtain is adjusted too high.	Turn the air curtain down.
	The unit's heater has been turned off.	Turn the heater on.
	The heater is adjusted too low.	Turn the heater up.
It is too hot.	Space heating and air curtains are collectively producing too much heat.	<ol style="list-style-type: none"> 1. Turn space heating down. 2. Turn the unit down. 3. Turn the heater down.
It is too cold.	Room is too cold.	<ol style="list-style-type: none"> 1. Turn space heating up. 2. Turn the unit up. 3. Turn the heater up.
It is too noisy.	Air curtain is at highest setting.	Turn the unit down.

PROBLEM	PROBABLE CAUSE	SOLUTION
The unit is not working and the control panel LEDs are off.	The unit is switched off.	Turn the unit on.
	The unit has no power supply.	Check the mains supply: <ul style="list-style-type: none"> • is the plug in the socket? • Is the isolation switch on? • is there a voltage present?
The air curtain is switched off but is still working.	The unit cools off automatically.	This is not an error. The unit will normally shut down automatically within two minutes.

See also:



- | *"Starting and stopping" on page 1*
- | *"Adjusting the strength of the air curtain" on page 1*
- | *"Adjusting heating" on page 1*



5.3 Remedying faults


If you suspect a fault:

1. Check whether the problem can be easily resolved.
2. Try to resolve the problem using the table below. Technical expertise is required for this.
3. If you have identified a fault, and the previous section does not provide a solution, then contact the supplier.

Fault rectification (for qualified technical staff only)

PROBLEM	POSSIBLE CAUSE	SOLUTION
The control panel works normally but the unit does not respond.	The power supply to the fans is cut off.	<ol style="list-style-type: none"> 1. Check the fuses on the control circuit board. 2. Check wiring between the control circuit board and the fans.
	The connection between the control panel and the control circuit board is not correct.	<ol style="list-style-type: none"> 1. Check the control cable. 2. Check wiring between Connectors  and  and the unit's control circuit board.
	The contact on the external control input is open.	<ol style="list-style-type: none"> 1. If no external control is connected: Check the bridge at the input. 2. If an external control has been connected (door contact switch or BMS): Check the operation of the control component. 3. Check wiring and connection of control components to the input. 4. Check wiring between the input and the control circuit board (INHIBIT connector).
The unit is not working and the control panel LEDs are off.	The unit is not receiving power.	Check power supply connections, wiring and fuses.
	The connection between the control panel and the control circuit board is not correct.	<ol style="list-style-type: none"> 1. Check the control cable. 2. Check wiring between Connectors  and  and the unit's control circuit board.
	The control circuit board is not working.	<ol style="list-style-type: none"> 1. Check the control circuit board's fuse. 2. Check the power supply cable. 3. Replace the control circuit board.
	The control panel is faulty.	Check the control panel by connecting another unit. Replace the control panel if it is not working.
One fan does not work.	The fan is faulty or it is not receiving a power supply.	<ol style="list-style-type: none"> 1. Check the wiring of the fan. 2. Replace the fan.
Fans are not working at a particular speed level.	The connection at the particular fan speed level is faulty.	Check the fans' wiring.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Not all connected units are working (or only partially).	The control panel is not communicating with one or more connected units (or with one of the control circuit boards in a dual-control circuit board unit).	<ol style="list-style-type: none"> 1. Check that power is supplied to all connected units. 2. Check the control cables: <ul style="list-style-type: none"> • are they connected and free from breaks? • are they stretched out or rolled up neatly? (folded double before being rolled up) • are they shielded from magnetic fields? 3. Check the control circuit board's fuses in each connected unit. 4. Check wiring between Connectors  and  and the control circuit board(s).
<p>If several units are connected to a single control panel:</p> <p>The units (or part of a unit) are not responding uniformly to the external control (door contact switch or BMS).</p>	<p>The master unit (or the master control circuit board in a dual-control circuit board unit) has not been configured properly.</p>	<p>Check whether the unit to which the external control has been connected has been configured as the master.</p> <p>For dual-control circuit board units:</p> <p>Check whether the control circuit board on the connection side has been configured as the master.</p>
	<p>The contact on the external control input is open.</p>	<p>Check the input bridges on the units to which no external controls have been connected.</p> <p>For dual-control circuit board units:</p> <p>Check the input bridge on the secondary control circuit board.</p>
The unit is blowing out cold air.	<p>For water-heated units:</p> <p>The unit is not being supplied any hot water.</p>	<ol style="list-style-type: none"> 1. Check the central heating system. 2. Check whether the valve is allowing hot water to pass. 3. Check valve drive and inlet temperature sensor wiring and connectors. 4. Take the drive from the valve and check the interior for mechanical operation and defects.

