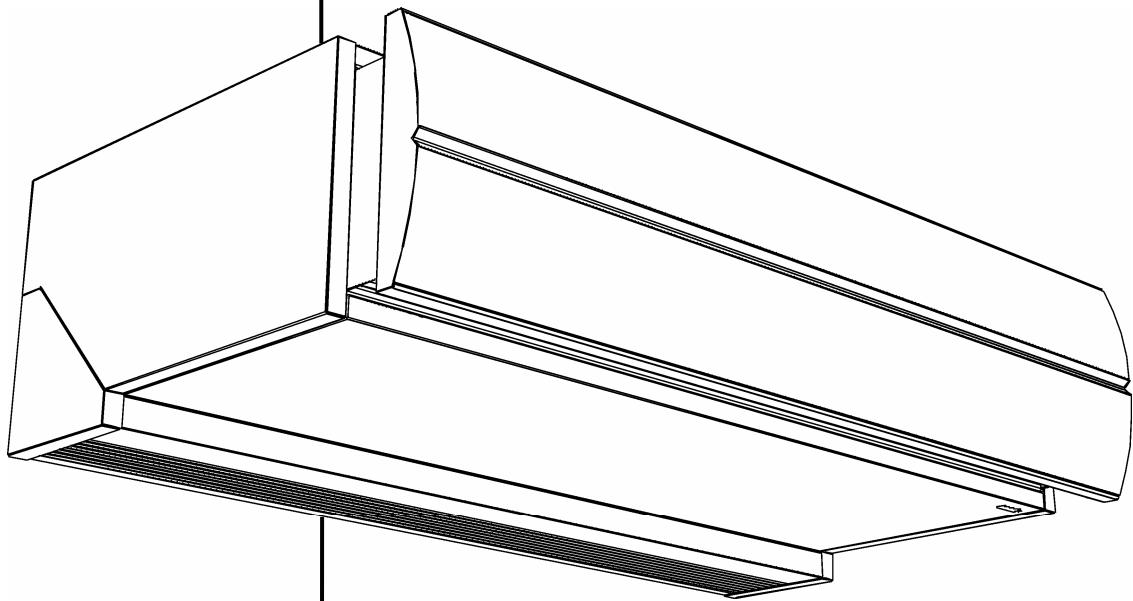




biddle

CLIMATE SOLUTIONS



Manual

Comfort Air Curtain

Model **DF**

Version 1.0

30-01-2009

English

CE

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For more information

If you have any comments or questions about specific topics relating to this product, please do not hesitate to contact Biddle.

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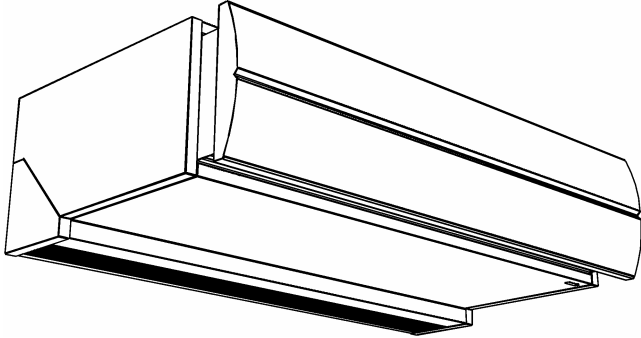
internet: www.biddle.info

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1 Introduction

1.1 About this manual



This manual describes the installation and maintenance of the comfort air curtain, model **DF**.

This manual relates to the unit itself only. A separate manual covers the operation and control of the unit.

1.1.1 Marginal symbols in the manual

For models with ...:

When ...:

What is described applies only to the models and/or situations referred to.

If no specific model or situation is referred to, the description applies universally.



Note:

Draws your attention to an important part of the text.



Caution:

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

So, follow the instructions carefully.



Warning:

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

So, follow the instructions carefully.

1.1.2 Related documentation

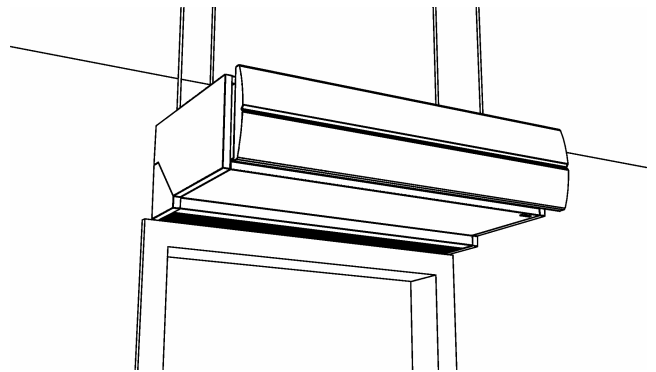
Besides this manual, the following documents come with the unit:

- wiring diagram for installation and service purposes

1.2 About the unit

1.2.1 Applications

The comfort air curtain is designed to separate the climates between two rooms. The unit is installed above the doorway, across its full width.