PROBLEM	POSSIBLE CAUSE	SOLUTION
The unit (or part of the unit) is blowing cold air. The LEDs on the control panel are flashing.	<p>For electrically heated units: The temperature cut-out has turned the unit (or part of the unit) off to prevent overheating.</p> <p> This may indicate a serious fault that may be hazardous.</p> <p>This fault can also occur if the unit has been powered down for a short while.</p>	<ol style="list-style-type: none"> 1. Check and reset the temperature cut-out. 2. Check the fans. If one or more fans do not work, please check: <ul style="list-style-type: none"> • the fan wiring; • control circuit board connections • control circuit board fuses 3. If these are in order, then replace the fan.
Discharge air is not hot enough.	<p>For water-heated units: The supply water temperature is too low.</p> <p>For electrically heated units: One or more phases on the power supply have tripped out.</p>	<p>Raise the central heating system's water temperature.</p> <ol style="list-style-type: none"> 1. Check the power supply's fuses and electrical connections. 2. Check the control thermostat. These should be set to 60°C.
The unit continues to blow hot air.	<p>For water-heated units: The valve has been opened manually.</p>	<p>Turn the handle on the valve to the 'AUTO' position.</p>
The unit always blows cold air in automatic mode.	<p>The temperature sensor is not working.</p>	<ol style="list-style-type: none"> 1. Check Connector J3 on the control circuit board. 2. Replace the sensor.
<p>If multiple units have been connected to a single control panel: The units warm up unevenly in automatic mode.</p>	<p>The temperature is set independently in each unit.</p>	<p>Configure one unit as a master.</p>

See also:

- | "Control panel settings" on page 1
- | "External control input" on page 1
- | "Unit settings" on page 1
- | 1.7.1 "Multiple units operated from a single control panel" on page 12
- | 1.3 "Fuses" on page 6
- | "High-limit thermostat" on page 1

6 Service

6.1 Safety instructions



Warning:

Servicing activities may only be carried out by personnel who are technically qualified to do so.



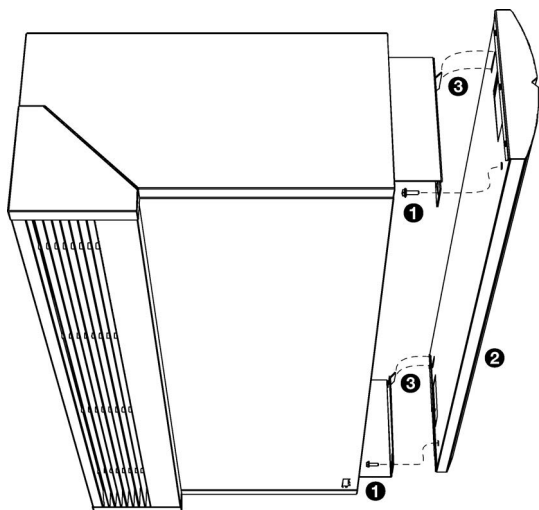
Warning:

Before you begin: read the safety instructions.

See also:

1.5 "Safety instructions" on page 9

6.2 Access



6.2.1 Removing the front panel

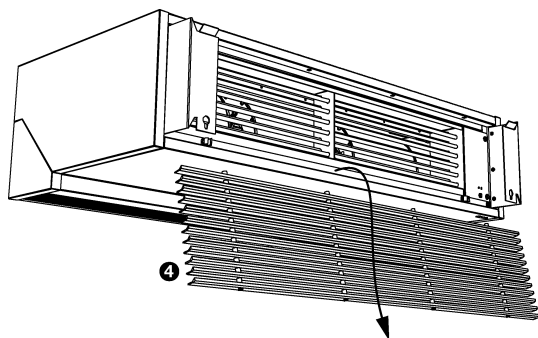
For free-hanging models only:

1. Remove the locking bolts ❶ from the front panel ❷.
2. Remove the front panel ❷ from its suspension hooks ❸.

6.2.2 Opening the unit

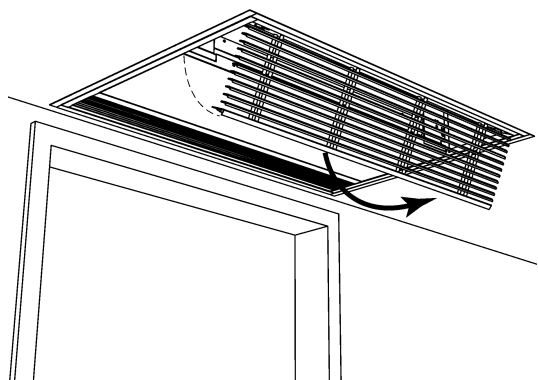
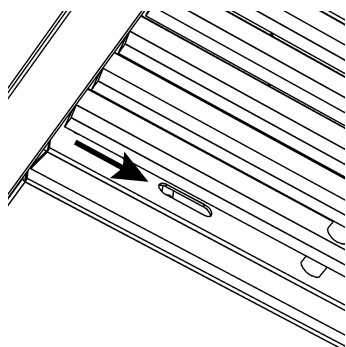
For free-hanging models (type F) and recessed models with electrical heating (types E-R) and models without heating (types A-R)

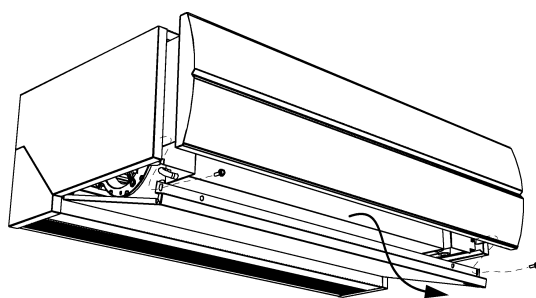
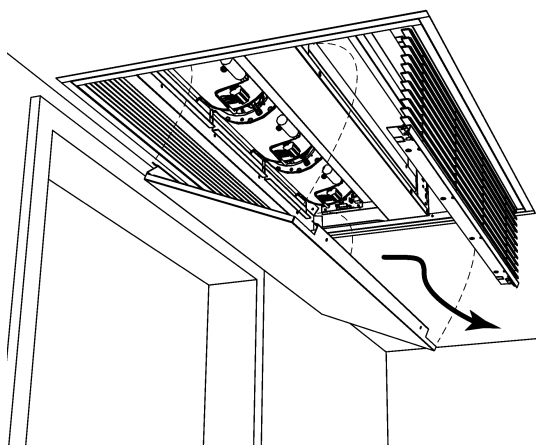
1. Remove the front panel, if necessary.
2. Remove the inlet grille ④.



For cassette models (type C)

1. Push the inlet grille's left- and right-hand latches towards each other. Use a screwdriver to do this.
2. Twist the inlet grille open and allow to hang freely.
3. Remove the inlet grille, if necessary, by opening the latches on the other side.





For all models

1. Remove the screws along the edge of the inspection panel.
2. Pull the panel forward a little and remove it.



Caution:

The entire panel comes free once pulled forward – make sure it does not fall.

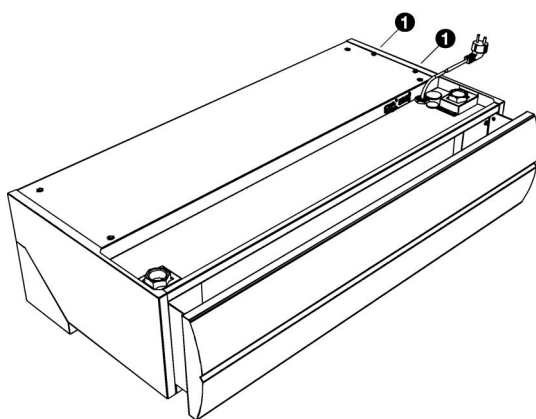
6.2.3 Removing the control circuit board

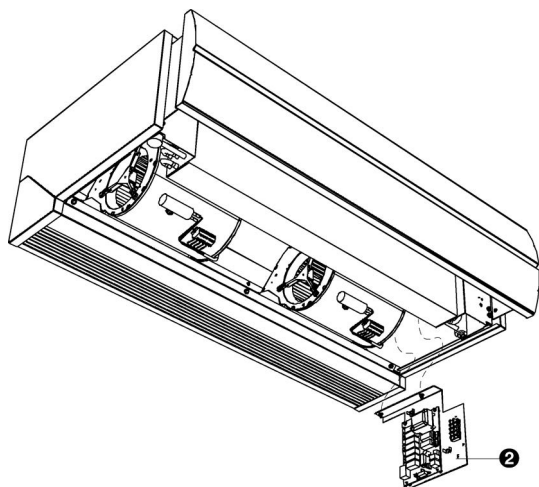
With all units:

1. Open the unit.

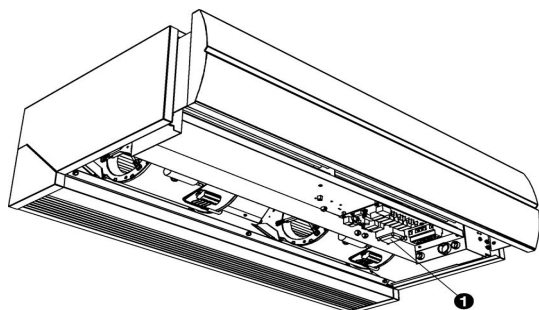
For water-heated units and units without heating:

1. Remove the screws ❶ on the top of the unit.





2. Remove the control circuit board ②.
3. Disconnect all unit-connected connectors and grounded connections from the control circuit board.