By installing multiple units side by side, openings of unlimited width can be screened off in steps of 50cm.

1.2.2 Working

The air curtain blows a stream of either heated or unheated air straight down, achieving the following:

- The exchange of air between two rooms due to temperature differences (convection) is stopped.
- **When the air is heated:** the air entering across the floor due to draught is heated.
- **When the air is unheated:** Warm outside air is kept outside to support the air-conditioning in the room.

The air curtain is designed such that there is no need for air filters.

1.2.3 Type designation

The type designations, when combined, constitute the type code for the relevant unit, for instance:

DF SP-100-W-F
DF HP-150-E-F
DF SP-200-W-R



Various combinations can be made.

Explanation of type code of unit

series	DF	air curtain
range	SP	standard
	HP	high
unit size	100, 150, 200	air discharge length (in cm)
heating	W	hot water
	E	electric
	A	without heating (<i>Ambient</i>)
mounting method	F	free-hanging
	R	recessed

1.2.4 Type Plate

The type plate can be found on the top of the unit.

 Biddle bv Markwei 4 NL-9288 HA Koolsterille 	Type	DF SP-100-W-F		
	Code		U	230V ~ 50 Hz
	N°	123456/1-1 09-04	I _{max} L1	1.1 A
			I _{max} L2	-
	M	37 kg	I _{max} L3	-
	Medium	LPHW	P _{motor}	0.23 kW
	p _{max}	800 kPa	P _{heating}	-

Example of a type plate

References on the type plate

Type	full type code of unit
M	weight of unit
P_{max}	For water-heated models: maximum allowable operating pressure
U	supply voltage
I_{max}	maximum amperage
P_{motor}	maximum power absorbed by fans
P_{heating}	For electrically heated models: maximum power absorbed by heating

1.2.5 Components and accessories

For all models:

- electronic control system components, such as a control panel, control cables, etc. (supplied separately, see the documentation of the control system)

For water-heated models:

- valve for water-side control (supplied separately)

For recessed models:

- telescopic discharge grille (included)

1.3 Safety instructions

1.3.1 Operation



Warning:

It is **NOT** allowed to install air filters in the air curtain.

Do **NOT** put any objects in the inlet and outlet.

Do **NOT** block the inlet and outlet.



The upper surface of the unit becomes hot during operation.

1.3.2 Installation, maintenance and service



Warning:

The unit may be opened by qualified technical staff only.



Perform the following actions before opening the unit:

- 1 Switch the unit off using the controller.
- 2 Wait until the fans have stopped.
- 3 Allow the unit to cool down.

The heat exchanger or, as the case may be, the heating elements can get very hot. Moreover, the fans may keep on rotating for a while.

- 4 Disconnect the power supply (pull plug from socket or move isolation switch, if any, to off).
- 5 **For water-heated models:**
Close central heating supply (if possible).



Warning:

The fins of the heat exchanger are sharp.

2 Installation

2.1 Safety instructions



Warning:

Installation works may be performed by qualified technical staff only.

Before opening the unit, follow the safety instructions in section 1.3.

2.2 Delivery check

- On delivery, check the unit and its packaging. Report any transit damage immediately to the driver and supplier.
- Make sure that all parts have been supplied (see section 1.2.5). Report any defects to the supplier immediately.

2.3 General instructions

2.3.1 Order of working

Biddle recommends the following working method for the installation of the comfort air curtain:

- 1 Mount the unit (section 2.4).
- 2 **For water-heated models:**
Connect the unit to the central heating system (section 2.5).
- 3 Connect the unit to the power supply (section 2.6).
- 4 Install the control system and (any optional) connections to external controls (see the manual of the control system).
- 5 Finish the unit (section 2.7).
- 6 Turn on the power supply and check the working of the unit (section 2.8).



Note:

Make sure you perform all operations that are required for the installation of your unit. Check the type plate and refer to section 1.2.4 if you are not sure about the model or type of your unit.

2.3.2 Miscellaneous



Caution:

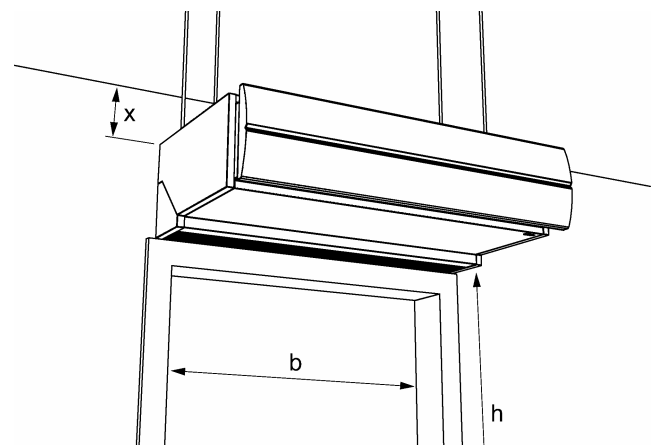
The infiltration of coarse dust, cement, etc. may damage the unit. While such contaminants are in the room:

- do not put the unit into operation;
- cover the inlets and outlets.

2.4 Mounting the unit

2.4.1 Positioning the unit

- Make sure that the structure from which the unit is about to be suspended can bear the weight of the unit. The weight is specified on the type plate (see section 1.2.4).



- Note the following dimensions:
 - The unit must be at least as wide as the doorway (dimension b).
 - Position the unit as near to the doorway as possible.
 - If possible, position the unit on same heights with the door.



Warning:

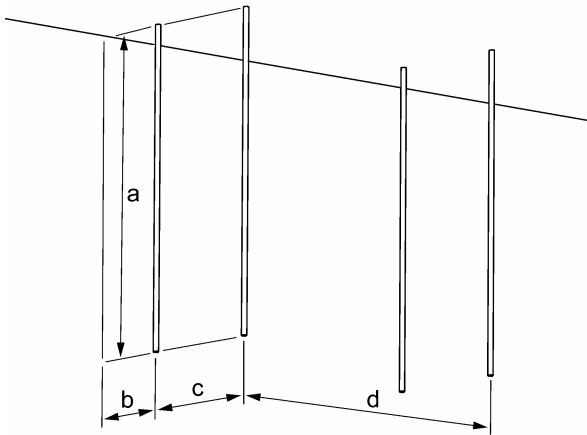
The minimum mounting height (dimension h) is 1.8m.

The top of the unit may get hot. Mount the unit at a minimum of 25mm from the ceiling (dimension x).

When the unit is mounted to the ceiling:

- Ensure that the unit can freely take in air from the top.

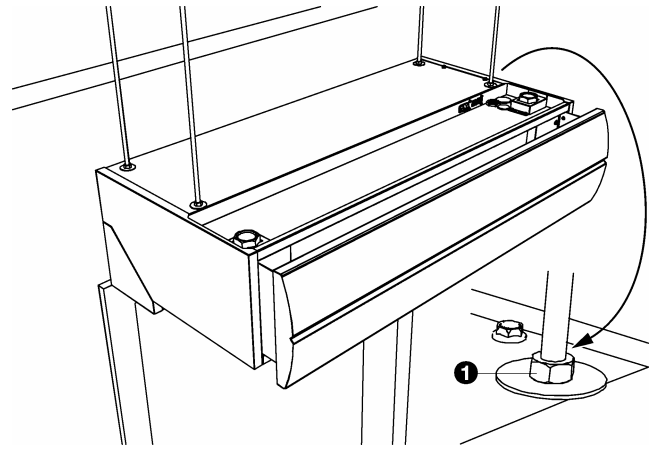
2.4.2 Suspending and securing the unit



- 1 Fix four M8 threaded rods. Make sure that the threaded rods are perpendicular.