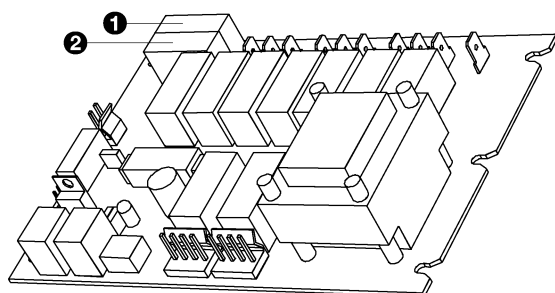
For electrically heated units:

1. Disconnect all connectors and earth contacts connecting the unit and control circuit board ①.
2. Remove the control circuit board.

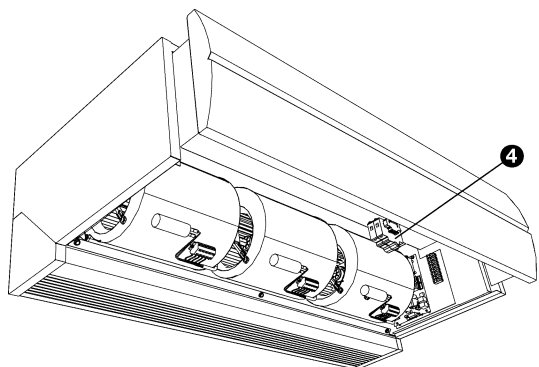
See also:

1.2.2 "Opening the unit" on page 2

6.3 Fuses



The unit's control circuit board has two fuses – ① and ②. Values have been marked on the PCB.



6.4 Resetting the high-limit thermostat

For electrically heated units only

The unit is equipped with a high-limit thermostat. An excessively high temperature in the unit with electric heating can cause the high-limit thermostat to be switched on.

When the high-limit thermal cutout has been activated an alarm symbol in the bottom left of the control panel screen will flash and the status LED on the circuit board in the unit lights red.

Make sure that sufficient air is being discharged from the air curtain before resetting the unit, and that the unit has been started up according to the instructions.

Check that all fans within the unit are running and none have stopped or seized.



Caution:

A power failure can cause the high-limit thermostat to trip.

6.4.1 Reset

1. Switch the power supply to the unit Off.
2. Allow the unit to cool down for 10 minutes.
3. Switch the power supply to the unit On again.
4. Press the ≡ button on the control panel eight times.

The unit will then start as normally and the alarm symbol in the bottom left of the control panel will stop flashing. The status LED on the circuit board inside the unit flashes green.

6.5 Biddle control cable composition

The control cable for the control system is constructed as follows:

- The plugs are modular, type 4P4C connectors.
- Connectors are untwisted, i.e. at both cable ends, cores are connected to the same electrode.

7 Dismantling

The dismantling of the installation and the handling of the coolant, oil and other components must be carried out by a qualified fitter in accordance with the relevant local and national legislation and regulations.

Pursuant to EU legislation, used electrical and electronic appliances must be collected for recycling. By ensuring that this product is disposed of in the correct manner, you are helping to prevent potential negative consequences for the environment and public health. For more information about this, please contact your supplier or the relevant government authority.

8 • Addresses

If you have any comments or queries relating to this product, please do not hesitate to contact your Biddle branch.

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For the warranty and liability provisions and terms, please refer to the terms & conditions of sale and supply.

At all times, Biddle shall not be held liable for consequential damages.

Liability as regards the manual

Although great care has been taken to ensure the correct and, where necessary, complete description of the relevant components, Biddle shall not be held liable for damages as a consequence of errors and/or imperfections in this manual.

Biddle reserves the right to alter the specifications as mentioned in this manual.

Should you nevertheless discover any errors or ambiguities in the manual, we shall be glad to learn that from you. It helps us to improve the documentation still further.

For more information

If you have any comments or queries relating to this product, please do not hesitate to contact Biddle. You will find the contact information for your Biddle branch in the Addresses chapter.

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