Dimensions for suspending the unit

reference	type	dimensions
a	all models	as needed
b	all models	35mm
c	all models	228mm
d	DF 100	896mm
	DF 150	1396mm
	DF 200	1896mm

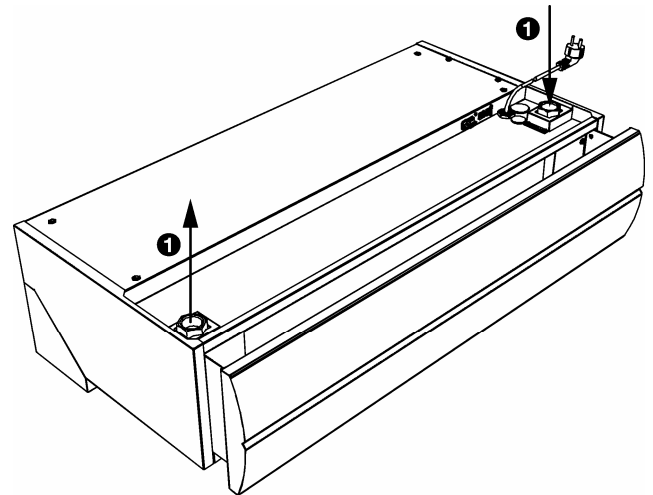


- 2 Apply a lock nut ❶ to each threaded rod.
- 3 Fix the unit to the threaded rods.
- 4 Secure the unit by tightening the lock nuts ❶.

2.5 Connecting the unit to the central heating system

Only for water heated models

2.5.1 Details

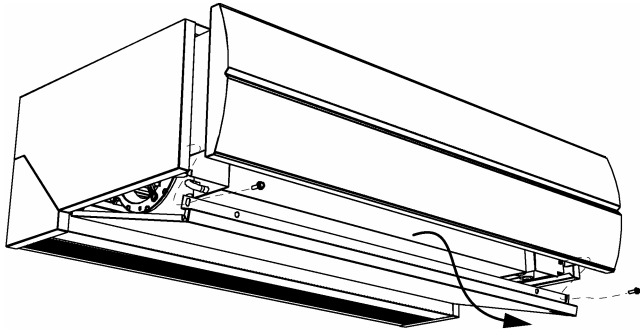


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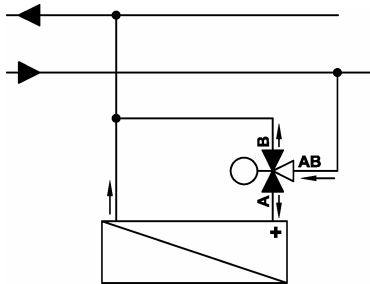
- The supply and return pipes of the central heating system must be connected to the appropriate corresponding connections ❶. The directions are indicated on the unit by arrows.
- When connecting the pipes, hold the connections ❶ in place using pliers.

- Biddle recommends the inclusion of a valve and a relief valve in both pipes, near the unit.
- The maximum permissible operating pressure in the hot water circuit is specified on the type plate.

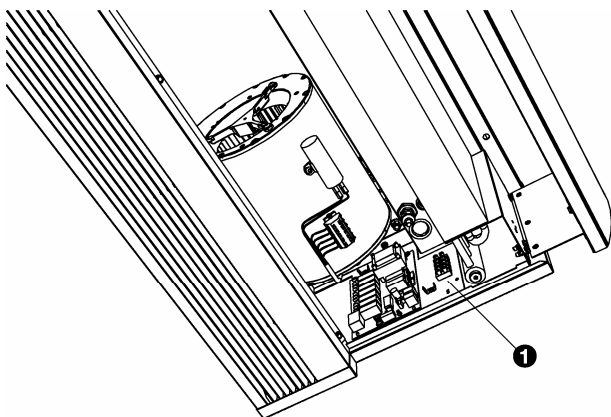
2.5.2 Connecting the water-side control



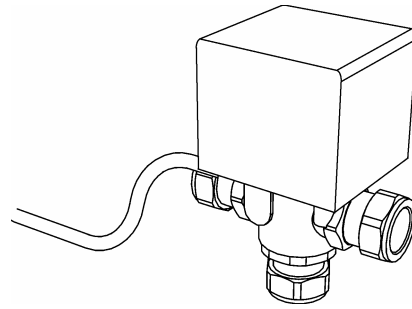
1 Open the unit (see section 4.2.3).



2 Connect the unit and valve to the central heating system according to the diagram above.



- 3 Connect the valve to the terminal block **1** according to the wiring diagram.
- 4 Close the unit.



- 5 Manually open the valve using the handle (position 'MAN').
- 6 Fill and bleed the system.
- 7 Check the connections for leaks.
- 8 Place the handle back to its starting position (position 'AUTO').

2.6 Connecting the unit to the power supply

2.6.1 Details

For water-heated models and models without heating:



Warning:

The unit must be earthed (grounded).

For electrically heated models:

- Connect the unit to the power supply with a 5-core cable (not supplied). The maximum load data are specified on the type plate (see section 1.2.4).
- An isolation switch (not supplied) must be fitted between the unit and the power supply. This switch must:
 - be all-pole;
 - have a minimum contact clearance of 3mm;
 - be positioned within 4m from the right side of the unit.



Warning:

The unit may NOT be switched on and off by the power supply - use the control panel for that purpose.

The unit must be earthed (grounded).

Connect the unit in accordance with the applicable local requirements.

2.6.2 Performing the connection

For water-heated models and models without heating:

- 1 Ensure that an earthed (grounded) power outlet is available at a maximum of 1.5m from the right-hand side of the unit.



Caution:

Do NOT yet switch the mains supply on.

For electrically heated models:

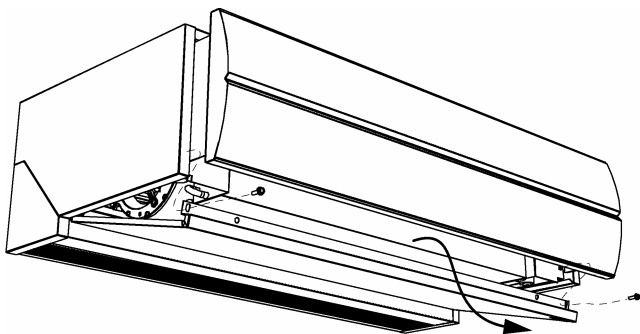


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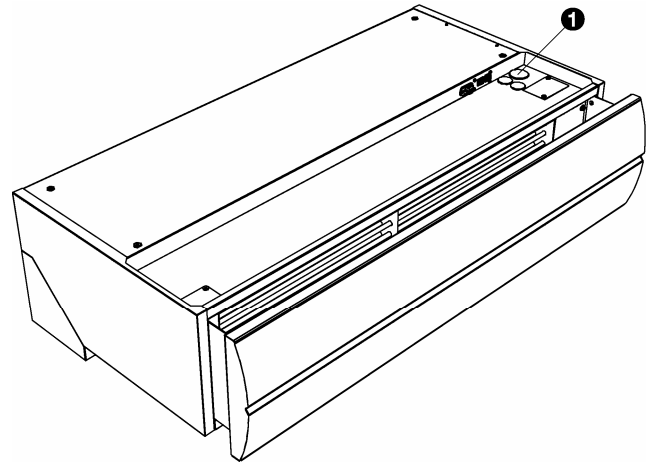
Do NOT perform the connection work unless you are qualified to work with three-phase current.

Make sure that the power supply you are working on is switched off.

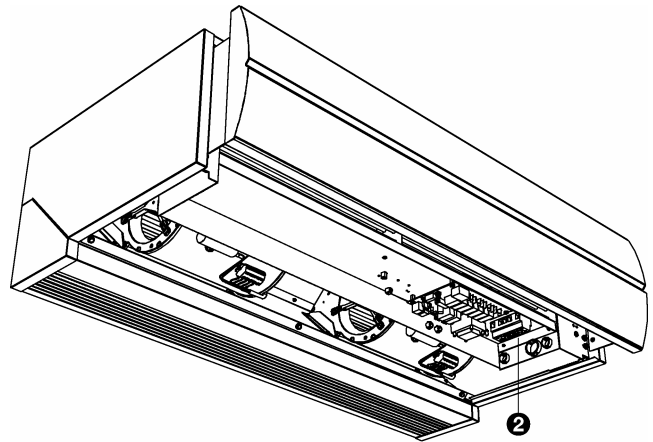
- 1 Fit the isolation switch and connect it to the power supply.



- 2 Open the unit (see section 4.2.3).



- 3 Lead the mains supply cable through the cable gland ①.



- 4 Connect the cable to the terminal ② in the unit according to the wiring diagram.
- 5 Put back and screw down the inspection panel and grille.
- 6 Connect the mains supply cable to the isolation switch.



Caution:

Do NOT yet switch the mains supply on.

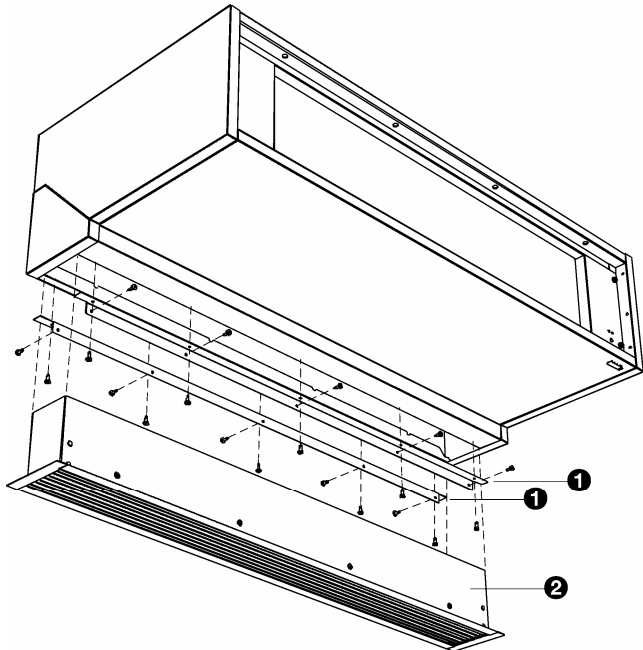
2.7 Finishing the unit

Only for recessed models

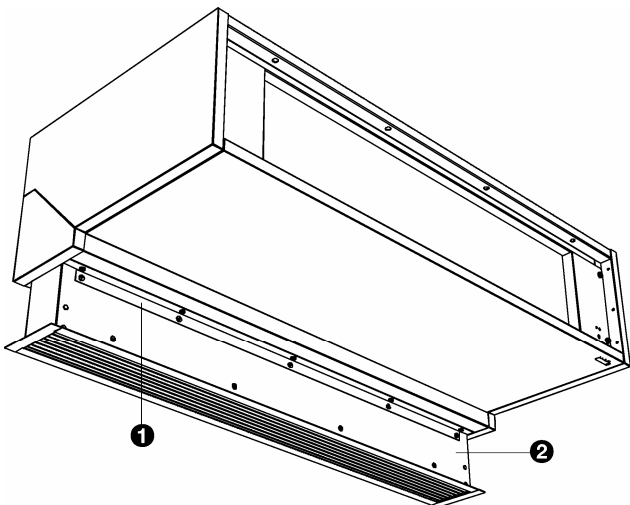
- 1 Make a hole in the ceiling for the discharge.

Dimensions of hole for discharge section

reference	type	dimensions
width	DF -R	90mm
length	DF 100-R	970mm
	DF 150-R	1470mm
	DF 200-R	1970mm



- 2 Using the supplied screws, fix the two angle profiles ❶ to the unit, along the edges of the discharge opening.
- 3 Slide the telescopic discharge grille ❷ into the unit's discharge opening until you reach the desired height.



- 4 Fix the discharge duct to the angle profiles ❶ using the supplied screws.



Caution:

For the unit to work properly, the cove or ceiling must have enough openings through which the unit can take air in.

2.8 Switching on and checking operation

For all models:

- 1 Check the following connections:
 - power supply;
 - control cable(s) between controller and unit(s);
 - **When applied:** external control components

Only for water-heated models:

- 2 Check if the heat exchanger is connected correctly.
- 3 Make sure the central heating system is turned on.

For all models:

- 4 Switch the mains power on and/or plug in all connected units.
- 5 Switch the air curtain on using the control panel.

For water-heated and electrically heated models:

- 6 Make sure heating is enabled in the control panel.
- 7 Feel whether the discharged air stream is getting warm. This may take some time.

3 Maintenance

3.1 Cleaning the unit

You may clean the exterior of the unit with a damp cloth and a domestic cleaner. Do not use any solvents.



Caution:

Make sure no water runs into the unit.

3.2 Scheduled maintenance

Biddle recommends having the following inspection and maintenance works performed by an installer or other technical expert each year.

- Check if the heat exchanger or the electric heating elements are clean. Settled dust may cause unpleasant smells.
- Gently remove dust with a vacuum cleaner.
- Check the operation of the fans.

4 Service

4.1 Safety instructions



Warning:

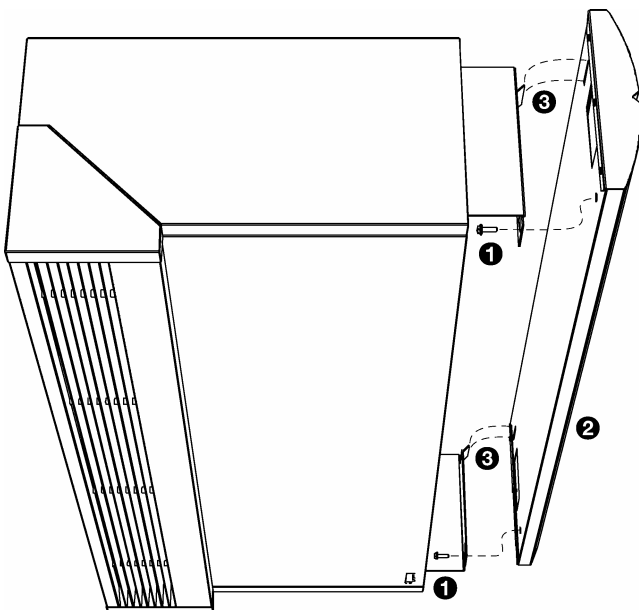
Service work on the unit may be performed by qualified technical staff only.

Before opening the unit, follow the safety instructions in section 1.3.

4.2 Access to the interior of the unit

4.2.1 Removing the front panel

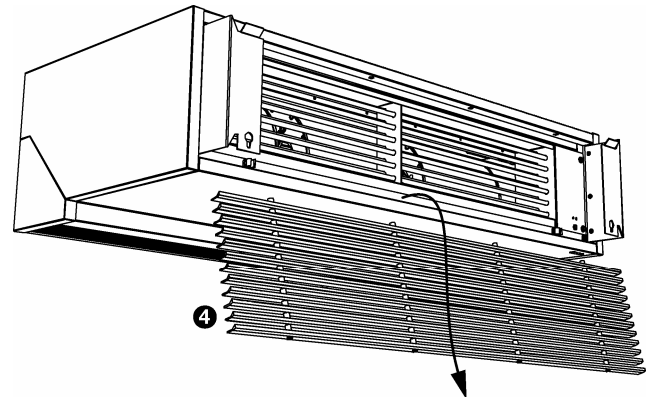
Only for free-hanging models



- 1 Remove the securing bolts ❶ from the front panel ❷.
- 2 Take the front panel ❷ from the suspension hooks ❸.

4.2.2 Removing the inlet grille

For electrically heated models and models without heating:



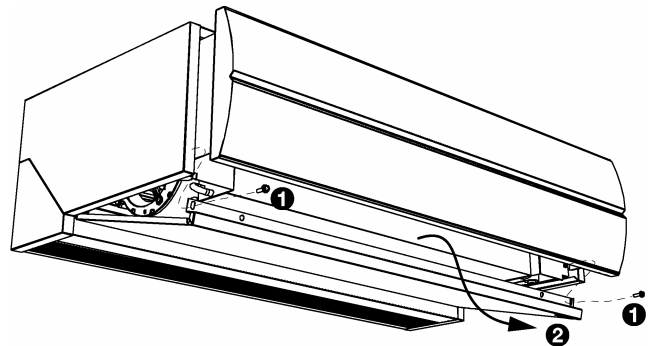
- 1 Remove the grille ❹.

4.2.3 Removing the inspection panel

For electrically heated models and models without heating:

- 1 Remove the inlet grille (see section 4.2.2).

For all models:



- 2 Remove the screws ❶.
- 3 Pull the panel ❷ a little forward and take it away.

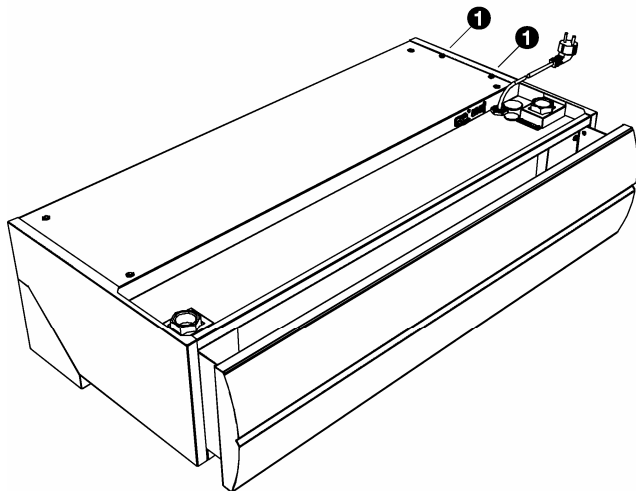


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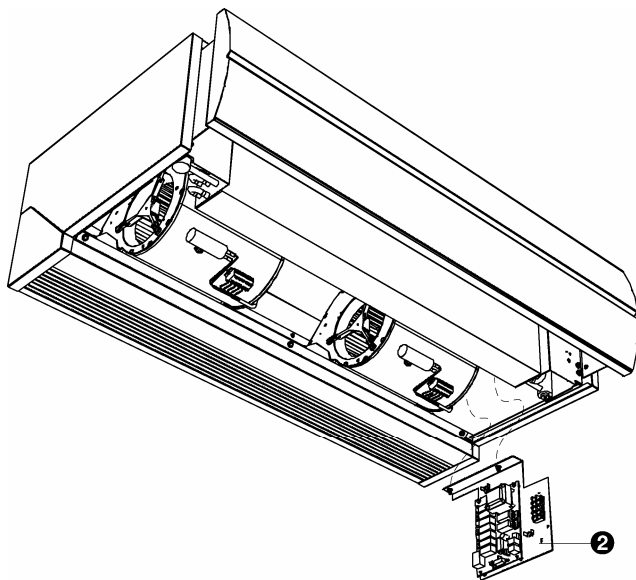
The whole panel will come loose when you pull it forward: take care it does not fall down.

4.2.4 Removing the PCB

For water-heated models and models without heating:

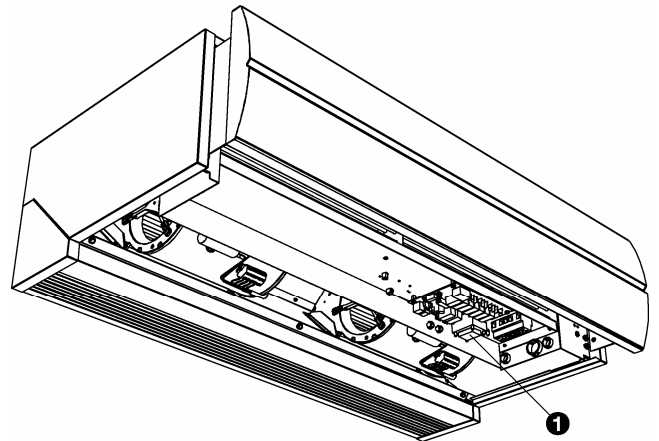


- 1 Remove the screws ❶ at the upper side of the unit.



- 2 Remove the PCB ❷.
- 3 Disconnect all unit-connected connectors and earth (ground) connections from the PCB.

For electrically heated models:



- 1 Disconnect all unit-connected connectors and earth connections from the PCB ❶.
- 2 Remove the PCB.

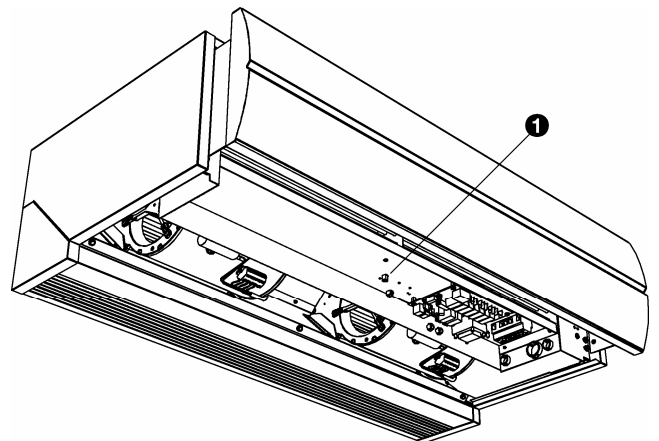
4.3 Fuses

See the manual of the control system.

4.4 Resetting the high-limit thermostat

Only for electrically heated models:

The unit comes with a high-limit thermostat to protect against overheating.



- 1 Open the unit.
- 2 Push back the pin of the high-limit thermostat ❶.
- 3 Check the unit's connections.
- 4 Close the unit.
- 5 Check the operation of the fans.



Declaration of Conformity

Manufacturer: Biddle BV
Address: Markowei 4
9288 HA Kootstertille
THE NETHERLANDS

We declare that the following product.

Product description: Comfort Air curtain
Brand: Biddle
Model: DF
Type: DF SP-100-A/E/W-F/R ; DF SP-150-A/E/W-F/R ;
DF SP-200-A/E/W-F/R
DF HP-100-A/E/W-F/R ; DF HP-150-A/E/W-F/R ;
DF HP-200-A/E/W-F/R

In accordance with the following Directives:

73/23/EEC

the Low Voltage Directive

89/336/EEC

the Electromagnetic Compatibility Directive

has been designed and manufactured to the following specifications:

- EN 61000-6-2
- EN 50081-2

- EN 60335-2-30

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all essential requirements of the directives.

Signed by

: P. Stoelwinder, Managing Director, 30-01-2009